

Integrating and building our data for
effective student support

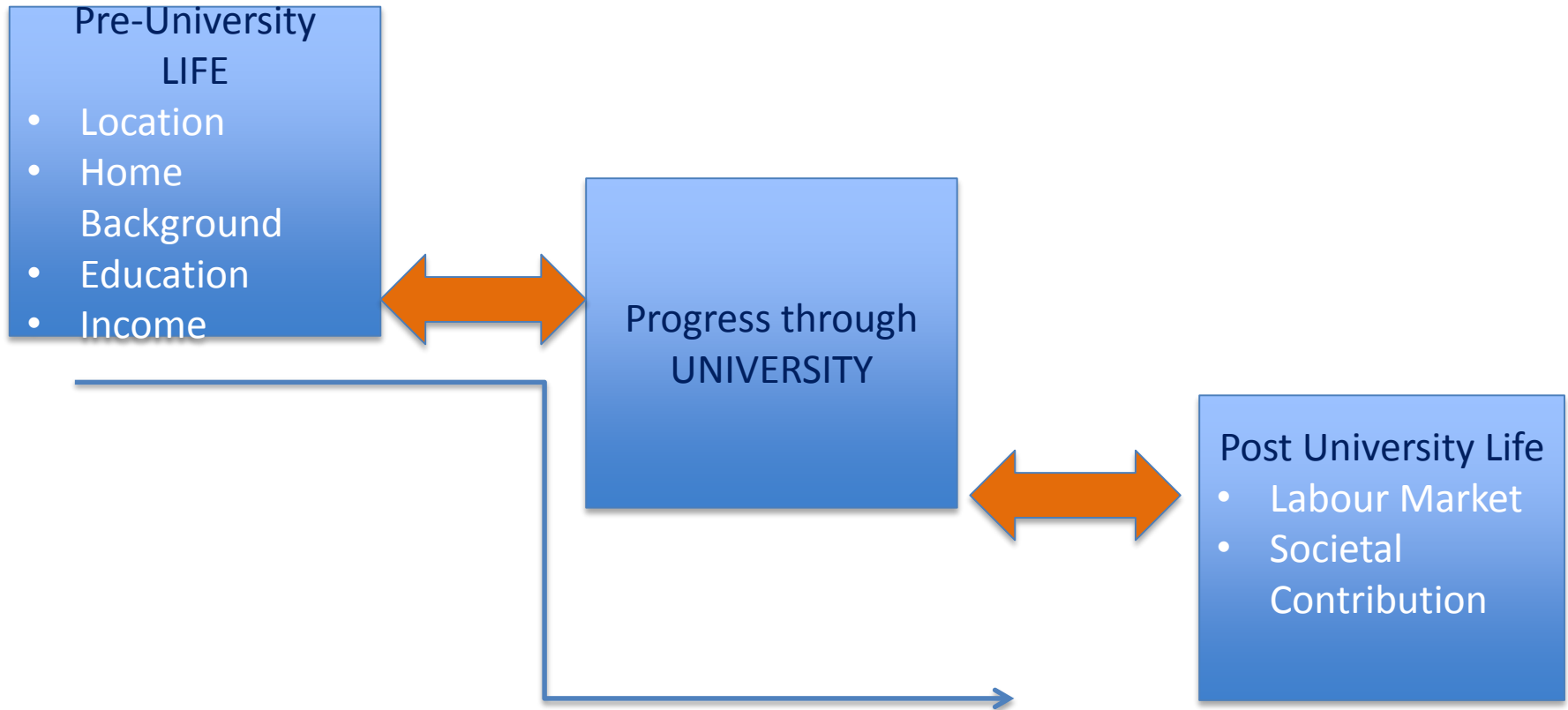
Siyaphumelela Conference 2016

Murray Leibbrandt
30 June 2016

Additional Returns to education level, men and women aged 25-59, GHS 2014

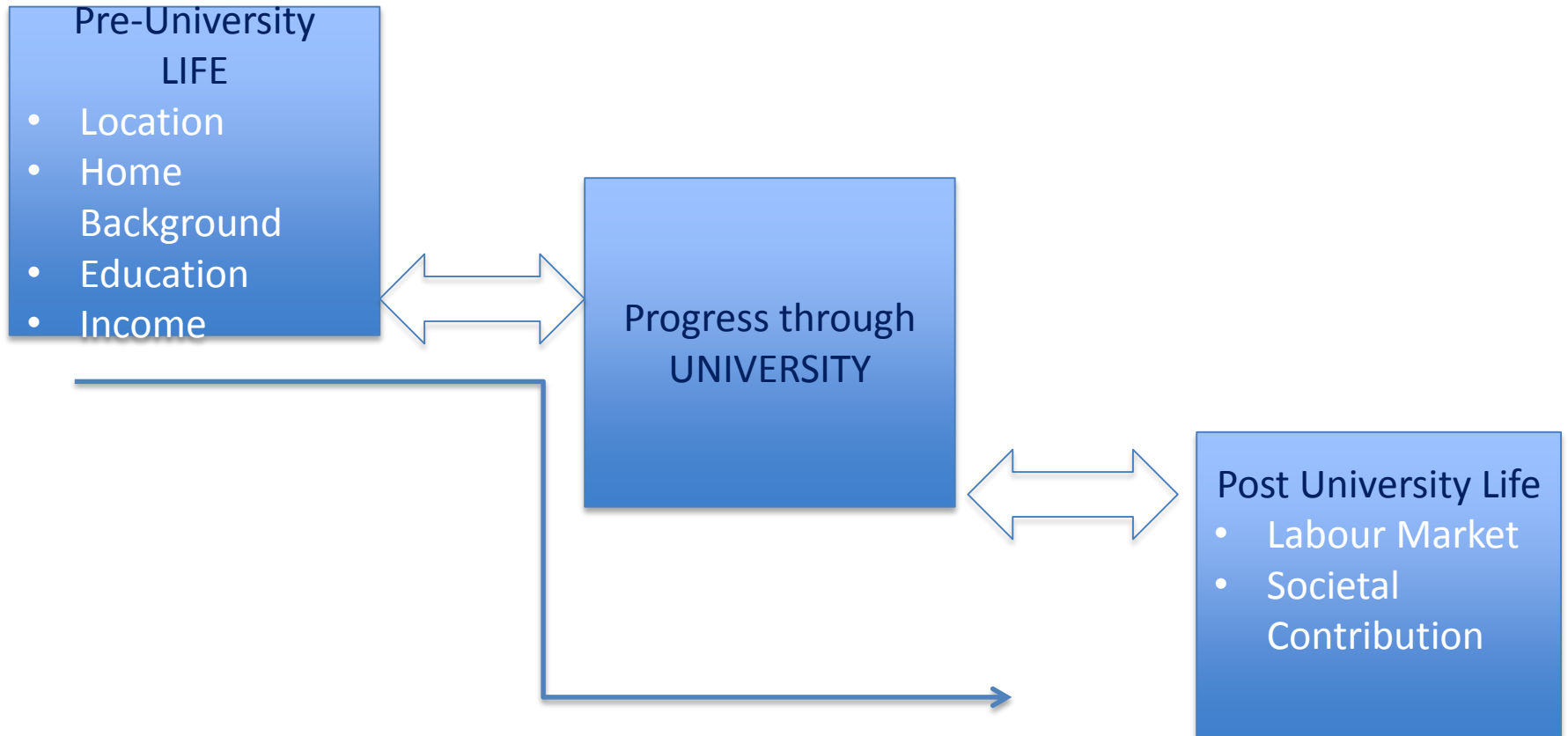
Educational level	% Point Increase From Previous Level
Grade 10	0.23
Grade 11	0.05
Grade 12	0.39
Post-matric diploma/certificate	0.66
University degree	0.54

