The consequences of the COVID-19 crisis for higher education student and institutional inequalities in South Africa

RESEP QER CONFERENCE

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SALDRU
Southern Africa Labour and Development Research Unit

Siyaphambili
We Are Moving Forward

Introduction

- The global education landscape underwent unprecedented disruptions due to the onset of COVID-19.
- Closures of residences and campuses removed equalising learning environments, returning students home.
- Institutions and students were differentially prepared to transition to online teaching and learning.
- At the end of the 2020 academic year, however, improved performance across the sector was announced.

Introduction

- Raises questions of the source of this aggregate improvement.
  - Actual learning versus cheating, lecture leniency and/or content reduction?
  - Differential student dropout rates?
- Today we unpack evidence on this from two papers from our project examining the implications of Covid-19 for higher education inequalities in SA.
- We ask:
  - What happened to student retention in 2020?
  - Does aggregate improvement mask differences by prior performance and socio-economic status?
  - Does performance in 2021 shed further light on what happened in 2020?

Presentation outline

1. Higher Education Context
2. Data and Outcome Measures
3. Student Retention During 2020
4. University Students' Academic Performance
5. Conclusion

Context

What does existing work show?

- COVID-19 impacts differ by:
- **Pre-pandemic academic performance**
    - e.g. Ardington et al. (2021); Grewenig et al. (2021)
- **Socioeconomic status (SES) and funding status**
    - e.g. Ardington et al. (2021); Rodríguez-Planas (2022), Lui (2021)
- **Share of disadvantaged students**
    - e.g. Maldonado and Witte (2020)
- **Characteristics of the institution or programme**
    - e.g. Prudencio et al., (2023); Chambers et al. (2023)

South African Higher Education

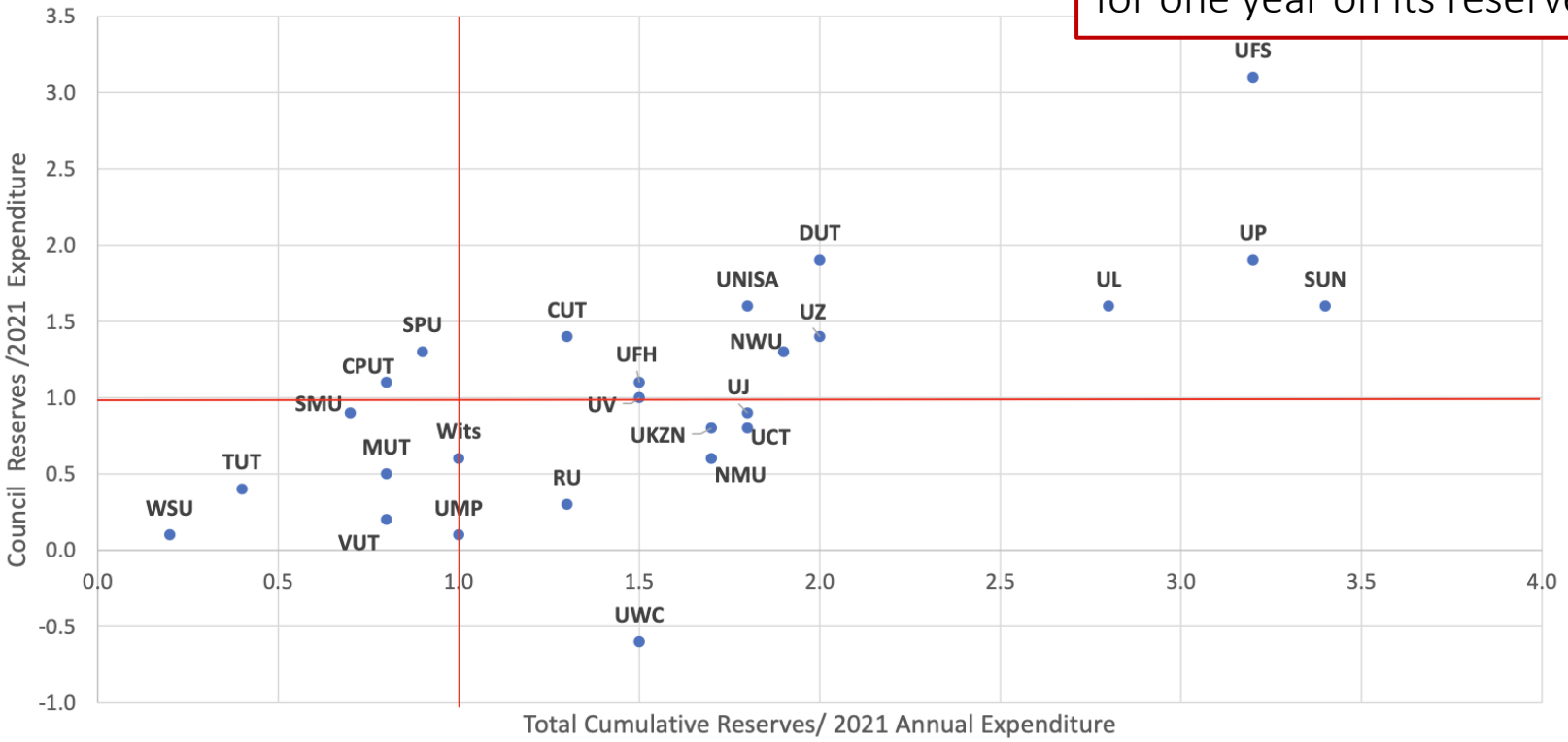
- System intentionally differentiated to meet the range of skill and knowledge requirements.
- Activities across undergraduate and postgraduate levels determine classification as:
  - **teaching-led** - University of Technology (**UoT**);
  - **comprehensive** - Comprehensive University (**CU**), or
  - **research-led** - Traditional University (**TU**)
- Institutions also differentiated by apartheid policy (dis)advantage.
  - Historically disadvantaged (**HD**) institutions were designated to serve Black students, **HA** to serve White students
  - **Mergers** to reconfigure a fragmented and unequal system

South African Higher Ed (HE)

- Public HE institutions shaped by:
  - structure of funding framework - the enrolment plan; enrolment, graduation, and research incentives,
  - NSFAS policies and the share of students paying tuition fees directly and,
  - availability of third-stream funds.
- Relative weighting linked to institutional type and, continues to be aligned with historical (dis)advantage.
- Institutions thus differ in the composition of their staff and student bodies, their geographical location, and the infrastructure and the resources available in them.
- Together, these affected institutions' abilities to facilitate remote teaching and learning.

