

Skills Planning for Post School Education and Training

LMIP Research Team

Human Sciences Research Council/ Labour Market Intelligence Partnership

Presentation to Portfolio Committee, 6 September 2017

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Research Bulletin January 2014 Date: January 2014

LMIP-HSRC Seminar: Informatility in the South African labour market in context: indicators of the limits to evidence - based research

Event date: Monday, 31 March 2014 - 12:30pm to 1:30pm

Policy Round Table II: The Emerging Contours of a Credible Institutional Skills Planning Mechanism for South Africa: Towards a Common Perspective

Event date: Wednesday, 19 March 2014 - 8:30am to 3:30pm

Documents in the LMIP repository

Labour Market Intelligence Systems and Mechanisms Author(s): Dr Thabo Mabogoane Publication year: 2014

Skills Planning for SIPs: Methodology used & reflections on possible implications and issues for credible institutional mechanisms for skills planning

Author(s): Adrienne Bird Publication year: 2014

What is (and is not) a Skills Planning Mechanism for South Africa? Author(s): Hoosen Raspol

Publication year: 2014







Welcome

"The LMIP is a unique undertaking designed to inform and support evidence-based skills development policy in South Africa To build a credible institutional mechanism is a major national undertaking. The DHET has entered into partnership with a national research consortium led by the Human Sciences Research Council (HSRC) as one means to support its strategic work to achieve Outcome 5.1. In February 2012, a three year Memorandum of Agreement was signed. Core members of the consortium are the HSRC, the Development Policy Research Unit at the University of Cape Town, and the University of Witwatersrand. Other partners include public and private research institutes, universities and independent consultants."





Map of our presentation

1. Education and Jobs

- > Link between school mathematics/ numeracy and jobs.
- Tertiary Education to Labour Market: Sectors and Jobs.
- 2. Youth transitions over five years in South African Youth Panel Study
- 3. Changing nature of work influences skills development.

EDUCATION AND JOBS

Current realities



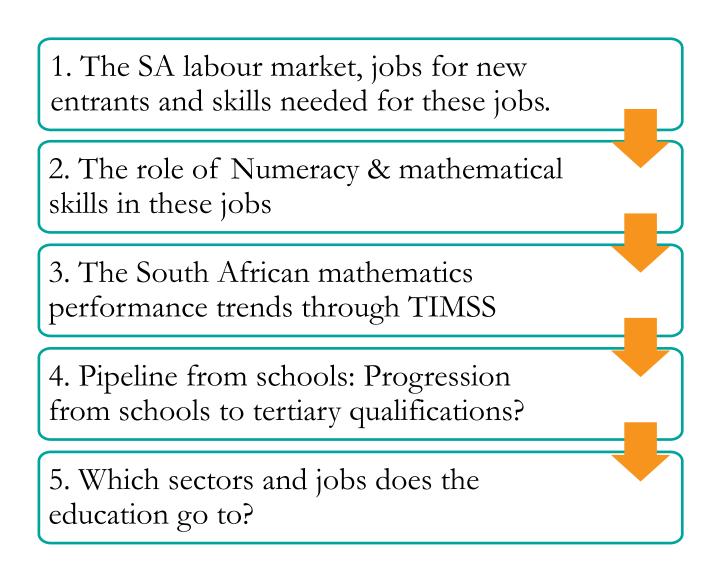
- Educational attainment in South Africa is lower than most economically productive countries. The key constraint is the level of basic education.
- The mathematics competencies gained at school do not provide enough students with mathematical skills to progress to STEM at the tertiary level or sufficient numeracy and problem solving skills for the job market.
- The trajectory of the economy requires workers to have analytical and mathematical skills.
- At the professional level there is a demand for STEM graduates for management occupations; engineering, medical; as well as teaching professions.

Key recommendations



- We must improve basic education, especially in the Numeracy/ Mathematics and Literacy/Languages areas;
- Recognise the importance of school mathematical knowledge and skills;
- Increasing the pace of change in achieving quality educational outcomes for all learners;
- Attract more learners to science-based careers;
- Increase STEM enrolment targets at tertiary institutions from 30% to 35%;
- Improve the workplace conditions for science-based jobs, so that more graduates work in their field of study.

One purpose of education is to provide learners with the knowledge and skills that will help them to enter the labour market and obtain reasonable jobs.





The link between education and labour market outcom

"The highest level of poverty is among individuals with the lowest level of education whereas the lowest poverty level is among those with higher education" StatsSA, 2017

- The higher a person's qualification, the more likely they are to be employed and absorbed in the formal labour force.
- The move towards a knowledge economy places different demands on the labour force:
 - ➤ Higher ('upskilled') education levels
 - Lifelong learning regardless of employment type or previous education
 - Decision-making and problem-solving skills (NOT task-specific)
 - ➤ Technological / ICT skills
 - ➤ Inter- and intra-personal skills (such as communication)

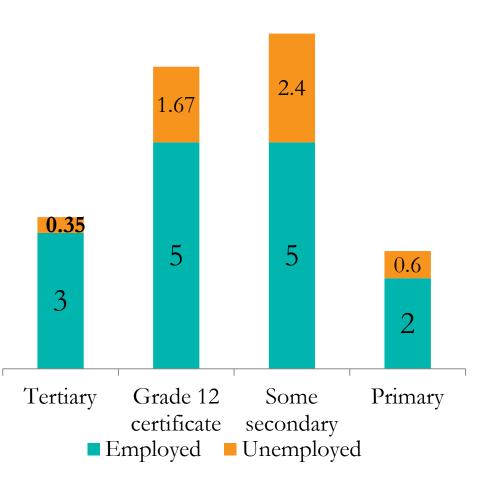
1. The South African Economy & Skills CABOUR MARKET PARTNERSHIP

- Low economic growth rates, leading to poor employment growth.

 Employment growth is not sufficient for the large numbers of youth coming to the labour market for the first time.
- Sectors where people work and the types of jobs are changing: absence of low-wage jobs in the manufacturing sector, structural shift towards a service economy and dependence on high-skilled financial services.
- There is a structural mismatch between labour demand and supply. The economy and labour market shows a demand for high skilled workers, but there is a surplus of low-skilled workers.

The Labour Force and Education (2014)

Education Levels of the Labour Force (million)



The Labour Force

15 million employed

- 20% has a tertiary qualification,
- 32% completed senior certificate,
 - $\frac{1}{2}$ the workforce without grade 12.

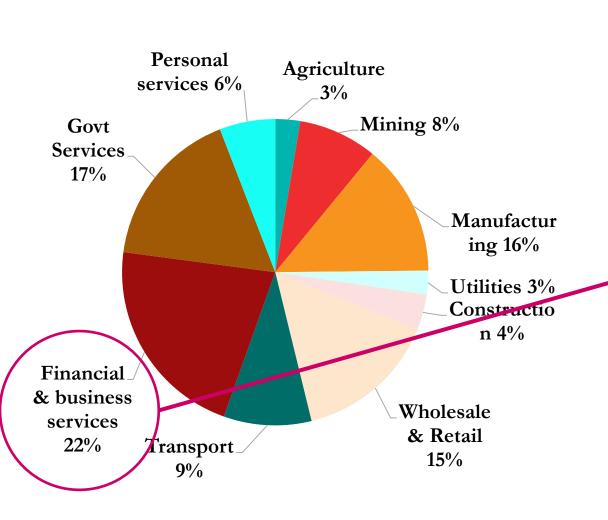
8 million unemployed

- 90% African,
- 5 mill are 5 to 34 years and increasing as more young people join the labour force,
- 3 mill have less than grade 12 education.