Our University are located in a highly unequal society



Data for Empowering & Transformative Universities

- Our students are the leading edge of a flourishing and transformed society
- What data do we need as a means to the end of students fulfilling this potential



Charles Sheppard's Session (DHET: HEMIS; CHE; and others)

- **Higher Education Management Information System is the core national database for the development of student success indicators.**
- **It is a unit-based database containing the study records of each student in the system with high quality audited data including biographical information on students such as race, gender, age, home language, financial aid, institutional housing, nationality, home postal code, mode of study (contact, distance, mixed mode, full-time vs part time), et cetera.**
- **It also contains similar information on staff. Space data and facilities data as well as financial information are also collected by the DHET. Rich source of data that enables a large variety of student success data linked to various variables.**
- **DHET also publishes on an annual basis a statistical overview of all post school institutions including Universities**

Pre-University LIFE

- Location
- Home Background
- Education
- Income



Progress through
UNIVERSITY

Educational attainment of 25-29 year-olds by year, South Africa GHS 2014

Less than grade 9	12%
Grade 9	7%
Grade 10	12%
Grade 11	17%
Grade 12	37%
Post-matric diploma/certificate	10%
University degree	5%
At least grade 12	51%
Beyond grade 12	15%
% of grade 12s completing university degree	9%
% of grade 12s with exemption who don't go on	7%

Enrolment in higher education for 15-24 year-olds with a matric or above, GHS 2014

Not enrolled	75%
Enrolled in Public University or University of Technology	12%
Enrolled in Public college	6%
Enrolled in Private University or University of Technology	3%
Enrolled in Private college	3%

The National Income Dynamics Study and post-secondary Enrolment

- Using Wave 1-4 National Income Dynamic Survey (NIDS) data
- Together with administrative data on South African schools and post-secondary institutions
- To estimate the impact of home background, school quality and scholastic ability during a learner's final years of schooling on enrolment in post-secondary education.

University entry characteristics compared to no post-schooling

	University	No Post Schooling
	Mean	Mean
Age in matric year	17.7	18.9
Female	0.6	0.55
African	0.7	0.88
Coloured	0.09	0.06
Indian	0.04	0.03
White	0.14	0.03

University entry characteristics compared to no post-schooling

	University (N=226)	No Post Schooling (N=1670)
	Mean	Mean
Household Size	5.078	6.369
Number age 6-18	1.968	2.267
Number age 19-22	0.506	0.965
Grant income	0.387	0.647
Household income	3786.32	972.43
Mother's education	10.410	7.149
Father's education	10.421	6.593

University entry characteristics compared to no post-schooling (cont)

	University	No Post Schooling
	Mean	Mean
Numeracy Z-score	0.002	-0.545
No test completed	0.538	0.506
Ever repeated a grade	0.213	0.606
Highest grade took maths	9.985	9.662
School fees	3696.05	610.76
No school fees paid	0.34	0.60
Total school expenditure	R5095	R1489