Ability of an institution to operate without any income. E.g. a ratio of 1 implies that the institution could operate for one year on its reserves.

Sustainability Ratios 2021

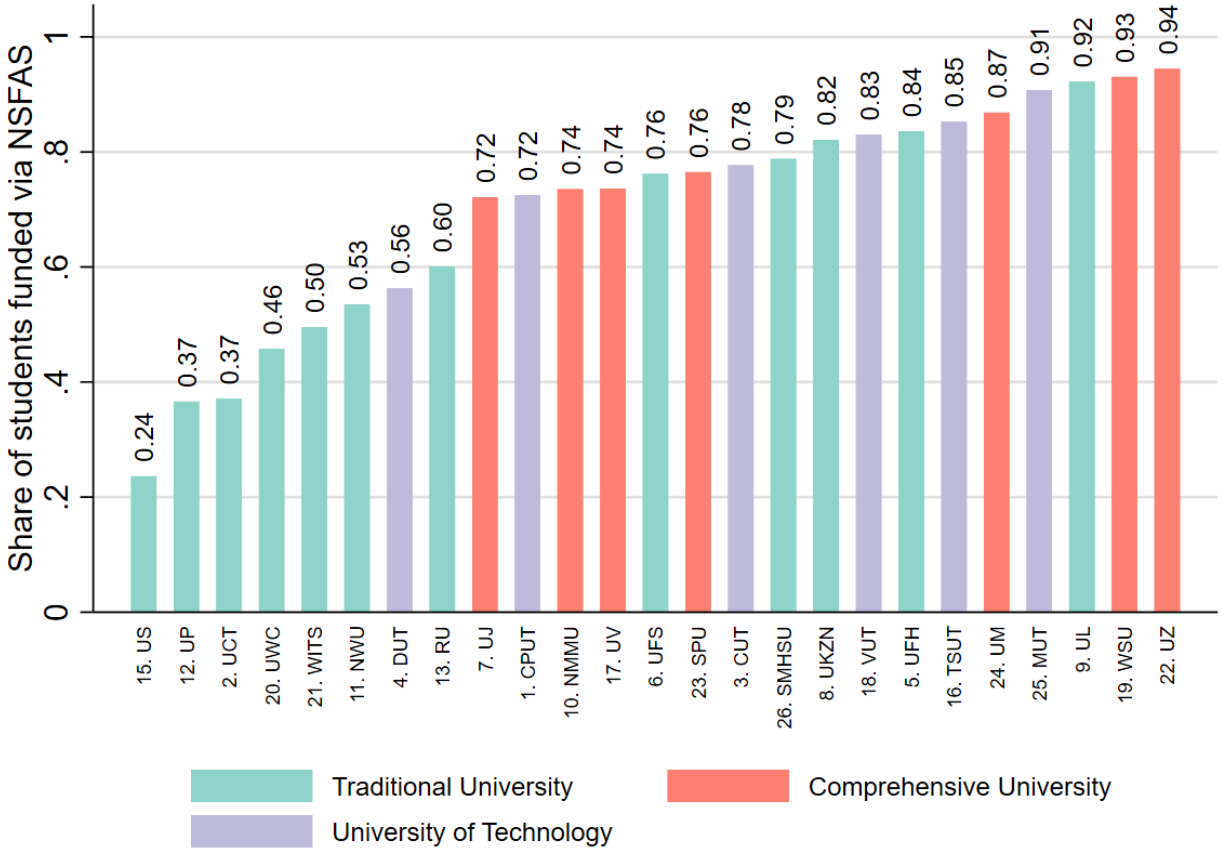


The sustainability ratios indicate the ability of an institution to operate without any income: a ratio of 1 implies that the institution could operate for one year on its reserves. Council controlled reserves are discretionary; total reserves include restricted reserves. Institutions with both ratios >1 are seen as sustainable over the medium term.

Data source: Universities' annual financial statements 2015 to 2020

Source: Diane Parker and Thandi Lewin, SAAIR presentation 2023

Share of students funded via the National Student Financial Aid Scheme (NSFAS), 2020



Response during 2020

- Although the shutdown and closure of all universities and residences was central, there were no centralised guidelines or support provided.
- Many institutions:
  - Provided laptops and data
  - Reduced course content and submission requirements
  - Extended the academic year to March 2021
- With 69% of students funded via NSFAS, the funding adjustments made by NSFAS in response to the pandemic largest centralised response in the sector.

NSFAS funding in 2020

- Living allowances were equalised across all NSFAS accommodation groups to R1 500 per month.
- Tuition and accommodation was paid as before, without adjustments for returning home.
- Therefore, the situation of NSFAS students in campus residences (both on campus and off campus) would have changed the most.

Data and outcome measures

COVID-19 & INEQUALITIES IN HIGHER EDUCATION

Retention	Performance
National level	Institution level
2020	2020 & 2021

Disaggregate effects by NSFAS status

Findings

National retention analysis

- Deciding to dropout is a plausible response to the hardships faced in 2020.
- Interesting question in SA context: funding and poor employment prospects add an additional dimension to this decision.
- NSFAS bursary removes the direct cost of attendance, but is targeted to students from lower SES households, those most vulnerable to hardship and limited access to data and devices for learning during Covid-19.
- Relative impact of Covid-19 for inequality in terms of retention in HE is therefore unclear.