10

Sectoral Contribution to GDP, 2014

Employment by sector 2014



Sector	%
Wholesale and Retail	22
Govt. Services	21
Manufacturing	13
Financial	13
Private Households	9
Construction	8
Transport	6
Agriculture	5
Mining & Quarrying	2
Utilities	1

2. Jobs of today

Job type	Employed 2014	Change from 2010
Managers	8.9%	25.4%
Professionals	8.9%	11.2%
Technicians& Assoc Prof	7%	6.8%
Clerical support workers	10.9%	14.4%
Services & Sales Worker	15.3%	24.6%
Skilled agriculture & forestry, fishery, related trades workers	12.5%	12.4%
Plant & machine operators	8.3%	13.8%
Elementary occupations	28.2%	15.3%



Jobs of today



Job type	Employed	Change from	Job description
	2014	2010	
Managers	8.9%	25.4%	CEOs, Senior Officials, Legislators, Administrative, Commercial, Production, Specialised Services, Hospitality, Retails and other Services Manager.
Professionals	8.9%	11.2%	Physical, Mathematical & Engineering; Science; Health; Teaching; Business & Admin; ICT; Legal, Social & Cultural.
Technicians& Assoc Prof	7%	6.8%	Business & Admin; Legal, Social and Cultural; ICT Technicians.
Clerical support workers	10.9%	14.4%	General & Keyboard; Customer Services; Numerical and Material Recording; Other Clerical Support workers.
Services & Sales Worker	15.3%	24.6%	Personal Service; Sales Workers; Personal Care; Protective Services.
Skilled agriculture & forestry, fishery, related trades workers	12.5%	12.4%	Market-oriented Skilled Agricultural; Market-oriented forestry; Subsistence Farmers, Fishers, Hunters Gatherers. Building and Related ; Metal, Machinery; Handicraft and Printing; Electrical and Electronics; Food Processing, Wood Working, Garment and Other Craft and Related Trades Workers.
Plant & machine operators	8.3%	13.8%	Stationary Plant and Machine; Assemblers; Drivers and Mobile Plant
Elementary occupations	28.2%	15.3%	Cleaners & Helpers; Agricultural, Forestry & Fishery Labourers; Labourers in Mining, Construction, Manufacturing and Transport; Food Preparation Assistants; Refuse Workers and Other Elementary Workers.

Jobs of today

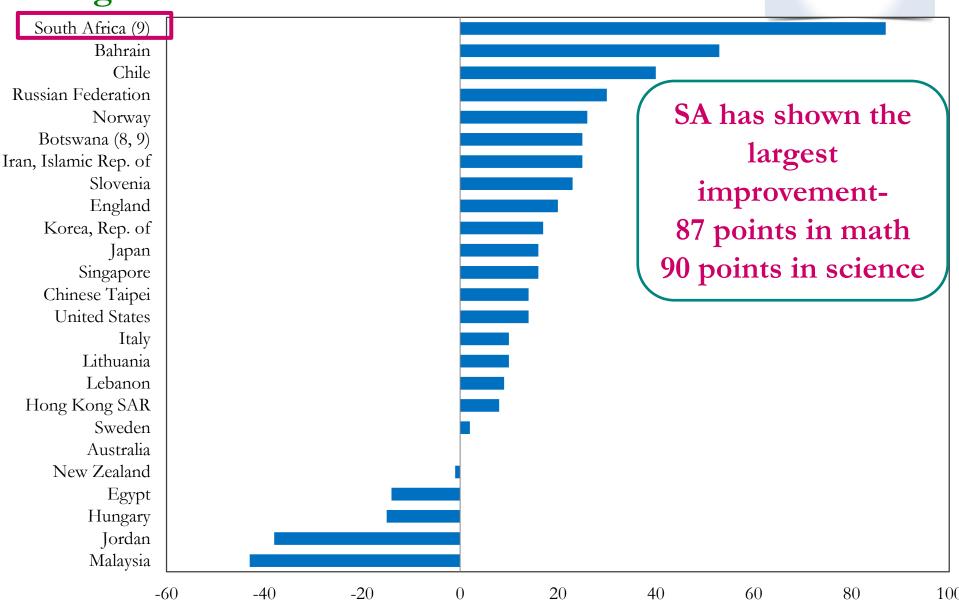


Job type	Employed	- C	Job description	Math Skills?
	2014	2010		
Managers	8.9%	25.4%	CEOs, Senior Officials, Legislators, Administrative, Commercial, Production, Specialised Services, Hospitality, Retails and other Services Manager.	Numeracy Mathematical
Professionals	8.9%	11.2%	Physical, Mathematical & Engineering; Science; Health; Teaching; Business & Admin; ICT; Legal, Social & Cultural.	Mathematical Numeracy
Technicians& Assoc Prof	7%	6.8%	Business & Admin; Legal, Social and Cultural; ICT Technicians.	Mathematical Numeracy
Clerical support workers	10.9%	14.4%	General & Keyboard; Customer Services; Numerical and Material Recording; Other Clerical Support workers.	Numeracy
Services & Sales Worker	15.3%	24.6%	Personal Service; Sales Workers; Personal Care; Protective Services.	Numeracy
Skilled agriculture & forestry, fishery, related trades workers	12.5%	12.4%	Market-oriented Skilled Agricultural; Market-oriented forestry; Subsistence Farmers, Fishers, Hunters Gatherers. Building and Related ; Metal, Machinery; Handicraft and Printing; Electrical and Electronics; Food Processing, Wood Working, Garment and Other Craft and Related Trades Workers.	Mathematical Numeracy
Plant & machine operators	8.3%	13.8%	Stationary Plant and Machine; Assemblers; Drivers and Mobile Plant	Numeracy
Elementary occupations	28.2%	15.3%	Cleaners & Helpers; Agricultural, Forestry & Fishery Labourers; Labourers in Mining, Construction, Manufacturing and Transport; Food Preparation Assistants; Refuse Workers and Other Elementary Workers.	Numeracy

3. TIMSS Math performance at Grade 9

Change in math achievement between 2003 and 2015 and 2015





South African Math Achievement: 2003 to 2015



Mathematics	Ave scale score (SE)	
TIMSS 2015	372 (4.5)	
TIMSS 2011	352 (2.5)	
TIMSS 2003	285 (4.2)	67
	(50 100 150 200 250 300 350 400 450 500 550 600

