

Linked Macro-Education Model: A Tool for Strategic Decision Making and Skills Planning

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“What is needed is knowledge and planning instruments for the system and research- based intelligence for strategic decision-making for the post school system.”

-Dr. Nzimande Minister of Higher Education and Training March 2010 Budget Speech

Overview of Presentation

- I. Today's challenges
- II. Why models?
- III. What is LM-EM?
- IV. LM-EM in practice
- V. Where do we go from here?

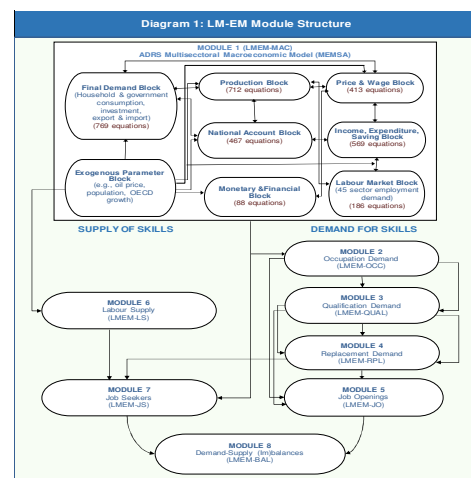
**What is Linked Macro-Education
Model (LM-EM)?**

LM-EM: A tool for strategic decision making and skills planning

- The Linked Macro-Education Model (LM-EM) is a detailed model of the South African economy and the education sector.
- It enables users to design economic and education policy scenarios, quantify their impact, and forecast future trends in economic indicators, and demand for and supply of occupations and educational qualifications.
- It thus provides necessary intelligence for strategic decision making and skills planning

LM-EM Module Architecture

LM-EM uses modular design, which is a programming technique that allows breaking a system into smaller manageable units. The overall LM-EM system is subdivided into 8 modules characterised by functional partitioning of the model.



Multi-Sectoral Macroeconomic Model of South Africa (LMEM-MAC)

Aim:

- To capture the structure of the South African economy.
- To allow design and analysis of macroeconomics and industrial policies.

Outputs:

- Produces projections of key macroeconomic and sector indicators under various domestic and international contexts and policy options.
- Produces projections of employment for all 21 SETAs

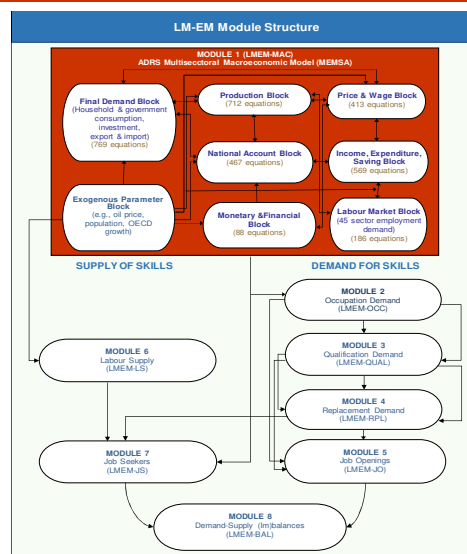
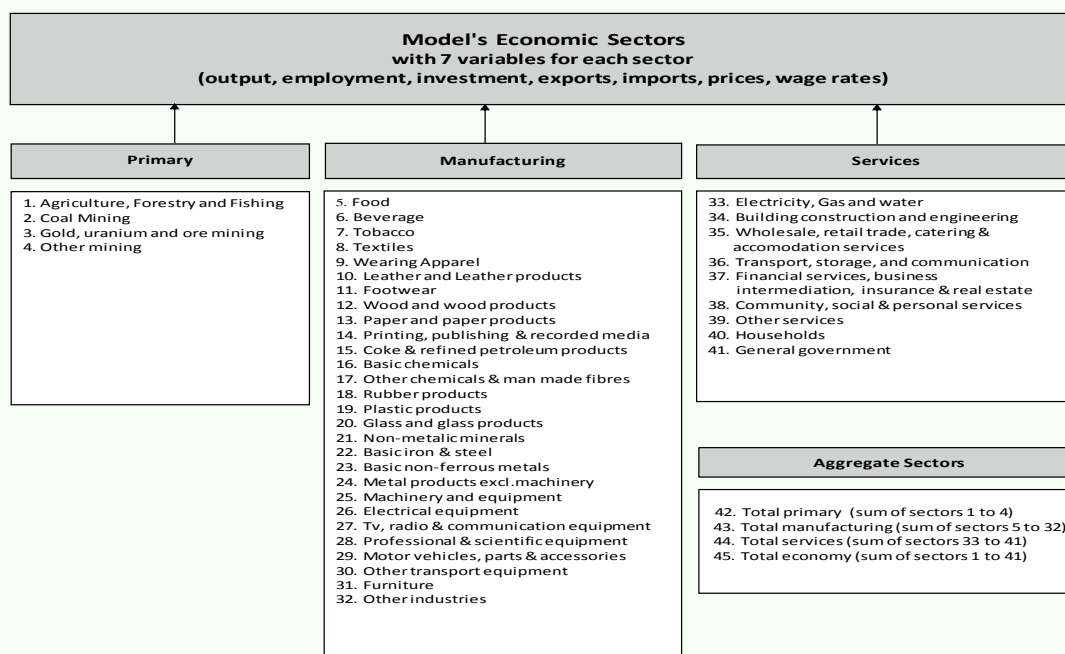


