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The burden of increased access to Higher Education: a story of increased enrollment numbers, but shrunk and delayed throughputs

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Roadmap

✓ Introduction
  ✓ Intervention (How do we use it, what we use it for)
✓ Background
  ✓ Increased enrolments
  ✓ Participation rates
  ✓ Racial disparities
✓ Statement of the problem
  ✓ Attrition rate(high failure rates , drop out rates , re-admission of at least min plus 1)
✓ Methodology
  ✓ Logistic regression
  ✓ Cluster analysis
✓ Empirical results
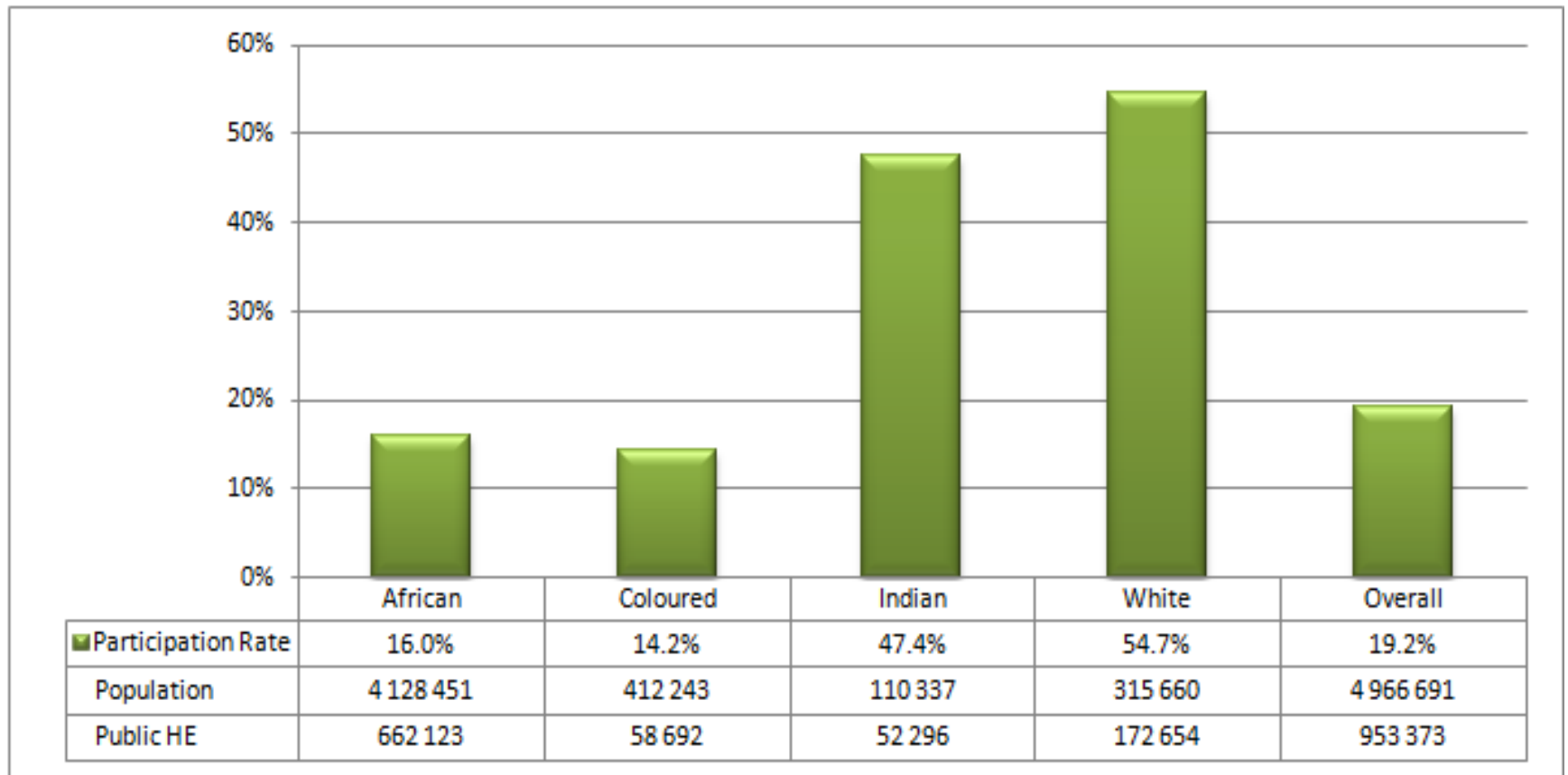 ✓ Significant variables
  ✓ clusters
✓ Conclusion
  ✓ Discussion

