

HIGHER EDUCATION POLITICS & ECONOMICS

2025

VOLUME 11 ISSUE 1

Editors-in-Chief

Kim Bullington, Ph.D.

William Nuckols, Ph.D.

<https://ojed.org.index.php/hepe>



TABLE OF CONTENTS



02

**RANDOM TRACK: THE END OF THE
ACADEMIC CAREER AS WE KNOW IT?**

Asli Vatansever

23

**THE EQUITY EFFECTS OF THE STATE
FUNDING OF HIGHER EDUCATION AND
LOTTERY-FUNDED SCHOLARSHIPS**

Mary Borg

49

**THE RELATIONSHIP BETWEEN PUBLIC
FUNDING AND STUDENT ACCESS: THE
CASE OF TWO PUBLIC UNIVERSITIES IN
AFRICA**

Fredua Kwasi-Agyeman & Casimir Adjoe

71

**DOES COLLEGE GUARANTEE ECONOMIC
MOBILITY? INCORPORATING LOST IN-
KIND BENEFITS INTO THE CALCULATION**

Amy White

74

**TRANSGENDER ATHLETES AND TITLE IX
COMPLIANCE**

Ryan Creps



Random-Track: The End of Academic Career as We Know It?

Aslı Vatansever
Bard College Berlin

ABSTRACT

The decrease in public funding and the subsequent increase in temporary employment in academia are often viewed as crisis symptoms. While the crisis rhetoric may be premature, the turn towards hyper-competitive qualification systems that generate unfixed career advancement models may indeed mark a break from the tenure-oriented career structure. Drawing on a pilot online survey conducted with over 300 academics within the European Research Area (ERA), this study reveals a potentially radical transformation of the academic career paradigm from a tenure-oriented path towards an increasingly episodic, nomadic, and unsystematic drift, defined here as 'random-track'.

Keywords: academic career, academic labor markets, qualification systems, career structure, tenure-track, career sequence paradigm

We have entered a new phase in the history of university as institution, usually associated in the extant literature with increased managerialism, digitalization of teaching, commercialization of higher education, legitimation struggles within humanities, and casualization of academic workforce (Brienza, 2016; Childress, 2019; Ivancheva, 2015; Kalfa et al., 2018). Particularly, the rapid percentile growth of temporarily employed researchers is considered a major policy challenge (American Association of University Professors, 2014; American Federation of Teachers, 2020; Bundesministerium für Bildung und Forschung [BMBF], 2021; European Commission [EC], 2017; Organization for Economic Co-operation and Development [OECD], 2021; University and College Union, 2021). These contemporary shifts are often interpreted as indicators of a 'crisis of academia' or the collapse of university (Carta et al., 2020; Donskis et al., 2019). While the growing

volatility of academic careers may not yet mark the end of university as a whole, it may indicate the end of the traditional, tenure-oriented academic career structure as we know it. This study supports this argument with data from a pilot online survey conducted with 321 researchers from different disciplines and at various postdoctoral career stages within the European Research Area (ERA). Looking beyond the immediate implications of temporary employment and identifying the occupational trend it points toward, this study embeds labor casualization into the framework of long-term sectoral development.

Scholarship on academic careers off the tenure-track addresses a variety of issues. Topics in this line of literature include career breaks among temporary staff (Jones, 2023), lack of permanent prospects and job satisfaction (van der Weijden et al., 2015), and precarity both in terms of employment (Courtois & O’Keefe, 2015) and as the predominant work culture (Burton & Bowman, 2022).

Despite these analytical advances, extant literature by and large continues to view episodic employment as deviation rather than an incipient career structure (Childress, 2019; Hirsland et al., 2019; Ivancheva, 2020). This can be attributed to three factors: first, tenure’s centrality in the cultural imagery of academia as the pinnacle of scientific merit seems to surpass its growing factual marginality in contemporary academic careers (Cerami, 2022). Consequently, what the ubiquity of nonstandard career patterns signifies beyond precarization remains underexamined. Second, academic career research is largely dominated by life-cycle approaches, focusing on individual coping mechanisms and career management strategies developed in response to the accelerated academic labor process (Whitchurch et al., 2021; Ylijoki & Henriksson, 2017). While individual narratives offer insight into the diversity of professional paths, the singularizing focus fails to capture the shift in the overall career-structural framework that those particular stories are embedded in. Last but not least, there is a lack of distinction between instant employment status and overall career trajectory (O’Connor et al., 2023; Ortlieb & Weiss, 2018). The overemphasis on precarity as a mere career stage or policy challenge fails to look beyond the time-scale of employment transitions and see their pervasiveness for what it is: a sign of a more substantial shift in the overall mode of academic career progression.

To overcome these gaps, this study shifts the focus away from the subjective, contractual, or labor processual levels towards the sectoral level. It explores how the academic industry itself proliferates a new career sequence model in response to the double bind of labor oversupply and underfunding. On the theoretical level, this study expands on Christine Musselin’s (2005, 2018) typology of qualification models and Alexandre Afonso’s (2014, 2016) classification of academic labor markets in two ways. The study complements them with the category of *transitioning systems* and *transitioning labor markets* respectively. It also integrates them into the overarching framework of ‘career structure’ and ‘career paradigm’.

Musselin (2005) associated transitioning academic labor markets with increased regulation. This study further defines the aspect of transition as a radical change at the level of advancement systems and labor markets. In terms of advancement systems, this study identifies a turn from promotion-based towards competitive and from competitive towards randomized advancement. With regard to the nature of labor markets, this study argues that there is an ongoing shift from secure towards

insecure and from insecure towards what Frank and Cook (2013) describe as *winner-take-all* markets. *Academic career structure* refers to the commonly recognized career sequence paradigm that prevails in slightly different forms across diverse academic systems. Qualification systems represent local interpretations of the predominant career sequence paradigm; labor markets determine its viability. Therefore, the re-regulation of qualification systems and the (dis)equilibrium of academic labor markets present an accurate starting point for analyzing the overall transformation of the predominant career structure.

Empirically, the current study draws on the results of an ERA-wide pilot survey conducted from the end of February to the end of June 2023. Data include responses from both tenured and non-tenured segments of the postdoctoral workforce from various disciplines and 20 countries. The non-linear and incidental nature of this emergent career structure is described here as *random-track* as a subcategory of the 'career paradigm' framework. This conceptual design aims at contributing to two different lines of literature: By capturing the ongoing career paradigm shift in academia, it intends to shed light on the current direction of the profession and contribute to the contemporary discourse on academic work. By embedding the notion of career into the larger framework of sector-specific mode of progression, it offers a holistic toolkit for studying the diversification of occupational trajectories. At a further level, the concept of *random-track* can also illuminate the impact of discontinuous employment on sectors with formerly unilinear progression schemes.

The study consists of five main sections. The first two sections introduce the analytical framework and elucidate the methods of data gathering and analysis. Section 3 presents the survey findings and evaluates them on the basis of the random-track framework. Sections 4 and 5 revisit the main postulates of this study and discuss both the theoretical and practical implications of the findings.

ANALYTICAL FRAMEWORK

In this study, *academic career structure* refers to the commonly recognized career sequence paradigm prevalent across diverse academic systems. Traditionally, this pattern has been characterized by unilinear upward career mobility towards permanent professorship (or equivalent) as the highest career level. Accepting career as both a cognitive and social construct *à la* Goffman (1961), in all academic systems on which data are available, "the ideology of tenure" (Cerami, 2022, p. 53) has so far shaped both the subjective self-image of the academic and the objective career prospects that are deemed desirable and theoretically achievable for anyone who fulfills certain measurable qualification criteria.

Academic career system, on the other hand, describes the contextual variations in the *modus operandi* of the abovementioned career sequence paradigm. The term refers to "features such as entry requirements, the ranking system, rules and criteria for appointment and promotion, the type and work content of different positions" (Frølich et al., 2018, p. 17). An academic career system is ultimately shaped by the institutional and legal frameworks of academic qualification that are designed to select the most eligible candidates for permanent employment (i.e., the beneficiaries of the predominant career sequence paradigm).

The workability of the overall career sequence paradigm depends on the efficiency of a given academic qualification system to provide a sufficient number of adequate career prospects for those it recruits. Occupational prospects in line with the predominant career sequence paradigm are defined in this study as *paradigmatic advancement chances*. Their availability is determined by the labor market dynamics of the sector. Many academic systems have responded to the double bind of labor oversupply and public underfunding with increasingly exclusionary adaptations of the traditional tenure-oriented career paradigm over the last decades. Especially within the ERA, academic qualification systems have been re-designed to select an ever-shrinking group of beneficiaries (“insiders”), while expanding the reserve army of equally qualified but statistically disposable substitutes (“outsiders”; Afonso, 2014). This has been achieved through higher education reforms that prolong and complexify the non-tenured period at the postdoctoral stage and, thus, systematically decrease the availability of paradigmatic advancement chances.

This simultaneous shift in the academic labor markets and advancement schemes is explained here with the category of ‘transitioning’ markets and systems. Following Afonso’s (2016) classification, academic labor markets are categorized according to a given market’s exclusivity/inclusivity towards candidates with foreign degrees or backgrounds (closed/open) and its capacity to provide permanent prospects for entrants (secure/insecure). Accordingly, ‘transitioning labor markets’ are defined in this study in two forms: first, it involves academic labor markets hitherto known as secure that are now transitioning towards more insecurity (i.e., towards a higher discrepancy between the labor supply and the provision of permanent jobs). Second, it also refers to insecure labor markets that are currently transitioning towards what Frank and Cook (2013) dubbed the *winner-take-all markets*. In the academic sector, a winner-take-all market basically boils down to a near total elimination of permanent positions and an extensive randomization of academic recruitment. This is, for example, currently the case in the German academic labor market, where 92% of the academic workforce is employed on fixed-term contracts, while only 5% of Ph.D.-holders have a prospect of tenure (BMBF, 2021; Deutscher Gewerkschaftsbund, 2020).

On the other hand, the category of *transitioning advancement systems*, is developed in view of Musselin’s (2005) typology, consisting of “promotion-based systems” that grant tenure based on seniority and “competitive systems” featuring multiple trials with no guarantee of permanent employment (p. 136). Accordingly, *transitioning academic systems* refer to both promotional systems on the way of becoming competitive, and competitive systems evolving towards deregulated academic environments with no standard advancement scheme. In the former case, that is, the promotion system turning competitive, evaluation mechanisms gradually cease to serve the purpose of academic qualification. Instead, the aim is to reduce the number of publicly funded *insiders* by complexifying the career progression procedure. Legislative frameworks like the Bologna Process and corresponding policies in national contexts, such as the Gelmini Reform in Italy (Fadda et al., 2022) or the *Fundamental Law of Universities Act* that introduced more competitive quality assurance mechanisms in Spain (Sanz-Menéndez & Cruz-Castro, 2019), serve this specific purpose.

In the latter case, when competitive academic systems turn into disorganized landscapes of hit-or-miss careers, the qualification scheme starts to pursue a massive elimination of all who cannot subsidize their own positions through successive external funding. While a competitive system aims to coerce the greatest possible portion of the labor force to self-fund, disarranged advancement systems aim to ultimately punish those who fail to do so. This is, for example, what the highly contested Fixed-Term Academic Employment Law in Germany, that recently reduced the temporary employment phase at the postdoc level from 6 down to 4 years without providing concrete permanent options, intends to achieve (BMBF, 2024).

Transitioning from competitive towards anarchic academic systems involves an extensive randomization of the defining parameters and stages of academic career. This study defines the new career structure that emerges from this paradigm shift as *random-track*. The term implies a discontinuous, nomadic, and circumstantial career path, which, rather than progressing, seems to move around aperiodic cycles of employment and unemployment. Without apparent career advancement or goal attainment translated in promotion and rank increase, *random-track* stands in stark contrast with traditional tenure-track that was characterized by a “limited number of academic ‘rites of passage’” (Vinkenburg et al., 2020, p. 2).

A variety of intersectional factors, including socioeconomic background, gender, ethnicity, or political stance might play a role in how randomization proceeds in individual trajectories. Yet, the fact that the predominant career structure is becoming random in its overall course persists. The general tendency of randomization is identified in this study along a set of objective and subjective criteria. Objective criteria include mobility, employment status security, and career stability. Subjective criteria involve experiences and personal perceptions about whether one’s professional status and activities provide autonomy, thematic/disciplinary coherence, career prospects, and professional satisfaction.

Random-track trajectories typically feature increased – and often involuntary – institutional and geographic mobility. The latter sometimes implies mobility between different academic qualification systems with partly clashing advancement criteria, posing additional disadvantages in terms of career progression (Courtois & O’Keefe, 2024). As to employment status and career stability, the candidate’s track-record is marked by high liminality, resulting from a series of short- or fixed-term postdoc positions with no scheduled tenure and frequent and/or relatively long involuntary breaks between employment phases. Even if the individual obtains a permanent position at one point, it is usually not a direct or planned result of any of the multiple past positions. Random-track careers chronically circle around disconnected postdoc positions ideally designed for early-career qualification, with little to no thematic coherence and only limited autonomy over work content. On a subjective level, the unpredictability of the overall trajectory often obscures career goals and causes a distance between career expectations and achievements. Figure 1 summarizes the analytical framework deployed in this study to explain the shift in the academic career paradigm.

Figure 1: Shift in the Academic Career Paradigm

CAREER PARADIGM SHIFT						
Qualification systems			Labor markets			
	Promotional	Competitive	Randomized	Secure	Insecure	Winner-takes-all
	Transition →		Transition →			
Advancement criteria	Seniority Peer review	Metrics Third-party funding acquisition	No upward career mobility Circular trajectory with episodic employment	Supply-demand balance Near-equilibrium	Upward sloping labor supply Unchanging number of permanent vacancies	Excess labor supply Systematic elimination/steady decline of permanent positions
Decision-making for hiring & promotions	Centralized	Decentral	Multivariate and haphazard	Permanent vs. temporary employment ratio Permanent staff outnumbers temporary staff	Temporary staff outnumbers permanent faculty	Permanent positions nearly non-existent or below 10%
Type of competition	Less emphasis on external competition	External competition based on third-party-funding-acquisition for permanent positions	Survival without surplus (i.e., competition for short-term project-based funding with no long-term prospect)	Career prospects for PhD-holders Tenure-track appointments available for almost all eligible candidates	Decreasing prospects of tenure for an increasing number of PhD-holders	Near zero or below 10% of PhD-holders have a prospect of tenure
Case examples	France	UK Italy	Germany	Effort-reward curves Minimum/sufficient effort - fixed rewards	Increased effort - diminishing returns	Max. effort - no concrete returns in terms of career progression

Note: Author’s own elaboration, informed by categorizations of Musselin (2005), Afonso (2016), and Frank and Cook (2013).

METHODOLOGY

Sample Selection and Data Collection

This study is based on a pilot online survey exploring the general characteristics of contemporary academic career trajectories. The pilot survey aimed at providing an initial understanding of the assumed sectoral transformation and probe the salience of the random-track framework. A formal application for ethical clearance was submitted to Riga Stradins University on 22 February 2023, but the requirement for approval was waived by the respective ethics committee. Between 27 February and 30 June 2023, the online questionnaire was disseminated through personal networks and cold emails to a total of 1360 individual PhD-holders working in research and higher education within the ERA. Potential participants were recruited by searching through institutional personnel databases. In line with the study’s aim to identify the general shift in career trajectories across disciplines, systems and career stages, the sample selection followed a non-probabilistic purposive sampling strategy that allowed for higher sample diversity. In addition to university and research institute personnel databases, the survey was sent out to two broad researchers’ networks in

Germany, namely the Network for Decent Work in Academia (*NGAWiss*) and the network of Brazilian researchers working in Germany (*Rede Apoena*). Purposive sampling criteria were limited to having obtained a doctorate and chosen academia as main occupation. The research design and sample selection aimed at discerning the common tendency underneath the variations – not the singular factors that lead to variations of the common tendency. Accordingly, intersectional factors such as age, ethnicity, and gender that might lead to different varieties of randomization were not deemed decisive at this stage.

The sample comprised Ph.D.-holders at different career stages. Early-careers with up to 7 years of post-Ph.D. experience represent the majority (47,81%), followed by mid-careers with 7-15 years of post-Ph.D. work experience (38,44%) and senior academics with over 15 years of experience in research and teaching (12,5%). Based on the disciplinary classifications of OECD's Frascati Manual (OECD, 2015), 236 respondents came from social sciences and humanities, while 84 were from natural sciences, engineering and technology, medical and health sciences, and agricultural and veterinary sciences. With 321 valid responses out of 379, the completion rate was 85%. Compared to the number of researchers currently active within the European Education Area (1,17M), the sample size had a confidence level between 90-95% (EC, n.d.).

Responses were collected from Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Latvia, Netherlands, Norway, Poland, Portugal, Romania, Sweden, Switzerland, Turkey, and the UK, with the majority coming from Germany (93), the UK (46), and Italy (39). Nine respondents' country of work differed from their country of residence. In some cases, the commute was exceptionally taxing, as the researcher resided in Belgium but worked in Ukraine, was employed in Slovenia but lived in Germany, or was working in the Czech Republic while residing in Portugal.

The rationale behind the geographic focus was threefold. First, ERA itself represents an effort to create a coherent framework of qualification across varying academic systems. Second, researcher mobility, which is an integral element of randomized career tracks, has become an *imperative* within the Bologna process (Courtois & O'Keefe 2024). Lastly, despite ongoing integration efforts, member countries differ in their academic labor market structures and employment regimes (Bojica et al., 2023). Within this contradictory context, mobility often involves a constant move between different academic career advancement regimes and labor markets with partly clashing advancement criteria, adding to the randomization and bifurcation of career paths. Hence, ERA provides an emblematic case for labor market and academic system transitions.

Participants received an informative participant consent form. The questionnaire consisted of three parts, moving from general questions about (1) current employment status and (2) work history, to more personal ones about (3) career goals and occupational satisfaction. Prompts were developed around six code clusters corresponding to the main determinants of random-track (mobility, employment in/security, career in/stability, seniority-autonomy discrepancy, thematic in/coherence, career dis/satisfaction). Questions pertained to the respondents' academic field, career stage, current position, current funding/employment type,

number of temporary positions after the Ph.D., number of different academic institutions the respondent worked at so far, duration of shortest term position, frequency of non-academic jobs, total duration of unemployment, motives to persevere in academia, level of perceived autonomy in teaching and research, thematic overlap between current position and actual research interests, estimated likelihood of obtaining tenure, the centrality of obtaining tenure as career goal, and the perceived degree of correspondence between career plans and current professional status.

Apart from the initial part confirming participant consent and documenting scientific discipline and country of work/residence, the questionnaire comprised 15 structured questions with partly non-exhaustive response sets and specification options to allow for uninformed, neutral or more detailed replies, when necessary (Singh, 2007). The differing levels of complexity in each part of the survey, the information-rich character of the case, and the preliminary nature of the study necessitated a qualitative non-scaled survey design. This allowed a larger number of respondents to provide detailed considerations on their occupational trajectories.

Data Analysis

As randomization of careers denotes a gradual process rather than an absolute condition, the analysis followed a non-parametric evidential interpretation of ordinal data. The research design was based on the idea of a fully qualitative survey “which not only collect[s] qualitative data, but prioritize[s] qualitative research *values* alongside qualitative techniques” and “seek[s] to harness the potential qualitative data offer for nuanced, in-depth and sometimes new understandings of social issues” (Braun et al., 2020, p. 2 – italics in the original). Accordingly, the survey results were analyzed in three steps. First, they were analyzed thematically along the six initial code clusters explicated above. At the second stage, the resulting data were cross-tabulated with (a) one independent variable (*career stage*), (b) one composite variable (*career stability* as a composition of mobility, current employment status, current funding type, and employment history), and (c) one dependent variable (*perceptions of career prospects and goal-attainment*). These steps provided a specified focus on the main themes. But reducing the data into a summary of singular questions analyzed along specific themes can run the risk of yielding a particularized and de-contextualized understanding of the phenomenon at hand. Therefore, at the last stage, the survey results were analyzed as “one *cohesive* dataset” (Braun et al., 2020, p. 10, emphasis in original). This involved analyzing respondents’ replies to certain questions in relation to their replies to other questions and against the backdrop of their entire trajectory as conveyed in the survey. Participant quotes used in this study have not been edited except for typos and punctuation.

FINDINGS

In the last instance, random-track career is characterized by an *unpathed trajectory* (marked by serial episodic employment, precarious mobility, and prolonged liminality) that results in an overall *goal disorientation* and is sustained by a *phantom*

idea of career as a sequence of intentional steps eventually leading to professional fulfilment and worthy of emotional/financial sacrifices. The first one pertains to objective career conditions; the last two refer to the subjective mechanisms that result from, or serve to cope with, those conditions. The cross-tabulated and combined findings will be summarized along these two dimensions in the following.

Career Without a Path: Episodic Employment and Nomadic Affiliation

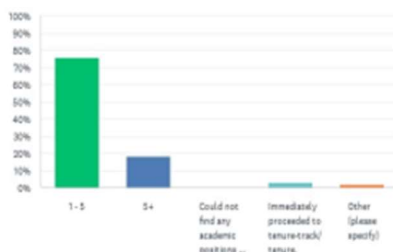
The respondents' current employment status shows that approximately 86% of early-career, 60% of mid-career and 45% of senior academics have temporary positions. However, what defines the randomness of a career is not whether one has a permanent position *per se*, but rather the unsystematic nature of the entire road that leads – or, in most cases, fails to lead – to that permanent position. An analysis of the data against the backdrop of the composite variable of *career stability* demonstrates that the career structure trend thematized in this study goes beyond supposedly temporary early- or mid-career job insecurity. As a matter of fact, even tenured or senior respondents' track records have been marked by unpredictability and volatility for most of their professional lives. Of those who currently have a permanent academic job, 67% had up to five different temporary positions, while ca. 20% had more than five different temporary positions before they landed their current one. Almost 62% of currently tenured respondents went through two to five different institutions until they ended up in their current institution. Also, over 52% of them experienced unemployment phases varying between less than six months and longer than a year during their postdoc phase.

Frequent positional and institutional mobility, accompanied by employment instability, appears to also be the norm at later career stages. For example, 65% of senior respondents have worked at two to five different institutions. So far, 45% have had up to five different temporary positions, while 40% have held more than five different temporary positions. More importantly, those jobs appear to be of extremely short duration, as only 7.5% of senior academics had contracts for longer than three years throughout their careers. For senior academics, 52,5% also experienced unemployment phases of varying durations.

With regard to positional mobility, over 75% of all respondents worked at least in up to five different fixed-term or temporary positions. Over 56% of those with a track record of one to five different fixed-term positions also experienced unemployment for longer than a year in total during their postdoc phase. Of the 58 respondents who worked at more than five different fixed-term positions throughout their careers, approximately 55% stated that their shortest postdoc employment was as brief as three to six months, while 36% also experienced unemployment for longer than a year in total. Figure 2 depicts positional mobility among respondents.