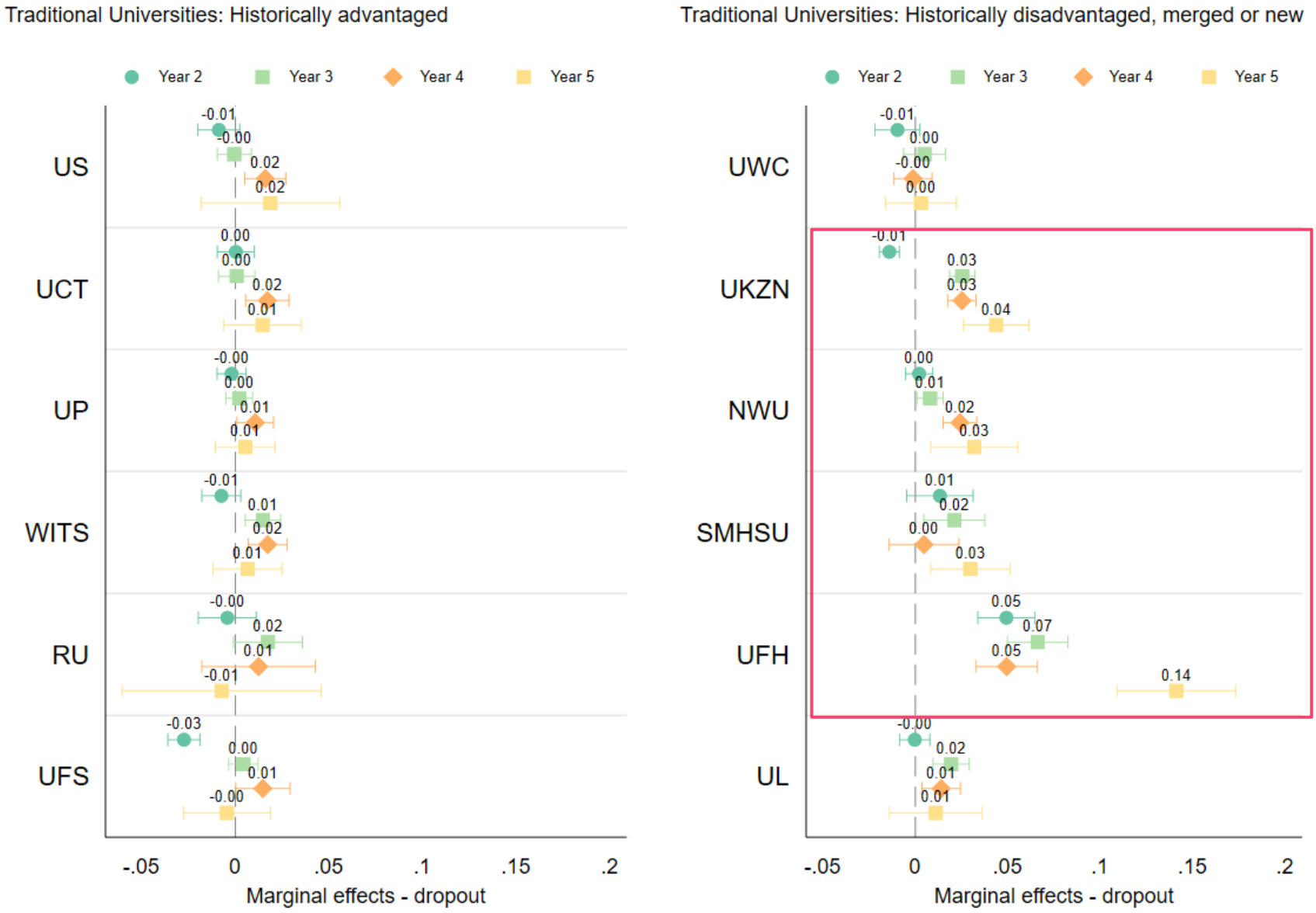
National retention analysis

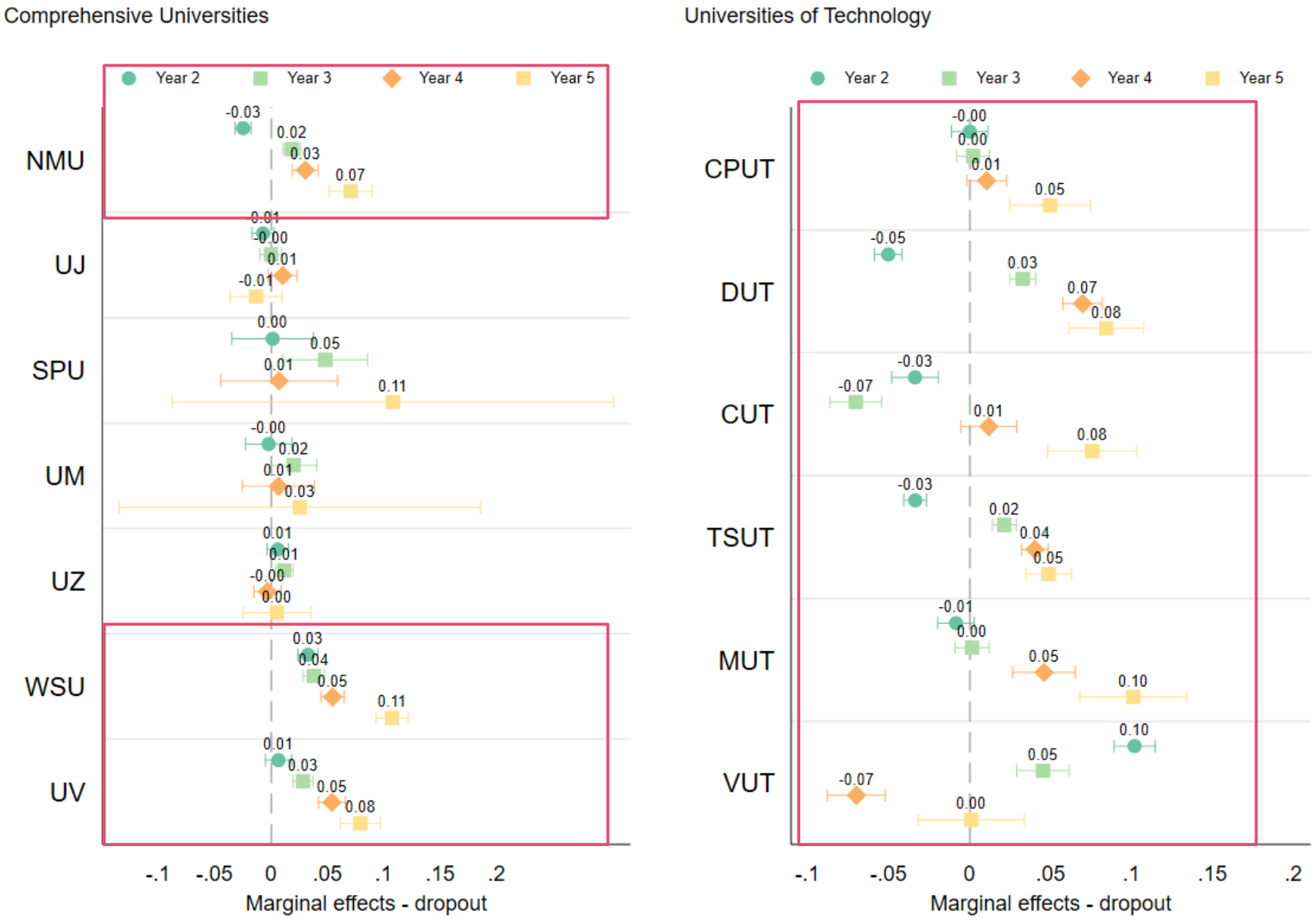
- Higher Education Management Information System (HEMIS) data.
  - Individual-level student data mapping student enrolment from 2015 to 2020.
  - Diploma and degree qualifications
- Outcome of interest: Attrition – not re-enrolling in subsequent year (without completed qualification).
  - Dropout by the HEMIS census date
- Differencing approach – comparison of year-specific attrition in 2020 compared to previous years.