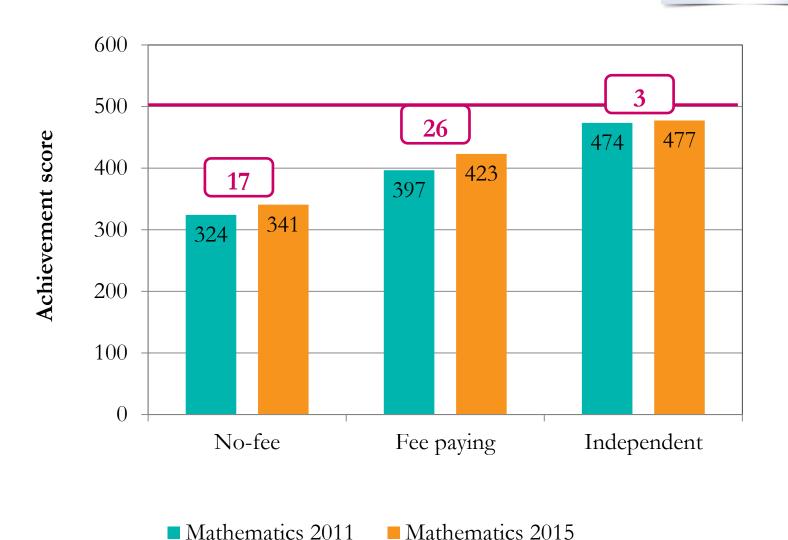
Percentiles of performance



95% confidence interval for average (±2SE)

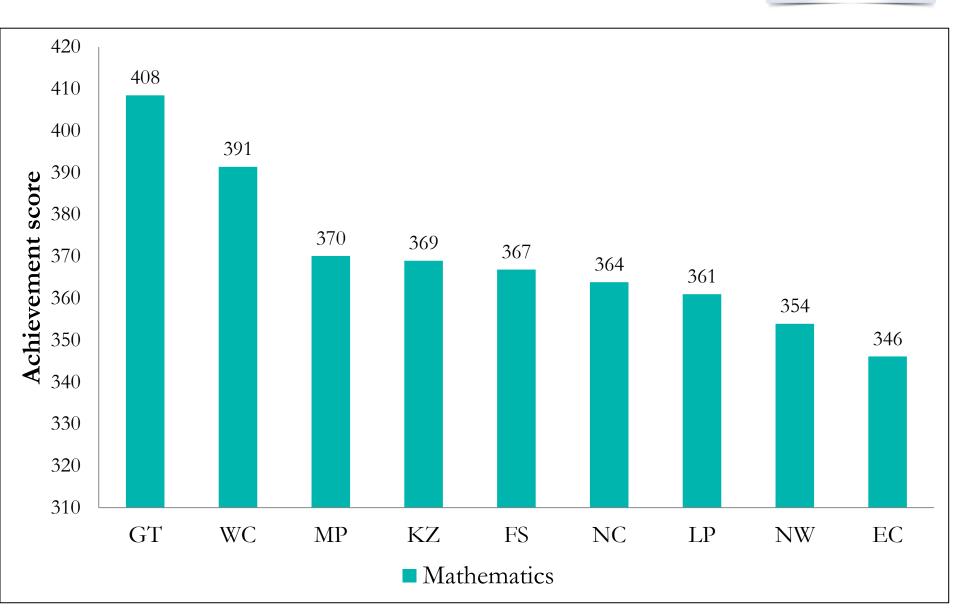
Mathematics performance by school type 3



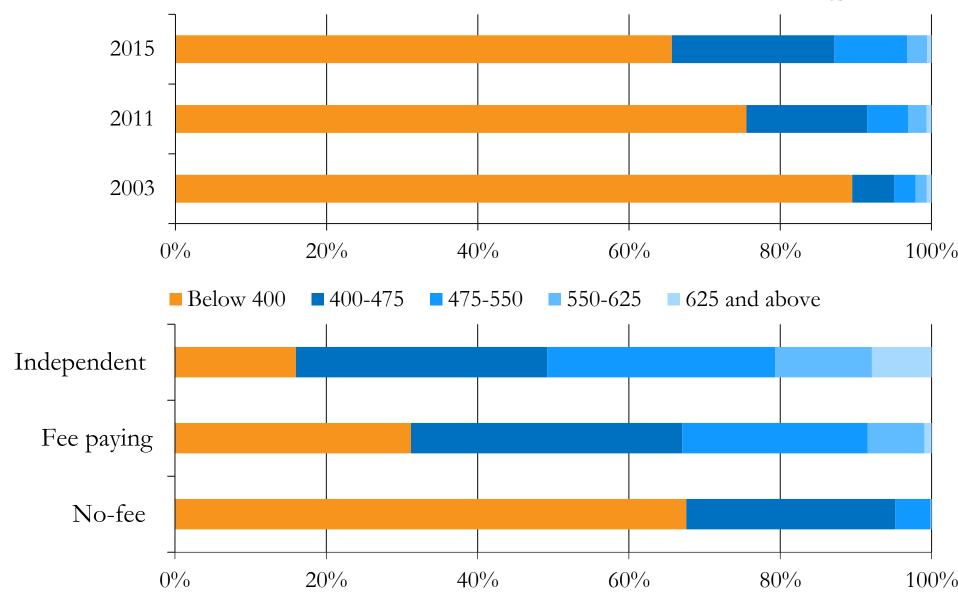


Performance by province, 2015



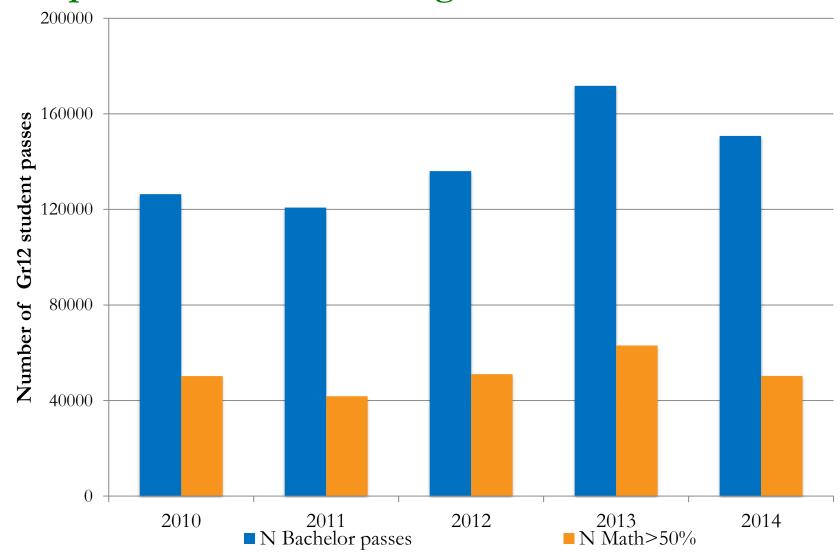


Math achievement by TIMSS proficiency benchmarks, (i) 2003 to 2015 (ii) school-type