Figure 2: Positional Mobility Among Researchers Across ERA

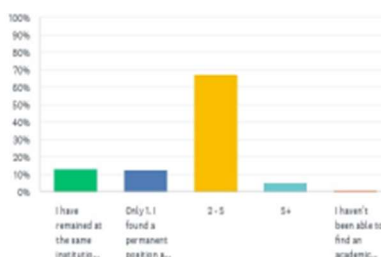
Q10. How many different fixed-term or temporary academic positions did you have after the completion of PhD? (This includes project-, course-, or task-based academic work at a university or research institute. If your postdoctoral work experience only consists of administrative jobs at academic institutions, please choose “Other” and specify.



As to institutional mobility, only around 13% of the respondents remained at the same institution they received their Ph.D. from, while only 12% managed to find a permanent position right after Ph.D. Almost 68% of the respondents worked at two to five different institutions throughout their postdoctoral careers. Broken down into different staff categories, the share of that segment is particularly high among full-time non-tenured instructors (100%), currently unemployed researchers (approximately 89%), adjunct lecturers (75%), and those in administrative positions (50%). Figure 3 shows the general levels of institutional mobility.

Figure 3: Institutional Mobility Among Researchers Across ERA

Q11. In how many different academic institutions have you worked since the completion of your PhD?



Another distinct feature of random-track career is the extreme transience of employment phases. The shortest term academic positions the respondents had until now vary between 12-36 months (approximately 29%), 3-6 months (26%), or 6-12 months (24%). Those whose shortest employment phase was longer than three years (approximately 8%) as well as those who never had to take up temporary employment after the Ph.D. (approximately 3.5%) constitute a remarkably negligible minority.

Last but not least, a random-track career is often marked by discontinuity and involuntary career disruptions. Around 60% of all respondents experienced

unemployment of some duration throughout their careers. Over 62% of early-career, over 50% of mid-career, and 52.5% of senior academics went through unemployment phases of various lengths. Even among professorial staff, almost 49% underwent unemployment periods varying between less than six months and longer than a year before obtaining tenure. Finally, approximately 45% of currently unemployed respondents were unemployed for longer than one year in total.

Career Without Aim: Goal Confusion, Purposeless Perseverance, Phantom Careers

At a subjective level, random-track careers are accompanied by (1) ambiguity of career goals, (2) perceived distance between actual professional status and career objectives, and (3) devotion to an idea of career that doesn't exist in practice. 118 out of 321 respondents (approximately 37%) stated to see tenure as a career goal and work toward it. However, paradoxically, of those 37%, almost 25% also assessed their chance of actually obtaining tenure as "rather unlikely or impossible". Meanwhile, 18% gave up on tenure due to institutional/structural/labor market-related factors, even though it was initially a major career objective. 9% never strove for tenure but somehow obtained it, while only about 17% said that tenure was a career goal which they eventually achieved. This seems like a strikingly low rate for goal attainment in a sector traditionally characterized by unilinear progression and effort-reward reciprocity.

Among early-career researchers, goal confusion seems to find expression in pessimism and rejection of conventional career. An early-career social scientist from Germany, Respondent 272, who currently has a fixed-term research fellowship, has already worked at two to five different institutions and temporary positions, and spent longer than a year after the Ph.D. unemployed, describes the chances of obtaining tenure as "rather unlikely/impossible". Yet, when asked about how assessing career, Respondent 272 expressed self-contentment, while signaling deliberate reluctance:

I'm at a point which is ok for my academic career, but am not sure anymore if I *want* to continue pursuing it due to the lack of positions and the surrounding legal regulations in Germany. (Respondent 272 – italics added)

Another early-career social scientist from the UK with a temporary teaching fellowship, Respondent 214, who had the rare privilege to remain at the same institution where the Ph.D. was received and has only experienced unemployment for less than six months so far, thinks tenure is possible within the next five years, but the response reflects an overall cynicism towards the idea of traditional straightforward career:

I never believed in a specific career plan, growing up in an environment of financial crisis requiring me to be agile and flexible. Taking advantage of short-term opportunities seems to work thus far. Let's see if tenure is real. (Respondent 214)

Respondent 249, an early-career humanities scholar from Germany with a fixed-term adjunct/substitute lecturer contract, who has already worked at two to five different institutions and spent longer than one year in unemployment, assesses the chance of landing a permanent position as "unlikely/impossible". When asked about

career goals, Respondent 249 conveyed general dissatisfaction with the current academic climate, which apparently renders a traditional career path unattractive:

[T]he current academic environment is not supportive of [science], because a) a lot of time is spent with writing applications for grants, b) often projects [on certain topics] are being supported financially [...]. So a position yes, but not under these institutional and dogmatic circumstances. (Respondent 249)

While early-careers articulate their goal confusion as active disdain and skepticism toward traditional academic careers, resignation seems to prevail at later stages. For example, Respondent 287, a mid-career social scientist from Germany, has worked at several different temporary positions and two to five different institutions so far. Currently, Respondent 287 has a fixed-term part-time administrative position and a temporary teaching-only contract. Yet, somewhat inconsistently for someone with distinctly non-research positions, the respondent refers to “passion for research” as the main motivation for staying in the business. Similarly, while defining tenure as a career goal achievable “within the next 5 years or less”, there is concern in the face of the austerity of Germany’s academic landscape:

I am doing what I can and I am hopeful that I will get there, but fearful that it might not happen in this country despite my high qualifications and great work, because there are not enough permanent positions, and teaching has turned into a commodity. (Respondent 287)

Disorientation and disappointment also echo in the words of a mid-career social scientist from Portugal. Respondent 132 worked in up to five different temporary positions at two to five different institutions, before landing a current fixed-term research fellowship thanks to “a combination of privilege, insane amounts of work, and luck” explains:

Where only 5-10% of candidates are able to get (precarious) research positions, somehow I managed to do that. [...] While I do have a job [...] –, the weight that is associated with seemingly *eternal precarity*, knowing that I have to *compete again and again and again for my next contract*, the constant counting down of months of contract, the fact that *I am not considered a full member of my university* [...] is outrageously disturbing. (Respondent 132 – italics added)

Defeatism, goal ambiguity, and purposeless perseverance is also evident in the case of Respondent 246, a mid-career medical and health science scholar from the UK, who currently works as a research fellow with a fixed-term contract. On whether obtaining tenure represents a career goal, Respondent 246 wrote:

Yes, but as it is *very unlikely*. I am *not necessarily working towards it* and have *considered moving out of academia* due to lack of stability and low pay. However, I have *not given up yet*. (Respondent 246 – italics added)

Mixed feelings and career disorientation are not limited to non-tenured faculty. In fact, almost 29% of the tenured respondents state that obtaining tenure was either never or a long-abandoned career goal for them. Respondent 104, a tenured professor in medical and health sciences in Netherlands, is among 7.5% of senior academics who proceeded to have tenure right after finishing the Ph.D. Ironically, this respondent neither set obtaining tenure as a priority, nor ever strove towards a

straightforward career, but “got a permanent position *due to a mistake of the Human Resources Department*” (Respondent 104 – italics added).

Respondent 193, a tenured mid-career humanities professor from Poland, also describes a coincidental path to tenure by pursuing “both academic and non-academic paths”, regularly taking up non-academic jobs, spent over a year in total unemployed, and then uncalculatedly applied for and got a tenured position. Yet, imprecise career objectives and disillusionment seem to persist:

I’m still open for non-academic career options. [...] I deeply depleted my internal psychical resources and became disillusioned with academia. Currently, I don’t perceive it [...] as an „important job that makes a difference”. It is a highly toxic, underpaid and stressful work environment. (Respondent 193)

Another case of goal confusion at an advanced career stage is Respondent 175, a currently unemployed senior humanities scholar from Latvia who had a tenured professorship in the past. But after having reached the goal of having tenure, realized they were “better without it”. Despite having deliberately resigned a tenured position, Respondent 175 somewhat inconsistently claims to be looking for teaching jobs at the moment and deems the chances of getting a tenured position “likely within the next 5 years or less”.

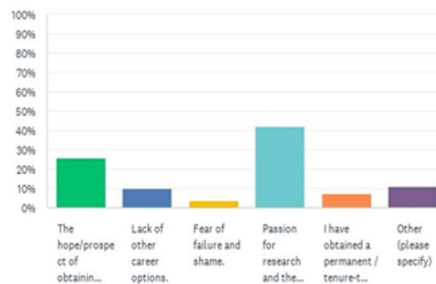
Rampant career disorientation and objectively bleak prospects notwithstanding, the majority sticks with a career path they are evidently dissatisfied with, exhausted from, or unsure about. Strikingly, there were only four career dropouts among 321 respondents and, paradoxically, one of them was in fact still trying to find a way back into the sector. Yet, those who persevere do not seem to be rewarded with paradigmatic career chances, either. Over 65% have either a fixed-term (externally or internally funded project-based employment for a specified duration) or temporary position (flexible and assignment-based employment such as course-based hourly contracts, task- or service-based special contracts, or substitute contracts). Moreover, most of those 65% seem to experience all three subjective aspects of random-track mentioned above: Almost half of currently fixed-term, temporarily employed, or unemployed researchers (approximately 45%) assess their chances of obtaining a permanent academic position as “rather unlikely/impossible”, while approximately 46% claim to be working toward it, nonetheless. As to how the non-tenured respondents (fixed-term, temporary, and unemployed participants combined) perceive the distance between their career objectives and their current professional status, almost 1/4 perceive their careers as “significantly lagging behind their expectations” and they “do not expect to catch up anymore”.

Considering the rigidity of academic labor markets and the general unclarity of career goals common across different career stages, one might wonder why so many, including the currently unemployed, stay in the game. The majority of respondents (42%) referred to “passion for research and the sense of belonging to the academic community” as their main motive. Only approximately 26% remain(ed) in academia for the possibility of obtaining a permanent position one day. Three respondents commented that they persevere for the sake of “finding another temporary position soon”.

Figure 4 illustrates respondents’ main motives to persevere through unstable and episodic professional lives.

Figure 4: Motives for Perseverance

Q16. What made/makes you persevere in the academic sector during periods of temporary/insecure employment or in the face of impending or actual employment? (Please pick the factor that weighed/weights most in your decision.)



While these percentages give a general idea about the main narrative (“passion for research”), a closer look demonstrates the contradictions of resilience in today’s randomized *careerscapes*. Respondent 79, a tenured mid-career social scientist from Netherlands, remained in academia simply because “no other options worked”. Another case is Respondent 315, a senior humanities lecturer from Germany with a fixed-term contract, who had more than five different temporary jobs at more than five different institutions throughout their career. Despite having spent longer than a year in unemployment in total, the respondent never took up any jobs outside of academia and preferred to remain formally unemployed until finding another academic job. What appears like devotion to the academic profession, however, turns out to be a love-hate attachment, as Respondent 315 refers to “contempt for the system” as the main reason to stay in academia and adds a cautionary remark in parentheses for future candidates: “(avoid entering it)”.

Another participant, Respondent 132, whose lengthy reflections on the futility of academic career were cited previously, refers to “sense of public service” as a source of resilience. Considering the fact that the quoted respondent is a fixed-term researcher with no civil servant status, this seems like internalized commitment to an idea of academic career that doesn’t exist in reality. The implications of this ideological relic of the tenure-track paradigm can only be understood in view of the accompanying emotional and financial sacrifices. Despite career instability and bleak prospects, approximately 48% of the respondents reported that they continued to self-fund their academic activities during times of unemployment. Investing into a career that does not even provide the bare minimum (i.e., formal employment) is certainly in accordance with what Gill (2009) called *the sacrificial ethos* of academia. This work culture may have been appropriate for the tenure-track paradigm, in which unpaid community services were balanced off with lifetime of job security and social benefits. However, despite lacking its status and privileges, most random-track academics continue to adhere to the work ethic and public responsibility of a civil servant, carrying the burden but none of the benefits of their profession and, thus, massively reduce the total labor cost in the sector. The entire academic industry seems

to cling to, and in fact economically hinge upon, an image of academic career that does not correspond to the sector's current realities.

DISCUSSION

The sample presents outcomes in two key areas. At the empirical level, the findings corroborate the shift in the mode of career progression in both its objective and subjective dimensions. Objectively, the increased career instability of the respondents (identified by the composition of current employment status and work history) confirms the growing unpredictability and inconsistency of academic careers. Subjectively, the respondents' replies on their objectives, motives, and self-assessments document how randomization is accompanied by goal confusion, decrease in perceived goal attainment, and a largely dissatisfactory occupational attachment bordering on purposeless perseverance. Moreover, the range and qualitative character of the data also bring to light the differences in the way professional dissatisfaction is experienced and articulated at different career stages: early-career researchers tend to highlight agency and personal choice, whereas mid-career researchers stress the diminishing levels of psycho-emotional capacity and structural possibility. Senior academics, on the other hand, retrospectively question academic career's overall worth.

The findings also demonstrate the contradictory nature of randomization. The majority of individual actors navigating their careers in this changing environment do not peacefully comply with the new parameters of their profession imposed upon them, nor do they immediately stop aspiring towards traditional career objectives. The considerable portion of those who deem tenure unlikely/impossible and yet continue to aspire toward it attests to this rift. The analysis also depicts the various ways in which the enduring attachment to the idea of a factually vanishing career type manifests itself: the common reference to *passion for research* even in the absence of a research position is one of them. Another example is the lasting sense of public service or the widespread practice of self-funding academic activities despite the absence of a tenured position and civil servant status. The findings thus reveal the cultural tenacity of the tenure-track ideology, even though its socio-economic foundations, along with the career type it relied on, are evidently vanishing.

At the theoretical level, the sample highlights the analytical utility of the *academic career paradigm* approach in two ways. First, the framework of *academic career structure*, as opposed to the unifocal study of employment duration or individual career narratives, permits a more comprehensive analysis of the structural shift that goes beyond academic precarity or labor market deregulation. Viewed from this analytical lens, the plethora of non-standard academic trajectories co-existing within a formally unified research area, which Musselin (2005) had interpreted as a sign of increased institutional autonomy by the beginning of the Bologna process, rather appears to be a result of arbitrary recruitment practices and the consequent randomization of qualification schemes across ERA. Second, the *random-track* category proves particularly useful for grasping the idiosyncrasies of contemporary careers. Applied to the sample, the random-track model highlights the paradigmatic

overlap in seemingly disparate individual trajectories across different qualification systems and career stages.

CONCLUSION

This study addressed three deficiencies in the extant literature that have so far limited our understanding of the academic sector's current transformation and long-term direction: the tenure-centered discourse's continued marginalization of episodic employment as deviation from the norm, the predominance of life-cycle approaches that tend to overlook the common structural tendency within individual stories, and the precarity literature's overemphasis on instant employment status that sometimes misrepresents temporary employment as a transitory situation limited to early career. To overcome these shortcomings, it adopted a two-pronged approach. On a theoretical level, the study proposed an alternative analytical framework, informed by Musselin's (2005, 2018) typology of qualification systems and Afonso's (2014, 2016) varieties of academic labor markets. These two classificatory models were combined within the framework of *academic career paradigm* and complemented with the categories of *transitional academic systems* and *transitional labor markets*. To identify the shared characteristics of contemporary academic careers, the study proposed *random-track* as a subcategory of the *career paradigm*. This analytical lens was then applied on data from a pilot survey conducted with over 300 researchers working in ERA. The framework and the supporting findings have implications for both the analysis of academic work in the 21st century and the theorization of episodic employment in career sectors formerly characterized by stability and unilinear progression.

The study's concrete contribution to research on academic labor and employment is twofold. First, on an empirical level, the findings delineate the three interwoven characteristics of randomized careers: (1) a *haphazard occupational history* (marked by serial episodic employment, precarious mobility, and involuntary disruptions) leading to (2) *goal disorientation* and sustained by (3) a *phantom idea of career*. The findings demonstrate the pervasiveness of these traits in contemporary careerscapes. The long-term implications of this trend exceed the problem of precarity and indicate a gradual transformation of the entire career structure of the profession. However, the ideological hegemony of the vanishing paradigm continues to shape individuals' imaginations of success, while making it practically impossible for an ever-growing majority to achieve success in previously defined terms. This interregnum between a dying old world and a new one yet to be born (Gramsci, 1999) instigates frictions of both personal and political kind. The former is evident in the respondents' comments cited in previous chapters. The latter can be seen in various contemporary academic labor movements across the globe that exceed the scope of this study (Berry & Worthen, 2021; Hirslund et al., 2019; Vatansever, 2023).

Second, on a theoretical level, based on these findings, the study confirms the analytical utility of the *career paradigm* framework for a better understanding of the long-term sectoral transformation beyond its immediate symptoms like precarity and contingency. Although the type of irregular career outlined in this study has evidently become common to a growing majority of the academic labor force in the Global

North (EC, 2017), it has not yet been named, let alone systematically analyzed in extant literature. In view of the decline of tenure as a career model, the current discourse focuses mostly on individual coping mechanisms (Whitchurch et al., 2021) or policy suggestions for alternative employment models (The Chronicle of Higher Education, 2021). The following question often remains unaddressed: given the current employment trends and putting our normative expectations of ‘what ought to be’ aside, what kind of career structure is factually replacing tenure-track? The concept of random-track represents an opening effort to tackle this question head-on.

This study has limitations both in terms of sample and scope. The method of non-probability sampling provides little control over the location and career stage of respondents. For example, the predominance of random-track respondents can be attributed to the high proportion of samples from systems that are transitioning from competitive to randomized (Germany) or from promotional to competitive (Italy), and competitive (UK). Similarly, non-tenured academics can be more inclined to participate than tenured faculty, which might have led to a relative participation bias. However, since random-track is more about the unsystematic nature of the entire career trajectory, regardless of whether it results in the obtainment of tenure at some point or not, than instant employment status, the impact of the said bias on the conclusions remains insignificant. As to the limitations in terms of the scope of the study, to depict the structural shift in its full scope, the geographic focus should be expanded. Similarly, to shift the focus and map out the particular within the general, additional aspects, such as differences between career profiles in different labor markets or intersectional factors that affect individual trajectories should be accounted for. This study identifies the general sectoral trend and provides a snapshot of an ongoing structural tendency, which can serve as a starting point for future studies in the field. The insights and the conceptual framework presented here will hopefully inspire a broader perspective on career not only as an individual’s journey determined by personal choice, but as a profession-specific mode of progression, shaped and reshaped by the structural conditions of the sector and sustained by a legitimizing work culture.

REFERENCES

- American Association of University Professors. (2014). *Contingent appointments and the academic profession. Report prepared by a joint subcommittee of the Association’s Committee on Contingent Faculty and the Profession and Committee A on Academic Freedom and Tenure.* <https://www.aaup.org/report/contingent-appointments-and-academic-profession>
- Afonso, A. (2016). Varieties of academic labor markets in Europe. *Political Science & Politics*, 49(4), 816-821.
- Afonso, A. (2014). How academia resembles a drug gang. *SSRN Electronic Journal.* https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2407748
- American Federation of Teachers. (2020). *An army of temps: AFT 2020 adjunct faculty quality of work/life report.* https://www.aft.org/sites/default/files/adjuncts_qualityworklife2020.pdf

- Berry, J., & Worthen, H. (2021). *Power despite precarity. strategies for the contingent faculty movement in higher education*. Pluto.
- Bundesministerium für Bildung und Forschung (2024) *Die reform des wissenschaftszeitvertragsgesetzes*.
<https://www.bmbf.de/bmbf/shareddocs/faq/wisszeitvg-reform.html>
- Bundesministerium für Bildung und Forschung. (2021). *Bundesbericht wissenschaftlicher nachwuchs (BuWiN) 2021*. Statistische Daten und Forschungsbefunde zu Promovierenden und Promovierten in Deutschland.
<https://www.buwin.de/dateien/buwin-2021.pdf>
- Bojica, A. M., Olmos-Peñuela J., & Alegre, J. (2023) A cross-country configurational approach to international academic mobility: exploring mobility effects on academics' career progression in EU countries. *Higher Education*, 86, 1081–1105.
- Braun, V., Clarke, V., Boulton, E., Davey, L., & McEvoy, C. (2020). The online survey as a qualitative research tool. *International Journal of Social Research Methodology*, 24(6), 641-654. <https://doi.org/10.1080/13645579.2020.1805550>
- Brienza, C. (2016). Degrees of (self-)exploitation: Learning to labor in the neoliberal university. *Journal of Historical Sociology*, 29(1): 92-111. DOI: 10.1111/johs.12119.
- Burton, S., & Bowman, B. (2022). The academic precariat: Understanding life and labor in the neoliberal academy. *British Journal of Sociology of Education*, 43(4), 497-512. <https://doi.org/10.1080/01425692.2022.2076387>
- Carta, M. G., Moro, M. F., Kirilov, I., Romano, F., & Tagliagambe, S. (2020). The current crisis of academia-led research: A threat to the common good? Preliminary data from Europe and the United States. *BMC Research Notes*, 13. <https://doi.org/10.1186/s13104-020-05128-9>.
- Cerami, L. (2022). "What is tenure?" In A. Vatansever & A. Kölemen (Eds.), *Academic freedom and precarity in the Global North: Free as a bird* (pp. 40-58). Routledge.
- Childress, H. (2019). *The adjunct underclass. How America's colleges betrayed their faculty, their students, and their mission*. UCP
- Courtois, A., & O'Keefe, T. (2024) 'Go away and make a big thing of yourself somewhere else': Precarious mobilities and the uses of international capital in Irish academia. *Higher Education*, 88, 1871-1887. <https://doi.org/10.1007/s10734-024-01190-5>.
- Courtois, A., & O'Keefe, T. (2015) Precarity in the ivory cage: Neoliberalism and casualization of work in the Irish higher education sector. *Journal for Critical Education Policy Studies*, 13(1), 1–24.
- Deutscher Gewerkschaftsbund. (2020). *DGB-Hochschulreport: Arbeit und beschäftigung an hochschulen und forschungseinrichtungen. Expansion und Wettbewerb im Spiegel der amtlichen Statistik*. <https://www.dgb.de>.
- Donskis, L., Sabelis, I., Kamsteeg, F., & Wels, H. (2019). *Academia in crisis. The rise and risk of neoliberal education in Europe*. Brill.
- European Commission. (n.d.). European education area. Higher education initiatives. <https://education.ec.europa.eu/education-levels/higher-education/about-higher-education>.