Background

❑ Equitable access to Higher Education (HE), together with student success and increased participation remain central to HE policy since the early 1990's in South Africa (NCHE, 1995 & White paper, 1997)

❑ Enrollments may have increased but participation rates may still be varied between race groups

❑ Graduation rates show disparities

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Statement of the problem

❑ The major concern with regard to increased enrolments (i.e. a significant inflow of other racial groups and the dramatic change in the profile of students in the early 1990s), is the increase in attrition rate which relates to three different factors indicative of students unpreparedness for university education

1. High failure rates
2. High droupout rates
3. Re-admission of students who still take n+1 to complete degree

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Enrollement vs Participation rates

	African	Coloured	Indian	White	Overall
Participation Rate	16.0%	14.2%	47.4%	54.7%	19.2%
Population	4 128 451	412 243	110 337	315 660	4 966 691
Public HE	662 123	58 692	52 296	172 654	953 373

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Throughput rates by race, 2005, 2006 and 2007

Source: CHE : Derived from the Vitalstats series (2010 – figure 78, 2011 – figure 93, 2012 – figure 96)

First time entering students (Contact Education)			
		First Year	
Starting Year	New 1st year enrolled	Attrition before 1 AUG	Further Attrition till end exam
2010	8322	473	198
		5.7%	2.4%
Cumulative attrition :			8.1%
2009	8144	549	95
		6.7%	1.2%
Cumulative attrition :			7.9%
2008	7022	396	72
		5.6%	1.0%
Cumulative attrition :			6.7%
2007	6808	402	75
		5.9%	1.1%
Cumulative attrition :			7.0%
2006	6824	332	88
		4.9%	1.3%
Cumulative attrition :			6.2%
2005	6259	292	72
		4.7%	1.2%
Cumulative attrition :			5.8%

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Methodology

❑ The models developed for predicting success amongst first-year students.

   ❑t0: Predicting success at the end of the first year, given point of application information only, and

   ❑t1: The same as for t0, but given first semester performance.

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Methodology

❑ Logistic regression was used, and "success" was defined as

   ❑pass rate = 100 - ratio credit fail ;

   ❑success _ id = 0 ;

   ❑if pass rate >= 60 then success _ id =1;

Success Identifier				
Success_id	Frequency	Percent	Cumulative Frequency	Cumulative Percent
0	1274	12.83	1274	12.83
1	8658	87.17	9932	100

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Data summary

New and returning students				
Admit description	Frequency	Percent	Cumulative Frequency	Cumulative Percent
New	6541	65.86	6541	65.86
Returning	3391	34.14	9932	100.00

Ethnic group	Frequency	Percent	Cumulative Frequency	Cumulative Percent
African	4301	43.3	4301	43.3
White	4860	48.93	9161	92.24
Other	771	7.76	9932	100

Gender	Frequency	Percent	Cumulative Frequency	Cumulative Percent
Female	5884	59.24	5884	59.24
Male	4048	40.76	9932	100.00

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MODEL: t0 - Predicting success at the end of the first year, given point of application information only.

Variables:

- ❑ Admin type
- ❑ Gender
- ❑ Ethnicity
- ❑ Matric authority
- ❑ Average matric result
- ❑ Number of subjects in matric
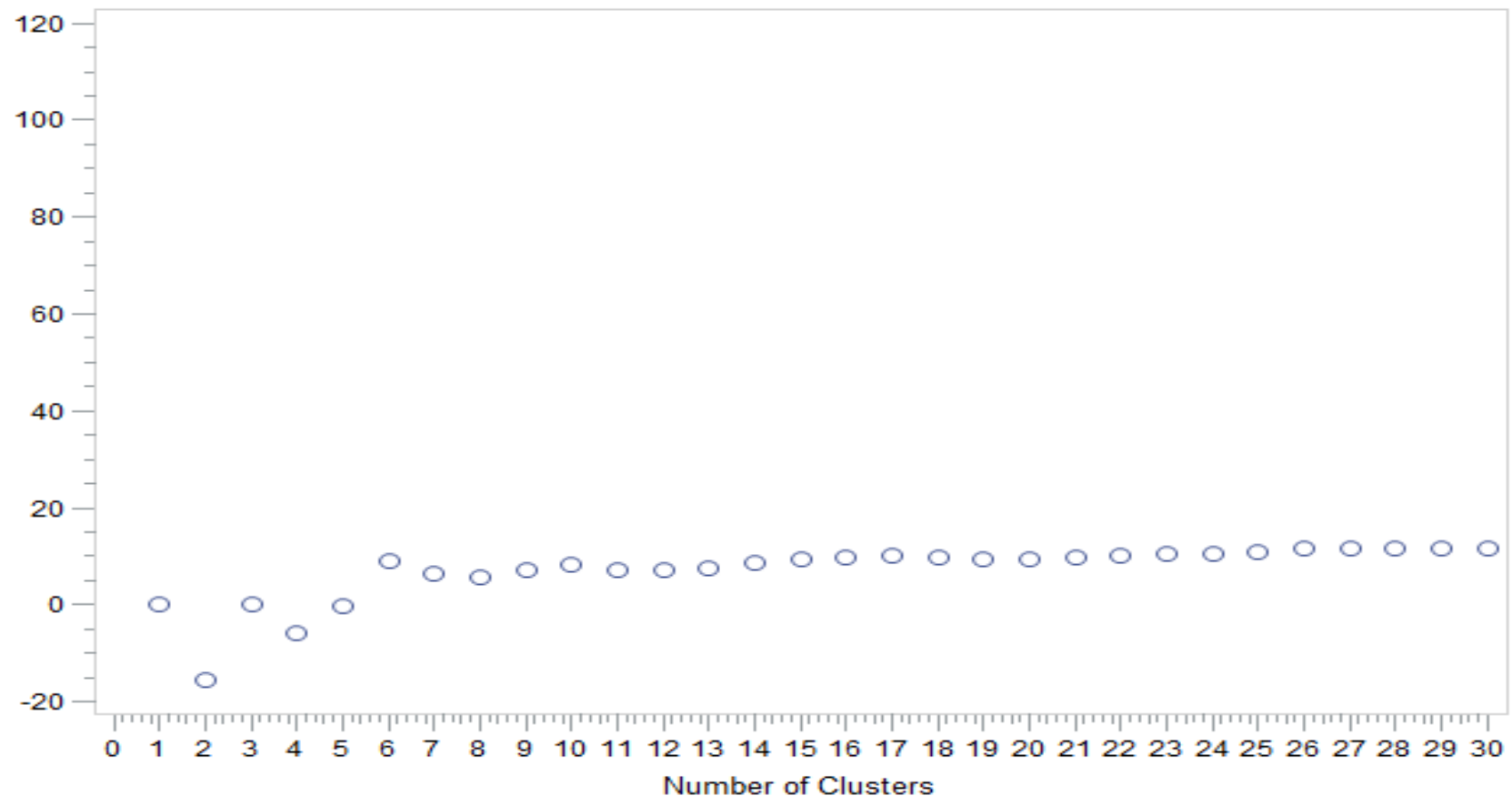- ❑ Number of subjects in first years

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MODEL: t0 - Predicting success at the end of the first year, given point of application information only.

The parameters for the model is given below:

Analysis of Maximum Likelihood Estimates						
Parameter		DF	Estimate	Standard Error	Wald Chi-Square	Pr > ChiSq
Intercept		1	1.3652	0.1563	76.2822	<.0001
admit_d	1: New Student	1	0.3619	0.0772	21.9505	<.0001
nsub	1: <5	1	−0.6543	0.1255	27.1766	<.0001
nsub	2: 5 - 7	1	0.2297	0.1096	4.3891	0.0362
ave10_c	1: <65	1	−0.6766	0.2343	8.3377	0.0039

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MODEL: t1-the same as for t0, but given first semester performance.

Cubic Clustering Criterion

Number of Clusters

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MODEL: t1-the same as for t0, but given first semester performance.

Pseudo F Statistic plot showing Number of Clusters (1–30) on the x-axis and Pseudo F Statistic (0–30000) on the y-axis.