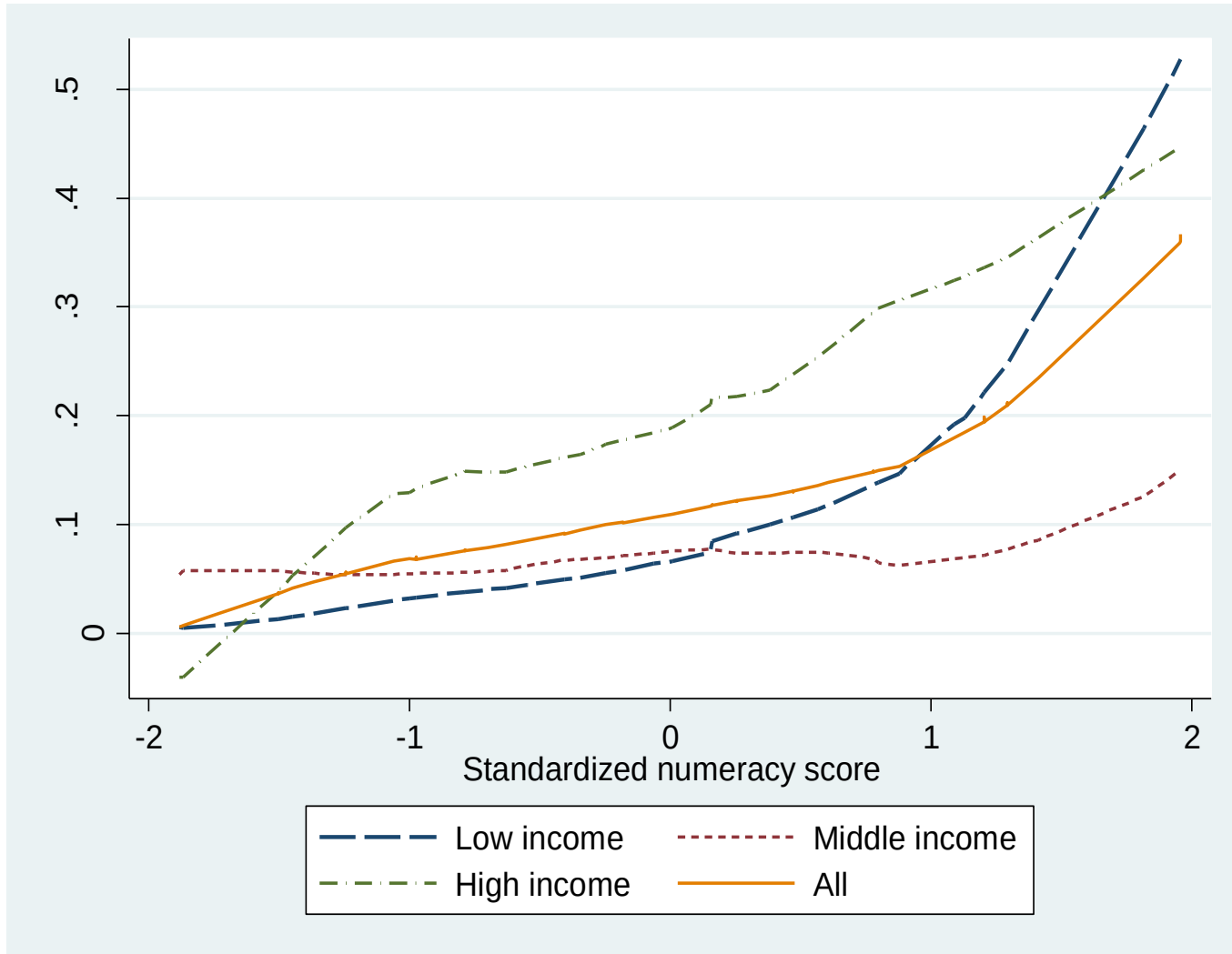
University entry characteristics compared to no post-schooling (cont)

Schools Data	University	No Post Schooling
	Mean	Mean
% of matriculants that wrote the exam	0.97	0.97
% who passed of those who wrote	0.81	0.66
% who wrote maths of total wrote matric	0.41	0.30
% who wrote maths rather than maths lit	0.46	0.37
Average maths score	45	38
Average English score (First additional)	55	49
Average English score (Home Language)	60	53

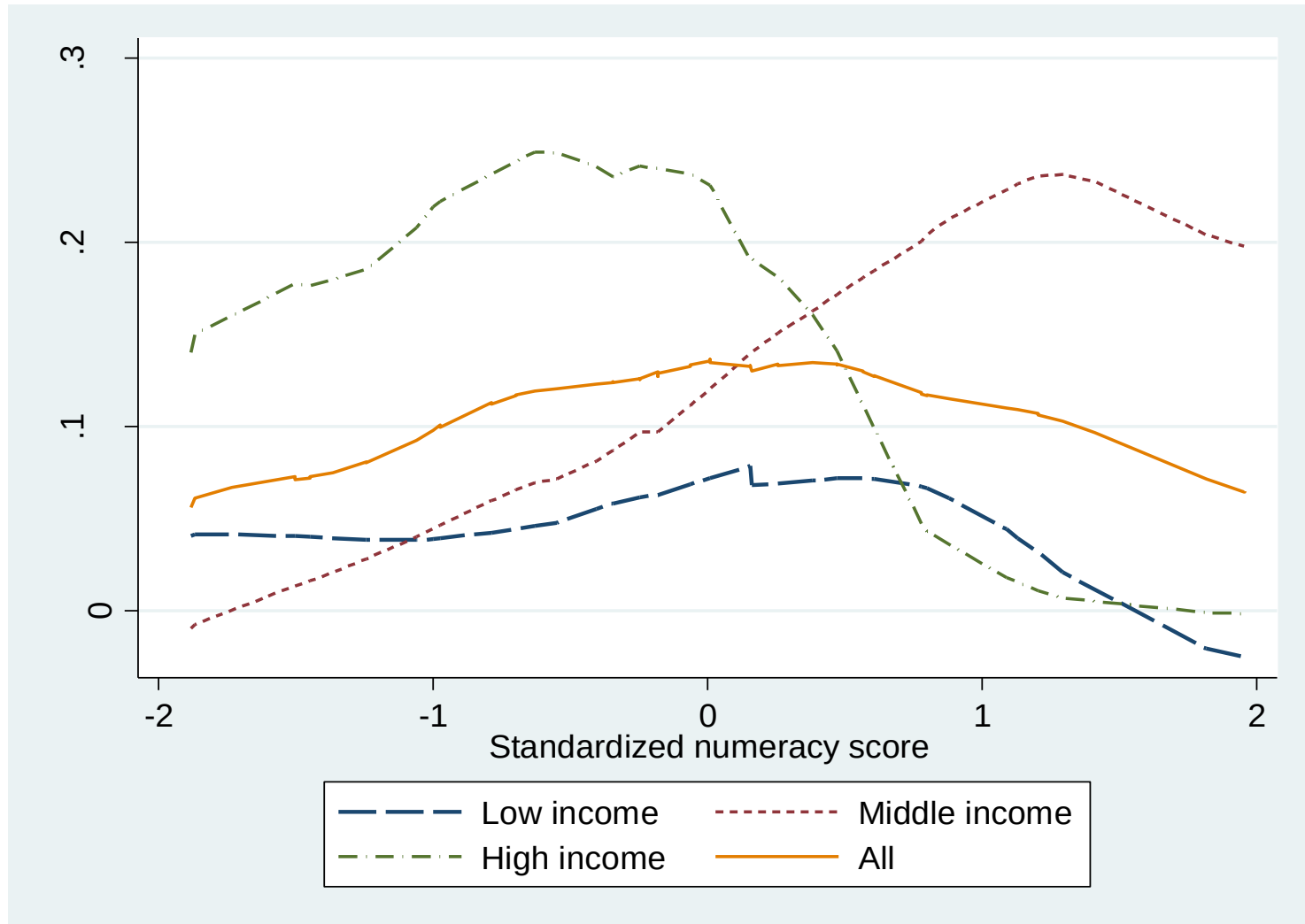
Probability of enrolling by institution type