Dropout rates by cohort and year of study

Table 3: Dropout rates by cohort and year of study: FTEN UG

	Year	2015		2016		2017		2018		2019	
		mean	n	mean	n	mean	n	mean	n	mean	n
Year in 2020		6		5		4		3		2	
Dropout: TUs	2	.103	56617	.101	60970	.092	61724	.093	64574	.094	63207
	3	.059	50672	.06	54752	.063	56205	.071	58934		
	4	.06	36421	.066	39430	.08	41539				
	5	.105	17742	.129	19987						
Dropout: CUs	2	.115	29366	.108	31200	.097	28090	.1	29718	.103	31162
	3	.056	26115	.056	27864	.055	25851	.073	27194		
	4	.067	19375	.06	20656	.09	18794				
	5	.119	10017	.174	10268						
Dropout: UoTs	2	.159	32602	.141	35914	.12	37826	.112	37057	.109	36558
	3	.077	27781	.07	31413	.067	33523	.067	34253		
	4	.09	20851	.083	24227	.107	24429				
	5	.139	11810	.197	13131						


Traditional Universities: Historically advantaged
Year 2
Year 3
Year 4
Year 5
US
-0.01
-0.00
0.02
0.02
UCT
0.00
0.00
0.02
0.01
UP
-0.00
0.00
0.01
0.01
WITS
-0.01
0.01
0.02
0.01
RU
-0.00
0.02
0.01
-0.01
UFS
-0.03
0.00
0.01
-0.00
-.05
0
.05
.1
.15
.2
Marginal effects - dropout
Traditional Universities: Historically disadvantaged, merged or new
Year 2
Year 3
Year 4
Year 5
UWC
-0.01
0.00
-0.00
0.00
UKZN
-0.01
0.03
0.03
0.04
NWU
0.00
0.01
0.02
0.03
SMHSU
0.01
0.02
0.00
0.03
UFH
0.05
0.07
0.05
0.14
UL
-0.00
0.02
0.01
0.01
-.05
0
.05
.1
.15
.2
Marginal effects - dropout


Comprehensive Universities
Year 2
Year 3
Year 4
Year 5
NMU
-0.03
0.02
0.03
0.07
UJ
-0.01
-0.00
0.01
-0.01
SPU
0.00
0.05
0.01
0.11
UM
-0.00
0.02
0.01
0.03
UZ
0.01
0.01
-0.00
0.00
WSU
0.03
0.04
0.05
0.11
UV
0.01
0.03
0.05
0.08
-.1
-.05
0
.05
.1
.15
.2
Marginal effects - dropout
Universities of Technology
Year 2
Year 3
Year 4
Year 5
CPUT
-0.00
0.00
0.01
0.05
DUT
-0.05
0.03
0.07
0.08
CUT
-0.03
-0.07
0.01
0.08
TSUT
-0.03
0.02
0.04
0.05
MUT
-0.01
0.00
0.05
0.10
VUT
0.10
0.05
-0.07
0.00
-.1
-.05
0
.05
.1
.15
.2
Marginal effects - dropout

Differences by funding status

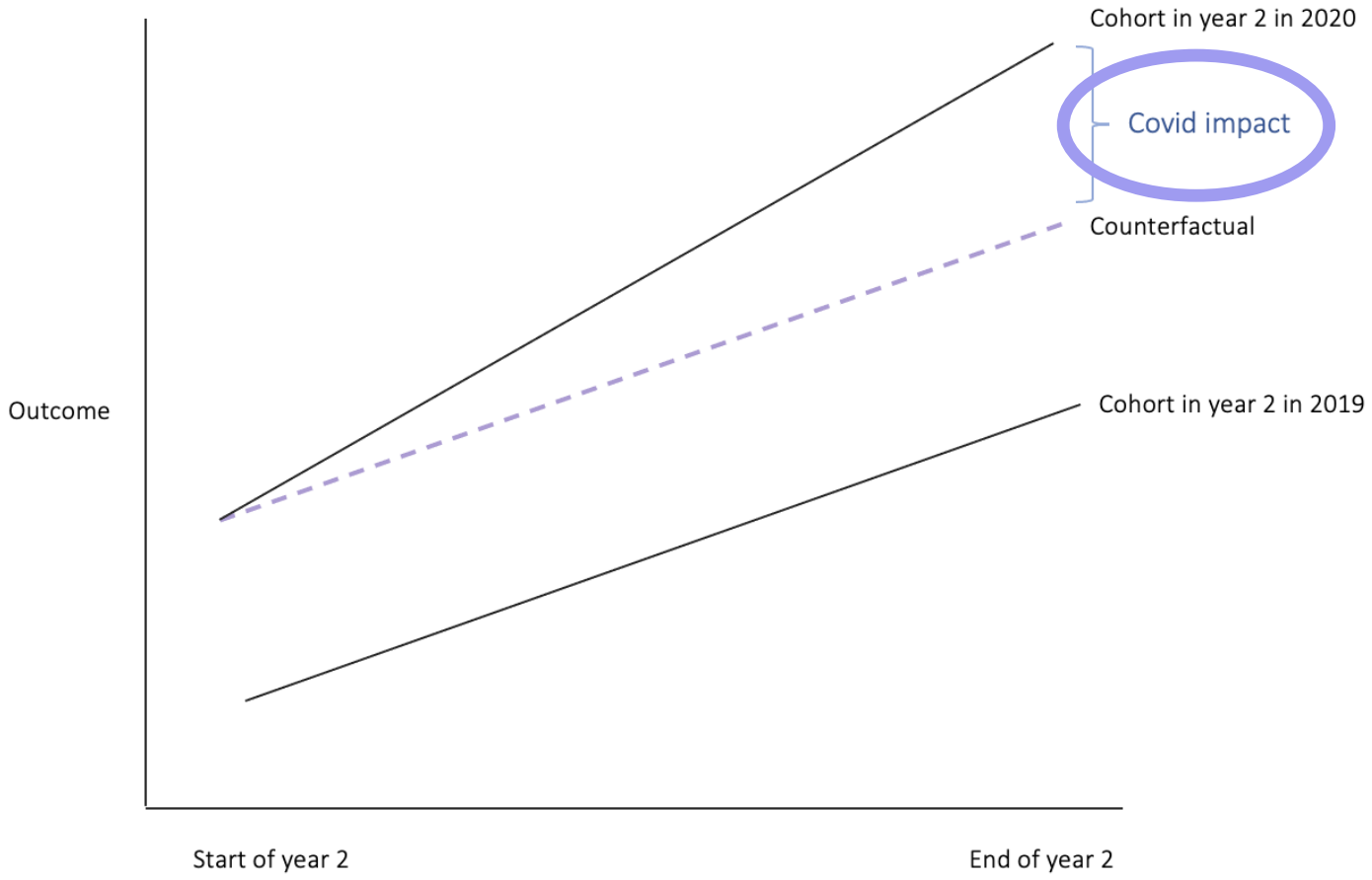
- NSFAS-funded students do not appear to have been more likely to attrit than their unfunded peers during 2020.
- In institution-year of study combinations where an increase in attrition was found, the negative impact tends to be larger for unfunded students.
- The experience of second years was a bit anomalous to this general finding.
  - Attrition decreased for unfunded students in year 2 at 9 out of our 25 institutions, and in these instances, funded student attrition was either not impacted or increased.

