



LABOUR MARKET
INTELLIGENCE PARTNERSHIP

The Role of Skills and Education in Predicting Micro-enterprise Performance (LMIP Report 26)

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Outline

- Context and motivation
- Research objective
- Methodology
- Data
- Human capital profile of the SMME sector
- Econometric analysis
- Policy suggestions and final remarks

Context and motivation

- The informal sector plays a critical role as a source of employment and income outside of the formal wage sector in developing country economies.
- Relative to other developing countries, South Africa's informal sector is small, particularly in light of high rates of unemployment.
- Key to generating growth in the informal sector is the growth of SMMEs. Growth in the SMME economy, across both formal and informal sectors, contributes to employment creation, the enhancement of economic growth and poverty alleviation (Rogerson, 2001).
- The developmental importance of the informal sector and, more generally, SMMEs, motivates for the research objective of this paper.

Research objective

- Examine the determinants of SMME performance in South Africa
- SMME performance is analysed along two dimensions:
 - a) Financial performance
 - b) Ability to access market opportunities
- In particular, the paper focuses on understanding how **education and skills** relate to the financial performance of SMMEs and their ability to access markets.

Methodology



1. Descriptive analysis of the human capital profile of SMME owners across the informal and formal sectors
2. Econometric approach
 - a) Determinants of financial performance
 - b) Determinants of ability to access market opportunities

Methodology (cont)



a) Determinants of financial performance

Employ a mincer-type earnings function to examine the effect of human capital variables on entrepreneurial performance

$$\ln Y_i = \beta_0 + \beta_1 DS_i + \beta_2 IS_i + \beta_3 SC_i + \beta_4 OC_i + \beta_5 FC_i + \varepsilon_i$$

Dependent variable (Y_i): natural log of a) monthly turnover, b) monthly net profit, and c) labour productivity

Estimate using OLS, and Tobit estimator in the case of net profit

Methodology (cont)



b) Determinants of ability to access market opportunities

Employ a Probit estimation procedure

Dependent variable (y_i): indicator variable equal to 1 when a firm is able to access a market opportunity (firm submitted tender application in past 12 months), 0 otherwise.

$$y_i = 1[y_i^* > 1]$$

$$y_i^* = \beta_0 + \beta_1 DS_i + \beta_2 IS_i + \beta_3 SC_i + \beta_4 OC_i + \beta_5 FC_i + \varepsilon_i$$

Caution:

*Regression results for a) and b) likely to be affected by endogeneity.
Therefore, estimates imply correlation, not causation*

Methodology (cont)



Explanatory variables of interest:

- Direct measures of skills (DS_i) such as level of education and experience
- Indirect measures of skills (IS_i)
 - Proxy measures of latent business skills inferred from Finscope (2010) dataset
 - Questionnaire asks about the functions/services employed by a business, such as IT, accounting, marketing, administrative, human resource and legal. Infer that a skill is related to the function/service.
 - In addition, questions concerning whether a firm advertises, maintains financial records, maintains computerised financial records, and has a BEE contributor status, can be used to infer skills

Also control for access to social capital (SC_i), owner characteristics (OC_i), and firm characteristics (FC_i)

Data

Finscope Survey (2010)

- Nationally representative survey that covers both formal and informal sector enterprises
- Respondent must be 16 years or older, an owner of a business that employs no more than 200 employees
- 5676 observations
- Only survey that attempts to capture information on owner skills other than level of education
- Restrict sample to non-agricultural activities

Descriptive analysis

Owner Level of Education by Sector



Education Category	Informal:Formal
	Finscope 2010
No formal education	4,1*
Some primary	3,9*
Complete primary	4,7*
Some secondary	1,9*
Matric	0,6*
Vocational	
Some university	
Apprenticeship	0,3*
Post-matric	0,3*
University degree	0,1*

Proportion of informal sector enterprise owners: proportion of formal sector enterprise owners by level of education