- European Commission. (2017). *Eurydice brief: Modernization of higher education in Europe: Academic staff 2017*. <https://eurydice.eacea.ec.europa.eu/publications/modernisation-higher-education-europe-academic-staff-2017>
- Fadda, N., Marino, L., Pischedda, G., & Ezza, A. (2022) The effect of performance-oriented funding in higher education: Evidence from the staff recruitment budget in Italian higher education. *Higher Education*, 83, 1003-1019. <https://doi.org/10.1007/s10734-021-00725-4>
- Frank, R. H., & Cook, P. J. (2013). Winner-take-all markets. *Studies in Microeconomics*, 1(2), 131-154.
- Frølich, N., Wendt, K. Reymert, V., Tellmann, S. M., Elken, M., Kyvik, S., Vabø, A., & Larsen, E. (2018). *Academic career structures in Europe. Perspectives from Norway, Denmark, Sweden, Finland, the Netherlands, Austria and the UK*. NIFU Report, 2018(4). Oslo.
- Gill, R. (2009). Breaking the silence: The hidden injuries of neoliberal academia. In R. Ryan-Flood & R. Gill (Eds.) *Secrecy and Silence in the Research Process: Feminist Reflections* (pp. 228-244). Routledge.
- Goffman, E. (1961). *Asylums: Essays on the social situation of mental patients and other inmates*. Anchor.
- Gramsci, A. (1999). *Selections from the prison notebooks*. (Q. Hoare, & G. N. Smith, Trans.). <https://ia600506.us.archive.org/19/items/AntonioGramsciSelectionsFromThePrisonNotebooks/Antonio-Gramsci-Selections-from-the-Prison-Notebooks.pdf>. (Original work published 1971).
- Hirslund, D. V., Davies, S. R., & Monka, M. (2019) *Report on national meeting for temporarily employed researchers: Copenhagen September 2018*. Temporarily Employed Researchers Forum. https://dm.dk/media/12351/report_national_meeting.pdf.
- Ivancheva, M. (2020, March 20). The casualization, digitalization, and outsourcing of academic labor: A wake-up call for trade unions. *Focaaal Blog*. <https://www.focaaalblog.com/2020/03/20/mariya-ivancheva-the-casualization-digitalization-and-outsourcing-of-academic-labour-a-wake-up-call-for-trade-unions/>
- Jones, K. (2023) Precarity of post doctorate career breaks: Does gender matter? *Studies in Higher Education*, 48(10), 1576-1594.
- Kalfa, S., Wilkinson, A., & Gollan, P. J. (2018). The academic game: Compliance and resistance in universities. *Work, Employment and Society*, 32(2), 274-291.
- Musselin, C. (2018). New forms of competition in higher education. *Socio-Economic Review*, 16(3), 657-683. <https://doi.org/10.1093/ser/mwy-033>
- Musselin, C. (2005). European academic labor markets in transition. *Higher Education*, 49, 135-154. <https://doi.org/10.1007/s10734-004-2918-2>
- O'Connor, P., Le Feuvre, N., & Sümer, S. (2023). Cross-national variations in postdoc precarity: An inquiry into the role of career structures and research funding models. *Policy Futures in Education*, 22(4), 1-19. <https://journals.sagepub.com/doi/pdf/10.1177/14782103231177483>

- Organization for Economic Co-operation and Development. (2015). *Frascati manual 2015: Guidelines for Collecting and Reporting Data on Research and Experimental Development, The Measurement of Scientific, Technological and Innovation Activities*. OECD. <http://dx.doi.org/10.1787/9789264239012-en>.
- Ortlieb, R., & Weiss, S. (2018) What makes academic careers less insecure? The role of individual-level antecedents. *Higher Education*, 76, 571–587. <https://doi.org/10.1007/s10734-017-0226-x>
- Sanz-Menéndez, L., & Cruz-Castro, L. (2019). University academics' preferences for hiring and promotion systems. *European Journal of Higher Education*, 9(2), 153-171. <https://doi.org/10.1080/21568235.2018.1515029>
- Singh, K. (2007). *Quantitative social research methods*. Sage.
- The Chronicle of Higher Education. (2021, August). *Rethinking tenure: Abolish, strengthen, or replace it?* <https://store.chronicle.com/products/rethinking-tenure>.
- University and College Union. (2021). *Precarious work in higher education. Insecure contracts and how they have changed over time: A report by University and College Union*. October 2021 update. https://www.ucu.org.uk/media/10899/Precarious-work-in-higher-education-May-20/pdf/ucu_he-precarity-report_may20.pdf.
- van der Weijden, I., Teelken, C., de Boer, M., & Drost, M. (2015) Career satisfaction of postdoctoral researchers in relation to their expectations for the future. *Higher Education*, 72, 25-40. <https://doi.org/10.1007/s10734-015-9936-0>
- Vatanserver, A. (2023). The making of the academic precariat: Labor activism and collective identity-formation among precarious researchers in Germany. *Work, Employment and Society*, 37(5), 1206-1225.
- Vinkenburg, C.J., Connolly, S., Fuchs, S., Herschberg, C., & Schels, B. (2020). Mapping career patterns in research: A sequence analysis of career histories of ERC applicants. *PLoS ONE*, 15(7), e0236252. <https://doi.org/10.1371/journal.pone.0236252>.
- Ylijoki, O.H., & Henriksson, L. (2017). Tribal, proletarian and entrepreneurial career studies: Junior academics as a case in point. *Studies in Higher Education*, 42(7), 1292-1308.

Acknowledgments

The author wishes to acknowledge the collaboration and support of Ieva Puzo during the preparation and dissemination of the survey, as well as the generous comments of Agata Lisiak, Aysuda Kölemen, and Ana Ferreira on the preliminary versions of the questionnaire.

Declaration of Conflicting Interests

The author declares no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author received joint financial support from the Philipp-Schwartz-Initiative of the Alexander von Humboldt Foundation and the Threatened Scholars Integration Initiative of the Open Society University Network for the research and authorship of this article.

ASLI VATANSEVER, Ph.D., is a sociologist of work and social stratification with a focus on precarious work and labor activism in academia. Her work on academic labor activism has appeared in prominent outlets in the field of labor studies such as *Work, Employment and Society*. Her third monograph with the title *At the Margins of Academia: Exile, Precariousness, and Subjectivity* was published in 2020 (Brill). Recently, she co-edited a volume *Academic Freedom and Precarity in the Global North: Free as a Bird* (with Aysuda Kölemen, Routledge, 2022). Email: a.vatansever@berlin.bard.edu.

The Equity Effects of the State Funding of Higher Education and Lottery-Funded Scholarships

Mary Borg
University of North Florida

ABSTRACT

Are state universities and state scholarship programs perpetuating income inequality in the United States? Using data from Florida on the number of students from each public high school in the state who attended a State University System (SUS) university and the number who received a Florida Bright Futures (FBF) scholarship, this paper attempts to answer this question. The results of the models showed that an average high school with no disadvantaged students could expect to send 124 students to SUS universities and to have 121 students receive FBF scholarships, but the same average high school with 100% disadvantaged students could expect only seven students to go to SUS universities and seven students to receive FBF scholarships. The results indicate that the distribution of the benefits of state higher education funding and FBF scholarships is regressive.

Keywords: higher education, equity, university admission, merit-based scholarships

Common wisdom in the United States suggests that state-financed higher education is the great income equalizer. Most people believe that the way for poor children to get out of poverty is by attending college, and the most affordable college education is provided by the state. This may have been true once, but has the downward trend in appropriations to state universities and the increase in state merit-based financial aid made the opposite true today? Are state universities and state scholarship programs making it increasingly difficult for children from poor families to attend college? Using data from Florida on the number of students from each public high school in the state who attended a State University System (SUS) university and the

number who received a Florida Bright Futures (FBF) scholarship, this paper attempts to answer this question.

Since the Great Recession of 2008, the amount of state funding for higher education has decreased and the amount of tuition at state universities has increased in most states. Nationally, the amount of state funding for higher education fell by \$3.4 billion between 2009 and 2019 (Jackson & Saenz, 2021). This amounted to an average cut of \$1033 per student. Over this same period, tuition increased by an average of \$2,576 per year (Jackson & Saenz, 2021). It is no surprise, then, that average student loan debt at graduation grew from \$23,594 in 2009 to \$30,464 in 2019 (Hanson, 2023).

Another trend that has disadvantaged students from lower income households is the reduction in state-financed college scholarships based solely on income. In their place, many states are now awarding merit-based scholarships, often funded by lottery revenues. Forty-nine of the 100 largest state financial aid programs are awarded based on financial need. Seventeen programs use only merit-based criteria. The remaining thirty-four programs use a combination of merit and financial need in awarding financial aid for college (Education Commission of the States, 2023). Thus, slightly over half of the largest state scholarship programs use merit as one of the criteria for awarding financial aid, and 17% use merit as the only criterion. Numerous studies (Broer et. al., 2018; Chmielewski, 2019; Destin et al., 2019) show that students from lower income households often perform more poorly in school and on standardized tests than students from higher income households. This places low-income students at a disadvantage in obtaining these merit-based college scholarships.

The federally funded Pell grants, on the other hand, are awarded solely on the basis of financial need. However, the value of the Pell grant has not increased as much as the costs of college. In 1980, the maximum value of a Pell grant was \$1800 and in 2023 it was \$7,395. This may sound like a large increase, but when these values are adjusted for inflation using the Consumer Price Index with 1983 as its base year, the 1980 Pell Grant award was worth \$2184 and the 2023 award was worth \$2430. In contrast, the average cost of tuition and fees at a public 4-year university in 1980 was \$738 (Hanson, 2022) compared to \$10,662 in 2023 (US News, 2023). Given these trends, it is not surprising that today's children from low-income households may not be able to improve their socio-economic status as much as older generations did.

LITERATURE REVIEW

Research on the distributional effects of higher education began with Hansen and Weisbrod's (1969) seminal article, "The Distribution of Costs and Benefits of Higher Education: The Case of California". They concluded that the California system of financing higher education did not provide the equality of opportunity that its proponents thought it did. In fact, they concluded that the funding of the California higher education system contributed to higher, not lower income inequality. This conclusion was based on their empirical results that found that only 10.7% of the students from the lowest income households qualified for the prestigious University of California universities, whereas over 40% of the students from the highest income

families did. Thus, students from the lower income households were relegated to the less prestigious and lower-funded state colleges and junior colleges. They also surmised that this was likely not a result that was limited to California, since many states funded higher education by giving the greatest support to the flagship universities, which enroll few students from low-income households.

Hansen and Weisbrod's article created a firestorm of controversy resulting in five comments on their article (Pechman, 1970; Hartman, 1970; Hansen & Weisbrod, 1971; Conlisk, 1977; McGuire, 1978). Their chief critic was Joseph Pechman (1970), who argued that Hansen and Weisbrod had not accounted for the taxes paid by households at different income levels. When he included the taxes, he estimated that households with incomes of \$12,000 or less received net subsidies for higher education, and households with incomes above 12,000 paid net taxes for higher education. Hartman (1970) reconciled these two views by recognizing that both authors reach similar conclusions which are: 1) that poor households pay lower state and local taxes, but they do not have many children who attend the top universities. However, for the poor households who do have children in the top universities, their benefits are so large relative to the small amount of taxes they pay that that their income class receives net benefits, on average. 2) Wealthy households pay greater state and local taxes, and they have many children who attend the top universities. However, there are also many high-income households who do not have children, or their children attend private universities. High income households with children attending the top public universities receive net benefits from higher education. However, there are enough households without children in the top universities that pay taxes and receive no benefits, that their net taxes paid outweigh the net benefits received by the high-income group with children attending the universities, so on average, the high-income group pays net taxes. The difference between Hansen and Weisbrod's analysis and Pechman's was in how they distributed the benefits. Hansen and Weisbrod examined the benefits of higher education subsidies distributed by the type of institution the students attended, whereas Pechman examined the distribution of the *average* benefits of higher education subsidies by income distribution.

Which perspective is correct? Pechman is correct from the standpoint of traditional tax incidence analysis. If the purpose of higher education subsidies is simply to increase the number of people getting a college degree to account for the external benefits created by higher education, then Pechman's analysis should be the standard. But if the purpose of higher education subsidies is to improve income inequality by providing equality of opportunity for poor households, then Hansen and Weisbrod's approach has merit. As they write in their original paper, "...whatever the degree to which our current higher education programs are rooted in a search for equality of opportunity, the results still leave much to be desired" (p. 191).

For the last fifty years, researchers have reached much the same conclusions (Hearn & Longanecker, 1985; Hoenack, 1971; Toutkoushian & Shafiq, 2010; Windham, 1979). A survey article by Leslie and Brinkman (1988) supported Hansen and Weisbrod's assertion that the distribution of higher education benefits was like California's in many other states as well. Kane (1999), using National Post-Secondary Student Aid Survey data, found that students from high-income families received almost twice as large a subsidy for college as students from low-income families.

Johnson (2006) provided evidence to support Pechman's conclusion that when taxes are factored in, the net benefits of higher education are not regressive. Thus, the equity of higher education subsidies still boils down to whether the subsidies are meant to account only for the external benefits of higher education or are meant to provide equality of opportunity for children from low-income households.

A new wrinkle has been added to the equality of opportunity debate by the prevalence of lottery-financed merit scholarships such as the HOPE scholarship in Georgia and the Bright Futures scholarship in Florida. Some context is needed here to understand the reason states began using lottery money to fund college scholarships. When Florida proposed a state lottery in the early 1980s, a constitutional amendment was needed because lotteries were forbidden in the state constitution. Many of the lottery's proponents feared that a majority of voters in the state would vote down the lottery amendment because they held religious objections to gambling. They hoped that by earmarking the revenues generated by the lottery solely to education, it would improve the probability of passing the amendment, and it did. The amendment approving the Florida Education Lottery passed in November of 1986. Unfortunately, the citizens of Florida quickly realized they had been bamboozled when as soon as lottery revenue began coming into the education budget, general revenue funding for education began leaving (Borg & Mason, 1990). State funds are fungible, and it is often the case that politicians give with one hand and take away with the other. When Georgia started their lottery in 1992, they wanted to avoid this fungibility problem, so they created an entirely new educational program to be funded by the lottery. This new program was the HOPE scholarship. If a program had never been funded with general revenues, then those funds could not be taken away. They advertised their scholarship as a way to help students afford college and keep the best and the brightest of their high school graduates in the state for college. It worked so well that Florida copied it a few years later when it created the Florida Bright Futures scholarships.

Lottery funded scholarships were extremely popular with the voting public, especially voters in the middle and upper quintiles of the income distribution whose children attended the types of schools and engaged in the kind of educational activities that made it easy for them to earn these scholarships. The scholarships were found money for households who had already planned to send their children to college and had begun saving for it. Anecdotal stories abounded about families whose children had been accepted to Ivy League colleges, but their parents promised to buy them luxury cars and European vacations if they would stay in state and go to the state's flagship university. It is no coincidence that the competition to get into the state's top universities increased exponentially when these scholarships came into being.

Although the middle-and upper-class public loved these lottery-funded scholarships, public policymakers who cared about equity were appalled. It is a well-known fact in public finance that lotteries are a regressive way to raise revenues. The poor and the elderly have much more to gain by playing the lottery than more affluent people, and so they spend a greater proportion of their income on lottery tickets than higher income people. It is also a well-known fact that children from wealthier families make better grades and do better on standardized tests, on average, than

children from poorer households. When you combine these well-known facts, merit-based scholarships funded by lottery revenues are tantamount to robbing from the poor to give to the rich, a reverse Robin Hood effect. Soon there was much scholarly evidence to support this view (Rubenstein & Scafidi, 2002; Stranahan & Borg, 2004; Duffourc, 2006; Borg & Borg, 2007; Mckinney, 2009). Policymakers may not have intentionally set out to create the most regressive policy they could think of to fund higher education, but once they realized they had, they certainly did nothing to stop it.

This paper is unique in the fact that it explores the intersection of the equity effects of lottery-funded merit scholarships with the equity effects of the state funding of higher education. Many years ago, scholars began to suspect that the way states funded higher education was probably giving more benefits to the wealthy than to the poor, but adding merit-based scholarships funded by lotteries to the mix is most likely adding fuel to the fire.

DATA AND METHODOLOGY

Two models are estimated in this paper. The first is a Tobit model that estimates the proportion of students from each Florida public high school who registered at a Florida SUS university in the fall of 2020. If the number of students who registered from any high school was less than ten, then an asterisk was recorded for that observation. This was done to protect the privacy of the students. Since the data are censored by a lower limit of ten, the Tobit model is used for estimating the SUS registration equation. The Tobit model can be written as a latent variable regression model, with a continuous outcome variable y_i^* that is either observed or unobserved. The equation is as follows:

$$y_i^* = \beta(x_i) + \varepsilon_i, \text{ where}$$

$$y_i^* = \left. \begin{array}{l} y_i \quad \text{if } y_i \geq 10 \\ 0 \quad \text{if } 0 \leq y_i \leq 9 \end{array} \right\}$$

x_i = vector of demographic and socio-economic characteristics of the school

ε_i = errors that are independent with distribution $N(0, \sigma^2)$ for $i = 1, 2, \dots, n$.

In this model, y_i^* is the latent variable representing the true value of the dependent variable, and y_i is the observed value of the variable. The independent variables, represented by the x vector, are the socioeconomic and demographic characteristics of the high school. Tobit regression coefficients are interpreted like OLS regression coefficients; however, the linear effect is on the uncensored latent variable, not the observed outcome.

The second model in the paper estimates the number of Florida Bright Futures scholarships received in the zip code in which the high school resides. Since this data

is not censored, it can be estimated with a standard linear regression model expressed as follows:

$$y_i = \beta(x_i) + \varepsilon_i, \text{ where}$$

y_i = the number of FBF scholarships received in the school's zip code

x_i = vector of demographic and socio-economic characteristics of the school

ε_i = errors that are independent with distribution $N(0, \sigma^2)$ for $i = 1, 2, \dots, n$.

The estimates from the second model serve as a proxy for the number of students at the high school who receive a Florida Bright Futures Scholarship. Thus, they supplement the results of the Tobit regression by allowing an examination of not only which high schools send the largest of number of students to SUS universities, but also which high schools have the largest number of students who receive additional funding to attend those universities.

The data for this project came from the Florida Department of Education (FDOE). They provided the FTIC application status by State University System institution and by high school for the fall of 2020. These data included the application status of the students from every high school in the US and abroad that applied to one of the twelve Florida SUS universities for admittance in the fall of 2020. The application status included how many students applied, how many were accepted, and how many registered for classes at each of the universities, although only the number of students who registered for classes was used in the analysis. These data were then matched with the high school's demographic and economic data contained in the FDOE's School Report Card (<https://edudata.fldoe.org/>). These data are only available for the public and charter high schools in the state, so Florida's private high schools are not included in the analysis. The Florida Department of Education also provided the number of eligible Bright Futures students by recipient zip code for 2019, the most recent year available. These data were matched to the zip codes of the high schools to get an approximation of the number of Bright Future scholarships received by the students at the high school.

IMPLICATIONS OF THE MODELS

Florida is a large state with only ten major state universities, and two smaller specialty universities, New College of Florida (enrollment 361 students in Fall 2024) and Florida Polytechnic University (enrollment 1569 students in fall 2024). Thus, admission into an SUS university in Florida is highly competitive, especially for the University of Florida (UF) and Florida State University (FSU). The middle 50 percent of admitted first time in college (FTIC) students at UF and FSU had an SAT that ranged from 1370 to 1490 and GPAs that ranged from 4.35 to 4.45. The other SUS universities are less selective, but the average SAT scores of the middle 50% of their first-year students still ranged from 1134 to 1281 and their GPAs ranged from 3.83 to 4.34 (State University System [SUS] Admissions Matrix, 2024). Although Florida does have a talented 20 program that helps some students from lower-ranked high

schools gain admission into the SUS universities, it guarantees that graduates in the top 20% of their Florida high school class will have a place at one of the SUS universities, but not one of the flagship universities.

Furthermore, to receive a Florida Bright Futures scholarship, students must have extremely high SAT or ACT scores as well as a very high weighted¹ GPA. The requirements to receive the highest valued Florida Academic Scholarship is an SAT score of 1330 and a weighted GPA of 3.50. Even to receive the lower valued Florida Merit Scholarship, a student must have an SAT score of 1210 and a weighted GPA of 3.00. This is in a state where the overall mean SAT score in 2022 was 983, and the mean for students in the top income quintile was only 1122 (College Board, 2022a). Thus, most of the students receiving these scholarships in Florida are in the very top income brackets.

Because the requirements to receive a FBF scholarship and the admission requirements for Florida's SUS universities are equally rigorous, the demographic and socio-economic characteristics of the schools are expected to have the same effect in both models. The characteristics that represent the racial distribution of students at a school and the different socio-economic levels of the students at a school have been shown in numerous studies to affect the academic performance of students (Battle & Lewis, 2002; Caldas & Bankston, 1997; Willie, 2001). Specifically, the students attending schools with higher proportions of Black and Hispanic students and greater proportions of students from lower-socioeconomic backgrounds are expected to have lower standardized test scores, on average, than the students attending high schools with low proportions of Black, Hispanic, and low-income students. Also, the high minority, high poverty high schools are likely to be rated lower in state school ranking schemes, such as the one in Florida, that rely on student test scores to give them grades from A through F. Standardized test scores are a crucial criterion for both admission into an SUS university and the awarding of a Florida Bright Futures Scholarship. Thus, the model predicts that high schools with higher proportions of Black and Hispanic students and higher proportions of students who qualify for free or reduced lunches will have fewer of their students get into an SUS university and receive a Bright Futures Scholarship.

RESULTS

SUS Enrollments

The description and the descriptive statistics for the variables used in the analyses are shown in Tables 1 and 2. Two different samples of the data were used in the analyses. The first sample includes all the public high schools in the state, but the second sample, used to estimate the FBF scholarship model, excludes the charter and magnet schools from the sample of Florida high schools. This was necessary because the magnet schools and charter schools are not neighborhood schools. Unfortunately, the

¹ A weighted GPA gives additional points to AP and International Baccalaureate classes and removes some classes like physical education, chorus, and band from the GPA calculation.

data on FBF scholarships were available only by zip code and not by school. In magnet and charter schools, there may not be a connection between the school's zip code and the zip codes where their students live. However, this connection is much stronger in the neighborhood high schools. For the FBF analysis to be valid, the students and the schools need to be in, or at least close to, the same zip codes so that the schools and the neighborhoods will reflect the same socioeconomic and demographic characteristics. Therefore, Table 1 shows the values of the descriptive statistics for the total sample, and Table 2 shows the descriptive statistics for the sample that excludes the magnet and charter high schools.