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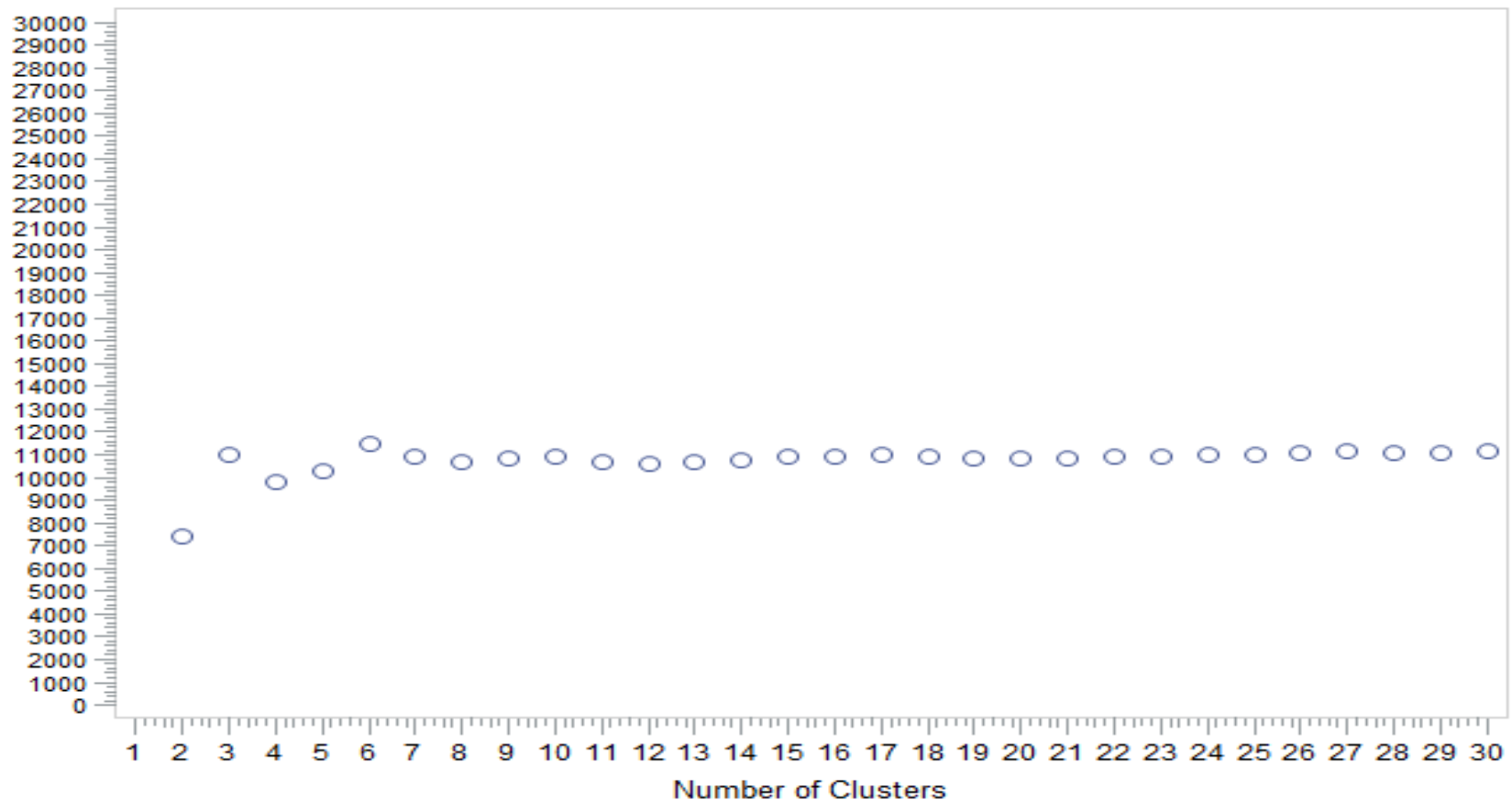
Discussions

❑ Since 2000, the South African student's enrolment has grown at about 4.2% per annum on average . (CHE : Growing higher education in South Africa)

❑ After the merger of higher education Institutions that took place between 2004 and 2005 , there was a significant growth of 6.5% from 2010 t0 2011 (CHE)

❑ There was also inflow of other racial groups , especially to the historical White Institutions

❑ Participation and graduation rates require a deliberate efforts

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Conclusion

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