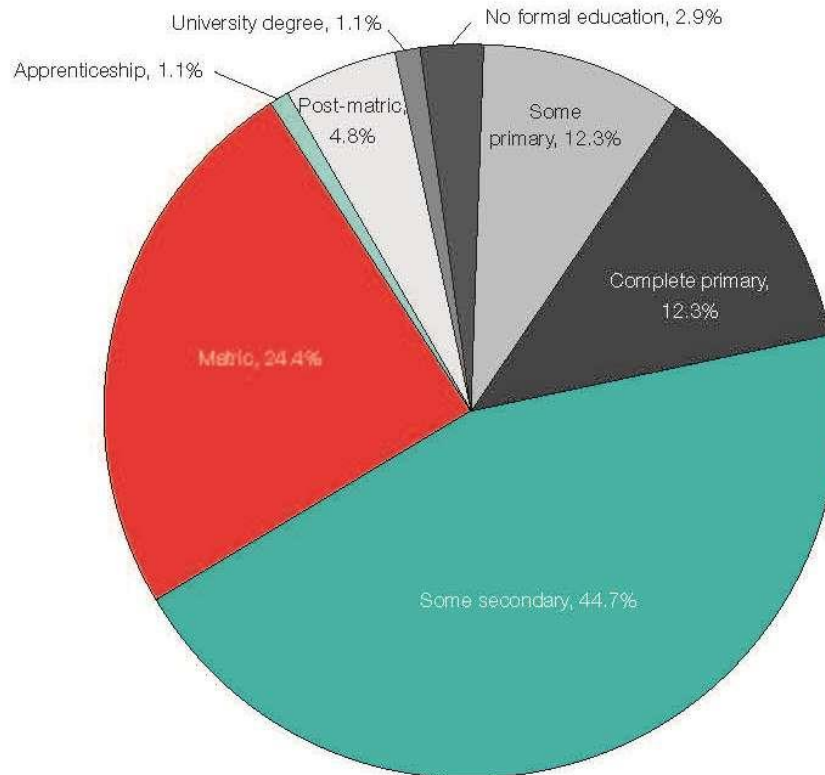
Ratio > 1 implies greater proportion of informal sector enterprise owners for that level of education

Formal education acts as a foundation for further skills development

Ratios are highest for lowest levels of education

Descriptive analysis

Owner Level of Education in Informal Sector



2/3 of informal sector enterprise owners have less than a matric level education

Therefore, the formal education foundation for those in the informal sector is relatively weak

Descriptive analysis

Owner's Main Source of Skills by Sector



Skill source	Formal	Informal	Informal: Formal
Work experience	0.143 (0.019)	0.080* (0.007)	0.56
Training courses	0.135 (0.021)	0.044* (0.005)	0.33
School	0.012 (0.004)	0.008* (0.002)	0.65
Tertiary education	0.094 (0.018)	0.009* (0.002)	0.09
Mentor/advisor	0.017 (0.006)	0.011 (0.003)	0.66
Family	0.135 (0.022)	0.117 (0.010)	0.87
Taught myself	0.316 (0.029)	0.654* (0.017)	2.07
On the job	0.148 (0.030)	0.075* (0.007)	0.51

- Skills mainly obtained via self-discovery, work experience, learning on the job, and family imply that skills needed by owners to manage their firms are not necessarily obtained via the formal education and training route
- Skills development needs to complement core skills with secondary skills that equip the owner to *'do what she does better'*.

Descriptive analysis

Functions Performed by the Business



Function	Formal	Informal	Informal: Formal
IT/computing	0.250 (0.025)	0.020* (0.003)	0.08
Accounting	0.326 (0.030)	0.020* (0.003)	0.06
Administrative	0.110 (0.018)	0.002* (0.000)	0.01
Human resources	0.107 (0.019)	0.005* (0.002)	0.05
Marketing and sales	0.230 (0.025)	0.020* (0.003)	0.09
Legal	0.062 (0.015)	0.001* (0.000)	0.02

- Only 13.6% of sampled firms report having these business functions (majority formal sector)
- The minor share of firms that employ these business skills suggests a role for higher education in terms of the provision of such skills to firm owners

Descriptive analysis

Main Type of Skill Needed by Employees

Skill type	Formal	Informal	Informal: Formal
Specialised skills	0.082 (0.018)	0.115 (0.018)	1.40
Min. level of education	0.109 (0.023)	0.058* (0.011)	0.53
Both	0.389 (0.038)	0.137* (0.017)	0.35
None	0.420 (0.042)	0.690* (0.029)	1.64