	UNIV	TVET
Numeracy Z Score	0.383***	0.317**
Ever repeated	-1.133***	-0.160
Log income - mean 0	0.486***	0.29***
Controls		
Age, sex, race	Yes	Yes
Matric school chars	Yes	Yes
Parental educ & household size	Yes	Yes

University enrolment by numeracy test score and income tercile



TVET enrolment by numeracy test score and income tercile



Stock-take of Data: Who is coming to University?

- Census, General Household Survey, Community Survey, specialist surveys like NIDS
- Specialist youth surveys (Cape Area Panel Study).
- Youth cohort studies
- We can learn a lot about who is coming into the HE system from which locations with what sort of schooling background
- As it stands, it does not give information about actual institutions of higher learning. Not representative at the institutional level.

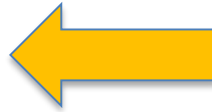
Stock-take of Data:

Who is coming to University? (cont)

- Very rich data on schooling system:
 - http://resep.sun.ac.za/wp-content/uploads/2016/02/RESEP-Policy-Briefs_Chris-van-Wyk-EMAIL.pdf (Stellenbosch)
- Interventions/projects:
 - School subject choice of potential applicants
 - Maths, science and language interventions
 - HE advice and application assistance to grade 11 and 12 learners

Pre-University LIFE

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Progress through
UNIVERSITY

Systemic Initiatives

HEMIS and DBE data

- There are attempts underway to link HEMIS to link to DBE's information systems
- Have to use id numbers
- The quality of the Basic Education data seems to be poor!
- The potential of COAs

Workshop flow (Michael Henn)

What data do we have on a national level?

What national trends and developments are there?

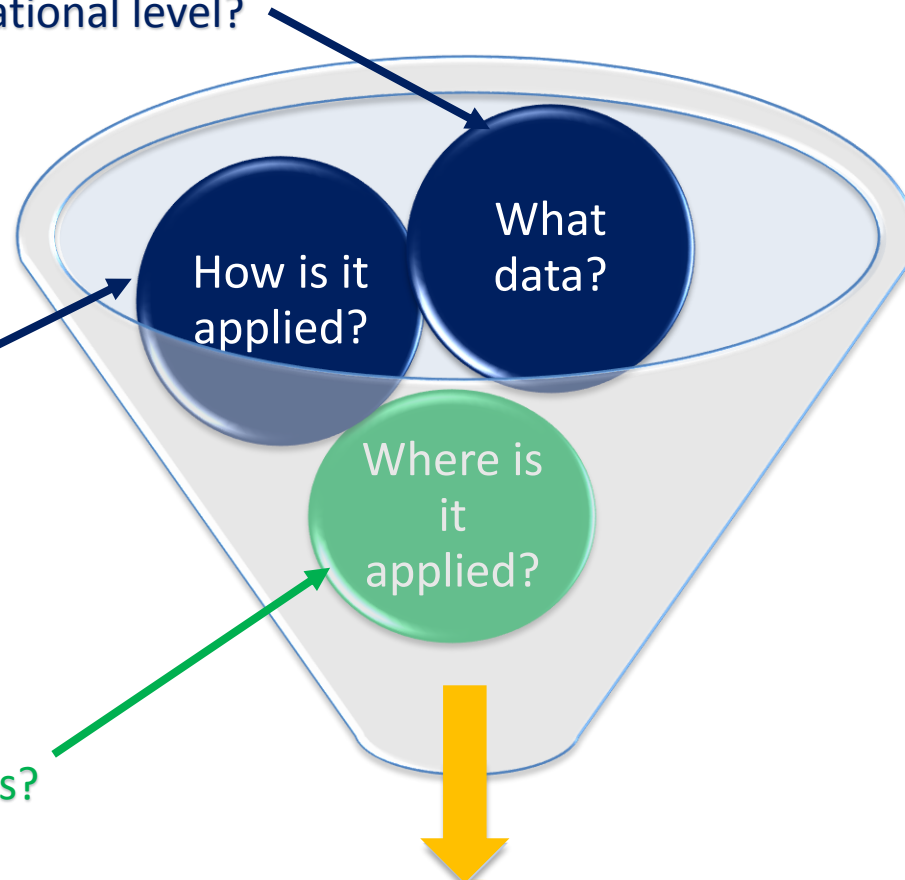
What institutional measures?

Think of a project that:

Uses **multiple** data sources

Aims to bolster **student success**

Who benefits



Macro level

Meso level

Micro level

Identify attributes
Unpack measures
Unify data structures

University specific Initiatives

- Impressed by huge commitment shown here!
 - Admissions process and admissions tests (Looking for potential against the odds)
 - Understanding ones incoming students as key backdrop to effective induction, first year experience interventions and taking transformation seriously

Examples

- Great example from the paper today from Wits on “Understanding students as people in the world”
- Another Data Requirements to Assessing UCT’s Admissions Policy

UCT Example

Given UCT's affirmative admissions policy, we are interested in the following questions:

- How many people benefit from and are displaced by affirmative action in admissions at UCT?
- Does the AA policy disproportionately help people from poorer backgrounds?
- What happens to the displaced White applicants in terms of their educational outcomes?