4. Progress from school to tertiary completion

Key constraint is quantity and quality of math competences from schooling



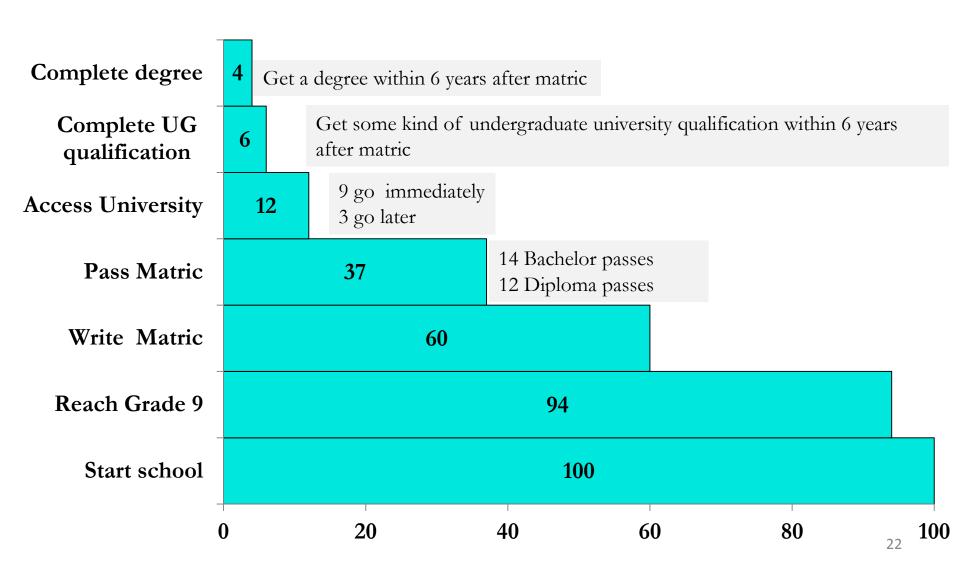
University & TVET Completers, 2014

	TOTAL	Business, Economic & Management Science	Science, Engineering Technology	Humanities	Services
Universities:	185394	50380	55574	79749	
Diplomas and Degrees		27%	30%	43%	
TVET Colleges	7405	3824	1628		1953
NCV 4		52%	22%		26%
TVET Colleges	24178	13886	7925		2367
NATED 6		57%	33%		10%

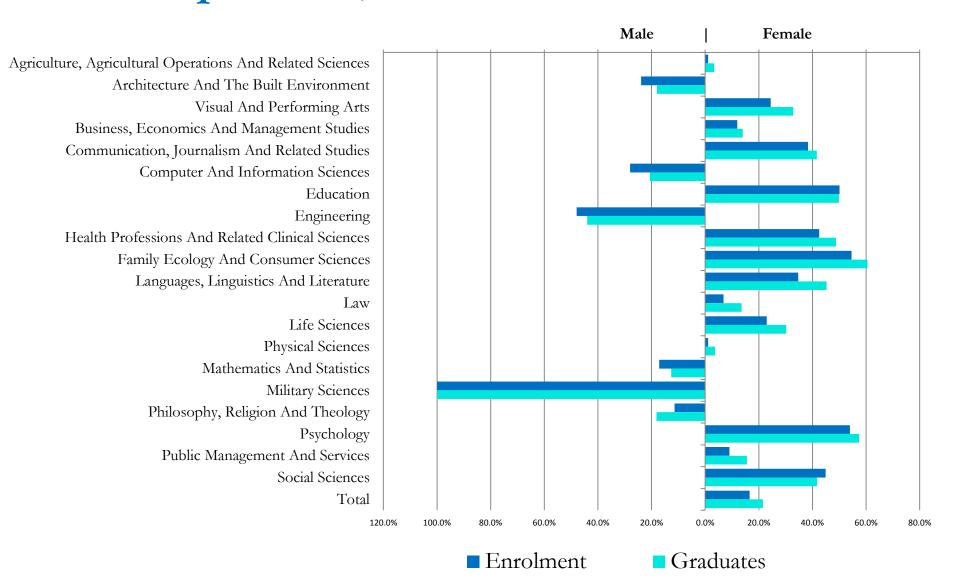
- Completers from University and more especially TVET colleges a concern.
- Change university enrolment and completion targets to 35% science and 35% humanities.
- Set targets for TVET enrolments and completions.

Progression from schools to tertiary qualifications: a helicopter view

(Servaas van der Berg, US)



Gender difference in university enrolments and completions, 2014





5. Where does the education go to: sectors and occupations.

Education-Job Match: Sectors

Mining and quarrying

Agriculture, forestry and fishing

Electricity, gas and water supply



Industry sector	1.2 million degrees	1.8 million Post-grade 12 cert & diploma	
Community, social services	50	43	
Financial	25	18	
Manufacturing	8	10	

Zommumty, social services	30	43
Financial	25	18
Manufacturing	8	10
Wholocolo and Dotail	6	12

Manufacturing	8	10
Wholesale and Retail	6	13
Transport	4	6
Construction	3	5

Education-Job Mismatch: Occupations

Occupation	1.2 million degrees	1.8 million Post-grade 12 cert & diploma
Managers and senior officials	25	16
Professionals	51	23
Technicians & Associate Professionals	11	17
Clerical Support Workers	7	18
Service and Sales Workers	3	11
Skilled Agricultural, Craft and Trades Workers	1	8
Plant and Machine Operators	0	3
Elementary occupations	1	4

Sectors where Engineering qualifications work

sectors where Engineering	quamican	LABOUR MARKET INTELLIGENCE PARTNERSHIP
	118 700 degrees	382 700 Post gr 12 Cert & Diploma
Financial	31	19
Manufacturing	23	18
Construction	15	13
Community, social, personal services	8	14