- Surprisingly high share of owners who feel that their employees need neither specialised skills nor a minimum level of education
- May suggests that skills constraints with respect to the labour force may not be the most important constraint facing SMMEs
- 2.4% of firms cite 'skills and education' as the biggest obstacle facing their firm

Descriptive analysis

Min Level of Formal Education Required by Employees



- Relatively low
- Practical work related skills, specific to the firms activities seems important

Minimum level of education	Formal	Informal	Informal: Formal
Less than matric	0.172 (0.039)	0.236 (0.043)	1.37
Matric	0.286 (0.044)	0.239 (0.039)	0.84
Work-related training/course	0.431 (0.051)	0.461 (0.049)	1.07
Technical diploma/apprenticeship	0.068 (0.020)	0.059 (0.020)	0.86
General university degree	0.008 (0.004)	0.000* (0.000)	0.05
Specific university degree	0.013 (0.005)	0.001* (0.001)	0.11
Do not know	0.022 (0.020)	0.003 (0.002)	0.15

Descriptive analysis

Firm Characteristics by Sector

Firm characteristics	Formal	Informal	Informal: Formal
Financial Capital			
Financial records	0.867	0.425*	0.49
Financial records on computer	0.397	0.031*	0.08
Access to credit	0.133	0.043*	0.32
Other firm characteristics			
Employer	0.721	0.279*	0.39
Markets product/service	0.664	0.300*	0.45
BEE status	0.084	0.005*	0.06
Business age	9.706	6.769	0.70
Performance measures			
Monthly turnover	119 052	12 270*	0.10
Monthly net profit	34 290	4 164*	0.12
Productivity (turnover/workers)	267 779	91 607*	0.34
Firm size	5.594	1.597*	0.29

Descriptive analysis

Implications for skills development for SMMEs



- Skills development programmes need to take cognisance of the low base level of formal education among informal sector firm owners.
- Most firm owners obtain core skills outside of formal education. Skills development programmes should target the secondary skills needed by firm owners to *'do what they do better'*.
- The minor share of firms that employ business skills such as IT, accounting, marketing, etc., – suggests there is scope for multiskilling programmes that address these deficiencies.
- Preference for work-related training relative to formal education implies that skills development programmes developing practical skills may be more helpful to SMMEs.
- The spatial location of firms may impact on the reach of skills development programmes. Over a quarter of all firms are located in rural areas or formal Bantustans (i.e. areas distant from economic hubs)

Econometric analysis

a) Determinants of financial performance



Variables	Turnover	Net Profit	Productivity
Direct measures of skills			
Some primary	0.646**	0.822	1.078*
	[0.285]	[0.623]	[0.566]
Primary	0.700**	1.199*	0.530
	[0.343]	[0.679]	[0.554]
Some secondary	0.934***	1.320**	1.286***
	[0.284]	[0.631]	[0.475]
Matric	1.370***	1.571**	1.496***
	[0.289]	[0.634]	[0.492]
Apprentice	1.408***	2.054**	1.026*
	[0.471]	[0.821]	[0.596]
Post-matric	1.366***	1.841***	1.465***
	[0.322]	[0.635]	[0.526]
Degree	1.060***	1.469**	1.329**
	[0.395]	[0.668]	[0.557]
Previous experience	0.194	0.335**	0.388
	[0.164]	[0.151]	[0.256]

- Higher level of education are associated with better firm performance but in a non-linear fashion
- The returns to education are present even when controlling for informality
- Previous work experience is associated with better firm performance

Variables	Turnover	Net Profit	Productivity
Indirect measures of skills			
Skill – Marketing	0.393*	0.336	0.391*
	[0.216]	[0.245]	[0.219]
Skill – IT	-0.045	-0.282	-0.024
	[0.292]	[0.272]	[0.271]
Skill – Accounting	-0.055	0.240	0.257
	[0.177]	[0.158]	[0.190]
Skill – Administrative	-0.004	0.484	-0.254
	[0.260]	[0.344]	[0.286]
Skill – HR	-0.155	0.067	0.005
	[0.332]	[0.261]	[0.323]
Skill – Legal	0.196	-0.289	0.180
	[0.502]	[0.387]	[0.533]
Firm characteristics			
Financial record	0.219**	0.237**	0.184
	[0.088]	[0.110]	[0.152]
Computerised records	0.485*	0.500	0.351*
	[0.252]	[0.313]	[0.210]
Advertises	0.263**	0.125	0.164
	[0.109]	[0.131]	[0.142]
BEE status	0.672**	0.504	0.705**
	[0.315]	[0.350]	[0.357]