Diagram 3: Macro-Econometric Model of South Africa (MEMSA) Sectors



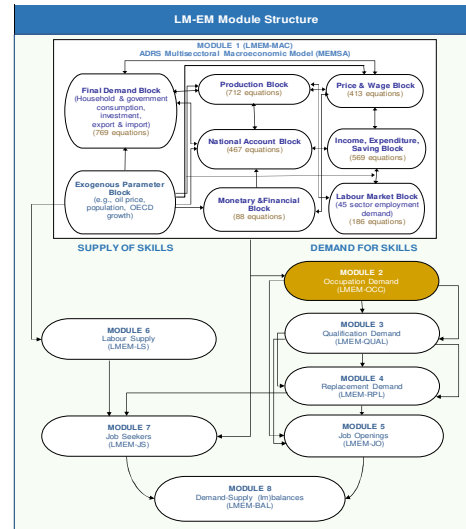
Occupation Demand Module of LM-EM (LMEM-OCC)

Aim:

- To capture the occupational structure within economic sectors
- To capture occupational composition of new job opportunities due to the expansion of the economy (i.e., expansion demand).

Outputs:

- Produce forecasts of occupations at national level
- Produce occupational projections of employment under SETAs



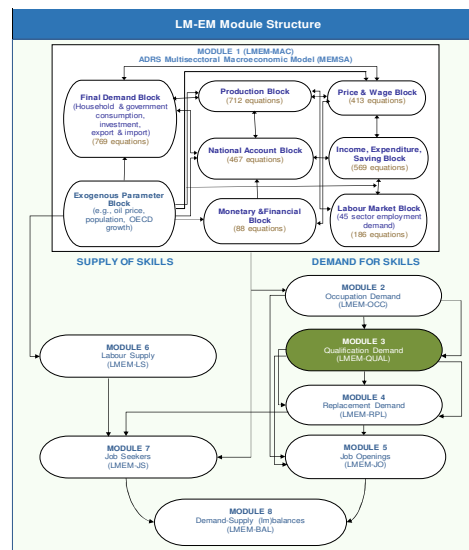
Qualification Demand Module of LM-EM (LMEM-QUAL)

Aim:

- To capture the educational qualification structure within occupations
- To capture qualification composition of new job opportunities due to the expansion of the economy (i.e., expansion demand).

Outputs:

- Produces forecasts of qualifications at national level
- Produces projections of qualification of employed under SETAs



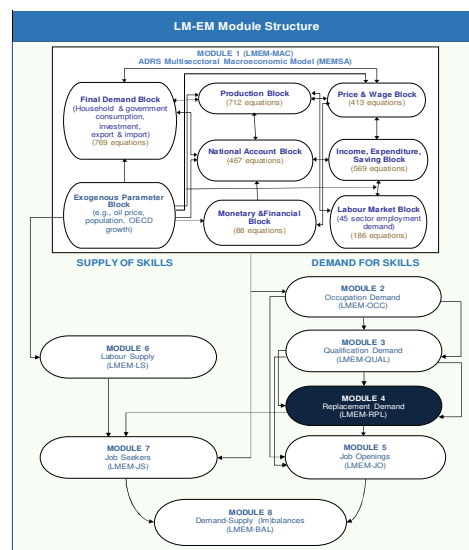
Replacement Demand Module of LM-EM (LMEM-RPL)

Aim:

- To provide projections of the number of employees in each occupation that will be replaced due to labour turnover related to retirement, migration, mortality or through career changes

Outputs:

- Generates projections of the number of vacancies that are expected under a given economic scenario by occupation and qualification.