Table 1: Descriptive Statistics of the Total Sample (n = 526)

Variable	Description	Min	Max	Mean	Std. Dev.
Charter	1 if a Charter High School, 0 if not	0	1	0.14	0.35
Magnet	1 if a Magnet High School, 0 if not	0	1	0.38	0
FAMUprop	Proportion of students attending FL Agric. & Mech. Univ. from each HS	0	0.013	0.00016	0.001
FAUprop	Proportion of students attending FL Atlantic Univ. from each HS	0	0.06	0.002	0.007
FGCUprop	Proportion of students attending FL Gulf Coast Univ. from each HS	0	0.10	0.002	0.009
FIUprop	Proportion of students attending FL Intl. Univ. from each HS.	0	0.24	0.004	0.019
FPolyprop	Proportion of students attending FL Polytech. Univ. from each HS	0	0	0	0
FSUprop	Proportion of students attending FL State Univ. from each HS	0	0.098	0.003	0.008
NCFprop	Proportion of students attending New College FL from each HS	0	0.006	0.00001	0.003
UCFprop	Proportion of students attending Univ. of Central FL from each HS	0	0.13	0.006	0.012
UFprop	Proportion of students attending Univ. of Florida from each HS	0	0.09	0.004	0.009
UNFprop	Proportion of students attending Univ. of North Florida from each HS	0	0.07	0.002	0.007
USFprop	Proportion of students attending Univ. of South Florida from each HS.	0	0.15	0.004	0.010
UWFprop	Proportion of students attending Univ. of West Florida from each HS	0	0.10	0.0009	0.007
Systemprop	Proportion of students attending any SUS university from each HS	0	0.58	0.04	0.05
BFscholarprop	Proportion of BF scholarships received in HS's zip code	0	2.31	0.06	0.180
DisadvPct	Percentage of disadvantaged students at the high school.	0	100	58.65	25.19
WhitePct	Percentage of white students at the HS	0	94.7	38.48	25.23
BlackPct	Percentage of Black students at the HS	0	92.3	21.43	20.81
AsianPct	Percentage of Asian students at the HS	0	35.9	2.84	3.65
HispPct	Percentage of Hispanic students at the HS	0	98.1	33.46	24.19
HSenroll	Student enrollment at the HS	58	4838	1532.03	858.71

Table 2: Descriptive Statistics of the Sample that Excludes Magnet and Charter High Schools (n = 252)

Variable	Description	Min	Max	Mean	Std. Dev.
Charter	1 if a Charter High School, 0 if not	0	0	0	0
Magnet	1 if a Magnet High School, 0 if not	0	0	0	0
FAMUprop	Proportion of students attending FL Agric. & Mech. Univ.	0	0.009	0.00016	0.001
FAUprop	Proportion of students attending FL Atlantic Univ.	0	0.06	0.0015	0.005
FGCUprop	Proportion of students attending FL Gulf Coast	0	0.10	0.002	0.009
FIUprop	Proportion of students attending FL Intl. Univ.	0	0.24	0.0035	0.023
FPolyprop	Proportion of students attending FL Polytech. Univ.	0	0	0	0
FSUprop	Proportion of students attending FL State Univ.	0	0.10	0.004	0.
NCFprop	Proportion of students attending New College FL	0	0	0	0
UCFprop	Proportion of students attending Univ. of Central FL	0	0.13	0.007	0.15
UFprop	Proportion of students attending Univ. of Florida	0	0.09	0.004	0.01
UNFprop	Proportion of students attending Univ. of North Florida	0	0.06	0.002	0.007
USFprop	Proportion of students attending Univ. of South Florida	0	0.15	0.003	0.011
UWFprop	Proportion of students attending Univ. of West Florida	0	0.05	0.001	0.005
Systemprop	Proportion of students attending any SUS university	0	0.58	0.04	0.07
BFscholarprop	Proportion of BF scholarships received in HS's zip code	0	0.80	0.04	0.18
DisadvPct	Percentage of disadvantaged students at the high school	0	100	58.05	26.10
WhitePct	Percentage of white students at the HS	1.7	94.7	48.33	22.63
BlackPct	Percentage of Black students at the HS	0	92.2	16.95	15.95
AsianPct	Percentage of Asian students at the HS	0	11.4	2.51	2.56
HispPct	Percentage of Hispanic students at the HS	0	97.5	27.37	20.57
HSenroll	Student enrollment at the HS	119	4838	1630.3	825.53

Separate Tobit models were estimated for the proportion of students from each high school who enrolled at any of the SUS universities (System) and the proportion of students who enrolled at each of the individual SUS universities. The only individual universities not included in the models were New College of Florida and the Florida Polytechnic University because their enrollments were too low to give meaningful results. The independent variables in the models are the demographic and socio-economic information for each high school taken from the schools' Report Cards published by the FDOE. The results of the Tobit models are shown in Table 3.

Each row in Table 3 shows the results of one of the estimated Tobit equations. The first row shows the Tobit equation for the proportion of students from each high school who attended any of the SUS universities (Systemprop). The results show that having a greater percentage of Black, Asian, and Hispanic students significantly increased the proportion of students that a high school sent to the SUS universities. These results were unexpected for the Black and Hispanic student percentages, given that previous researchers found that Black and Hispanic students often perform more poorly on standardized tests (Battle & Lewis, 2002; Caldas & Bankston, 1997; Willie, 2001). It may be that the Talented 20 student admission policy helps to mitigate the effect of standardized test scores on admittance to SUS universities in this instance. On the other hand, the high schools with greater percentages of disadvantaged

students sent significantly smaller proportions of students to SUS universities. The term disadvantaged refers to students who qualified for free or reduced-price lunch at the school. To be eligible for free or reduced-price lunches, a family of two can earn no more than \$36,462 per year in Florida in 2023.² It is the disadvantaged variable that is of most interest in determining if the benefits of the SUS are distributed equitably. The negative and significant coefficient of that variable suggests that the benefit distribution is regressive, since high schools with higher percentages of disadvantaged students send significantly fewer students to the combined SUS universities than high schools with fewer disadvantaged students.

To investigate whether all the SUS universities enrolled fewer students from highly disadvantaged high schools, Tobit models were estimated for each university separately. The results show that the disadvantaged variable was negative and significant in all ten of the individual university equations. This implies that the negative effect of attending an SUS university if you graduated from a Florida high school with a high percentage of economically disadvantaged students applies to all the universities, even the ones that are considered less competitive.

There were also some interesting effects based on racial and ethnic differences in the high schools. It should be noted that the racial effects are relative to the percentages of White students and multiracial students in the high schools, which were the omitted race variables in the model. High schools with high percentages of Asian students placed more students in the SUS overall, and in the most prestigious universities in the system. The AsianPct variable was positive and significant in the equations for the flagship universities of UF and FSU, and the R1, research-oriented universities, USF, UCF, and FIU. This result confirms what other researchers have found in studies of Asian students' high academic achievements (Kao, 1995; Liu & Xie, 2016; Sue & Okazaki, 2022.) The high schools with the highest percentages of Black students placed significantly more students in the system overall, and at FAMU, which is an HBCU, and at FAU in Boca Raton, FIU in Miami, and UNF in Jacksonville. The latter three universities are in urban areas of Florida that have higher Black populations. On the other hand, the high schools with the highest percentages of Black students placed significantly *fewer* students at Florida Gulf Coast University in Ft Myers, which is a retirement destination in the southwest part of the state and has a relatively smaller Black population. The high schools with high percentages of Hispanic students placed significantly more students in the system overall and at UF. They also placed more students at FIU, FAU, and UCF, all areas of the state with large Hispanic populations. However, the HispPct variable was negative and significant in the equations for UNF and UWF. These results are not surprising for UNF (Jacksonville) and UWF (Pensacola), which are in the regions of Florida with the smallest Hispanic populations (US Census, 2022).

² The 2023 eligibility requirements for different family sizes can be found at https://www.floridahealth.gov/programs-and-services/childrens-health/child-care-food-program/_documents/income-eligibility.pdf.

Table 3: The Estimated Tobit Models for the SUS and Individual Universities (n = 526)

Dependent Variable	Constant	DisadvPct	BlackPct	AsianPct	HispPct	X ²
System	0.061*** (0.008)	-0.0008*** (0.00009)	0.0003* (0.0001)	0.003*** (0.0007)	0.0007*** (.0001)	178.20***
UFprop	0.002 (0.003)	-0.0004*** (0.00006)	0.00003 (0.00007)	0.002*** (0.0003)	0.0001** (0.00005)	162.38***
FSUprop	0.005 (0.003)	-0.0004*** (0.00006)	0.00003 (0.00007)	0.001*** (0.0003)	0.00004 (0.00005)	131.36***
FAMUprop	-0.026*** (0.01)	-0.0002* (0.0001)	0.0004*** (0.0001)	0.0003 (0.0004)	-0.0002 (0.00014)	44.68***
FAUprop	-0.015*** (0.005)	-0.0005*** (0.0001)	0.0005*** (0.0001)	0.0004 (0.0004)	0.0002** (0.00008)	53.94***
FIUprop	-0.177*** (0.026)	-0.0009*** (0.0002)	0.001*** (0.0003)	0.003*** (0.001)	0.003*** (0.0003)	192.52***
FGCUprop	-0.037*** (0.014)	-0.0005** (0.0002)	-0.0007** (0.003)	-0.0004 (0.0013)	0.0002 (0.0002)	20.32***
UCFprop	-0.009*** (0.004)	-0.0005*** (0.00006)	0.00007 (0.00007)	0.001*** (0.0003)	0.0002*** (0.00005)	135.78***
UNFprop	-0.001 (0.006)	-0.0006*** (0.0001)	0.0003** (0.0001)	0.0006 (0.0004)	-0.0008*** (0.0002)	91.62***
USFprop	-0.0008 (0.004)	-0.0004*** (0.00008)	-0.00016 (0.0001)	0.002*** (0.0004)	-0.00009 (0.00008)	105.21***
UWFprop	0.014 (0.024)	-0.0007** (0.00036)	0.00001 (0.0004)	-0.0023 (0.0024)	-0.0045*** (0.0015)	42.09***

In Tobit regression equations, the dependent variable is the unobserved continuous latent variable y^* , instead of the actual observed variable y , which is censored at 0. Because of this, it is difficult to interpret the magnitudes of the coefficient estimates in the same way that one would interpret the coefficient estimates in a standard regression model. To get around this difficulty, it is useful to estimate the marginal effects of each of the independent variables estimated at the sample means of each independent variable. These marginal effects are shown in Table 4.

Table 4: Marginal Effects in the Tobit Models Evaluated at the Sample Means of the Independent Variables (Evaluated at Average HS size = 1532)

Dependent Variable	Independent Variables			
	DisadvPct	BlackPct	AsianPct	HisPct
Systemprop	-0.0008*** (-1.23 students)	0.0002** (0.30 student)	.0025*** (3.83 students)	0.0005*** (0.766 student)
UFprop	-0.0001*** (-0.15 student)	0.0000007 (0.001 student)	0.0004*** (0.613 student)	0.00003** (0.05 student)
FSUprop	-0.00009*** (-0.14 student)	0.0000007 (0.01 student)	0.0002*** (0.30 student)	-0.000009 (0.01 student)
FAMUprop	-0.0000004 (-.0006 student)	0.0000009 (0.0014 student)	0.0000007 (0.001 student)	-0.0000004 (0.0006 student)
FAUprop	-0.00006*** (-0.09 student)	0.00006*** (0.0006 student)	0.00005 (0.08 student)	(0.0002 student)
FIUprop	-0.00007*** (-0.11 student)	0.00003 (0.05 student)	0.0004*** (0.61 student)	0.00002 (0.03 student)
FGCUprop	-0.00003** (-0.05 student)	-0.00004** (-0.06 student)	-0.00003 (-0.05 student)	0.00001 (0.02 student)
UCFprop	-0.0002*** (-0.31 student)	0.00003 (0.05 student)	0.0004*** (0.61 student)	0.00005*** (0.08 student)
UNFprop	-0.00002*** (-0.03 student)	0.00001** (0.02 student)	0.00003 (0.05 student)	-0.00004*** (-0.06 student)
USFprop	-0.00007*** (-0.11 student)	-0.00004 (-0.05 student)	0.00036*** (0.55 student)	-0.00002 (0.03 student)
UWFprop	-0.0000003 (-0.0005 student)	-0.000000005 (0 students)	-0.000001 (-0.002 student)	-0.000003 (-0.005 student)

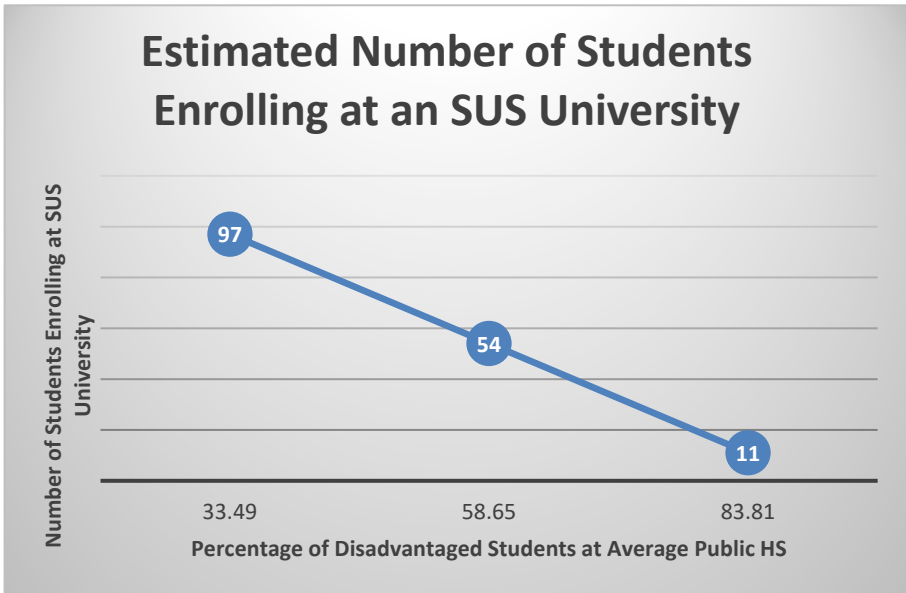
Significance levels: *10%, **5%, ***1%

Since the model estimates the *proportion* of the students at the school who attend an SUS university, the marginal effect was multiplied by the average high school size (1532 students) to give a more intuitive interpretation of the effect. These estimates are shown in parentheses below the estimated marginal effect. The marginal effect of the DisadvPct variable when System is the dependent variable indicates that a one percentage point increase in disadvantaged students at an average public high school (a high school with the mean value of all the independent variables) reduces the number of students who attend any SUS university by about 1.23 students. Looking at the marginal effects in the individual universities, a one percentage point increase in disadvantaged students reduces the number of students who attend UCF by almost 1/3 (-.31) of a student, and by .15 and .14 of a student at UF and FSU, respectively). The remaining significant marginal effects are smaller, ranging from about 1/10 of a student at FIU (-.11), USF (-.11), and FAU (-.09) to -.05 of a student at FGCU and -.03 of a student at UNF. Although these numbers are small, the percentage of disadvantaged students ranges from 0 to 100 in Florida’s public high schools, so these differences often result in very large differences between actual high schools.

The graph in Figure 1 helps the reader understand the full effect of an increase in disadvantaged students on the number of students who attend an SUS university. It shows the predicted number of students who will attend an SUS university from an average public high school with percentages of disadvantaged students at the mean

of the disadvantaged variable (58.65%) and at one standard deviation above (83.81%) and below (33.49%) the mean. If the average public high school has the average percentage of disadvantaged students in its student body, it can expect to send approximately 3.5% of its students to an SUS university, which at the average high school size of 1532 is about 54 students. If its percentage of disadvantaged student's is one standard deviation below the average (33.39%), then it can expect to send 6.3 percent of its students to the SUS or about 97 students. If it has a percentage of disadvantaged students that is one standard deviation above the average (83.81%), then the percentage of its students that can expect to go to an SUS university falls to 7/10 of one percent or only about 11 students of its 1532 student body. This is a very steep decline, and it supports the view that the distribution of SUS subsidies is regressive.

Figure 1: Estimated SUS Enrollments from an Average Public HS with the Average % of Disadvantaged Students +/- One Standard Deviation



Bright Futures Scholarship Recipients and SUS Enrollment

This section of the paper explores the intersection between the students attending SUS universities and the students receiving Florida Bright Futures scholarships. This analysis is more speculative than the preceding analysis because the data do not include the number of Bright Futures scholarships received by the graduating students in each high school, however, the data do include the number of FBF scholarships received in the high school's zip code. To the extent that the students in the high school live in or near the same zip code as the high school they attend, these data should be a good approximation of the number of students in the high school that

receive a FBF scholarship. To make this assumption more reasonable, all the charter and magnet schools have been eliminated from the sample. Because the number of scholarships received in the zip codes was not truncated, the FBF scholarship model is estimated with Ordinary Least Squares regression. To ensure an apple to apples comparison, the Tobit model of SUS enrollment is now estimated with the sample that excludes Magnet and Charter schools. The results of the two models are shown side by side in Table 5.

It is almost uncanny how similar the two models are. Most of the coefficient estimates in both models have the same signs, and the same variables are significant in both models. The SUS Enrollment model is very similar to the one that was estimated with the full sample, so it needs no additional explanation. In the Bright Futures scholarship model, the percentage of disadvantaged students has a significant negative effect on the proportion of scholarships received in the high school's zip code. Just as is the case in the SUS enrollment model, the percentage of Asian students and the percentage of Hispanic students have a positive and significant effect on the proportion of FBF scholarships received in the high school's zip code.

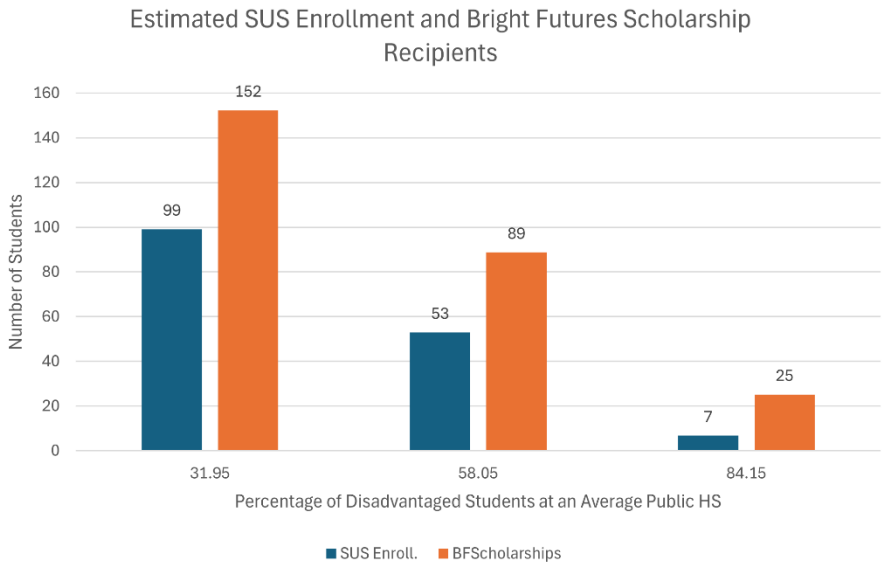
Table 5: The Estimated Results of SUS Enrollment and FBF Scholarships in Florida Public High Schools (Excluding Magnet and Charter Schools, n = 252)

Independent Variables	Dependent Variable: Sysprop (Proportion of Students from HS who enroll in SUS Universities)	Dependent Variable: BFprop (Proportion of FBF Scholarships Received in HS's Zip Code)
(1)	(2)	(3)
Constant	0.038 *** (0.014)	.0759** (.0388)
% Disadvantaged Students in the HS	-0.001*** (0.0002)	-.00149*** (.00055)
% Black Students in the HS	0.0003 (0.0003)	-.0000879 (.00077)
% Asian Students in the HS	0.007*** (0.002)	<u>-.00957</u> * (.0051)
% Hispanic Students in the HS	0.0013*** (0.0002)	.003319*** (.00055)
Adjusted R ² (Column 3)		0.1369
X ² statistic (Column 2)	114.97***	
F-statistic (Column 3)		10.96***
Significance levels: *10%, **5%, ***1%		

Using the sample means of the independent variables, I estimated the SUS enrollments and the number of FBF scholarships received at an average high school with the average percentage of disadvantaged students (58.05) and one standard deviation above (84.15) and below (31.95) that average. The chart in Figure 2 shows these amounts. For example, the average high school with the average percentage of disadvantaged students can expect to send 53 students to SUS universities, and it can expect that 89 students in its zip code will receive a Bright Futures scholarship. However, an average high school with only 31.95 percent disadvantaged students can

expect to send about 99 students to SUS universities and to have about 152 students in its zip code receive FBF scholarships, but the same average high school with 84.14% of disadvantaged students could expect only about 7 students to go to SUS universities and about 25 students in its zip code to receive FBF scholarships. These results are very detrimental to students from low-income households. Not only is most of the state funding for Florida’s top-tier educational institutions going to the students from high income households, but they are also getting additional scholarship money from the state to pay for their tuition and fees.

Figure 2: The Combined Effect of SUS Enrollment and FBF Scholarships Received



To make a comparison with Pechman’s (1970) analysis of the benefits of state support for higher education which includes the taxes paid by the recipients of the benefits, I calculated the net benefits of SUS enrollment and the FBF scholarship for average high schools with varying percentages of disadvantaged students. I used the U.S. Census Bureau’s American Community Survey estimates of median household income in each zip code to add income to the data. I then arranged the data from bottom to top by the percentages of disadvantaged students in each school. The high schools that had 31.95% (one standard deviation below the mean) or less of disadvantaged students had an average median household income of \$88,480. The high schools that had 84.15% (one standard deviation above the mean) or more of disadvantaged students had an average median household income of \$43,056. I estimated the median household income of the high schools in the middle of the distribution by estimating the average household median income for the high schools within one standard deviation (+ and -) of the mean level of disadvantaged students. Their average median income was \$62,678.

I multiplied these three levels of median income by the Florida average local and state tax rates for each respective income level obtained from the Institute of Taxation and Economic Policy (ITEP, 2018). These were 8.4% for the median household income of \$88,480, and 9.5% for the income levels of \$62,678 and \$43,056. The amount of tax paid is shown in column 4 of the top portion of Table 6. Next, I calculated the portion of those taxes that were used to support the SUS and FBF scholarships. I assumed that the percentage of taxes used for that purpose was equal to the total expenditures for the SUS and FBF scholarships divided by the total of general revenue plus the total of lottery revenues. I used general revenues and lottery revenues because these are the two sources of funding for these programs. I multiplied these percentages by the total taxes paid by the three groups to get the total taxes paid by each group for the SUS and the FBF scholarships. These totals are shown in column 8 of the top portion of Table 6.