Transport

Wholesale and Retail

Mining and quarrying

Electricity; gas and water supply

Agriculture; forestry and fishing

9

10

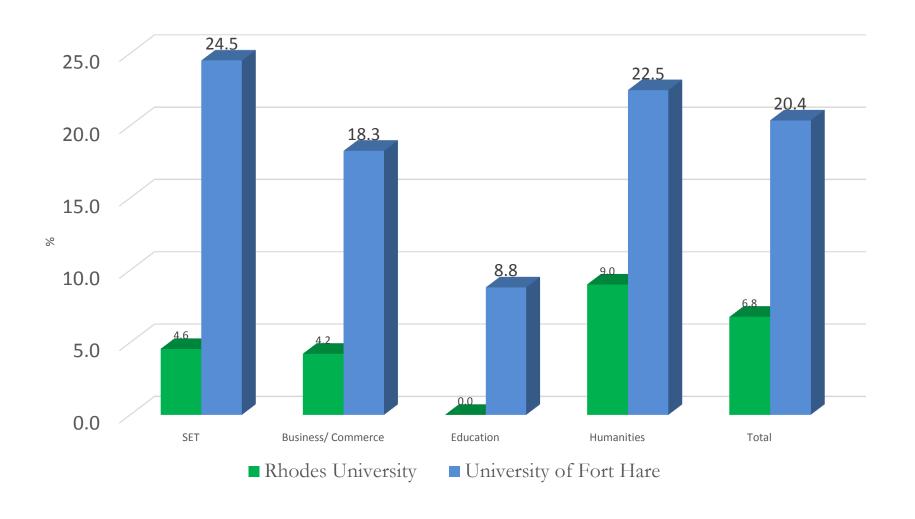
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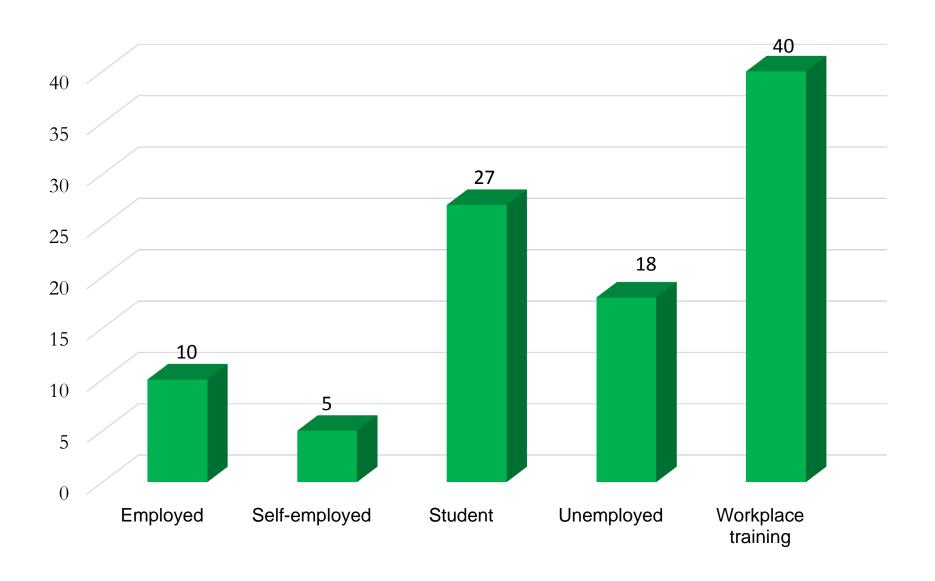
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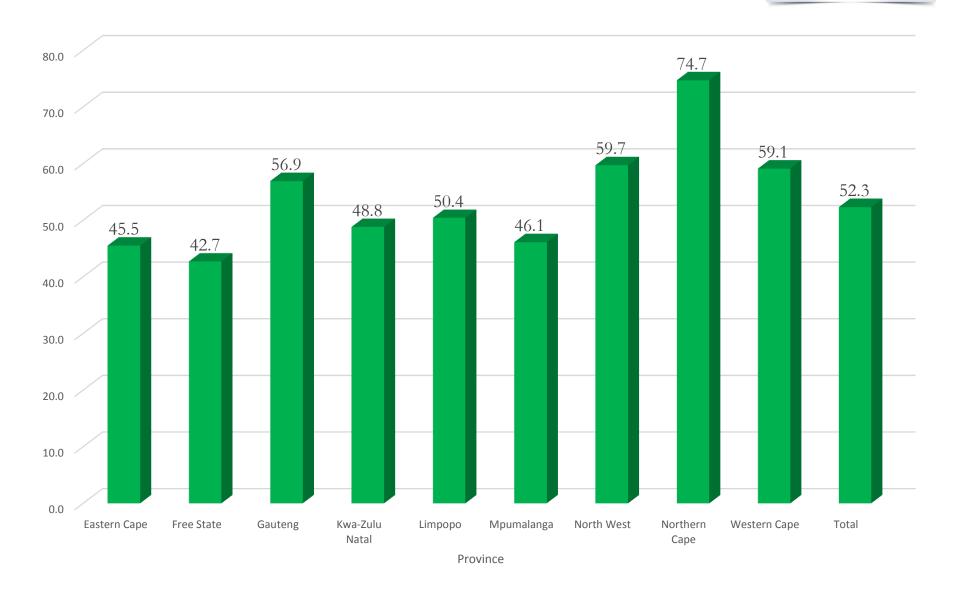
Unemployment rates among Rhodes University and University of Fort Hare graduates, by field of study (Rogan & Reynolds)



Current labour market status of NC (V) completers (Mashongoane)



NATED graduate employment rates by province (Papier et al.)



Youth transitions over five years in SAYPS: Where next for South African youth?

Overview



- The report uses SAYPS to examine the throughput of the educational system for a cohort of current South African youth
 - > W5: first possible year the cohort can be beyond matric
- We analyse characteristics of learners making different transitions and explore key predictors of these pathways
- We focus on three main groups of young people:
 - ➤ High flyers; Learners still in school; NEET
- Results show considerable heterogeneity in learners transitions, increasingly staggered progression over time, and evidence of real blockages throughout the system



Contextual Background

- Throughput rate of learners to Grade 12 is of concern
 - ➤ Increasingly staggered progression as learners move through school
- High and growing level of unemployment amongst youth population
 - ➤ Dramatic reduction in the numbers of 18-24 year olds who are NEET as the level of education improves
- Need to understand transitions through school to matric, and into Higher Education

South African Youth Panel Study (SAYPS)

A five year, longitudinal panel study of Grade 9 learners in South Africa starting in 2011

At baseline, when **TIMSS 2011** learners were in Grade Grade 9 learner 9, their median age assessments in was 15.7 years maths & science By the wave 5 Learner qu'naire In 2013, learners data, the sample Parent qu'naire were asked about over represents Teacher qu'naire their current activities females (58.3%) Head qu'naire and retrospectively In the original about those for 2012 sample, the sex split is equal: males = 50.7% **SAYPS: SAYPS: SAYPS:** SAYPS: Learner qu'naire Learner qu'naire Learner qu'naire Learner qu'na re Achieved sample 11,898 5,946 5,872 3,613 2,224



Aims of the SAYPS research programme

- To describe in detail the main activity choices of young people over time and how learners move through the education system?
- To identify the characteristics of young people following different pathways through school?
- To understand how individual characteristics, family background and school factors predict educational pathways?

Summary of W1 to W4 transitions Isdale et al. (2016)



Smooth	Staggered	Stuck	Stopped
Neat, year-on- year grade progression through school.	Learners in school for all 4 waves of SAYPS, but have at least one episode of grade repetition or a move to FET college; Individuals who return to school in Wave 4 but are out of education (either working or NEET) for at least one wave.	Learners in school for all four waves of SAYPS, but stuck in grade 9 or 10 for three or more periods	Individuals who leave school before Wave 4 and do not return
47%	39%	7%	7%



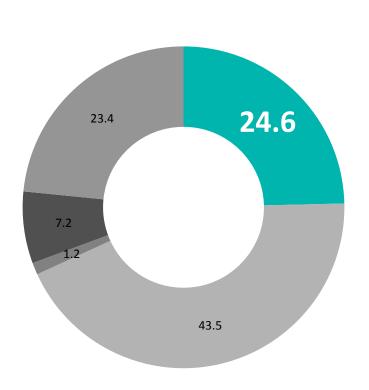
Transitions to wave 5: One year post-matric...