UCT Data Sources

- UCT applications data
 - Student demographic characteristics, including race and gender
 - Applicants' matric performance
 - Either home address or postal address
 - Whether applicant applied for financial aid and was the applicant eligible
 - Final decision on whether applicant is offered admission
 - Student's SA ID number.
- UCT student transcripts
 - Who enrolled at UCT.
 - Who subsequently graduated at UCT.

These data are limited

- Can use these data to measure the extent of AA, and its effect on the diversity of the student body we have.
- But there are limitations:
 - Can't see what happened to applicants who were not offered admission due to AA
 - Limited information on financial situation of people who did not apply for financial aid
- We need alternative data sources and the ability to link these different data sources together.

Alternative data sources: Census 2011

- **Use the address of applicants**, in combination with Google maps, to identify the physical location of applicants.
(Not possible for people who only provide a postal address)
- Using the **location and the StatsSA small area summary information from Census 2011**, can identify the average per capita income of the neighbourhood in which applicants reside.
- Together with the financial aid information can see the SES of beneficiaries of AA, relative to those who are displaced due to AA.

Alternative data sources: HEMIS

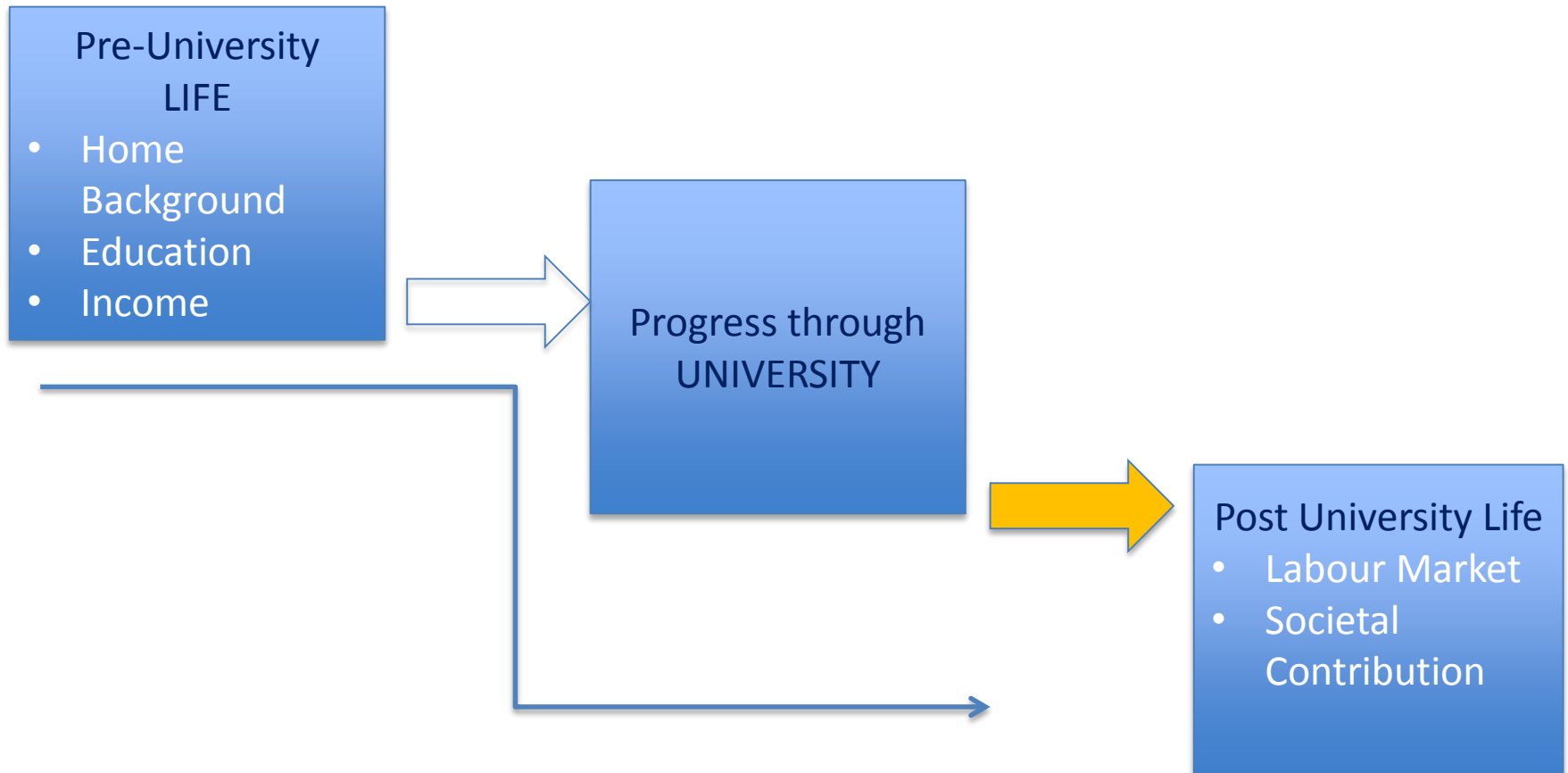
- Database with information from all universities on all students who enrolled
- Includes subsequent graduation rates
- Link our applicant data with HEMIS data using SA ID numbers
- Allow us to identify whether the displaced applicants subsequently studied elsewhere, and whether they graduated or not

Preliminary Results

- AA has a substantial impact on the racial composition of who is made an offer of admission.
- AA policy (up to 2015) was well targeted.
 - Mean neighbourhood per capita income from the Census 2011 of the 80th centile of African beneficiaries, is approximately equal to that of the 20th centile of the displaced White students.
- Over 90% of the affected White displaced students do study somewhere else. Graduation rates amongst this group are 78% overall.