- The ability of a firm to market itself, and hence the presence of that skill, is positively associated with firm performance
- Similarly, in the case of keeping financial records and computerised financial records, which point to the importance of accounting and IT related skills
- The ability to acquire BEE status is positively associated with firm performance – this may point to administrative skills

Econometric analysis

b) Ability to access market opportunities



Variables	Marginal effects
Direct measures of skills	
Some primary	0.009 [0.014]
Primary	0.026* [0.013]
Some secondary	0.023* [0.013]
Matric	0.022* [0.013]
Apprentice	0.043** [0.017]
Post-matric	0.041*** [0.016]
Degree	0.027 [0.017]
Previous experience	-0.005 [0.006]

- Higher levels of education are associated with a higher probability of submitting a tender application

Econometric analysis

b) Ability to access market opportunities



Variables	Marginal effects
Firm characteristics	
Formality	0.018*** [0.006]
Financial record	0.004 [0.005]
Computerised financial records	0.013 [0.011]
Advertises	0.014*** [0.005]
BEE status	-0.007 [0.009]
Access to formal credit sources	0.033** [0.014]

- The skills needed to formalise a business may be an important component of a skills development programme since sector status is positively associated with a firms ability to apply for a tender
- Access to formal credit sources suggests that a credit line is needed to expand the scale of production.