	Wave 4: 2014	Wave 5: 2015
Still at school	92.3	43.5
Moved to TVET college	1.1	-
Post-school institution	-	24.6
Learnership / Apprenticeship / Traineeship	-	1.2
Working	1.0	7.2
Not studying and not working	5.6	23.4

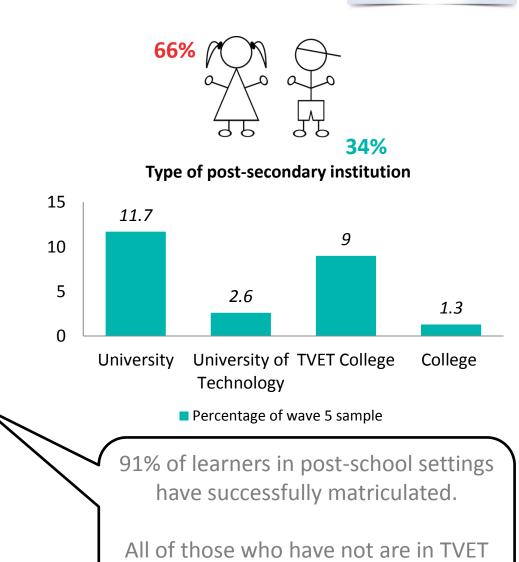
- Nearly a quarter have moved into a post-school institution
- More than one in four remain in school
- Almost a quarter are not studying or working



Post-school institutions



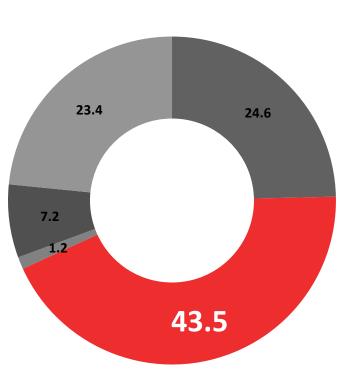
- Post-school institution
- Still at school
- Learnership
- Working
- Not studying & not working



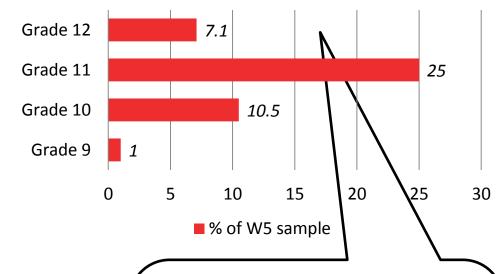
colleges



Still at school



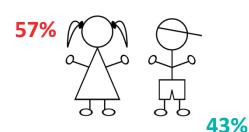




Only 6% of learners progress from Grade 11 to Grade 12 between waves 4 & 5

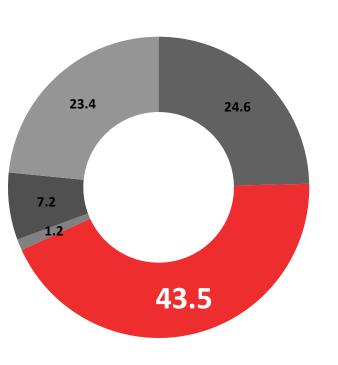
This final year transition represents a clear hurdle in the path to successful matric for a large proportion of learners

- Post-school institution
- Still at school
- Learnership
- Working
- Not studying & not working

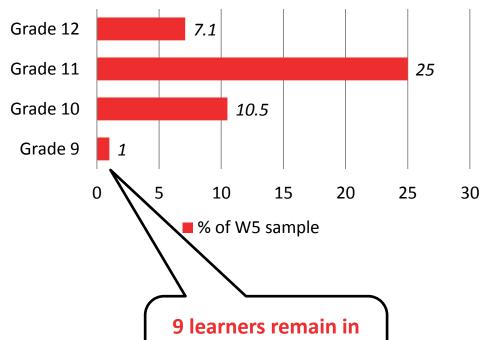




Still at school







- Post-school institution
- Still at school
- Learnership
- Working
- Not studying & not working

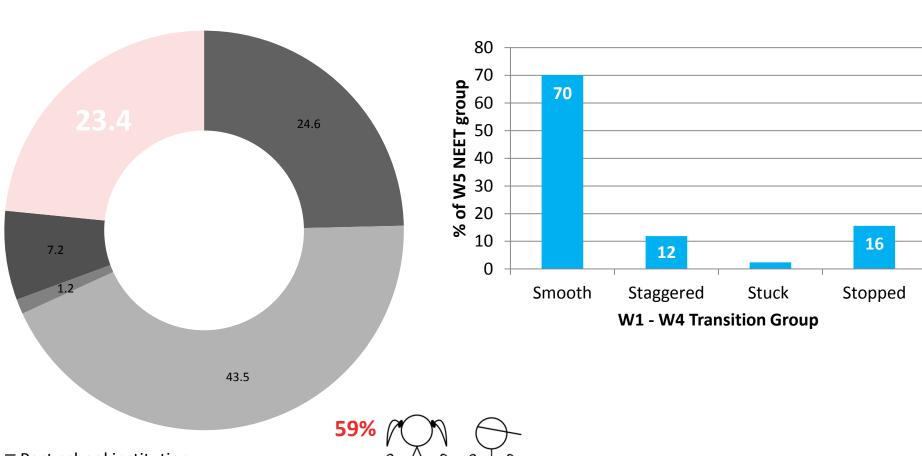


9 learners remain in Grade 9 across all five waves of SAYPS data!

43%



Not working, not studying



41%

■ Post-school institution

■ Still at school

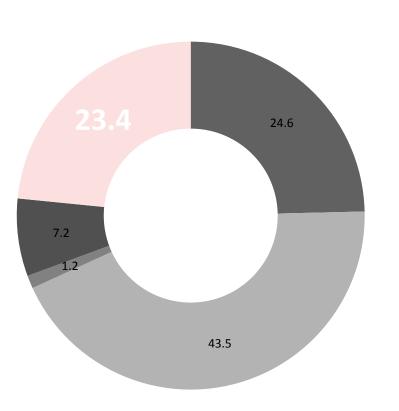
■ Learnership

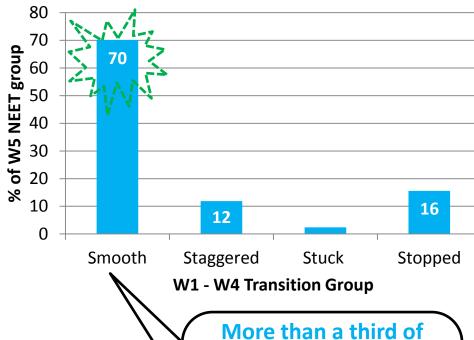
■ Working

■ Not studying & not working

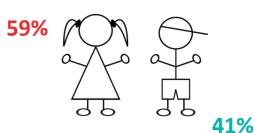


Not working, not studying





- Post-school institution
- Still at school
- Learnership
- Working
- Not studying & not working



those with previously
SMOOTH pathways
through school end up
NEET one year postmatric!