Lessons

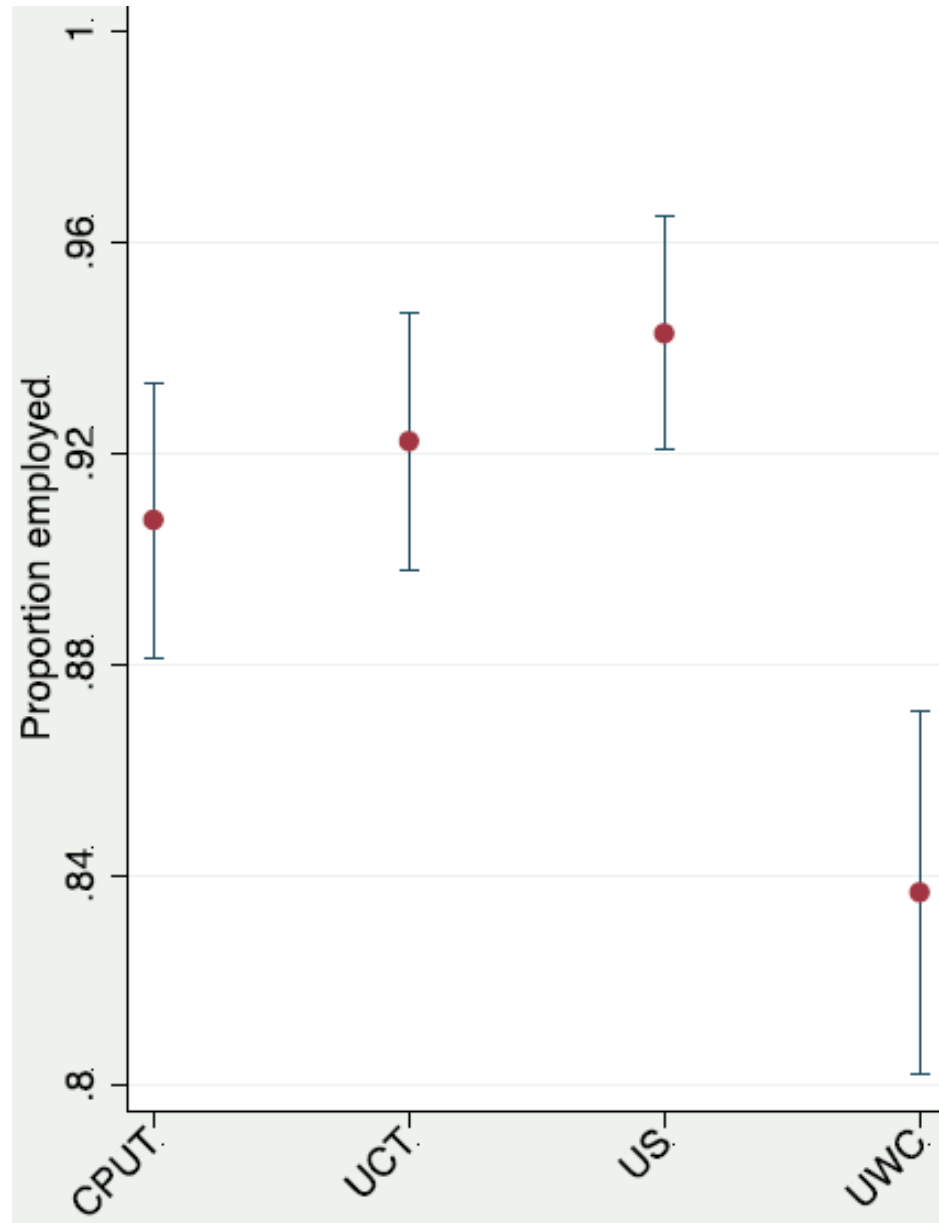
- An important policy question but ***no*** empirical evidence to date.
- The questions we are interested in are tractable;
 - But require a lot of cooperation from various administrative groups.
 - And one needs to be quite creative & skilled in mapping between the substantive questions and different data sources.



- In the spirit of Georgia State, there has been an amazingly impressive array of **career guidance pilots** on display here:
 - Jean Lemmons “Career exploration meets mobile technology!”
 - DHET’s career guidance initiative
- Also evidence of dialogue with “world out there” about curricula that equip and empower
- We follow our alumni but not very well