COVID-19 & INEQUALITIES IN HIGHER EDUCATION

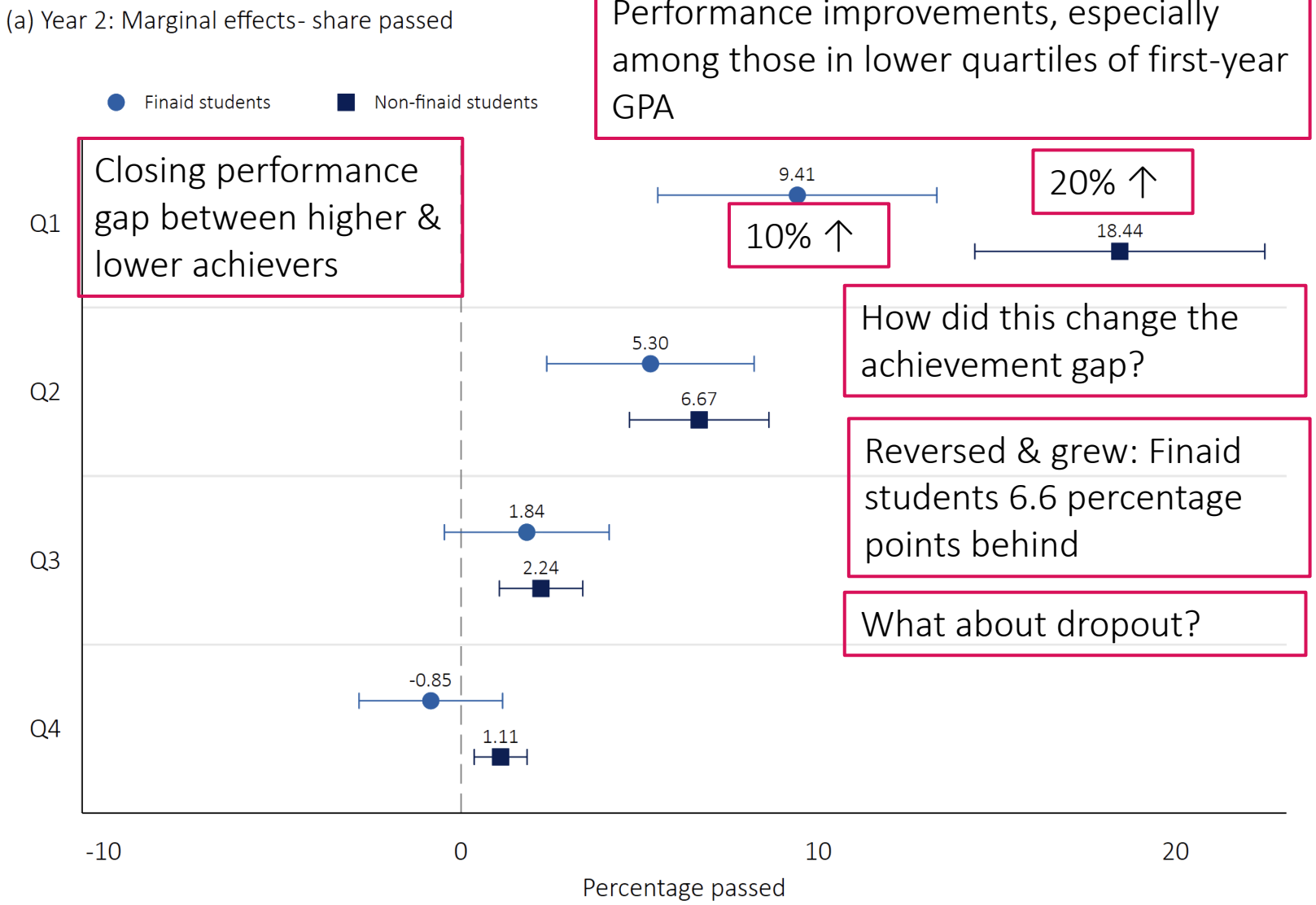
Retention	Performance
National level	Institution level
2020	2020 & 2021

Disaggregate effects by NSFAS status

Performance



2020



Performance improvements, especially among those in lower quartiles of first-year GPA

Closing performance gap between higher & lower achievers

10% ↑

20% ↑

How did this change the achievement gap?