I then calculated the probability-weighted benefits received from the SUS and the FBF scholarships by households at the same income levels. These calculations are shown in the middle section of Table 6. The students in the high schools with 31.95% or less of disadvantaged students had a probability of attending an SUS university of $99/1630 = 0.06$ (the number of students attending an SUS university from a 31.95% disadvantaged high school divided by the average high school enrollment in the sample). The same calculation for the high schools with 84.15% or more of disadvantaged students was $7/1630 = 0.01$, and the probability for the students in the high school with the average amount of disadvantaged students was $53/1630 = 0.03$. These probabilities were then multiplied by \$12,119, which was the annual amount of SUS full time equivalent student funding in 2020 (Florida Budget Highlight, 2020). I calculated similar probabilities for receiving a Florida Bright Futures scholarship at the three different levels of disadvantaged students and found probabilities of 0.093 ($152/1630$), 0.055 ($89/1630$), and 0.015 ($25/1630$) for the 31.95%, 58.05% and the 84.15% disadvantaged schools, respectively. These probabilities were then multiplied by the annual benefits of a Florida Bright Futures Scholarship, which is \$202 per credit hour multiplied by 30 hours of credit per year, or \$6360 per academic year.

The bottom portion of Table 6 shows the net benefits of the taxes paid and the benefits received from attending an SUS university and receiving a FBF scholarship for the high schools with the three different levels of disadvantaged students. When the taxes paid are subtracted from the benefits received, the result is the net benefit received by each group. The households with students at the high schools with 31.95% or fewer of disadvantaged students receive positive net benefits of \$541 per student, and the students at the high schools with the average amount of disadvantaged students receive positive net benefits of \$110 per student. However, the households with students at the high schools with 84.15% or more of disadvantaged students receive negative net benefits of \$284 per student, which means the taxes their households pay to support the SUS universities and Bright Futures scholarships outweigh the benefits they receive from the two programs. Thus, even using Pechman's (1970) method of calculation, the net benefits received from higher education in Florida are extremely regressive.

Table 6: The Net Benefits of the SUS and FBF Scholarships for Three Average Florida High Schools with Different Levels of Disadvantaged Students

Tax Calculations							
High School's % of Disadv. Students	Average Income of HH	Average State and Local Tax Rate for Florida (From ITEP)	Taxes Paid	General Rev and Lottery Rev in 2020	Spending on SUS and FBF in 2020	% of Taxes allocated to SUS and FBF	Dollar Amount of Taxes paid for SUS and FBF
(1)	(2)	(3)	(4)= (3)x(2)	(5)	(6)	(7)= (6)/(5)	(8)= (7) X (4)
<31.95	\$88,480	0.084	\$7,432	41.44 billion	4.4 billion	0.106	\$788
58.05 (mean)	\$62,678	0.095	\$5954	41.44 billion	4.4 billion	0.106	\$631
>84.15	\$43,056	0.095	\$4,090	41.44 billion	4.4 billion	0.106	\$434
Benefit Calculations							
High School % Disadv. Students	Prob. of student going to an SUS Univ.	Dollar Benefit of Student in SUS	Prob x SUS Benefit	Probability of student getting FBF Scholarship	Dollar Benefit of FBF \$212 x 30 credit hrs.	Prob x FBF Benefit	Dollar Amount of Total Benefits
(1)	(2)	(3)	(4)= (2)x(3)	(5)	(6)	(7)= (5)x(6)	(8)= (4)+(7)
<31.95	99/1630= 0.06	\$12,119	\$736	152/1630= 0.093	6360	\$593	\$1329
58.05 (mean)	53/1630= 0.031	\$12,119	\$394	89/1630= 0.055	6360	\$347	\$741
>84.15	7/1630= 0.010	\$12,119	\$52	25/1630= 0.015	6360	\$98	\$150
Net Benefit Calculations							
High School % Disadv. Students	Taxes Paid for SUS and FBF	Benefits Received From SUS and FBF	Net Benefits	Net Benefits as a Percentage of Income			
(1)	(2)	(3)	(4)=(3)-(2)	(5)			
<31.95	\$788	\$1329	\$541	541/\$88,480 =0.006			
58.05 (mean)	\$631	\$741	\$110	\$ 110/\$62,678 = 0.0002			
>84.15	\$434	\$150	-\$284	-\$ 167/\$43,056 = -0.004			

DISCUSSION AND POLICY IMPLICATIONS

This research shows that merit-based scholarships without need-based requirements have exacerbated the inequity of the state funding of higher education in Florida. This result is not surprising since one of the stated goals of the scholarship when it was created was to keep academically talented students in the state. It has succeeded in doing that, but more students staying in the state for college has increased the demand for the limited number of seats available in the SUS universities. This has increased the academic requirements for entrance into the SUS universities. The only stated goal of the scholarship that appears on the Florida Bright Futures website today is that the scholarship can “make your educational goals a reality.” However, this reality is much more likely to be achieved by students from high income families than by students from low-income families. This may be an unintentional outcome of the program, but it is an outcome that has major implications for income inequality.

It is important to note that these results are specific to Florida and may not apply to all states. Florida’s tax system is ranked 3rd out of 50 in the list of most regressive state tax systems (ITEP 2018), so the taxes paid by the highest income households in Florida are smaller than in most states. In 2022, the College Board named Florida as one of the least expensive states in which to get a four-year college degree and as having one of the least expensive flagship universities in the country. This means that the subsidies for higher education are higher than in many other states, and there is greater competition to attend these universities. The state also has the highest eligibility requirements to receive a FBF scholarship of the eight states that award lottery-funded merit scholarships. In fact, given the confluence of these three circumstances (highly regressive state taxes, highly restrictive admission to SUS universities, and highly restrictive access to FBF scholarships), Florida is likely to be the upper bound of regressivity for the distribution of these benefits. However, it is still highly likely that in the other seven states with lottery funded scholarships, the distribution of the benefits of higher education is still regressive. More research on this issue is needed in the other states to confirm this speculation.

What can be done to make Florida’s higher education funding more equitable? The most obvious policy recommendation is to fund higher education institutions less and needy students more. The first half of this policy has already been taking place in Florida as state budgets have been strained since the 2008 financial crisis. As state funding to higher education has fallen, tuition has been rising, and this has placed an extreme burden on students from low- and moderate-income families. However, there has been no increase in the amount of need-based state aid for college students to counteract this trend.

Also, as Florida’s revenues have fallen, there has been a doubling down on the requirements to receive the Florida Bright Futures scholarship, especially with respect to standardized test scores. As mentioned above, the SAT score to receive even the lower-valued FBF scholarship is 1210, in a state where the average SAT score was 983 compared to the national average of 1050 in 2022 (College Board, 2022b). The

way that Florida determines admission to SUS universities and receipt of FBF scholarships makes it clear that the goal of state-funded higher education in Florida is not to lift up the children from the households of the lowest income quintiles, but, instead, to reward the children of the households who have already made it into the upper quintiles. However, it does not have to be that way. For example, in Kentucky, their basic lottery-funded merit scholarships are available to all students who earn at least a 2.5 high school GPA, with extra amounts available for students with high test scores or more financial need. They also use their lottery revenues to fund need-based college access grants which are available to all students who received free or reduced lunch in high school and attend a Kentucky university. In Georgia, their lottery-funded HOPE scholarships are available to all students who earned a 3.0 high school GPA and attend a state university. Just removing the SAT score requirement, makes the scholarship much less regressive.

One issue that has not been addressed in this study is the role that state colleges in Florida play in the equity of state funding for higher education in Florida. Unfortunately, the data for this study did not include information on the number of students from each high who enrolled in state colleges, so no estimate of this effect could be made in this study. However, given the aggregate data that exist for Florida's state colleges and universities, some speculative conclusions can be made. There are 28 colleges in the Florida State College system, which was until 2009, the Florida Community College system. In 2023, these colleges enrolled 588,488 students compared to 349,547 students enrolled in the SUS. Although the state colleges enrolled 68% more students in 2023 than the SUS, they received only 56% as much state funding as the SUS in that year (Florida Board of Governors, 2023; Florida Department of Education, 2023a,b). The state colleges have much less rigorous admission requirements and much lower tuitions than the SUS universities. They are often the best option for students from lower-income households to receive a college education in Florida. In fact, the Florida State College System's website states that 65% of Florida's high school graduates begin their post-secondary education at one of the state colleges, and 82% of FTIC freshman and sophomore minority students begin college there (FDOE, 2024). If students earn an AA degree at one of the 28 state colleges, they are guaranteed admission as junior transfers into one of the state universities. Thus, this is a viable path for many low-income students, however, most of them never make it to the SUS. In 2023, only 56,541 students of the 349,547 students enrolled in the SUS universities were state college transfers. That means that only 9.6% of the students enrolled in the state college system go on to pursue bachelor's degrees at an SUS university. The state colleges have been offering their own bachelor's degrees since 2009, but they are struggling to attract students into these 4-year degree programs. In 2023, only 43,304 students were enrolled in bachelor's degree programs in the 28 state colleges, just 7% of their total enrolled students. When it comes to FBF scholarships, in 2022-23, only 8.5% of the students who received the FBF scholarship attended state colleges, whereas 83.3% attended SUS universities, and 8% attended private four-year universities in Florida (Office of Student Financial Assistance, 2023.) In summary, it seems that students who opt to attend a state college for their post-secondary education are receiving much less support from the state both for the support of the institution they attend and for their

own support via a Florida Bright Futures scholarship. Since these institutions serve disproportionately more students from low-income and minority families, it is doubtful that the State College system reduces the regressivity of the net benefits of higher education in Florida, and they might even make it worse.

Is Florida's system of funding higher education fair? Perhaps, if students from the lowest income groups are offered other alternatives into a higher income bracket than they were born into. But do those alternatives exist? States have underinvested in technical and vocational schools so that many of these students must go to expensive for-profit colleges of dubious quality to get training to be a car mechanic or a dental hygienist. Besides, many of the children from low-income households have the potential to succeed in college if they could gain admittance and be given time to catch up with the students from high income households who have had the advantage of better K-12 education. It is important to replicate this study in other states to determine if this is a universal result, or a fluke of Florida's unique fiscal characteristics. If it is universal and if the United States is serious about alleviating income inequality, then higher education must be reformed to better serve the needs of the children from the lowest income brackets instead of just rewarding the children of the highest income brackets.

REFERENCES

- American College Testing (ACT). (2018). 2018 ACT/SAT concordance tables. <https://www.act.org/content/dam/act/unsecured/documents/ACT-SAT-Concordance-Tables.pdf>
- Battle, J., & Lewis, M. (2002). The increasing significance of class: The relative effects of race and socioeconomic status on academic achievement. *Journal of Poverty*, 6(2), 21-35.
- Borg, J. R., & Borg, M. O. (2007). The reverse Robin Hood effect: The distribution of net benefits from the Florida bright futures scholarship. *Florida Political Chronicle*, 18, 1-8.
- Borg, M. O., & Mason, P. M. (1990). Earmarked lottery revenues: Positive windfalls or concealed redistribution mechanisms?. *Journal of Education Finance*, 15(3), 289-301.
- Broer, M., Bai, Y., & Fonseca, F. (2019). Socioeconomic inequality and educational outcomes: Evidence from twenty years of TIMSS. Vol. 5, *IEA Research for Education*. Springer International Publishing. <https://www.springer.com/us/book/9783030119904>
- Caldas, S. J., & Bankston, C. (1997). Effect of school population socioeconomic status on individual academic achievement. *The Journal of Educational Research*, 90(5), 269-277.
- Chmielewski, A. K. (2019). The global increase in the socioeconomic achievement gap, 1964 to 2015. *American Sociological Review*, 84(3), 517-544. <https://doi.org/10.1177/0003122419847165>
- College Board, (2022a). SAT suite of assessments annual report: Florida. <https://reports.collegeboard.org/media/pdf/2022-florida-sat-suite-of-assessments-annual-report.pdf>

- College Board, (2022b). SAT suite of assessments annual report: total group. <https://reports.collegeboard.org/media/pdf/2022-total-group-sat-suite-of-assessments-annual-report.pdf>
- Conlisk, J. (1977). A further look at the Hansen-Weisbrod-Pechman debate. *Journal of Human Resources*, 12(2),147-163.
- Destin, M., Hanselman, P., Buontempo, J., Tipton, E., & Yeager, D. S. (2019). Do student mindsets differ by socioeconomic status and explain disparities in academic achievement in the United States? *AERA Open*, 5(3). <https://doi.org/10.1177/2332858419857706>
- Duffourc, D. (2006). State-funded college scholarships: General definitions and characteristics. *Review of Policy Research*, 23(1), 235-238. <https://doi.org/10.1111/j.1541-1338.2006.00195.x>
- Education Commission of the States. (2023). 50-State comparison: Need- and merit-based financial aid. <https://www.ecs.org/50-state-comparison-need-and-merit-based-financial-aid>
- Federal Reserve Economic Data (FRED). (2021). *GINI index for the United States*. Federal Reserve Bank of St. Louis. <https://fred.stlouisfed.org/series/SIPOVGINIUSA>
- Florida Board of Governors. (2023a). 2023 State University System of Florida admissions tour. <https://www.flbog.edu/resources/admissions-tour>
- Florida Board of Governors. (2023b). Florida College System FTE enrollment: funded, lower and upper division. https://www.flbog.edu/wp-EG_Funding_per_FTE_SUS_and_Univ_1985-2023_final.pdf
- Florida Department of Education. (2020). Know your school. <https://edudata.fldoe.org/>
- Florida Department of Education: Office of Student Financial Assistance. (2023a). 2023-24 Private award amounts Florida bright futures scholarship program. <https://www.floridastudentfinancialaidsg.org/PDF/BFPrivateAwards.pdf>
- Florida Department of Education (2023b). Florida College System FTE enrollment: funded, lower and upper. <https://www.fldoe.org/core/fileparse.php/15245/urlt/C03F29C-2324.PDF>.
- Florida Government. (2019). Budget highlights. <https://www.flgov.com/wp-ontent/uploads/2019/06/Budget-Highlights-Master-.pdf>.
- Florida State University System. (2024). State University System (SUS) Admissions Matrix 2024-2025. [2024-2025 SUS Matrix updated 9-9-2024.pdf](https://www.flbog.edu/wp-EG_Funding_per_FTE_SUS_and_Univ_1985-2023_final.pdf).
- Hansen, W. L., & Weisbrod, B. A. (1969). The distribution of costs and direct benefits of public higher education: The case of California. *Journal of Human Resources*, 4(2), 176-191.
- Hansen, W. L., & Weisbrod, B. A. (1971). On the distribution of costs and benefits of public higher education: Reply. *The Journal of Human Resources*, 6(3), 363-374.
- Hanson, M. (2022). *Average cost of college by year*. Education Data Initiative. <https://educationdata.org/average-cost-of-college-by-year>
- Hanson, M. (2023). *Average student loan debt by year*. Education Data Initiative. <https://educationdata.org/average-student-loan-debt-by-year>.

- Hartman, R. W. (1970). A comment on the Pechman-Hansen-Weisbrod controversy. *The Journal of Human Resources*, 5(4), 519-523.
- Hearn, J. C., & Longanecker, D. (1985). Enrollment effects of alternative postsecondary pricing policies. *The Journal of Higher Education*, 56(5), 485-508.
- Hetzner, C. (2023). Billionaire Amazon founder Jeff Bezos moves to Florida, where his parents live—and capital gains are not taxed. *Fortune*. <https://fortune.com/2023/11/03/jeff-bezos-amazon-florida-miami-seattle-capital-gains-tax>
- Hoenack, S. A. (1971). The efficient allocation of subsidies to college students. *The American Economic Review*, 61(3), 302-311.
- Institute on Taxation and Economic Policy (ITEP). (2018). Who pays: A distributional analysis of the tax systems in all 50 states. <https://itep.org/whopays>
- Jackson, V. & Saenz, M. (2021). *States can choose better path for higher education funding in COVID-19 recession*. Center on Budget and Policy Priorities. <https://www.cbpp.org/research/state-budget-and-tax/states-can-choose-better-path-for-higher-education-funding-in-covid>
- Johnson, W. R. (2006). Are public subsidies to higher education regressive?. *Education Finance and Policy*, 1(3), 288-315.
- Kane, T. (1999). *The price of admission*. Brookings Institution.
- Kao, G. (1995). Asian Americans as model minorities? A look at their academic performance. *American Journal of Education*, 103(2), 121-159.
- Kerr, E. & Wood, S. (2023). What you need to know about college tuition costs. *US News and World Report*. <https://www.usnews.com/education/best-colleges/paying-for-college/articles/what-you-need-to-know-about-college-tuition-costs>
- Knight, S. (2018). *Florida ranks 49th for worst income inequality in the U.S.* Florida Policy Institute. https://assets-global.website-files.com/5cd5801dfdf7e5927800fb7f/5d4c68291a41052c2973435c_BM_Income_Inequality_NEW.pdf
- Kollar, M. (2022). *Income inequality down due to drops in real incomes at the middle and top, but post-tax income estimates tell a different story*. US Census Bureau. <https://www.census.gov/library/stories/2023/09/income-inequality.html>
- Leslie, L., & Brinkman, P. (1988). *The economic value of higher education*. American Council on Education.
- Liu, A., & Xie, Y. (2016). Why do Asian Americans academically outperform Whites?—The cultural explanation revisited. *Social Science Research*, 58, 210-226.
- McGuire, J. W. (1978). The distribution of subsidies to students in California public higher education: Rejoinder. *The Journal of Human Resources*, 13(1), 139-141.
- McKinney, L. (2009). An analysis of policy solutions to improve the efficiency and equity of Florida's bright futures scholarship program. *Florida Journal of Educational Administration & Policy*, 2(2), 85-101.
- Office of Student Financial Assistance (2023). *Florida student scholarship grant programs*. BFRportsF
- Pechman, J. A. (1970). The distributional effects of public higher education in California: A review article [Review of benefits, costs, and finance of public higher education, by W. L. Hansen & B. A. Weisbrod]. *The Journal of Human Resources*, 5(3), 361–370. <https://doi.org/10.2307/144612>

- Rubenstein, R., & Scafidi, B. (2002). Who pays and who benefits? Examining the distributional consequences of the Georgia lottery for education. *National Tax Journal*, 55(2), 223-238.
- State Higher Education Finance. (2022). State profile: Florida. <https://shf.shceo.org/state-profile/florida>
- Statistical Atlas. (2018). Household income in Florida. <https://statisticalatlas.com/state/Florida/Household-Income>.
- Stranahan, H. A., & Borg, M. O. (2004). Some futures are brighter than others: The net benefits received by Florida bright futures scholarship recipients. *Public Finance Review*, 32(1), 105-126.
- Sue, S., & Okazaki, S. (2022). Asian-American educational achievements: A phenomenon in search of an explanation. In M. M. Suárez-Orozco, C. Suárez-Orozco, & D. Qin-Hilliard (Eds.), *The New Immigrants and American Schools* (pp. 297-304). Routledge.
- Toutkoushian, R. K., & Shafiq, M. N. (2010). A conceptual analysis of state support for higher education: Appropriations versus need-based financial aid. *Research in Higher Education*, 51, 40–64. <https://doi.org/10.1007/s11162-009-9148-5>
- University of Florida Office of Student Aid and Scholarships. (2023). Florida Bright Futures program details. <https://www.sfa.ufl.edu/types-of-aid/bright-futures/florida-bright-futures-program-details>.
- University of Florida Office of Student Aid and Scholarships. (2023). Bright futures resource page. <https://www.sfa.ufl.edu/types-of-aid/bright-futures/bright-futures-resource-age/#:~:text=There%20are%20over%2023%2C000%20Florida%20Bright%20Futures%20Scholars,93%25%20of%20incoming%20in-state%20Freshmen%20receive%20the%20award>.
- Willie, C. V. (2001). The contextual effects of socioeconomic status on student achievement test scores by race. *Urban Education*, 36(4), 461-478.
- Windham, D. M. (1976). Social benefits and the subsidization of higher education: A critique. *Higher Education*, 5(3), 237-252.
- World Population Review. (2023). GINI coefficients by country. <https://worldpopulationreview.com/country-rankings/gini-coefficient-by-country>
-

MARY BORG, PhD, is a Professor of Political Economy in the Department of Political Science and Public Administration at the University of North Florida. Her research interests are in public finance, especially in the distributional effects of lottery-funded merit scholarships. Her numerous research articles have been published in the *National Tax Journal*, *Demography*, the *Journal of Economic Education*, and *Educational Policy*, among others. Email: mborg@unf.edu

The Relationship Between Public Funding and Student Access: The Case of Two Public Universities in Africa

Fredua Kwasi-Agyeman
Central University, Ghana
Casimir Adjoe
Central University, Ghana

ABSTRACT

We examine changes in public funding and student access, and the role resource capacity plays in access to higher education by students in two public universities in Africa namely the University of the Western Cape, South Africa, and the University of Ghana, Ghana. The public funding of higher education and student access in South Africa and Ghana have changed over time, and various issues of concern have been raised about the changes. The concerns raised border on the consistent decline in funding, especially public funding. With scarce resources, the governments cannot provide adequate financial support due to factors such as competing interests from other sectors of the economy. We discuss the nature of the changes in public funding and student access from 2007 to 2016. Data analysis is interpreted mainly through the lenses of resource dependence theory.

Keywords: state funding, accessibility, variations, correlation, public universities, Africa, Ghana, South Africa

The main purpose of this study is to illuminate how two public African universities are managing relationship difficulties between public funding and student access. In doing so, we consider policy aims, the functioning of the system and resource constraints. We take a general balanced approach to higher education funding and student access. This means that higher education funding and student access are

studied together and brought into relationship with one another. The aim is to avoid a narrow focus on individual variables.

In South Africa, high levels of poverty and socio-economic inequality have made the funding of students from deprived households a necessity (Plagerson, & Mthembu, 2019). Expanding the participation rate of youth in the higher education system became a priority. The goal was to increase the participation rate of 18 to 24-year olds from 15 percent to 20 percent over a 10 to 15 year period, to meet a growing demand from groups that had previously been denied access to higher education (Council on Higher Education, 2016).

In the twenty years post the introduction of democracy, South Africa experienced a significant growth in student enrollments in higher education, and a major change in the demographic make-up of the student body (Wangenge-Ouma, 2021). These accomplishments were made possible by the carrying out of policy measures such as affirmative action; the acceptance of prior learning to aid access for mature students; extended curriculum programs for students that show potential; and a state-funded national student financial aid scheme (Council on Higher Education, 2016). While access for students has grown rapidly over the years, an increase in public funding to match the growth in access has not occurred (Wangenge-Ouma, 2021). South Africa is struggling to afford its higher education funding, and considerable international literature has been published in recent years on a potential crisis in higher education, mainly caused by reduced public funding levels (National Treasury, 2023). For example, expenditures in higher education and training as a percentage of GDP was 2.0 percent in 2022/2023 financial year; however, this has declined to 1.9 percent of the GDP in 2023/2024 financial year (Department of Higher Education and Training, 2024).