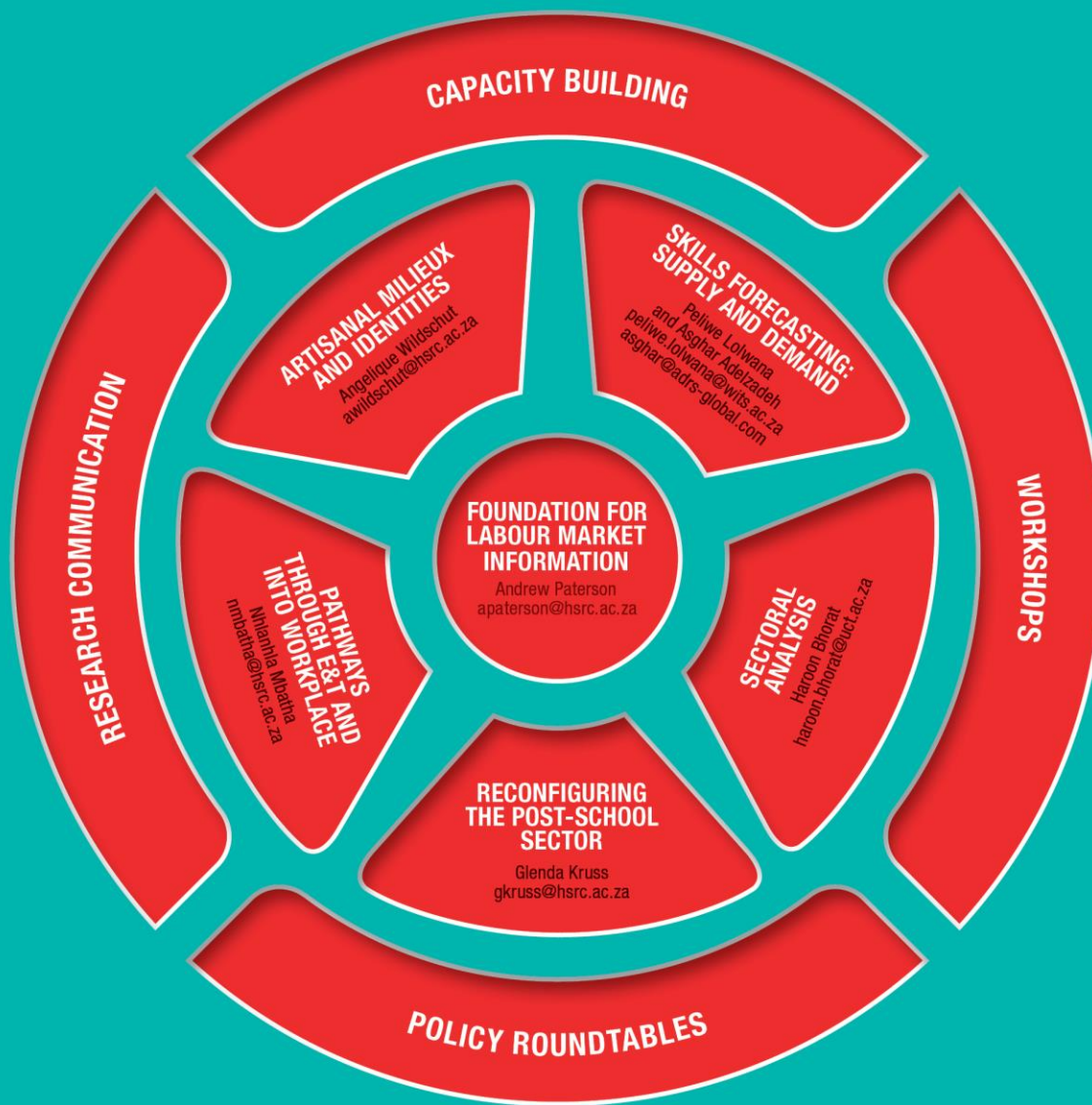
Policy Conclusions

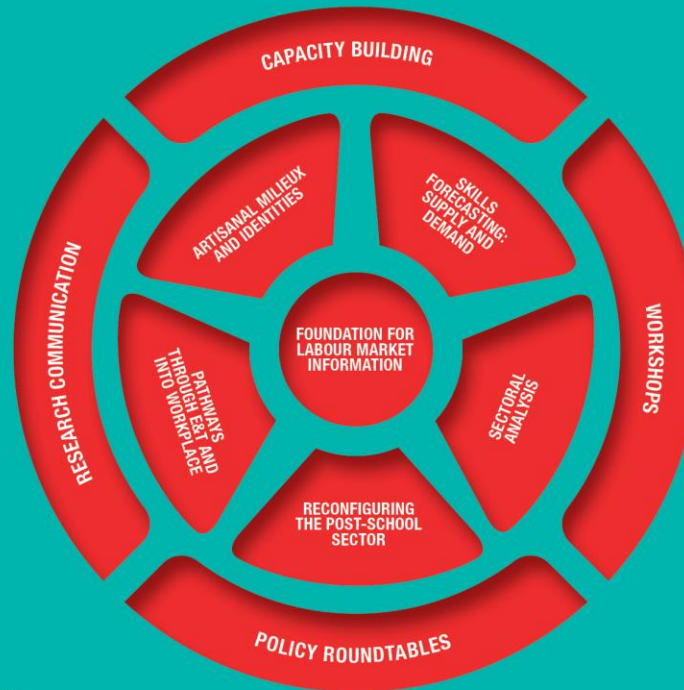
- Geared toward firms at the lower end of the continuum of firms (i.e. small and micro enterprises in the informal sector)
- Raise levels of education and literacy (incl. numeric literacy) – the ability to acquire further business related skills is dependent on a good formal education base. Therefore, ‘finishing school’ curricula may be an important element in an overall skills development process.
- Multiskilling is a key element of running a business, especially in the informal sector, and thus the inclusion of a variety of business skills in a skills development initiative is important.

Policy Conclusions (cont)

- On-the-job training and practical work related experience is important. Therefore, ‘training with production’ may be an important element of an overall skills development initiative.
- Rather than time-intensive tertiary courses, emphasis should be placed on short, modular, competency-based training courses, which reduce the time – and hence the opportunity cost – of training. These courses should be high in practical content.
- Another channel from which to assist in the development of skills in these firms is to provide business-support services (e.g. BEE status, submit tender, maintain financial records)
- Part of a wider policy framework aimed at facilitating the development of SMMEs

Thank-you





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