Reversed & grew: Finaid students 6.6 percentage points behind

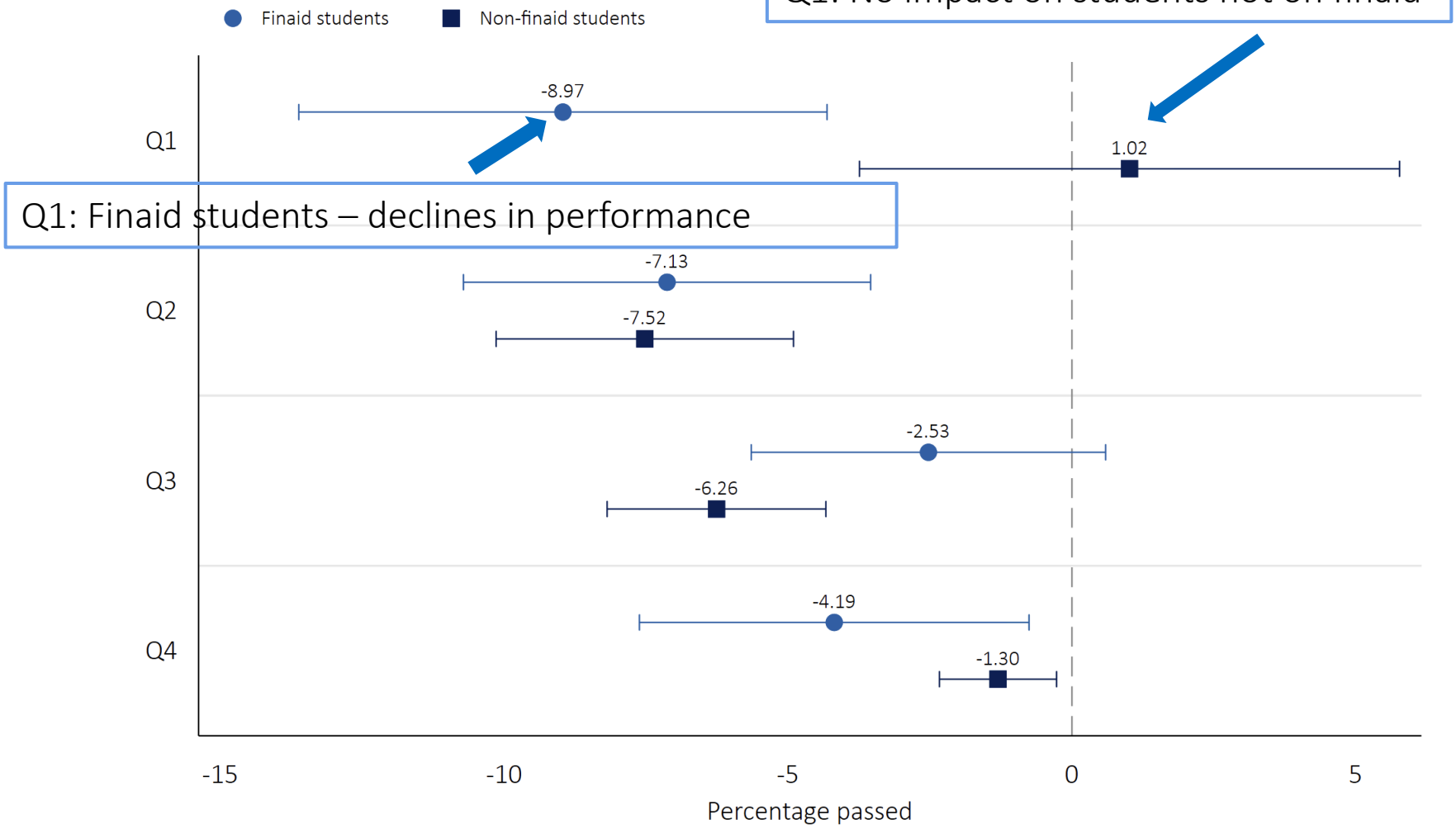
What about dropout?

2021

Growth in gap amongst most vulnerable students

Q1: No impact on students not on finaid

(a) Year 3: Marginal effects- share passed



Q1: Finaid students – declines in performance

What do these results suggest?

- 2021 academic year proceeded online too
- Therefore, seems unlikely that increased cheating/improved assessment practices in online assessments was driving improvements in 2020
- Marker leniency/change in content taught hypotheses as drivers of the performance improvements in 2020…
- Aligns with the observed increase in achievement gap

What about incoming students?

- Of those entering UCT in 2021
  - Some wrote NSC in 2020
  - Some delayed entry and wrote NSC in earlier years

- Compare outcomes of these two groups
- Controlling for trends between these two groups in previous cohorts

	GPA	Progress	Credits taken	Credits passed	Share passed
	(1)	(2)	(3)	(4)	(5)
Immediate	-0.251	0.752	5.295***	3.249	0.024
	(1.308)	(0.641)	(1.656)	(3.566)	(2.423)
Year 2019	3.112**	3.052***	4.215**	9.855**	4.692*
	(1.438)	(0.822)	(2.080)	(4.251)	(2.675)
Year 2021	5.853***	2.766***	7.586***	11.707***	4.532
	(1.631)	(0.749)	(1.971)	(4.216)	(2.763)
Immediate·2019	-1.650	-2.416***	-3.188	-6.555	-3.178
	(1.522)	(0.855)	(2.179)	(4.497)	(2.877)
Immediate·2021	-4.541***	-1.883**	-4.311**	-9.525**	-5.198*
	(1.716)	(0.788)	(2.003)	(4.331)	(2.932)
Female	2.466***	0.988***	0.063	6.726***	4.763***
	(0.469)	(0.263)	(0.738)	(1.390)	(0.825)
Age	-0.490	0.176	0.609	-1.393	-1.164*
	(0.372)	(0.159)	(0.507)	(1.014)	(0.646)
Grade 12 APS average	0.631***	-0.318***	0.216***	1.095***	0.645***
	(0.047)	(0.022)	(0.051)	(0.095)	(0.058)
Financial aid	-0.963**	-0.435	-1.647**	-4.080***	-1.286
	(0.466)	(0.290)	(0.748)	(1.307)	(0.795)
In institutional housing	2.226***	0.158	2.148***	5.574***	2.985***
	(0.625)	(0.278)	(0.792)	(1.818)	(1.122)
Constant	16.224*	48.818***	109.087***	53.923**	51.402***
	(9.141)	(3.958)	(11.763)	(22.848)	(14.568)
Observations	8,033	8,033	8,033	8,033	8,033
R-squared	0.104	0.100	0.013	0.049	0.046
Number of schools	1 657	1 657	1 657	1 657	1 657
F-test: Immediate·2019=Immediate·2021	3.203	0.403	0.293	0.489	0.598
Prob > F	0.074	0.526	0.589	0.484	0.440

Note: *** p<0.01, ** p<0.05, * p<0.1 Robust standard errors in parentheses. Standard errors allow for correlation in the unobservables between students in the same school. Regression excludes the 2020 academic year.