Table 1 shows a breakdown of the various sources of income for public universities from 2017/2018 to 2021/2022. Over the last five years, the largest share of income in public universities has consistently been from government. Government funding allocation to universities has hovered between 39 percent and 44 percent over the past five years. Over one-third of university income was from student fees. As indicated in Table 1, the portion of income from third-stream sources has been fairly consistent over the past five years, with about one-quarter of university income sourced from third-stream sources in 2021/2022.

Table 1: Income for Public Universities by Main Sources: 2017/2018-2021-2022

Year	Government	Third stream income	Student fees
2017/2018	39%	27%	34%
2018/2019	41%	24%	35%
2019/2020	42%	24%	33%
2020/2021	44%	23%	33%
2021/2022	41%	25%	34%

Source: Department of Higher Education and Training, 2024

As changes in public funding keep fluctuating, there have been enormous increases in student access in recent years. For instance, in 2019 alone, over 800,000 matriculants hoped to access higher education, but with 26 public universities admitting only one million students, the competition for places was tough as first-time graduates also struggle to find employment (Mlambo et al., 2021). The increases in higher education enrollment without corresponding funding has affected the quality of education offered and, as a result, those who have finished their undergraduate degrees come back to universities for postgraduate studies not because they want to enroll into postgraduate studies but because they cannot find jobs (Mlambo et al., 2021).

Diminishing financial support for the higher education sector is a global trend, and Ghana is no exception. Modes of higher education funding in Ghana are not significantly different from the overriding approach evident from the rest of the world. In Ghana, expenditures on education as a percentage of GDP was 6-8 percent between 2011 and 2015 (The World Bank, 2021). In recent years, this has declined to 3.9 percent of the GDP in 2018 for education in general and 1.2 percent in tertiary education as last recorded by the World Bank (World Bank, 2021). As contained in the budget statement and economic policy of government for the 2024 financial year, the Ministry of Education has been provided with a budgetary allocation of 29,514,197,713 Ghana Cedis (GH29, 514,197,713) to implement its programs and activities for the 2024 financial year. The breakdown of the allocation in terms of funding sources is presented in Table 2.

Table 2: Allocation in Terms of Funding Sources in Ghana

Sources	Amount (GH)	Percentage Share
Government	22,852,369,750	65.90%
ABFA	2,400,899,587	13.00%
IGF	3,433,253,155	13.60%
Donor	827,675,221	7.50%

Source: Parliament of Ghana, 2023

Ghana's government share of higher education funding is 65.90 percent in 2024 (Parliament of Ghana, 2023). Annual Budget Funding Amount (ABFA) is the annual allocation to the national budget from the petroleum receipts. The Ghanaian government's share of 65.90 percent was the biggest of the four sources, followed by Internally Generated Funds (IGF) from higher education institutions with a 13.60 percent share. Donor funding occupied the last position with just 7.50 percent.

As changes in public funding keep fluctuating, there has also been dramatic changes in student access over the years. For instance, as discussed by the United Nations Educational, Scientific and Cultural Organization (UNESCO) Institute of Statistics (2021), Ghana had a total higher education enrollment of 15.7 percent in 2018, compared to 11.8 percent in 2011, with the former representing about 2,879,063 of the population aged 19 to 23. The total enrollment of female students increased from 8.9 percent in 2011 to 13.6 percent in 2018. On the other hand, enrollment for males increased from 14.5 percent in 2011 to 17.7 percent in 2018 (UNESCO Institute

of Statistics, 2021). Perhaps because of the apparent rise in student enrollment as espoused by some scholars, universities in Ghana are confronted with inadequate funds, which have brought about deteriorating infrastructure and facilities, falling standards, questionable relevance and quality of academic programs, and a general lack of enthusiasm of faculties.

The gap between funding of higher education and student access to higher education is a matter of concern because of its effects on socio-economic life of people and national economy. A country's economic growth hinges on its manpower development resulting from its investment in education. The paper is divided into three main sections. The first section reviews the literature on various funding challenges facing higher education institutions. The second section examines the findings of the study, and the last section discusses the findings. The analysis of data is viewed and interpreted mainly through the lenses of resource dependence theory.

Research Objective

The main objective of the study was to examine the kind of role resource capacity plays in access to higher education by students in two public universities in Africa.

Research Question

The main research question is: What role does resource capacity play in access to higher education in two public universities in Africa? In other words, does resource capacity increase student access?

LITERATURE REVIEW

Higher Education Funding Challenges

Higher education worldwide is facing funding challenges. The world has not found a sustainable mechanism to finance higher education, and, at the same time, the funding allocations to the higher education sector are inadequate, and therefore, the higher education funding climate globally has been in a conundrum for many years (Mgaiwa, 2018). Although as authors we are primarily concerned with the relationship between changes in public funding and student access in South Africa and Ghana, it is necessary to place the ongoing funding debate within the larger picture of financial difficulties being experienced by higher education institutions globally. The assumption is that a clear understanding of the funding challenges facing public universities will open up a more holistic analysis of the objective of this study.

To illustrate the funding challenges, Wangenge-Ouma (2011) opined that funding challenges of higher education institutions are a combination of many factors. Firstly, there are funding allocation formulas that do not consider the cost of higher education provision. For example, in Egypt, Kenya, Uganda, Mozambique, and Nigeria, mainly an *ad hoc* funding mechanism (or incremental budgeting) is used. Although higher education institutions present their budgets with the full costs to government, allocations are not based on the budgets presented.

Appropriations to the individual universities are given using the previous year allocations and do not take into consideration the current year costs of higher education provision. Johnstone (2004) is of the view that the primary funding challenges facing higher education institutions come from two forces. The first of these is the high and rising unit cost or per student cost of higher education without a corresponding increase in public funding. He further explains that when these higher education cost build-ups are not offset with an equal measure of revenue from the state, the resultant effect in some cases is an increase in tuition fees culminating in less efficiency, low productivity, and students from poorer economic backgrounds unable to enroll in higher education institutions. Fussy (2017) argued that, due to the unreliable nature of sources of funding and weak economies, funds less than the costs of higher education provision are allocated to higher education institutions by governments. Even in higher education systems like South Africa that have a well-functioning funding allocation formula, the distribution formula is only used to allocate funds made to higher education institutions from the national budget, but the national budget does not take into consideration the actual costs of running higher education (Friedman, 2018).

The next funding challenge facing higher education institutions is the non-disbursement of all approved funds. The state more often than not refuses to disburse fully all agreed funds, which are already inadequate to higher education institutions. In other words, governments do not pay all the funds approved in the budget of higher education institutions (Wangenge-Ouma, 2011). For instance, in the 2009 financial year, the University of Botswana's requested funding was reduced by 7.0 percent by the government of Botswana (Wangenge-Ouma, 2011). In Tanzania, higher education institutions usually obtain about 20 percent to 30 percent of their annual approved budget requests (Fussy, 2017; Kossey & Ishengoma, 2017). As a consequence, this non-disbursement of all approved funds to higher education institutions has created an opportunity for some institutions to over-budget with the hope that even if the government reviews the budget downwards, they would not be affected much (Mgaiwa, 2018). Closely related to the non-disbursement of all approved funding by the government is the late release of the public funds to the higher education institutions. For example, in Kenya, the agreed funds are released one month in arrears, culminating in delay in cash flow leading to the maladministration of finance and less efficiency in administering the academic programs (Wangenge-Ouma, 2011).

Another funding challenge worth mentioning is state control of tuition fees. In many African higher education systems, tuition fees are free or highly subsidized fees are charged, and in these systems, public higher education institutions are not given the autonomous power to decide tuition fees, especially concerning regular students in commensuration with the rising costs of higher education provision (Wangenge-Ouma, 2011). Many higher education institutions, therefore, have expressed concerns that the state is not prepared to allow the institutions to charge realistic fees; neither is it ready to meet the total costs of higher education (Wangenge-Ouma, 2011). The "FeesMustFall" student protests in South Africa led to no tuition fee increases for 2016, culminating in a significant higher education funding gap between the costs of higher education provision and the financial resources available (Moolman & Jacobs,

2018). For example, it is evidenced that the government released some funds to offset the shortfall, but this was not enough as some institutions had to account for up to 30 percent of it (Moolman & Jacobs, 2018). The limited funds resulted in cross-subsidization by the institutions making it difficult for them to meet their obligations, causing the universities to voice their financial concerns of having zero tuition fees for 2016 (Moolman & Jacobs, 2018).

Another funding challenge that cannot escape the lens of scholars is student debt. Increasing student debt has generated a lot of debate within the circles of scholars, policymakers, and the public (Houle & Addo, 2018). In the current state of affairs, much of the scholarly debate on student debt has been discussing whether the increasing student debt could be described as a crisis (Akers & Chingos, 2016). The conundrum of student debt weakens student fees as a reliable source of income for universities (Wangenge-Ouma, 2011). In the United States of America, the average student in the Class of 2016 leaves with 37,172 dollars in student debt (Friedman, 2018), denying the institutions substantial revenue, which could have been used for infrastructure to increase student access and the cause of this in most cases is the increasing costs of higher education, declining public funding, and uncertainty around financial aid.

Again, in the United States of America, more than 44 million Americans have student debt to settle (Scott et al., 2018). Scott et al. (2018) report that together they owe nearly 1.4 trillion dollars on outstanding student debt. It is evidenced that this level of debt undermines public investment in higher education (Scott et al., 2018) with the overall resultant effect going against student access.

In South Africa, higher education is expensive. Receiving a loan has a very strong impact on student access, especially if the student comes from poor economic background. Limited access to higher education is concentrated on the Black African and Colored population. In order to help the historically disadvantaged students and increase access to higher education for the poorest, the government of South Africa has established a contingent loan program called National Student Financial Aid Scheme (NSFAS). Given the South African economic environment, the NSFAS has become a great avenue for poor students to finance their education (Gurgand et al., 2023).

However, the scheme faces myriad challenges. A report by Damons (2023) shows that more than 87,000 university students could lose their National Student Financial Aid Scheme (NSFAS) funding in 2024 due to budget cuts. The acting CEO of NSFAS, Masile Ramorwesi revealed that the average cost per student is 63 935 Rands for the 2024 academic year and from the 10 percent decrease in university funding from National Treasury, 87, 712 students would be left unfunded in 2024 academic year (Damons, 2023).

In Ghana, the government has established the Students Loan Trust Fund (SLTF) to help poor students to finance their education. A recent report revealed that the scheme faces funding challenges to the extent that the scheme failed to pay about GHS50 million (US\$4 million) to qualified applicants in the 2023 academic year (University World News, 2024). According to the Executive Director of Africa Education Watch, Kofi Asare, the insufficient funding of the SLTF resulted in undue delays in the payment of approved loans and cut the number of successful applicants

to only 70 percent (University World News, 2024). The financial barrier to higher education access continues to pose a great threat to poor students, as the students' loan scheme is underfunded.

Brief Account of the Two Universities

The University of the Western Cape (UWC) is famous for its fight against apartheid, oppression, discrimination and disadvantage in modern day South Africa. The university has been at the forefront of South Africa's historic transformation, playing a leading academic role in helping to build an equitable and dynamic country. UWC's key concerns with access, equity and quality in higher education arise from extensive practical engagement in helping the historically marginalized participate fully in the South African society (University of the Western Cape, 2019). The University of Ghana, the premier university in Ghana, was founded as the University College for the purpose of providing and promoting university education, learning and research and to become a world class-research-intensive University (University of Ghana, 2019).

THEORETICAL FRAMEWORK

Resource Dependence Theory

Jeffrey Pfeffer, the American business theorist and Gerald R. Salancik, the American organizational theorist, developed resource dependence theory in the year of 1978 at Stanford University (Pfeffer & Salancik, 1978). The contribution of Gerry Salancik in the field of organizational studies helped to develop the theory further. The first significant work concerning resource dependence theory was a book published by Pfeffer and Salancik in 1978. The title of the book is "The External Control of Organizations: A Resource Dependence Perspective".

The first principle is that there is a need for organizations to acquire resources to survive. Resource dependence theory postulates that the behaviors of organizations (for example, universities) are influenced by the existence of external resources upon which the organization depends for survival (Pfeffer & Salancik, 2003). To ascertain the resources that an organization needs, one must look for the essential resources in the organization's environment. South African and Ghanaian universities such as the University of the Western Cape and the University of Ghana depend on external resources (public funding) for survival. Relying on essential resources influences organizations' actions and a particular dependency situation can explain organizational decisions (Nienhüser, 2008). To be able to understand the behavior of organizations, one must first make clear which critical resources the organization needs.

A particular resource may only represent a tiny part of total resource needs, but it is vital or essential if the missing or the lack of that resource endangers or threatens the ability of the organization to function or survive (Nienhüser, 2008). For example, without public funding, can the University of the Western Cape and the University of Ghana perform their teaching and learning, research, and community engagement

functions, and sustain student access? The criticality, magnitude, or amount of a resource defines its importance and significance to a particular organization's survival (Etomaru et al., 2016). For instance, changes in resources available to the University of the Western Cape and the University of Ghana may determine changes in the number of students to be enrolled.

In short, both the University of the Western Cape and the University of Ghana need resources to be able to increase student access. To provide student access, the universities need lecture halls, residential facilities, lecturers, laboratories, and money. The critical or essential resource is financial because the universities use the money to acquire the other resources, and the lack of it would threaten the survival of the universities. It is important to note that the two public universities already have all the resources mentioned. The challenge has been the inadequacy of the resources. The critical support has been public funding, which seems to be inadequate for the survival of the two universities in terms of increasing student access.

RESEARCH DESIGN AND METHODOLOGY

The methodology for this article depends on secondary sources in the forms of budget, government policy reports and other literatures around the world concerning financing of public education. We reviewed reports from the Ministry of Education Ghana and through published journals in the field of education.

In Ghana, we collected data from policy and strategic documents such as the annual reports and strategic plans of the University of Ghana. The budget reports of the National Council for Tertiary Education (NCTE), which is in charge of the universities in Ghana, were also of great help in terms of the evidence to the effect that government allocations to the universities have been declining over the years in Ghana. The Council prepares the budget reports annually. They provide statistical analysis of important areas of economic and financial activities of the universities in Ghana.

In South Africa, the Ministerial Statement on University Funding-2015/16 and 2016/17 gave a fair idea of the cost per student in a year and the total cost of attending a university for the entire duration of a course of study. This report explains the funding formula and how the allocations to the universities are done. The Ministerial Statement on student enrollment planning 2014/2015 to 2019/2020 for universities shows national enrollment targets and institutional enrollment targets. It further highlights the challenges facing public universities in their quest to increase student access.

Codd's (1988) framework, entitled *The Construction and Deconstruction of Educational Policy Documents*, guided the examination of documents in this study. Codd argues that policy documents do not cover only one authoritative meaning, nor do they express a set of government's unambiguous intentions. Rather, Codd argues, they have been created within a specific political and historical context, which calls for policy critics to unravel that context. In light of Codd's framework and our research question, the analysis of policy documents began with the search of documents through accessing the websites and offices of the University of Ghana, the University of the Western Cape, National Council for Tertiary Education (NCTE) and

the Department of Higher Education and Training (DHET) of South Africa, followed by critical reading, analysis and evaluation of the meaning of the findings.

This article highlights the nature of public funding of education and student access in developing countries especially the sub-Saharan Africa. Ghana and South Africa were chosen for the study because of the various policies that the two countries have formulated and implemented that have gotten the attention of the world. For example, South Africa has a well-functioning National Student Financial Aid Scheme (NSFAS), and Ghana has Ghana Education Trust Fund (GETFund), with the aim of increasing student access. Therefore, this paper analyses the relationship between public funding of higher education and student access.

RESULTS

Changes in Public Funding and Student Access at UWC

In South Africa, the *Higher Education Act of 1997* gives the Minister of Higher Education and Training the power to settle on the extent and limit of the operations of (a) the public higher education system and (b) individual public higher education institutions. This means that the Minister can specify the academic programs that a higher education institution can provide and how many students should an institution admit (Bunting et al., 2010). The University of the Western Cape and other universities negotiate with the Ministry of Higher Education and Training to set enrollment targets based on the available resources (number of spaces available, number of lecturers, funding) for that particular year. The study found that UWC's enrollment yearly targets have been around 5-10 percent. Table 3 illustrates public funding allocations and student enrollment at UWC.

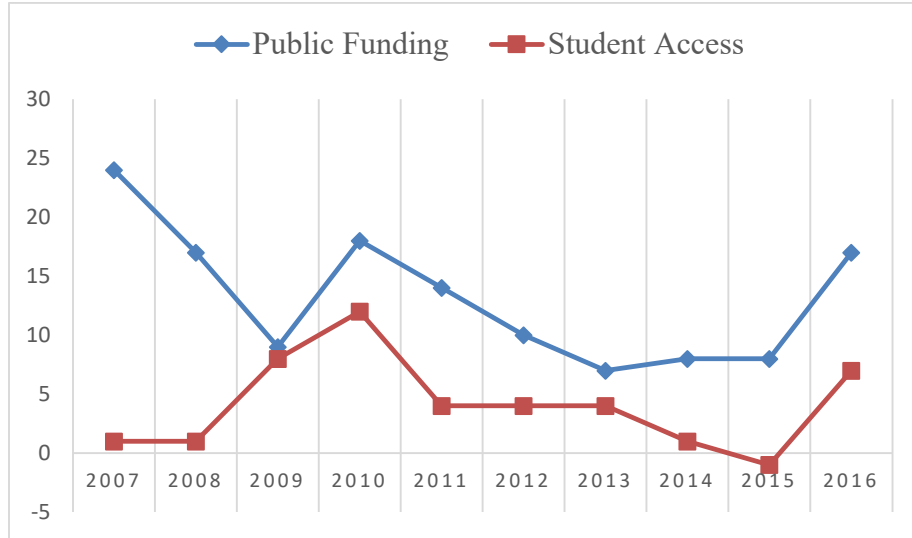
Table 3: Public Funding and Student Enrollment at UWC, 2007-2016

Year	University of the Western Cape			
	Public Funding Amount (in dollars)	Rate of Change (Public Funding) (in percentage)	Student Enrollment	Rate of change (Student Enrollment) (in percentage)
2006	20,162,210	-	14838	-
2007	24,904,958	23.5	14927	0.6
2008	29,238,590	17.4	15074	0.98
2009	31,804,941	8.8	16203	7.5
2010	37,493,309	17.9	18059	11.5
2011	42,564,203	13.5	18764	3.9
2012	46,763,149	9.9	19591	4.4
2013	50,118,064	7.2	20383	4.0
2014	54,106,428	8.0	20582	0.98
2015	58,465,163	8.1	20382	-0.97
2016	68,329,762	16.9	21796	6.9

Source: HEMIS database, 2006-2016.

As shown in Table 3, the 2006 figures were just used to calculate the 2007 rate of change, but the study was from 2007 to 2016. The currency exchange rate was in December 2019. Figure 1 shows the rate of change between public funding and student enrollment at UWC from 2007 to 2016.

Figure 1: Rate of Change between Public Funding and Student Enrollment at UWC



Source: Authors' calculation based on the data. Note that the figures have been rounded up.

Figure 1 illustrates the UWC's data on the rate of change in public financing and the rate of change of publicly funded students (student enrollment) from 2007 to 2016. Public funding to UWC declined from 23.5 percent in 2007 to 16.9 percent in 2016. However, the same period saw student enrollment increasing from 0.6 percent in 2007 to 6.9 percent in 2016. It is apparent to see that the rate of change in public funding to UWC has declined, but, while all the years saw changes, not all grew at the same rate. The largest one-year changes were in 2007 (23.5 percent), 2008 (17.4 percent), 2010 (17.9 percent) and 2016 (16.9 percent) whereas, in terms of student enrollment, the largest one-year changes were in 2009 (7.5 percent), 2010 (11.5 percent) and 2016 (6.9 percent). The smallest rates of change in public funding were 7.2 percent in 2013, 8.0 percent in 2014, and 8.1 percent in 2015, while the smallest rates of change in student enrollment were 0.6 percent in 2007, 0.98 percent in 2014 and negative 0.97 percent in 2015. Notably, within ten years (2007-2016), public funding to UWC has grown at a rate of 13.1 percent per year on average, whereas student enrollment has grown at a rate of 3.98 percent per year on average compared with the institution's yearly target of 5-10 percent increase. It has been argued that changes in public funding patterns affect student enrollment, with implications for how successfully the university is likely to meet its target.

Increases in student enrollment seem to follow the same pattern as public funding, as illustrated in Figure 1. Even though generally there is a downward trend in public funding, increases in student enrollment seem to result from an upward adjustment in public financing, and decreases in student enrollment largely result from decreases in the public funding during these years (2007-2016). The study concludes from the analysis that increasing or decreasing public funding influences the extent to which changes in student enrollment occur. It is evident that having less public funding leads to lower levels of student enrollment at UWC. The next section analyses changes in public funding and student access at the University of Ghana.

Changes in Public Funding and Student Access at UG

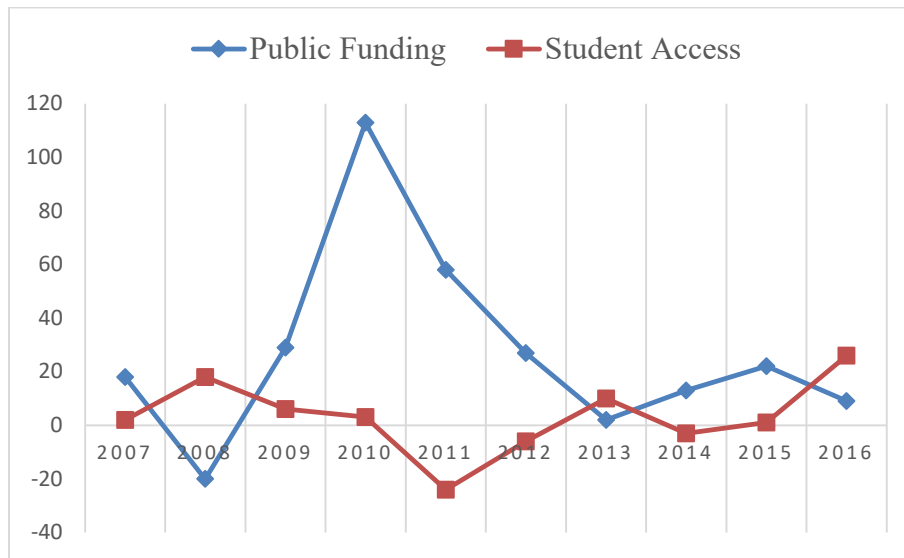
The University of Ghana sets its enrollment targets based on the available resources (the number of lecturers, amount of equipment, number of lecture rooms) to determine what they call the Current Capacity of the university for that particular year. The university typically has an enrollment target of a 10 percent increase annually. Table 4 shows public funding allocations and student enrollment at UG, 2007-2016.