Key Findings



i. Predicting who has which transition?

Smooth-NEET vs. Other-NEET

- > Younger learners
- ➤ Higher educational expectations, those with more positive attitudes and beliefs about maths and those who aren't bullied
- > Those in Q5 schools and with higher prior achievement

Smooth-NEET vs. Smooth-Smooth

- ➤ Older learners (earlier grade repetition?)
- Less positive attitudes about mathematics but higher life satisfaction
- > No-fee public schools and lower prior achievement

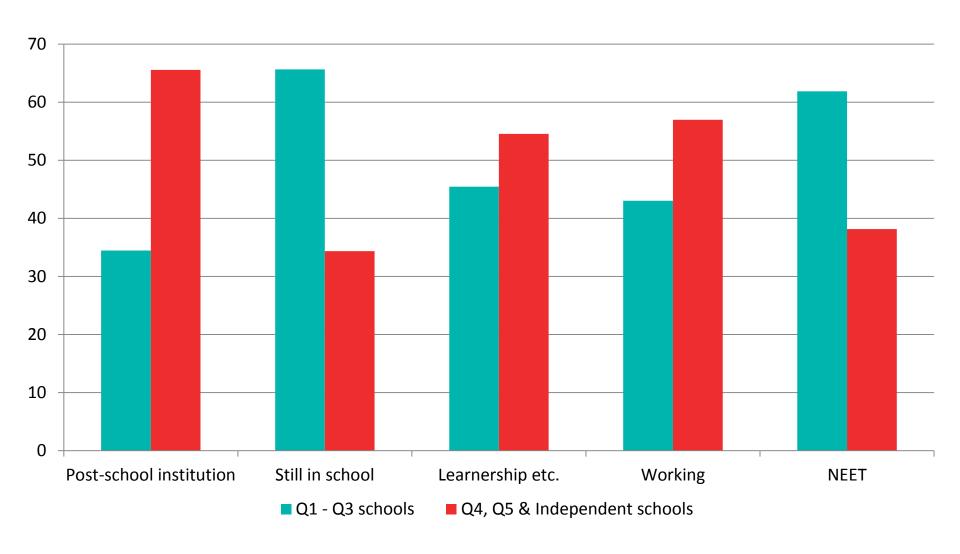
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Key Findings

- Smooth-smooth highflyers with matric: 22% of SAYPS sample
 - > 14% of the cohort access University in the first year post-matric
- Nearly a third of learners with a previously smooth progression end up NEET at wave 5
 - Two-thirds of the total NEET group
- A third of learners in post-school institutions come from Q1-Q3 schools
 - And learners from Q4, Q5 & Independent schools not immune from becoming NEET
- Progressively staggered pathways: 94% of learners in Grade 11 at wave 4 do not progress to Grade 12 a year later
- Age, attitudes, school type and achievement partially distinguish the Smooth-NEET vs. Other-NEET or Smooth-Smooth vs. Smooth-NEET groups



ii. Beating the odds?



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Conclusions

- Considerable diversity and heterogeneity in learner transitions
- Systemic failures
 - ➤ learners matriculating failed to remain proportionate to increased enrolment rates more generally
 - ➤ Stuck at Grade 11: 94% more than just struggling learners held back from high stakes exams
 - > Smooth group learners poorly prepared for post-matric
- "Staggered" pathways as the new norm?
- Social advantage operating through school characteristics



Policy Implications

• The number of learners who qualify for post-secondary education but are NEET is too high if SA is to achieve its 20% target of HE participation

- Limited progression for learners in grade 11
 - ➤ Only 6% of Grade 11 learners progress into Grade 12
 - ➤ Just under 25% of the SAYPS cohort have a smooth-smooth post-school pathway
 - Challenge to increase this % across all school types



Policy Implications

- More than a third of SMOOTH learners become NEET
 - Pathways into this group are not straightforward
 - Rethinking the traditional view of who is NEET

- Is there sufficient knowledge of the possible post-school routes available to learners?
 - Single pathway from grade 10 to 12 as highly academic and clearly not suited to all learners. Encourage students following a TVET pathway post grade 9.

Understanding changes to the nature of work remains critical to responding appropriately to the development of skills

The case of artisanal work and occupations



Insights for policy

- Recommendation 1: Engagement on the macro-economic parameters, the culture and the history of particular forms of training remains important to inform successful and appropriate E&T and labour market interventions
- Recommendation 2: The workplace remains a critical locale for understanding the types of skills required, but also pervasiveness of inequality in employment
 - ➤ It is important for policy makers to understand occupations as socially constructed
 - ➤ It is increasingly important to understand how closure mechanisms for different levels of skilling act within workplaces

RECOMMENDATION 1: ENGAGEMENT ON THE MACRO-ECONOMIC PARAMETERS, THE CULTURE AND THE HISTORY OF PARTICULAR FORMS OF TRAINING REMAINS IMPORTANT

- The SA TVET system and its obstacles "are inextricably connected to the development of the society and economy and any attempts to reform the system need to understand the discourses that shaped the society"
- It is critical to evaluate the macro-economic realities and possible economic trajectories as parameters for a consideration of desirable and possible interventions into skills development.



History matters

Four standout features of apprenticeship that allows us to understand the negative discourse around our vocational education and training system, but also the strong political efforts and impetus towards radical labour market and training system change (Wedekind, 2013).

- Exploitative history and links to slavery
- Use as social engineering tool
- Association with a limited set of trades and technical occupations
- Low status in comparison to professional qualifications or occupations.



The economy matters

The analysis points to a shifting macroeconomic structure

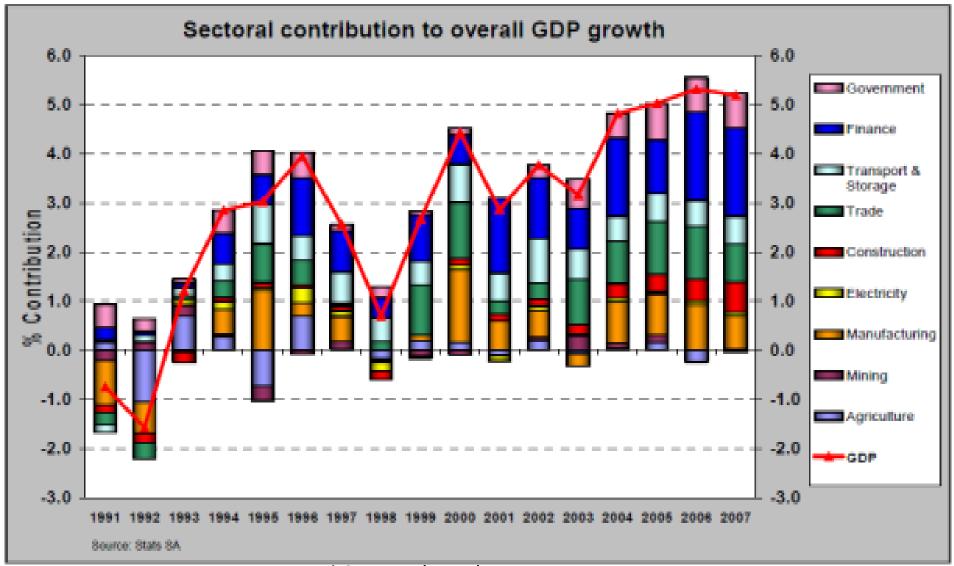
- <u>Sectoral shifts:</u> Declining formal sector employment, with a growth in informal sector employment. Also declining in many of the primary and secondary sectors accompanied by the intensification of tertiary sector employment.
- <u>Subsectoral shifts:</u> Declining mining and agricultural sectors with some growth in artisanal employment in the construction sector
- Skills demand shifts: Economy with a strong bias towards high skills

Given such trends questions need to be asked about whether or not the labour market (especially formal) has the capacity to absorb fully the new artisan labour market entrants and at what rate? The capacity seems to have grown only in the construction sector.