Conclusion & Relevance

- Composition of the sector has changed
  - Differential dropout
  - Changing composition of UCT 2021 cohort
- Measures of improved academic performance seen nationally do not reflect improved learning
  - Reversed in 2021 at UCT & a widening achievement gap
  - HE system is strongly shaped by the students coming into it, likely differentially prepared – what does this mean for additional support? Measurement of progress?
- Performance and graduation likely to be weaker as labour market signals of ability and knowledge acquired?
  - Expand data access & linking to better understand LM outcomes

More detail on our work:

- Whitelaw, E., Branson, N., and Leibbrandt, M. (2023). Learning in lockdown: University students' academic performance during COVID-19 closures. (SALDRU Working Paper No. 289. Version 2).
- Branson, N., Ranchhod, V., and Whitelaw, E. (2023a). South African student retention during 2020: Evidence from system-wide institutional data. (SALDRU Working Paper No. 300).
- Branson, N., Ranchhod, V., and Whitelaw, E. (2023b). What can we understand about learning loss in 2020 from university application and enrolment data? (SALDRU Working Paper No. 301).
- Whitelaw, E. & Branson, N. (2023). Catalyse social mobility through the success of students. *University World News*. 24 August.
- Culligan, S. (2022). Using census, institutional and geospatial data to estimate the socio-economic profile of post-school students by institutional type (Master's thesis). University of Cape Town. South Africa
- Whitelaw, E., Culligan, S., and Branson, N. (2020). Student ability to learn at home: An introductory look at student access to remote learning resources.

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CHALLENGING INEQUALITIES THROUGH POLICY RELEVANT ACADEMIC RESEARCH.

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Sidebar: The National Student Financial Aid Scheme (NSFAS)

- Full cost of study bursary for max N+1 years.
- Includes institution-specific tuition and accommodation charges, and nationally-standardised allowances to cover transport, books, food and off-campus accommodation.
- Since 2018, students from families with income below R350 000, if accepted to HE, are eligible.
- Students entering prior to 2018, eligible based on the previous R122 000 threshold

Composition of NSFAS funding

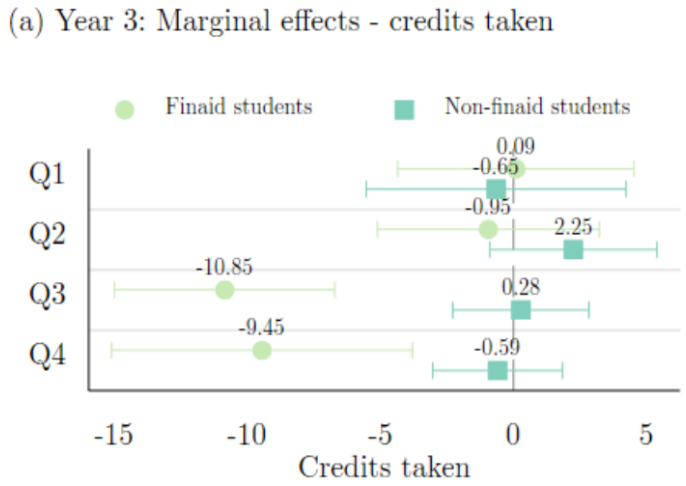
- NSFAS pays institution program specific tuition directly to institutions
- Accommodation and living allowances based on whether student is in:
    1. Catered residences,
    2. Non-catered residences,
    3. Private formal lease agreement and
    4. Living at home.
- For groups 1 and 2, accommodation fees are paid directly to the institutions, while group 3 receives the funds directly and is responsible for the payment. Group 4 does not receive an accommodation allowance.
- All students receive a living allowance, with amount dependent on accommodation situation.

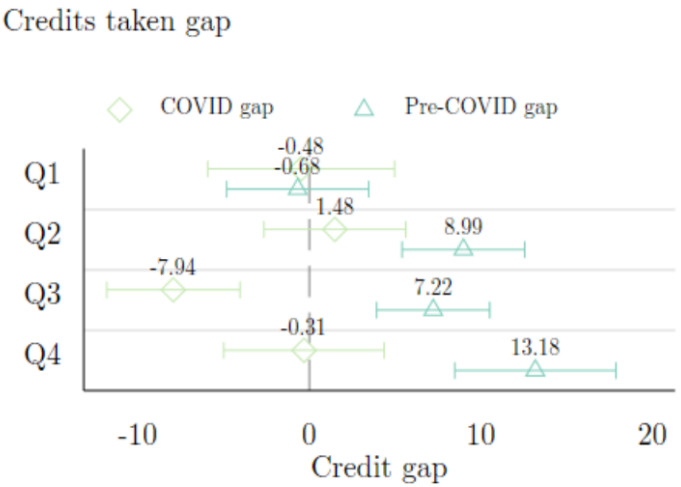
Table 2: Dropout rates by institution and year of study

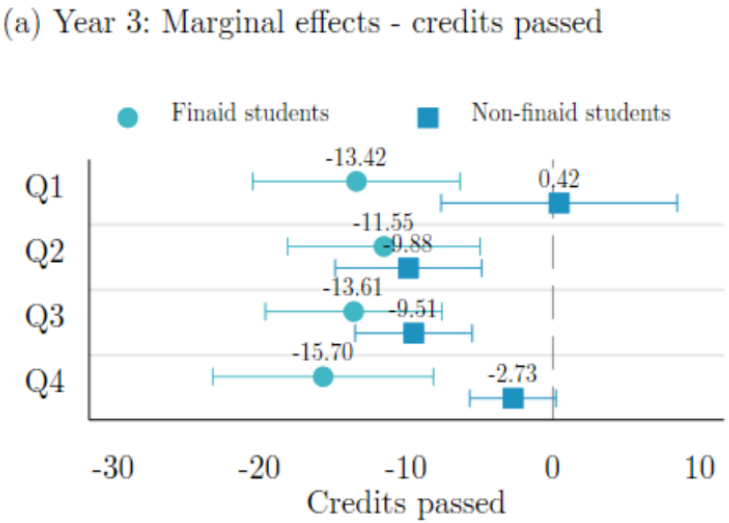
Name	Total dropout Y2-Y5	Year 2	Year 3	Year 4	Year 5
US	.05	.101	.053	.061	.092
UP	.062	.123	.068	.067	.097
UCT	.043	.072	.05	.06	.088
WITS	.064	.121	.076	.071	.103
RU	.056	.084	.071	.105	.174
UFS	.075	.131	.098	.1	.143
NWU	.059	.097	.068	.083	.176
UWC	.07	.128	.098	.076	.103
UKZN	.047	.07	.055	.072	.128
SMHSU	.031	.056	.037	.036	.038
UFH	.055	.096	.059	.059	.162
UL	.045	.075	.053	.055	.139
NMMU	.065	.116	.076	.073	.132
UJ	.072	.135	.078	.09	.149
SPU	.067	.11	.115	.07	.227
UV	.033	.062	.027	.032	.068
UM	.05	.102	.056	.061	.316
WSU	.065	.104	.064	.074	.182
UZ	.04	.069	.029	.059	.145
DUT	.07	.137	.063	.086	.175
CPUT	.083	.169	.094	.081	.119
CUT	.085	.135	.094	.103	.14
VUT	.106	.125	.089	.155	.267
TSUT	.068	.134	.065	.067	.126
MUT	.054	.074	.055	.094	.196
ALL	.064	.113	.069	.077	.14