Table 4: Public Funding and Student Enrollment of UG, 2007-2016

Year	University of Ghana			
	Public Funding (Amount in dollars)	Rate of Change (Public Funding) (in percentage)	Student Enrollment	Rate of change (Student Enrollment) (in percentage)
2006	5,556,110	-	28236	-
2007	6,558,006	18.0	28920	2.4
2008	5,276,742	-19.5	34199	18.0
2009	6,800,916	28.9	36092	6.0
2010	14,494,283	113.1	37257	3.0
2011	22,916,981	58.1	28305	-24.0
2012	28,979,360	26.5	26633	-6.0
2013	29,617,865	2.2	29223	10.0
2014	33,472,517	13.0	28288	-3.2
2015	40,761,940	21.8	28552	0.9
2016	44,510,485	9.2	35950	26.0

Source: National Council for Tertiary Education, 2018; University of Ghana Finance Office; National Council for Tertiary Education Finance Office

As shown in Table 4, the 2006 figures were just used to calculate the 2007 rate of change, but the study was from 2007 to 2016. Figure 2 shows the rate of change between public funding and student enrollment at UG from 2007 to 2016.

Figure 2: Rate of Change between Public Funding and Student Enrollment at UG, 2007-2016

Source: Authors' calculations based on the data. Note that the figures have been rounded up.

Figure 2 illustrates the UG's data on the rate of change of public funding and the rate of change of publicly funded students (student enrollment) from 2007 to 2016. Public funding to UG declined from 18.0 percent in 2007 to 9.2 percent in 2016. However, the same period saw student enrollment increasing from 2.4 percent in 2007 to 26 percent in 2016. It is apparent to see that the rate of change of public funding to UG has declined. While all the years saw changes, not all grew at the same rate. The largest one-year changes were in 2009 (28.9 percent), 2010 (113.1 percent), and 2011 (58.1 percent), whereas in terms of student enrollment, the largest one-year changes were in 2008 (18 percent), 2013 (10.0 percent) and 2016 (26 percent). The smallest rates of change in public funding were negative 19.5 percent in 2008, 2.2 percent in 2013, and 9.2 percent in 2016, while the smallest rates of change in student enrollment was negative 24 percent in 2011, negative 6.0 percent in 2012, and negative 3.2 percent in 2014. Notably, within ten years (2007-2016), public funding to UG had grown at a rate of 27.13 percent per year on average, whereas student enrollment had grown at a rate of 3.3 percent per year on average compared with the university's yearly target of 10 percent student enrollment increase. Even though the university grew at an average rate of 3.3 percent in student enrollment within a decade (2007-2016), UG did not achieve its annual target of a 10 percent increase.

Increases in student enrollment do not follow the same pattern as public funding, as illustrated in Figure 2. Even though generally there is a downward trend in public funding, increases in student enrollment do not result from an upward adjustment in public financing, and decreases in student enrollment largely do not result from decreases in the public funding during these years (2007-2016). We conclude from

the analysis that increasing or decreasing public funding does not influence the extent to which changes in student enrollment occur. It is evident that having less public funding does not lead to lower levels of student enrollment at UG.

One of the assumptions of resource dependence theory is that, in times of resource scarcity, universities may reduce their programs or close some of the departments to cut down costs, which may culminate in the decrease in enrollment. We found no evidence that some of the changes in enrollment at both institutions were attributable to a decrease in academic programs or the closing down of some departments to cut down costs.

DISCUSSION

Comparative Analysis

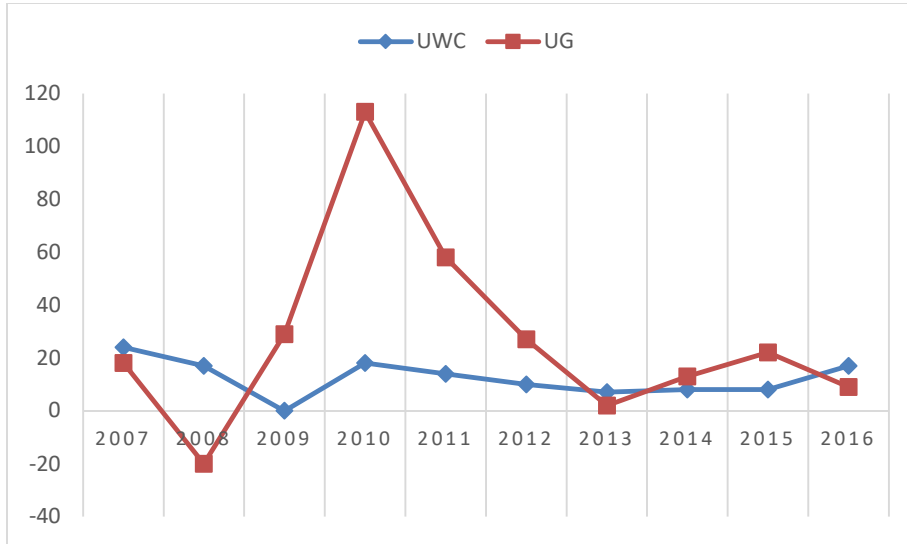
Concerning student enrollment targets, universities in South Africa have a national enrollment plan, a five-year national enrollment plan, which they decide upon with the Department of Higher Education and Training (DHET). The targets they decide on are linked to the various degrees that are offered in the universities. For example, how many Ph.D., Masters, Honors, and undergraduate students can a university admit? This is linked to the resources of the institution, like class sizes and available lecturers. The DHET approves UWC's enrollment targets. This is in line with resource dependence theory's argument that organizations set their targets according to the available or the estimated resources.

The DHET technically sets the targets for the university, but there is always a negotiation between the two in terms of how many students the university can take. The government subsidy is also linked to the number of students that the university admits, and the institution is not allowed to go over a certain percentage of the target. For example, if the university over-enrolls or under-enrolls by more than 2 percent of the target, the university is penalized. The University of the Western Cape's enrollment plan is always with an upward projection. The university's five-year development plan is always that the numbers increase year-on-year, and then the university has to ensure that resources are put in place to match the increases. The annual targets have been around 5-10 percent increase in student enrollments.

Unlike universities in South Africa, universities in Ghana have no national enrollment plan. Individual universities set their student enrollment targets with no discussion with the government. For the University of Ghana, there is what they call the "General Quotas Committee". The General Quotas Committee meets and considers various factors such as the number of lecturers, the amount of equipment, the amount of equipment for science or for practical based courses, the number of classrooms, and government subsidy to determine what they call the "Current Capacity of the University". Those factors determine how many students could be admitted in a particular year. The University of Ghana's annual targets have been around a 10 percent increase in student enrollments. What is common to both University of the Western Cape and University of Ghana, however, is that both universities' enrollment plan is always that the enrollment increases year-on-year.

Regarding changes in public funding and student enrollment, several trends can be teased out. A comparative analysis of the public funding and student enrollment patterns at the two universities in the ten-year period 2007-2016 shows trends that are both similar and different. Figure 3 shows the rate of change in public funding of UWC and UG from 2007 to 2016.

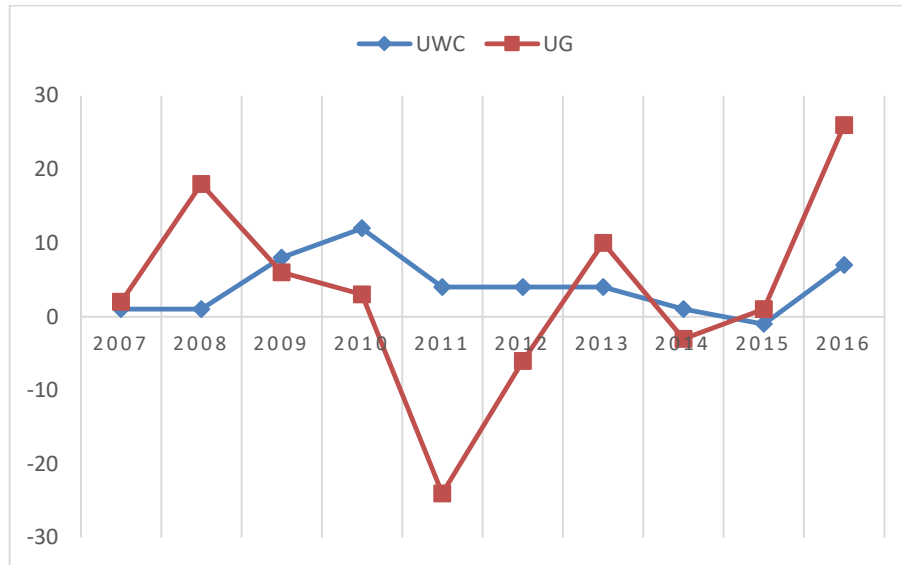
Figure 3: Comparison of Rate of Changes in Public Funding at UWC and UG, 2007-2016



Source: Authors' calculation based on the data. Note that the figures have been rounded up.

Figure 3 shows that at both institutions changes in public funding were greater in the 2007- 2011 period (except 2008 for UG) than they were in the 2012-2015 period. One major difference that characterizes changes in public funding at the two universities is that public funding to UG is marked by monumental fluctuations, including significant reductions in 2008, 2013, and 2016. In contrast, UWC's is relatively stable, marked by small and moderate changes. Figure 10 below shows the rate of change in student enrollment at UWC and UG from 2007 to 2016.

Figure 4: Comparison of Rate of Changes in Student Enrollment at UWC and UG, 2007- 2016



Source: Authors' calculation based on the data. Note that the figures have been rounded up.

UG is the larger of the two in terms of student enrollments. Within ten years (2007-2016) total enrollment at UG increased from 28 920 in 2007 to 35 950 in 2016 recording a total student enrollment of 313 419 within the period (see Table 3) while total enrolment at UWC grew from 14 927 in 2007 to 21 796 in 2016 recording a total student enrollment of 185 761 within the same period (see Table 2).

Figure 4 shows that at UWC changes in student enrollment were greater in the years 2009, 2010 and 2016 period than the others. For UG, changes in student enrollment were greater in 2008, 2013 and 2016 than in other years. The lowest changes in student enrollment at UWC came in the 2007, 2008, 2014 and 2015 periods, whereas the lowest changes at UG happened in 2011, 2012, 2014 and 2015. One major difference that characterizes student enrollment at the two universities is that enrollment at UG is marked by monumental fluctuations. In contrast, UWC's is relatively stable, marked by small and moderate changes.

Within a decade (2007-2016), total student enrollment at UG increased by 24 percent (see Table 3). Within the same period, total student enrollment at UWC grew by 46 percent (see Table 2). Notably, within the ten years (2007-2016), UG's student enrollment has grown at a rate of 3.3 percent per year on average, and UWC recorded almost the same average growth rate of 3.9 percent within the same period. UWC's enrollment growth rate per year, on average, was higher than UG by 0.6 percent. The inconsistent changing patterns of public funding had some implications for student access as, in some cases, a reduction in public funding saw some decreases in student enrollment at UWC.

One significant finding in this study is that there are constraints on resources such as space, equipment and, most importantly, funding, which determine the targets for increasing student access. While the universities aim, in accordance with their mission and vision, to increase access, this is not always playing out in the same way the universities wish. It must be stated that it is not surprising that at UWC there is a positive relationship between changes in public funding and student enrollment because the formula for government allocation of funds to the universities takes into consideration student enrollment. For UG, it is not surprising that there is little relationship between changes in public funding and student enrollment because no funding formula exists in Ghana. The universities in Ghana (including UG) use an ad hoc budgeting approach, which does not consider the number of students to be enrolled.

Although the two institutions operate in different contexts, the evidence from this study supports the resource dependence theory's assumption that there exists a link between the uncertainties in funding and the success of organizations. Uncertainties in public funding at the University of the Western Cape seem to have affected student access. This suggests the need for the universities to refocus their initiatives, not just to accumulate extra resources but also to efficiently and effectively manage the limited resources already in place to mitigate the uncertainties.

Implications of Funding Challenges for Student Access

Concerning funding challenges, it has been argued that a prerequisite of providing access to higher education is funding (Omwami & Keller, 2010). Research on student access reveals barriers that hinder access to higher education both at the time of entering higher education from secondary school and throughout their studies (Finnie et al., 2008). In this context, the term *barrier* is defined as the students' inability to afford their tuition fees, and those affected the most are students from low economic backgrounds (Finnie et al., 2008). In practice, barriers are not only limited to students' inability to pay the costs of higher education or funding. Obstacles such as unpreparedness of students to pursue higher education; students inadequately informed of the benefits of higher education; low educational expectations and ambitions; no support for higher education planning; competing family interests and personal uncertainties are just some of the barriers preventing students from accessing higher education (Eggins, 2010).

The important point about the above discussion is that all the issues are linked to the socioeconomic background of the students (Rodriguez & Wan, 2010), in that, lack of financial resources affects both preparations for, the information regarding the application procedure and enrollment requirements (Rodriguez & Wan, 2010). In a related argument, defining student access in terms of financial trends also tends to lean towards inequalities in higher education, especially for students from low socioeconomic backgrounds (Jacob & Gokbel, 2018).

According to Vukasovic and Sarrico (2010), what can financially hinder student access includes entrance examinations. Entrance examinations are usually organized and managed at the faculties of the universities, which come with extra costs for transportation and accommodation for students living in the rural areas and who are

not close to the universities, and it is always a burden for the poor (Pierce, 2016). Moreover, if student access to higher education is analyzed in terms of student retention, then students can experience drop out because of financial difficulties such as the introduction or increase in tuition fees (Terriquez & Gurantz, 2015; Ziderman, 2013), but when it comes to financial barriers, students from the high socio-economic backgrounds are best positioned to compete for limited spaces (Triventi, 2013).

Using the analysis of the financial barriers in another dimension, Johnstone (2009) argued that the most challenging obstacle to student access, especially in low-income countries, is the limited space of public universities and increases in costs of instruction. To overcome this limited space and cost of instruction, Johnstone (2009) explained that adequate financial resources are needed. The crucial financial challenge facing higher education globally and the reason that even the flagship universities suffer financially is that the higher education sector faces yearly increases in the costs (Johnstone, 2014). These increases come about because of improvements in the wages and salaries of the academic staff (cost of instruction) (Johnstone, 2014). Thus, to sustain student access would mean to increase the costs and annual budget of the higher education sector; the latter is usually not met or not forthcoming (Johnstone, 2009).

Moreover, universities usually take management measures to sustain student access in times of decrease in access, for example, measures such as staff downsizing and capping of access, which generally affects students from low-income families (Johnstone, 2009). Johnstone (2014) further argues that students who are the victims of exclusion include those living in rural areas, the ethnically marginalized, and always the poor (Johnstone, 2014).

Globally, it has been documented that prospective students who are likely to have access to higher education, and those who have access to the best opportunities for higher education and are expected to complete are determined by socio-economic status, gender, ethnicity and race (Reisberg & Watson, 2011). Even before the introduction of tuition fees, students from low income families struggle more to pay for living expenses and the ancillary costs of study (books, materials) than students from higher-income families (Reisberg & Watson, 2011). All other things being equal, students from elite families are better positioned to use higher education structures to advance their education, even getting access to the flagship and prestigious universities (Jerrim et al., 2015; Marginson, 2016). Altbach et al. (2009) concluded that after studying fifteen countries, individuals from affluent families are more advantaged than individuals from poor economic backgrounds to access higher education in some countries. In addition to Altbach et al.'s (2009) conclusion, Marginson (2016) postulated that the inequality in socio-economic status reflects in tuition increases and that funding is a strategic opportunity for elite families. It has been revealed that people from the highest income levels have a higher chance of gaining access to higher education. For example, in Egypt, 76 percent of students who have earned access to higher education came from a higher than median income level, compared to only 9 percent of the population from the most deprived quintile (Jaramillo, 2011). Additionally, Soares (2007) found that in 1988–2000, 64 percent of the students of Tier 1 institutions were from the top 10 percent of American families with higher income levels. Altbach et al. (2009) further argued that

challenges like inadequate accommodation, unequal distribution of resources, and distribution of resources along racial lines disadvantage a particular group of people.

In a related argument, Norton (2016) postulated that limited spaces in higher education institutions hinder students' access. He further explained that decline in public funding may lead to overcrowding in lecture halls; restless academic staff; inadequate or outdated library assets; computing capability challenges; internet connectivity problems; and a deterioration of infrastructure resulting in student demonstrations that terminate the completion of the academic year (World Bank, 2010). Therefore, to overcome these challenges, financial resources, which are not forthcoming, are needed to build the lecture halls, laboratory spaces, and residential halls to accommodate the increasing number of higher education candidates from poor economic backgrounds, rural areas, and ethnic minority groups (Johnstone, 2009). National and local institutional behavior comes out as a critical influence in sustaining student access in the face of declining public funding. The next section is a review of various studies on the behavior of national systems and higher education institutions towards shaping changes in student access in the context of inadequate government funding from a global perspective.

CONCLUSION

We have broadly discussed the various funding challenges facing higher education institutions and their implication for student access and attempts by two public African universities to manage relationship difficulties between public funding and student access.

In respect of enrollment targets, the data indicated that UWC was able to meet 2009, 2010, and 2016 annual targets but missed the rest. Therefore, the data showed that over the years (2007- 2016) public funding, and student enrollment at UWC have seen marked disparities in terms of annual changes. Notably, within ten years (2007-2016), public funding to UWC has grown at a rate of 13.1 percent per year on average, whereas student enrollment has grown at a rate of 3.98 percent per year on average compared with the institution's yearly target of 5-10 percent increase. These data show that even though the university appears to be on track in meeting the student enrollment yearly targets, more needs to be done.

In the case of the University of Ghana, the enrollment figures show that the institution was able to meet 2008, 2013, and 2016 annual targets but missed the rest and, in some cases, by large margins. There were marginal yearly increases in 2007, 2009, and 2010 but did not meet the targets. In the 2011 academic year, student enrollment dipped substantially to negative 24 percent from 3.0 percent in 2010. Notably, within ten years (2007-2016), public funding to UG has grown at a rate of 27.13 percent per year on average, whereas student enrollment has grown at a rate of 3.3 percent per year on average compared with the university's yearly target of 10 percent student enrollment increase. Even though the university grew at an average rate of 3.3 percent in student enrollment within a decade (2007-2016), UG did not achieve its annual target of a 10 percent increase. The university does not appear to be on track in meeting the student enrollment yearly targets.

Taking student access to be study places (enrollment) and to address the question of changes in public funding and student access, a quantitative presentation of the performance reveals that the two institutions have seen downward adjustments in public funding even though changes in public funding at UG are more drastic than at UWC. Our study reveals that the two universities saw some upward changes in student access within the period (2007-2016). In terms of meeting enrollment targets, UWC is performing more satisfactorily than UG. However, it must also be noted that UWC's annual enrollment targets are from 5-10 percent compared to UG's 10 percent. Therefore, UWC's enrollment targets are moderate and easier to achieve than UG's enrollment targets. Our study reveals that, in some cases, student access is dependent on the resource capacity of the universities. This implies that resources available determine the quantity of student enrollment, especially at UWC. In this case, we find that the relationship between changes in public funding and student access at UWC was statistically significant from 2007 to 2016, whereas the relationship between changes in public funding and student access at UG was not statistically meaningful.

REFERENCES

- Akers, B., & Chingos, M. M. (2016). *Game of loans: The rhetoric and reality of student debt*. Princeton University Press.
- Altbach, P. G., Reisberg, L., & Rumbley, L. E. (2009). *Trends in global higher education: Tracking an academic revolution*. UNESCO.
- Atuahene, F. (2014). Charting higher education development in Ghana: Growth, transformations and challenges. In A. W. Wiseman & C. C. Wollhuter (Eds.), *The Development of Higher Education in Africa: Prospects and Challenges* (pp. 215-263). Emerald Publishing Limited.
- Atuahene, F. (2008). The challenge of financing higher education and the role of student loans scheme: An analysis of the student loan trust fund (SLTF) in Ghana. *Higher Education*, 56(4), 407-421.
- Bunting, I., Sheppard, C., Cloete, N., & Belding, L. (2010). *Performance indicators in South African higher education: 2000-2008*. Centre for Higher Education Transformation.
- Codd, J. A. (1988). The construction and deconstruction of educational policy documents. *Journal of Education Policy*, 3(3), 235-47.
- Council on Higher Education. (2016). *South African higher education review: Two decades of democracy*. Author.
- Damons, M. (2023). *NSFAS budget cuts could leave more than 87,000 students without funding in 2024*. GroundUp.
- Department of Higher Education and Training. (2024). *Funding and expenditure trends in post-school education and training*. Author.
- Eggins, H. (2010). *Access and equity: Comparative perspectives. Global Perspectives on Higher Education*. Sense Publishers.
- Etomaru, I., Ujeyo, M. S., Luhanya, A., & Kimoga, J. (2016). Institutional autonomy: Implications for teaching and research in public universities in Uganda. *International Research in Higher Education* 1(2), 133-142.

- Finnie, R., Sweetman, A., & Usher, A. (2008). Introduction: A framework for thinking about participation in post-secondary education. In R. Finnie, R. E. Mueller, A. Sweetman, & A. Usher (Eds.), *Who goes? Who stays? What matters? Accessing and persisting in post-secondary education in Canada* (pp. 3-32). McGill-Queen's University Press.
- Friedman, Z. (2018). Student loan debt statistics in 2018: A \$1.5 trillion crisis. <https://www.forbes.com/sites/zackfriedman/2018/06/13/student-loan-debtstatistics-2018/#7e49c2c57310>
- Fussy, D. S. (2017). Policy directions for promoting university research in Tanzania. *Studies in Higher Education, 43*(9), 1573-1585.
- Gurgand, M., Lorenceau, A., & Mélonio, T. (2023). Student loans: Credit constraints and higher education in South Africa. *Journal of Development Economics, 161*, 10-31.
- Houle, J. N., & Addo, F. R. (2018). Racial disparities in student debt and the reproduction of the fragile Black middle class. *Sociology of Race and Ethnicity, 00*(0), 1-16.
- Jacob, W. J., & Gokbel, V. (2018). Global higher education learning outcomes and financial trends: Comparative and innovative approaches. *International Journal of Educational Development, 58*(2), 5-17.
- Jaramillo, A., & Melonio, T. (2011). *Breaking even or breaking through: Reaching financial sustainability while providing high quality standards in higher education in the Middle East and North Africa*. World Bank.
- Jerrim, J., Chmielewski, A. K., & Parker, P. (2015). Socio-economic inequality in access to high-status colleges: A cross-country comparison. *Research in Social Stratification and Mobility, 42*(1), 20-32.
- Johnstone, D. B. (2014). *Financing higher education: Worldwide perspectives and lessons*. State University of New York.
- Johnstone, D. B. (2009). Worldwide trends in financing higher education: A conceptual framework. In J. Knight (Ed.), *Financing access and equity in higher education* (pp.1-16). Sense Publishers.
- Johnstone, D. B. (2004). Higher education finance and accessibility: tuition fees and student loans in Sub-Saharan Africa. *Journal of Higher Education in Africa, 2*(2), 11-36.
- Kossey, M. M., & Ishengoma, J. M. (2017). Issues and challenges of student financing systems in Africa: The case of Tanzania. *International Journal of African Higher Education, 4*(1), 67-90.
- Marginson, S. (2016). The worldwide trend to high participation higher education: Dynamics of social stratification in inclusive systems. *Higher Education, 72*(4), 413-434.
- Mgaiwa, S. J. (2018). The paradox of financing public higher education in Tanzania and the fate of quality education: The experience of selected universities. *SAGE Open, 8*(2), 1-16.
- Mlambo, V. H., Mlambo, D. N., & Adetiba, T. C. (2021). Expansion of higher education in South Africa: Problems and possibilities. *Journal of Sociology and Anthropology, 12*(2), 30-40.