Western Cape Graduate Destination Study

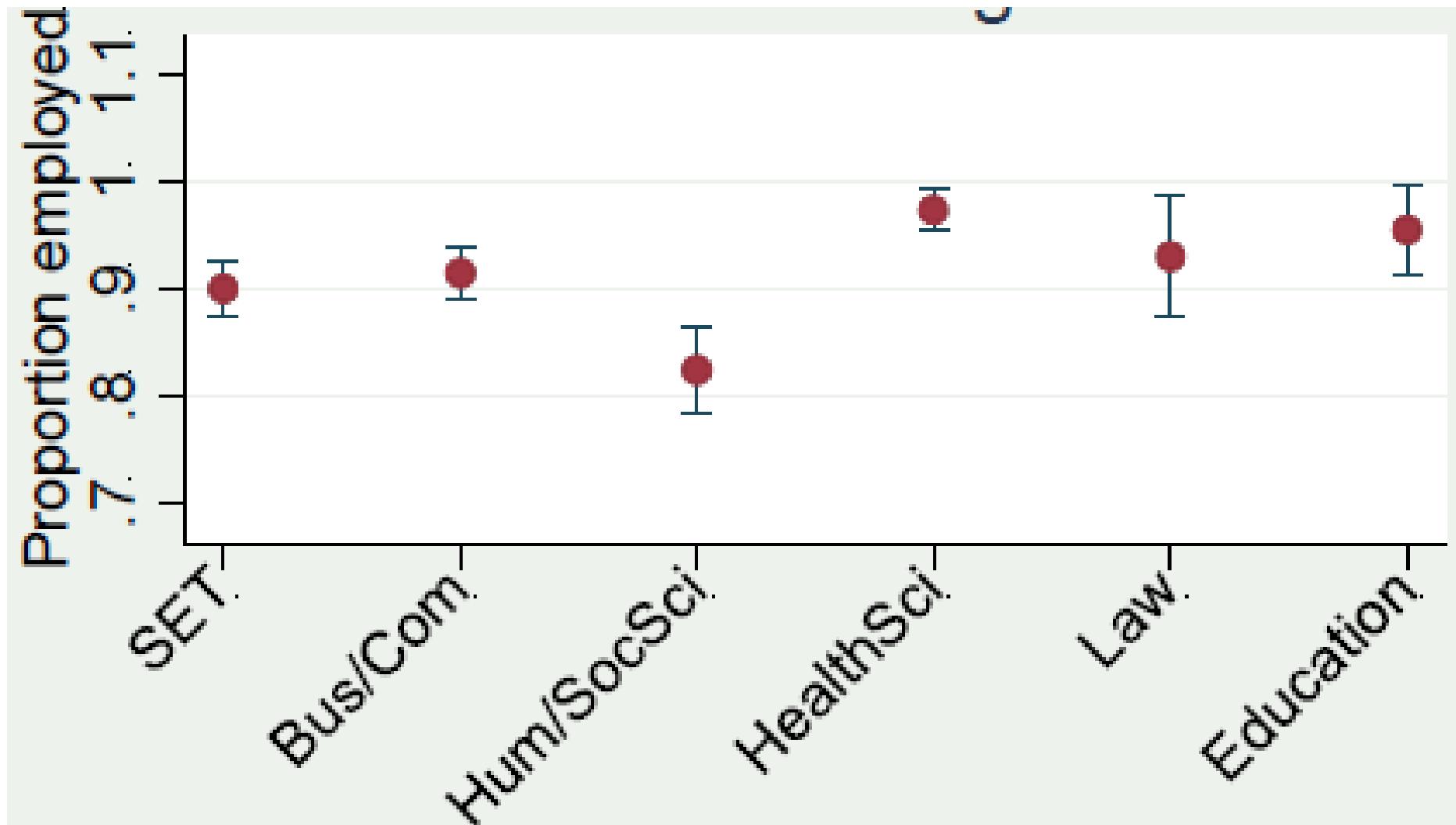
Proportion Employed by Institution



Qualification type by Campus

		Institution			
Qualification type	CPUT	UCT	US	UWC	Total
Cert/diploma	61.36%	4.67	1.48	11.12	21.76
Postgraduate cert	0	14.08	19.65	8.59	10.68
Bachelor's	35.79	48.26	44.09	53.14	43.99
Honours	1.42	14.03	17.25	16.86	11.62
Master's	1.28	16.37	15.18	8.73	10.32
Doctorate	0.15	2.6	2.36	1.56	1.63
Total	100	100	100	100	100

Proportion Employed by Qualification



Response rates by campus

campus	mean	N
CPUT	0.218	7441
UCT	0.219	6165
US	0.216	7380
UWC	0.267	3724
Total	0.225	24710

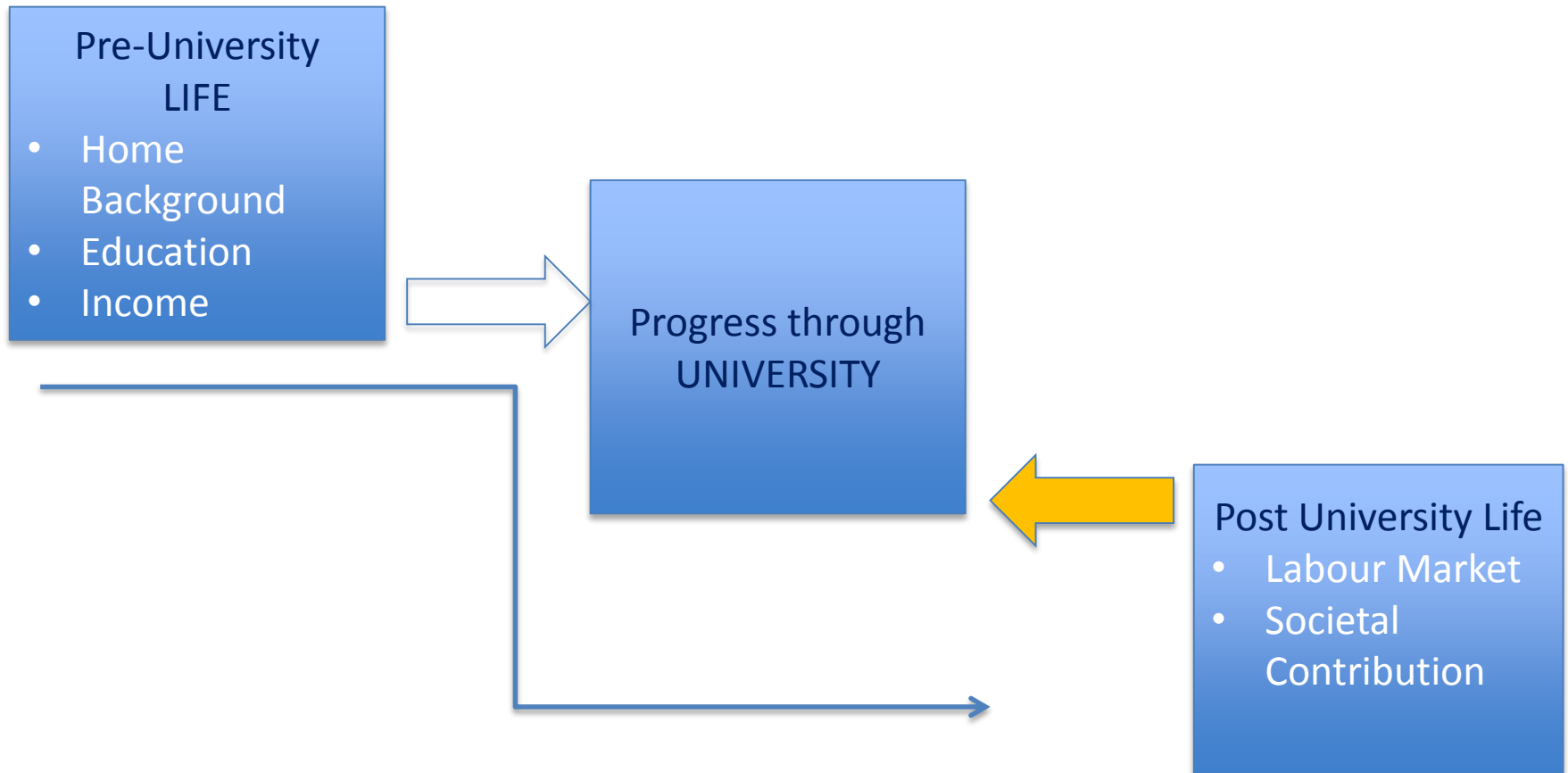
Stock-take of Data: What happens to our graduates?