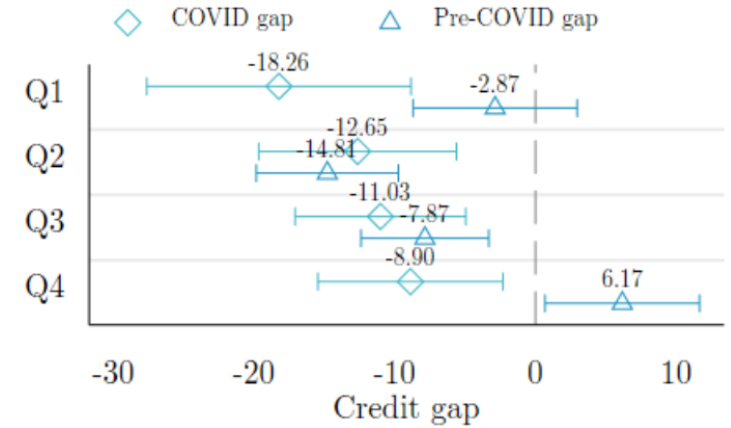
Source: HEMIS 2015-2019 FTEN UG students in bachelor and diploma qualifications.
Notes: Institutions sorted on institutional type and share of NSFAS funded students. Traditional institutions further differentiated by historically advantaged versus not.

Figure 5: Marginal effects of COVID-19 on on credits taken and passed by GPA quartile and financial aid status, 2021









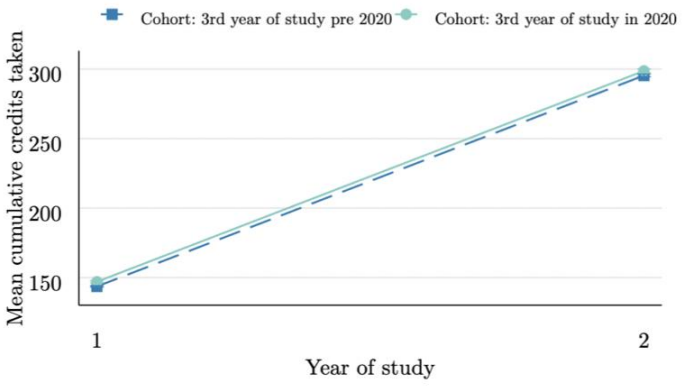
UCT dropout rates

	2016 Cohort		2017 Cohort		2018 Cohort		2019 Cohort		2020 Cohort		2021 Cohort	
	NSFAS	Other	NSFAS	Other	NSFAS	Other	NSFAS	Other	NSFAS	Other	NSFAS	Other
Year 1	0.59	2.46	0.87	2.84	0.51	3.73	0.13	2.66	0.49	1.06	0.91	3.50
Year 2	5.95	9.96	5.53	9.91	6.52	9.88	4.89	9.07	2.77	6.82	-	-
Year 3	6.04	6.30	5.98	5.47	6.24	4.75	2.69	2.6	-	-	-	-
Year 4	7.95	7.23	7.85	7.12	2.49	1.93	-	-	-	-	-	-
Year 5	9.93	10.33	5.25	4.92	-	-	-	-	-	-	-	-

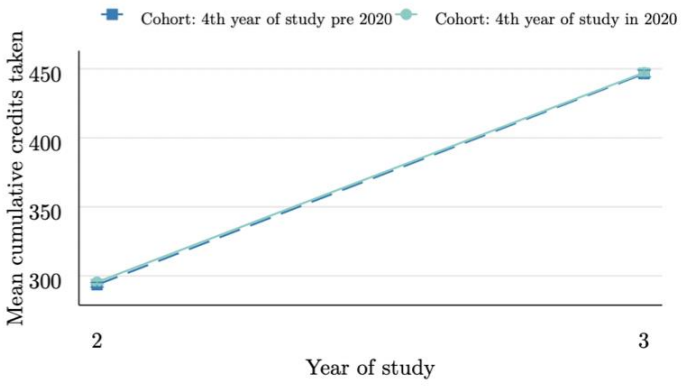
Source: Authors' own calculations using UCT (2016-2021).
Notes: [a] Year of study refers to year since start. Dropout in year 1 reflects only those who exit during their first year of study. Year 2 reflects those who do not re-enrol after first year and/or who dropout during their second year.

Figure 1: Pre-trends by outcome measure and year of study

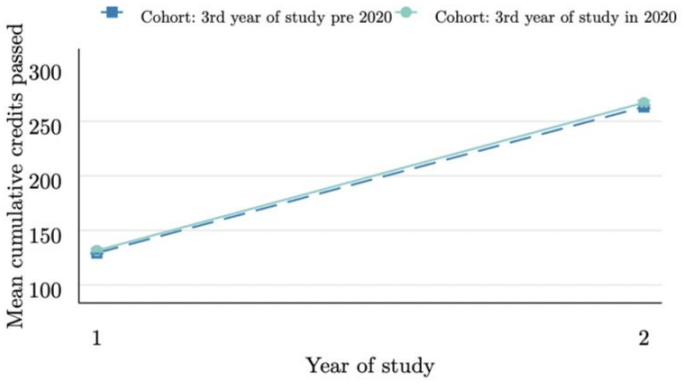
Paralell trends year 1 and 2: cumulative credits taken



Paralell trends year 2 and 3: cumulative credits taken



Paralell trends year 1 and 2: cumulative credits passed



Paralell trends year 2 and 3: cumulative credits passed