- Moolman, A., & Jacobs, L. (2018). Responses to the short-term effect of the zero percent fee increase on South African universities. *South African Journal of Higher Education*, 32(1), 178-191.
- National Treasury. (2023). *Estimates of national expenditure 2023: Higher education and training*. Author.
- National Council for Tertiary Education. (2018). *University of Ghana data on student enrolment and graduation output from 2005/2006 to 2016/2017*. Author.
- National Council for Tertiary Education. (2016). *Performance of tertiary education sector: 2016 financial year*. Author.
- National Council for Tertiary Education. (2011). *Performance of tertiary education sector: 2011 financial year*. Author.
- Nienhüser, W. (2008). Resource dependence theory-how well does it explain behaviour of organizations? *Management Revue*, 19(1), 9-32.
- Norton, A. (2016). Equity and markets. In A. Harvey, C. Burnheim, & M. Brett (Eds.), *Student equity in Australian higher education: Twenty-five years of a fair chance for all* (pp. 183-206). Springer.
- Omwami, E. M., & Keller, E. J. (2010). Public funding and budgetary challenges to providing universal access to primary education in Sub-Saharan Africa. *International Review of Education*, 56(1), 5-31.
- Parliament of Ghana. (2023). *Report of the Committee on Education on the 2024 Annual Budget Estimates of the Ministry of Education*. Author.
- Pfeffer, J., & Salancik, G. R. (2003). *The external control of organizations: a resource dependence perspective*. Stanford University Press.
- Pierce, D. (2016). Supporting students beyond financial aid: low-income students need support that goes beyond tuition assistance. *Community College Journal*, 86(4), 12-16.
- Plagerson, S., & Mthembu, S. (2019). *Poverty, inequality and social exclusion in South Africa: a systematic assessment of key policies, strategies and flagship programmes*. CSDA.
- Reisberg, L., & Watson, D. (2011). Access and equity. In P. G. Altbach (Ed.), *Leadership for world-class universities: Challenges for developing countries* (pp. 187-205). Routledge.
- Rodriguez, S., & Wan, Y. (2010). *Connecting research about access to higher education to practice. An introductory guide for educators*. Learning Point Associates.
- Scott, F., Kelton, S., Ruetschlin, C., & Steinbaum, M. (2018). *The macroeconomic effects of student debt cancellation*. Bard College.
- Soares, J. (2007). *The power of privilege: Yale and America's elite colleges*. Stanford University Press.
- Terriquez, V., & Gurantz, O. (2015). Financial challenges in emerging adulthood and students' decisions to stop out of college. *Emerging Adulthood*, 3(3), 204-214.
- Thompson, D. (2024). *NSFAS scrambles to address criticisms, but all not convinced*. University World News.
- Triventi, M. (2013b). The role of higher education stratification in the reproduction of social inequality in the labour market. *Research in Social Stratification and Mobility*, 32(3), 45-63.

- United Nations Educational, Scientific and Cultural Organization (UNESCO) Institute of Statistics (2021). Ghana: Education. <http://uis.unesco.org/en/country/gh?theme=education-and-literacy>.
- University World News. (2024). Concerns raised over student loan trust fund's shortfall. <https://www.universityworldnews.com/post.php?story=20240203104503412>
- University of the Western Cape. (2019d). Early Days. <https://www.uwc.ac.za/Pages/History.aspx>
- University of Ghana. (2019). Establishment of the university. <https://www.ug.edu.gh/content/establishment-university>
- Vukasovic, M., & Sarrico, C. S. (2010). Inequality in higher education: Definitions, measurements, inferences. In G. Goastellec (Ed.), *Understanding inequalities in, through and by higher education* (pp. 1-16). Sense Publishers.
- Wangenge-Ouma, G. (2011). Managing resource dependence difficulties in African higher education: The case of multiple exchange relationships. *Higher Education Policy*, 24(2), 167-184.
- Wangenge-Ouma, G. (2021). *South Africa's higher education funding system can be more realistic without betraying ideals*. University of Pretoria.
- World Bank (2021). Government expenditure on education. <https://data.worldbank.org/indicator/SE.XPD.TOTL.GD.ZS?locations=GH>
- World Bank. (2010). *Financing higher education in Africa*. Author.
- Ziderman, A. (2013). Increasing access to higher education through student Loans. *DICE Report*, 11(2), 11-18.
-

FREDUA KWASI-AGYEMAN, PhD, has expertise in the teaching of educational studies. His higher education and career span across four universities in three countries. He obtained a BA at the University of Ghana, a MS at the Norwegian University of Life Sciences, a M.Phil. at the University of Oslo, and a Ph.D. at the University of the Western Cape. His research interests include higher education studies with a particular focus on funding of higher education institutions and student access as well as the relationship between funding and access. Email: kwasiagyeman57@yahoo.com

CASIMIR ADJOE, PhD, is a graduate of the University College London Institute of Education and the National University of Ireland. He graduated with a double honours degree in English and sociology from the National University of Ireland and a Ph.D. in applied linguistics from the University college London Institute of Education. He works in the tradition of interdisciplinarity, multidisciplinary, and cross-cultural disciplinary research. His research is oriented toward literary theory and critical theory, critical language studies, critical discourse analysis, linguistic ethnography, and the ethnography of communication and centered mainly in the educational domain and space. Email: casimire@central.edu.gh

Does College Guarantee Economic Mobility? Incorporating Lost In-kind Benefits into the Calculation

Amy S. White, Ed.D., S.M.
Lehman College of the City University of New York

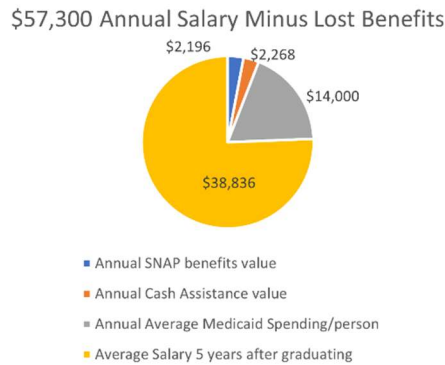
A college degree is marketed to low-income students as the means for being catapulted out of poverty (Capelli, 2020; Chetty et al., 2017; Deming, 2023). Since 2017, I have taught at a college with >50% of students in a family with less-than \$50,000 income (Lehman, n.d.). Through my work, I have identified a gap in the literature and supportive services for these low-income students: the value of benefits lost upon graduation is not incorporated into economic mobility calculations. And, students are not prepared to lose their benefits.

Students from poverty-level families may qualify for public (cash) assistance, Medicaid, Supplemental Nutritional Assistance Plan (SNAP), and/or Section 8 housing vouchers. Upon graduation and earning a Bachelor's-level salary, these same students will out-earn income thresholds set by each state and lose the benefits. Losing one's benefits is neither sufficiently explained to graduating students nor are the cash values of these benefits incorporated into economic mobility calculations. This opinion piece describes the problem and highlights areas for future action and research.

Economic mobility is defined as an individual's ability to improve their economic status in their lifetime. Researchers have firmly established the greater earning potential for a college graduate over a high school graduate, even when segmenting the data by public vs. private college tuition, four- vs. five-year degree, humanities vs. STEAM (Science, Technology, Engineering, Arts, Math) major, and Associate's then Bachelor's degree vs. four-year college only (Abel & Deitz, 2014; Lobo & Burke-Smalley, 2018; Wright & Ross, 2019). What is missing from these calculations is an incorporation of the lost benefits in estimating the economic mobility associated with a college degree. See Figure 1 presenting the economic hit of losing SNAP, Medicaid, and Cash Assistance that brings the experience of

earning a \$57,300 salary (average salary five-years post-graduation across all majors) down to feeling like you are earning \$38,836.

Figure 1: Lived Experience of Lost In-Kind Benefits from a Full-Time Salary



Additionally, paying copayments, coinsurance, a deductible, and a portion of a health care premium, plus selecting an HMO (health maintenance organization) vs a PPO (preferred provider organization) vs. a high deductible plan with a savings account is a nuanced decision that is further complicated for somebody previously on Medicaid where enrollees see neither claims nor paperwork (White, 2023). A college degree is advantageous for all, however, there needs to be greater transparency in explaining benefits transitions to graduating students. There is a wide variation in the benefits offered by public and private employers; particularly for first generation college students and students from families receiving public assistance, additional supportive services and career readiness is needed to fulfill the promise of a college degree and support graduating students in evaluating job offers' total economic value (salary plus benefits).

My recommended future research is to incorporate the value of lost benefits into economic mobility calculations and to compare pre- and post-tax dollars used for benefits. The calculations need to be segmented by degree and major, public vs. private college, and public vs. private sector employment as the salaries plus benefits vary by employment type. Return on investment of a college degree is a spectrum, not a point estimate, so an array of estimates for the salaries and benefits by major would be a more transparent representation of the experience of earning a college degree.

This opinion piece points out the missed opportunity of supporting students as they earn higher salaries and lose in-kind benefits. Not considering lost benefits in the economic mobility calculations does not present the lived experience of receiving the benefits and could mislead or misinform students to think they will be qualified for the benefit indefinitely. Colleges may be putting some students into worse circumstances by not being transparent about the variation in income range by major. Discussions on the earning potential of college majors and health insurance literacy

will better prepare students to make informed decisions about their future. The financial and health consequences of not being transparent, plus the gendered differences in college majors and salaries, implore student support services and researchers to conduct more research on this topic and expand resources to college students. My recommendation is to fill the research gap and support students selecting jobs and benefits packages.

REFERENCES

- Abel, J. R., & Deitz, R. (2014). Do the benefits of college still outweigh the costs? *Current Issues in Economics & Finance*, 20(3), 1–12. www.newyorkfed.org/research/current_issues
- Cappelli, P. (2020). The return on a college degree: The US experience. *Oxford Review of Education*, 46(1), 30–43. <https://doi.org/10.1080/03054985.2019.1689939>
- Chetty, R., Friedman, J. N., Saez, E., Turner, N., & Yagan, D. (2017). *Mobility report cards: The role of colleges in intergenerational mobility*. NBER Working Papers, http://www.equality-of-opportunity.org/papers/coll_mrc_paper.pdf
- Deming, D. (2023). *Why do wages grow faster for educated workers?* National Bureau of Economic Research. 31373. DOI 10.3386/w31373. <https://www.nber.org/papers/w31373>
- Lehman College, (n.d.). Facts about Lehman. <https://www.lehman.edu/lehman-legacy/lehman-facts.php>.
- Lobo, B. J., & Burke-Smalley, L. A. (2018). An empirical investigation of the financial value of a college degree. *Education Economics*, 26(1), 78–92. <https://doi.org/10.1080/09645292.2017.1332167>
- White A. S. (2023). Transitioning from Medicaid to private health insurance: informing public and private sector outreach. *Frontiers in Health Services*, 3, 1166034. <https://doi.org/10.3389/frhs.2023.1166034>
- Wright, A. M., Ross, M. M., & DeMello, J. P. (2019). To college, or not to college: An individualized approach to human capital investment. *SSRN Electronic Journal*. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3440674

AMY S. WHITE, Ed.D., S.M., is an Assistant Professor at Lehman College of the City University of New York. She studies health insurance and health care disparities, particular the discontinuities of care faced by individuals such as recent college graduates transitioning from Medicaid to private health insurance. Email: Amy.White2@Lehman.CUNY.edu

Transgender Athletes and Title IX Compliance

Ryan Creps, Ph.D.
Boston College

ABSTRACT

This opinion piece examines the complex issue of transgender athletes in college sports, focusing on recent federal policy changes and their implication for Title IX compliance. The article highlights the tension between inclusive policies and concerns about competitive fairness, while noting the lack of data on transgender athlete participation. Anecdotal estimates suggest that the number of transgender athletes in college sports is incredibly small, suggesting that the issue may receive disproportionate attention compared to more widespread challenges in college sports. The article argues that while the debate over transgender participation is significant, it should not overshadow persistent issues such as widespread noncompliance with Title IX standards for women's athletics. The article calls for a balanced approach that addresses systemic inequities affecting a larger number of student athletes.

Keywords: Title IX, policy, intercollegiate athletics, NCAA, women, equity, transgender athletes

On Inauguration Day, President Donald Trump signed an executive order, establishing a policy recognizing two sexes, male and female, for interpreting federal law and administrative policy (Migdon, 2025). This order marks a major shift from the Biden administration's position in federal policy, and holds significant implications for higher education, especially regarding Title IX.

Title IX (1972), enacted as part of the Education Amendments of 1972, prohibits sex-based discrimination in any educational program or activity receiving federal funding. The interpretation and application of Title IX have evolved over time and were expanded by executive order under the Biden administration to include protections for gender identity (Exec. Order No. 13988, 2021). The latest policy reversal has far-reaching implications on the immediate future of higher education

and will likely significantly alter the criteria for student participation in intercollegiate athletics.

TRANSGENDER ATHLETES IN WOMEN'S SPORTS

The participation of transwomen in women's sports was a contentious campaign issue in the 2024 election (Alonso, 2024; Associated Press, 2024; Russo, 2025). Proponents of inclusive policies argue for equal rights and opportunities (National Women's Law Center, 2023), while critics raise concerns about competitive fairness and the potential loss of opportunities for cisgender women at the high school and college level, including the loss of college scholarships (Houchin, 2024; Weisman, 2022). Critics point to studies that transwomen who have gone through male puberty retain certain physical advantages, such as bone density and muscle mass (Alvares et al., 2022; Heather, 2022), but supporters point to other studies that suggest these advantages may be negated for transwomen who undergo hormone therapy (Burns, 2024; Hamilton et al., 2024). A Gallup poll found that most Americans believe athletes should compete according to their biological sex (Jones, 2023).

CHALLENGES IN STUDYING TRANSGENDER ATHLETE POPULATION

As someone who studies Title IX compliance, I've been asked several times about my opinion on this issue. The question that I am most interested in answering is whether women's participation numbers were significantly inflated because of transwomen participation in sports. Women are underrepresented in college athletics and most institutions are noncompliant with the substantial proportionality standard of Title IX (Creps, 2024; Yanus & O'Connor, 2016). This shortcoming is in addition to policies that allow institutions to inflate the number of women in sports by double counting women who play multiple sports and counting male practice players for women's teams as female athletes (Eisenberg, 2022; U.S. Department of Education, 2023).

As I set out to learn more about the number of trans athletes competing in college sports, I was hampered by a lack of data. The Equity in Athletics Disclose Act (EADA) survey, which must be completed annually by all co-educational postsecondary institutions that sponsor intercollegiate sports and receive federal funds, does not collect specific data on transgender athletes. Its policy is for athletes to be counted in accordance with their gender identity (U.S. Department of Education, 2023).

While there is no official count of trans athletes in college sports, anecdotal estimates suggest that the number is relatively small. NCAA President Charlie Baker estimated that fewer than 10 out of approximately 510,000 NCAA athletes identified as transgender, representing less than 0.002% of the total athlete population (Russo, 2025). Other estimates range as high as 40 athletes in college sports and as many as 100 in high schools nationwide (Skinner, 2023; Wolfe et al., 2024). Thus, to answer my question, it seems unlikely that women participation numbers in college sports are inflated by transwomen participation.

However, these estimate, if accurate, underscore the complexity of addressing transgender athlete participation in college sports. The small number of transgender athletes precludes the feasibility of creating separate divisions or leagues as some critics have suggested. Yet, notable success of transwomen, like Lia Thomas, a swimmer from the University of Pennsylvania, whose ranking in the 200-meter freestyle improved from 554th in the men's division to fifth in the women's division after transitioning (Lohn, 2022), offers support for those who claim that the inclusion of transwomen in women's sports is unfair for ciswomen.

FINAL THOUGHTS

It appears Congress is advancing legislation to require athletes to participate in sports based on their biological sex (Karni, 2025). While this debate is significant, it's important to maintain perspective. The number of transgender athletes is remarkably small, suggesting the issue may receive disproportionate attention. Meanwhile, more pervasive challenges persist, such as widespread noncompliance with Title IX standards for women's athletics. These systemic inequities affect far more student-athletes and deserve national attention and legislative action.

REFERENCES

- Alonso, J. (2024, December 9). What San Jose State volleyball teaches us about the debate over trans athletes. *InsideHigherEd*. <https://www.insidehighered.com/news/diversity/sex/gender/2024/12/09/volleyball-controversy-highlights-debate-over-trans-athletes>
- Alvares, L. A. M., Pereira, N. B., Mello, G. P., Reis, G. A. B., Zogheib, L. F. C., Turatti, R. C. B., Pereira, R. M. R., Bonfá, E., Borba, V. V., & Costa-Hong, V. (2022). Cardiopulmonary capacity and muscle strength in transgender women on long-term gender-affirming hormone therapy: A cross-sectional study. *British Journal of Sports Medicine*, 56(22), 1292-1298. <https://doi.org/10.1136/bjsports-2021-105400>
- Associated Press. (2024, December 24). Donald Trump said he wants to ban trans athletes from competing. The reality is more nuanced. *U.S. News*. <https://www.usnews.com/news/politics/articles/2024-12-18/donald-trump-said-he-wants-to-ban-trans-athletes-from-competing-the-reality-is-more-nuanced>
- Burns, K. (2024, April 22). This study on trans women's athletic disadvantages out to change the debate. *MSNBC*. <https://www.msnbc.com/opinion/msnbc-opinion/olympic-trans-women-ioc-study-rcna148437>
- Creps, R. (2024). *A policy paradox: A quantitative analysis of Title IX athletic compliance and sex-conscious admissions* (Publication No. 12868) [Doctoral dissertation, Boston College]. ProQuest Dissertations and Theses Global.
- Eisenberg, J. (2022, June 22). Counting men as women? Inside the fuzzy math of Title IX compliance. *Yahoo! Sports*. <https://sports.yahoo.com/counting-men-as-women-inside-the-fuzzy-math-of-title-ix-compliance-132707743.html>

- Executive Order No. 13988, 86 Federal Register 7023 (January 25, 2021). <https://www.federalregister.gov/documents/2021/01/25/2021-01761/preventing-and-combating-discrimination-on-the-basis-of-gender-identity-or-sexual-orientation>
- Hamilton, B., Brown, A., Montagner-Moraes, S., Comeras-Chueca, C., Bush, P. G., Guppy, F. M., & Pitsiladis, Y. P. (2024). Strength, power and aerobic capacity of transgender athletes: a cross-sectional study. *British Journal of Sports Medicine*, 58(11), 586-597. <https://doi.org/10.1136/bjsports-2023-108029>
- Heather, A. K. (2022). Transwoman Elite Athletes: Their Extra Percentage Relative to Female Physiology. *International Journal of Environmental Research and Public Health*, 19(15), 9103. <https://doi.org/10.3390/ijerph19159103>
- Houchin, E. (2024, February 7). Protecting female athletes should not be controversial. *The Washington Times*. <https://www.washingtontimes.com/news/2024/feb/7/protecting-female-athletes-should-not-be-controver/>
- Jones, J. M. (2023, June 12). More say birth gender should dictate sports participation. *Gallup*. <https://news.gallup.com/poll/507023/say-birth-gender-dictate-sports-participation.aspx>
- Karni, A. (2025, January 14). House passes bill to bar trans athletes from female school sports teams. *The New York Times*. <https://www.nytimes.com/2025/01/14/us/politics/house-trans-athletes.html>
- Lohn, J. (2022, April 5). A look at the numbers and times: No denying the advantages of Lia Thomas. *Swimming World*. <https://www.swimmingworldmagazine.com/news/a-look-at-the-numbers-and-times-no-denying-the-advantages-of-lia-thomas/>
- Migdon, B. (2025, January 20). Trump signs executive order recognizing only 2 sexes. *The Hill*. <https://thehill.com/homenews/administration/5097278-trump-executive-order-gender-transition/>
- National Women's Law Center (2023, December 6). Once and for all: This is why we support trans women and girls in sports. *National Women's Law Center*. <https://nwlc.org/once-and-for-all-this-is-why-we-support-trans-women-and-girls-in-sports/>
- Russo, R. D. (2025, January 14). NCAA president says legal clarity needed on transgender athlete participation. *The Athletic*. <https://www.nytimes.com/athletic/6062855/2025/01/14/ncaa-transgender-athlete-policy-charlie-baker/>
- Skinner, A. (2023, April 21). How many transgender athletes play women's sports? *Newsweek*. <https://www.newsweek.com/how-many-transgender-athletes-play-womens-sports-1796006>
- U.S. Department of Education. (1972). *Title IX of the Education Amendments of 1972*. <https://www2.ed.gov/policy/rights/reg/ocr/edlite-34cfr106.html>
- U.S. Department of Education. (2023). *User's guide for the equity in athletics disclosure act web-based data collection*. https://surveys.ope.ed.gov/athletics2023/wwwroot/documents/2023_EADA_Users_Guide.pdf
- Weisman, D. L. (Fall 2022). Transgender athletes, fair competition, and public policy. *Regulation*. <https://www.cato.org/regulation/fall-2022/transgender-athletes-fair-competition-public-policy>
- Wolfe, E., Yu, A., & Taguchi, E. (2024, May 12). A college athletics association banned transgender women from women's sports. Now all eyes are on the

NCAA. *CNN*. <https://edition.cnn.com/2024/05/12/sport/naia-ncaa-transgender-ban-sports/index.html>

Yanus, A. B., & O'Connor, K. (2016). To comply or not to comply: Evaluating compliance with title IX of the educational amendments of 1972. *Journal of Women, Politics & Policy*, 37(3), 341-358. <https://doi.org/10.1080/1554477X.2016.1188601>

Ryan Creps, Ph.D., recently completed his doctorate in Higher Education from Boston College, focusing on college admissions and intercollegiate athletics. His dissertation identified widespread underrepresentation of women in athletics across institutions over the last two decades and found an association between compliance and the difference in the male and female admissions rates, indicating that compliant institutions may meet Title IX's athletic regulations by restricting female admissions. Email: ryan.creps@bc.edu