- These initiatives are expensive and risky
- Make sure that they are answering questions that are crucial to us as a system

If they are

- Either do them properly or not at all

University in a highly unequal society



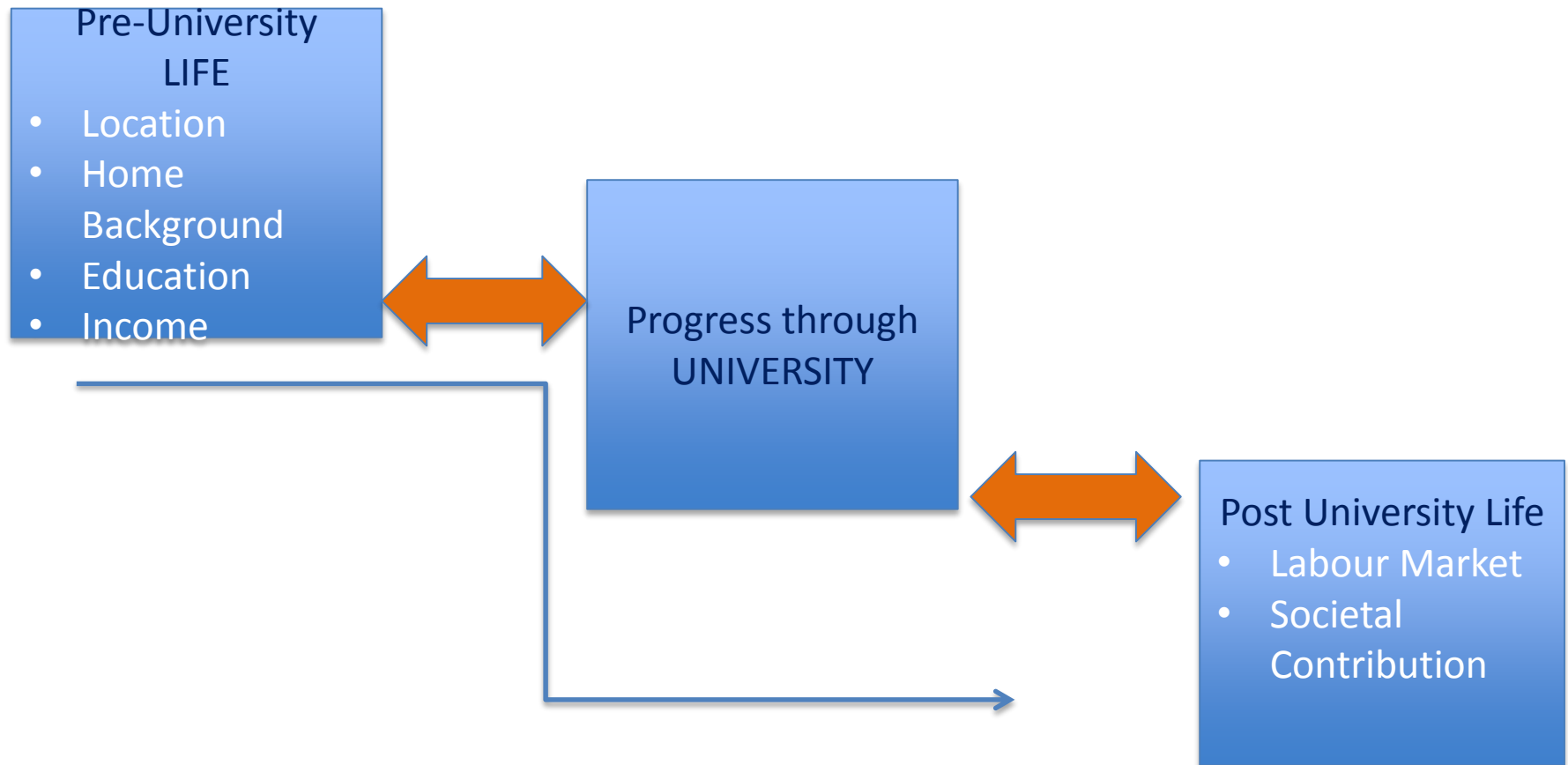
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Stock-take of Data: The contributions of our graduates?

- General:
Quarterly Labour Force Survey, General Household Survey, specialist surveys like NIDS
- Location and local area:
Community Survey, Census, municipalities
- Labour Market Intelligence Partnership at HSRC
- Very weak on specific qualifications despite huge noise about skills shortages.

Our University are located in a highly unequal society



The whole and the sum of the parts

- We all need to understand where our students are coming from and where they are going to.
- This information is also needed to understand and change the role of the university system with our society
- But this suggests coordinated national data initiatives that integrate into university systems and
- That are available to the research community under appropriate conditions