Therefore, consideration should be given to how these and other trends influence and are aligned to the type of artisans being trained and where they are being trained, as well as for what type and level of employment.

Changing contribution to GDP growth by sector, 1991–2007





Source: Hanival & Maia (2008)

Formal and informal employment contribution trends by sector, 2005–2011

Sector	2005		2007		2009		2011		Percentage change (2005–2011)	
	Form	Infor	Form	Infor	Form	Infor	Form	Infor	Form	Infor
Mining	5.4	0.4	5.4	0.1	3.5	0.2	3.3	0.3	-2.1	-0.1
Manufacturing	18.4	10.6	17.8	12	17.6	10	17.2	10.1	-1.2	-0.5
Electricity	1.6	0.2	1.1	0.4	1	0.1	1	0	-0.6	-0.2
Construction	6.6	14.2	7.5	14.5	8.9	13.4	8	13.4	1.4	-0.8
Trade	21.8	45.4	23.5	44.8	21.3	46.9	21	47.1	-0.8	1.7
Transport	5.8	6.4	5.2	6.4	5.8	9.5	5.8	8.8	0	2.4
Finance	13.7	3.5	15	2.3	16.8	6.5	16.3	5.8	2.6	2.3
Services	26.4	8.9	24.3	11.9	25	13.4	27.3	14.5	0.9	5.6

Source: Stats S A (2005–2011)

Formal and informal employment contribution trends by occupation, 2005–2011

Occupation	2005		2007		2009		2011		Percentage change (2005–2011)	
	Form	Infor	Form	Infor	Form	Infor	Form	Infor	Form	Infor
Management	8.7	2.6	9.3	2.6	7.4	2.7	7	2.7	-1.7	0.1
Professionals	6.1	0.7	6.3	1	7.9	1.5	7	0.8	0.9	0.1
Technical	12.3	3.7	11.8	4.2	15.4	3.8	17	3.2	4.7	-0.5
Clerks	13.8	1.2	13.7	1.2	14.9	4.1	15	2.7	1.2	1.5
Sales & services	13.3	13.1	13.9	14.1	13.1	17.6	15	13.7	1.7	0.6
Skilled agriculture	0.8	14	0.9	12.9	0.5	1.2	0	1	-0.8	-13
Craft & trade	13.5	19.4	13.4	21.1	12.4	20.2	10	14.6	-3.5	-4.8
Plant & machine operator	12.5	4.4	11.2	5.7	10.7	8.7	10	6.1	-2.5	1.7
Private household	0	0	19.8	37.2	0	0	0	23.1	0	23.1
Elementary occupations	19.1	40.9	0	0	17.6	40.1	19	32.2	-0.1	-8.7

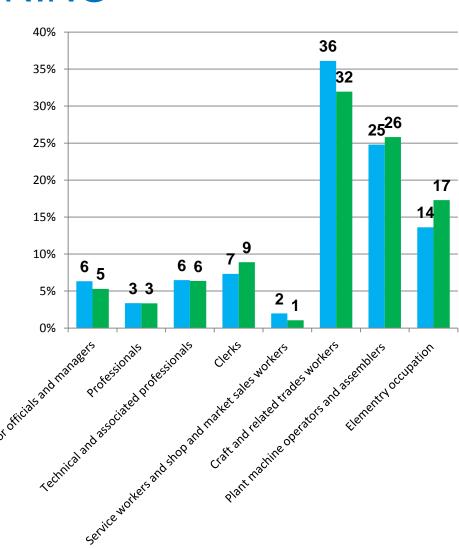
Source: Stats S A (2005–2011)

RECOMMENDATION 2: THE WORKPLACE REMAINS A CRITICAL LOCALE FOR UNDERSTANDING THE TYPES OF SKILLS REQUIRED, BUT ALSO THE PERVASIVENESS OF INEQUALITY.

- It is important for policy makers to understand occupations as socially constructed
- It is increasingly important to understand how closure mechanisms for different levels of skilling act within workplaces

CONTEXT OF ARTISANAL WORK AND TRAINING

- Small and complex system of provision: in registrations and completions by individuals from vulnerable groups.
- Employment figures are not far from being racially representative, but gender representivity still a problem.
- Why do particular inequalities in artisanal skilling and employment persist and even intensify.
- What is it about artisanal occupations that make it a more acceptable route for men or whites?
- How are people excluded and included?



CHANGE IN OCCUPATIONAL SHARE OF EMPLOYMENT IN MINING, AUTOMOTIVE AND METALS SECTORS, 2008 – 2013

SOCIAL DIFFERENCE IS KEY IN WORKPLACE DISCOURSE AND CONSTRUCTIONS OF 'OCCUPATION,' GENDER, RACE, AGE & LANGUAGE

A gendered discourse:

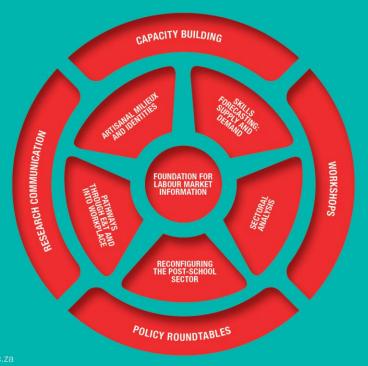
- Women's reproductive responsibilities
- Women are not suited to particular types of artisanal work, because of their physical inabilities.
- > Safety and Hygiene

Age and race:

- Race and age remains important for maintaining occupational boundaries
- White and older artisans tend to be portrayed as more committed and delivering better quality work.

Language plays a role:

- dynamic that might arise between an artisan and their assistant
- References to 'their language'
- Occupations are key areas for closure. Process or strategy of drawing boundaries, constructing identities, and building communities in order to monopolize scarce resources for one's own group, thereby excluding others from using them.
- In a time where formal barriers to access have been removed it is the informal processes which are key sources of inequality in contemporary organisations and occupations (Muzio & Tomlinson, 2012).



Programme director

Project leader

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Project secretariat support Project secretariat support Project secretariat