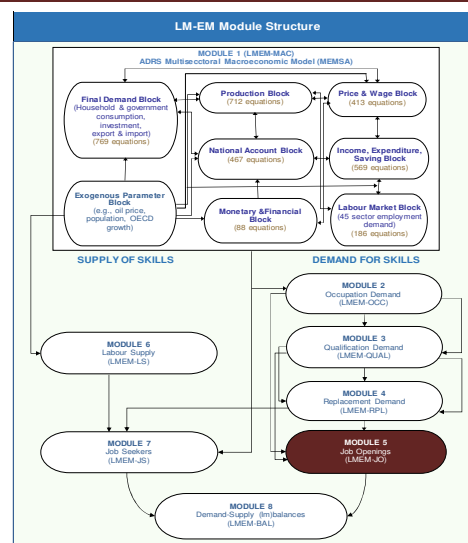
Job Openings Module of LM-EM (LMEM-JO)

Aim:

- To provide an aggregate view of total job openings in the economy,

Outputs:

- Annual projections of total job openings by occupation and qualification.



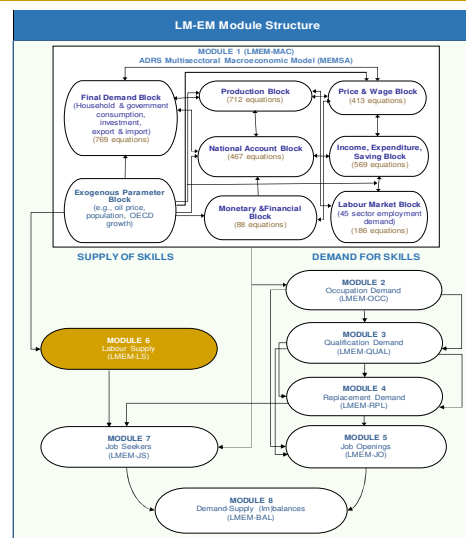
Labour Supply Module of LM-EM (LMEM-LS)

Aim:

- To produce annual projections of the labour force by qualification and occupation, using expanded definition of unemployed

Outputs:

- Produces annual projections of the labour force for 10 educational qualifications and by 9 occupation groups



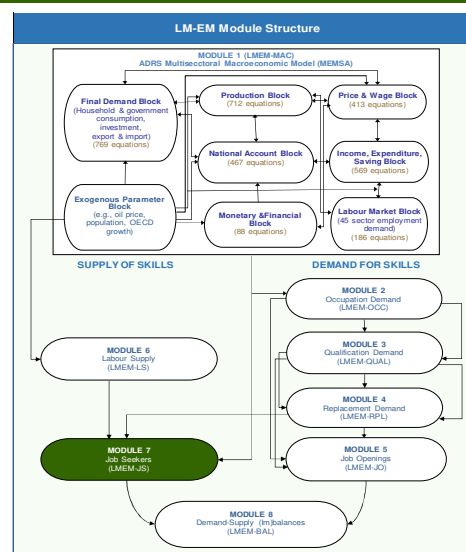
Job Seekers Module of LM-EM (LMEM-JS)

Aim:

- To produce annual projections of the size of job seekers in the economy and its breakdown by qualification of unemployed and their occupational preference.

Outputs:

- Produces annual projections of job seekers by 10 educational qualifications and 9 occupation groups



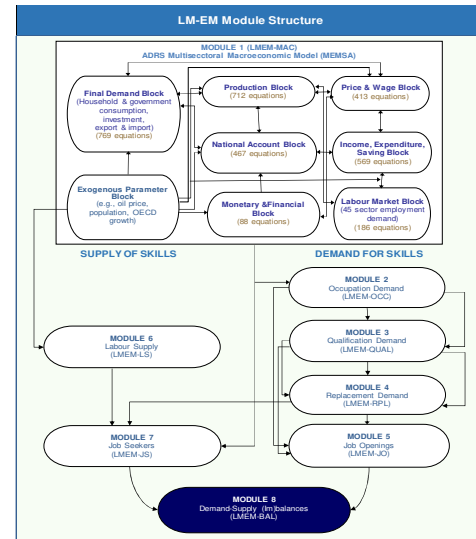
Labour Market Imbalances Module of LM-EM (LMEM-IMB)

Aim:

- To estimate the extent of labour market imbalances, skills gap, and unemployment rates over time.

Outputs:

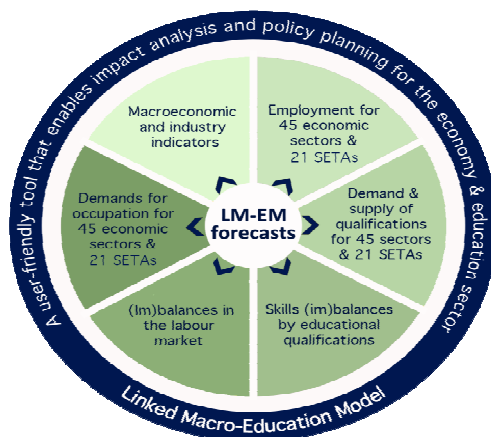
- Projections of indicators of labour market (im)balances by educational qualification and occupation



Advantages of LM-EM's modular system

- Allows easy updating of particular module codes and/or input data.
- Most appropriate for augmenting the system with new modules in the future.
- Relatively less involved and costly to make changes that adapt the system to user requests.
- Makes the overall programme easier to read and understand.
- Makes it easier to understand how the programme operates.
- Reduces the likelihood of bugs and makes the model programme easier to debug.

LM-EM's range of outputs



LM-EM in Practice

Low, Moderate and High Growth Paths

- 'What if' South African economic performance over the next 10 years remains relatively weak in terms of growth and employment creation?
- 'What if' the economy follows a path of 'moderate' rates of economic growth over the next 10 years?
- 'What if' the economy follows a path of high growth and employment?

What are the implications of each path for the demand and supply of occupations and skills?

Output & Employment (2015-2025)

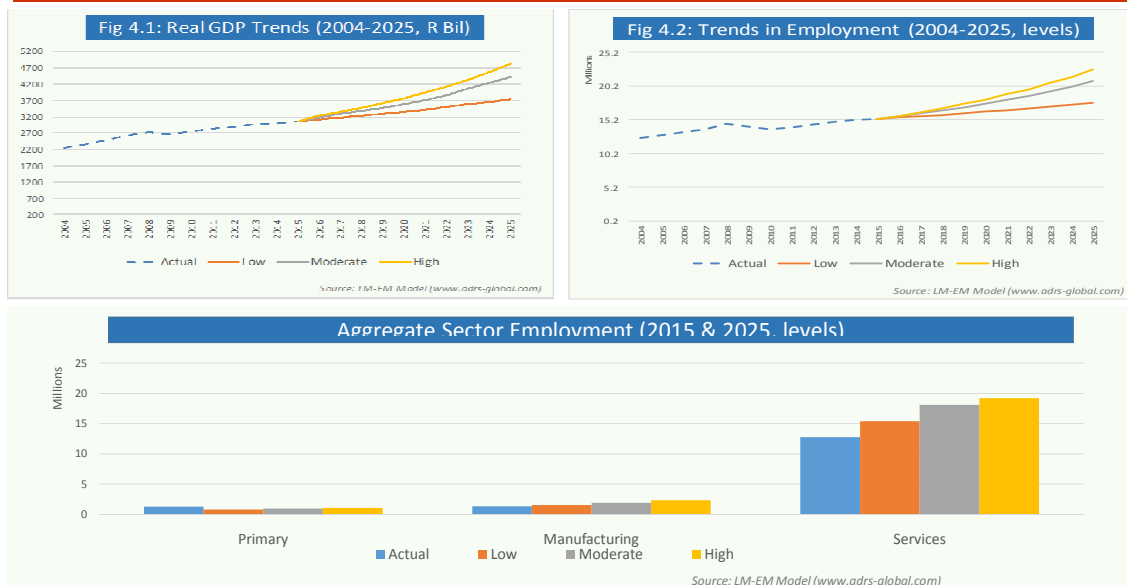


Table 4.2: Total Output by Sector (2015 & 2025)					Table 4.3: Total Employment by Sector (2015 & 2025)				
Sectors	Sectoral Shares of Output (%)				Sectors	Sectoral Shares of Employment (%)			
	2015	2025				2015	2025		
		Low	Moderate	High			Low	Moderate	High
Total Output (2010 price, R millions)	2,742,728	3,350,526	3,949,715	4,312,564	Total Employment	15,370,261	17,748,991	20,932,626	22,607,461
Agriculture, Forestry and Fishing	2.73	3.86	3.41	3.08	Agriculture, Forestry and Fishing	5.10	2.38	2.42	2.46
Coal Mining	1.70	1.05	1.29	1.76	Coal Mining	0.57	0.47	0.54	0.66
Gold, uranium and ore mining	0.87	0.33	0.32	0.41	Gold, uranium and ore mining	0.74	0.72	0.65	0.67
Other mining	5.26	2.78	2.43	2.39	Other mining	1.87	0.92	0.88	0.88
Food	1.95	2.15	2.20	2.15	Food	1.15	0.84	0.84	0.82
Beverage	0.75	0.55	0.53	0.63	Beverage	0.45	0.50	0.45	0.46
Tobacco	0.10	0.05	0.07	0.19	Tobacco	0.02	0.02	0.02	0.03
Textiles	0.11	0.12	0.15	0.32	Textiles	0.29	0.22	0.27	0.39
Wearing Apparel	0.23	0.41	0.46	0.69	Wearing Apparel	0.50	0.61	0.69	0.94
Leather and Leather products	0.05	0.03	0.10	0.04	Leather and Leather products	0.03	0.02	0.03	0.02
Footwear	0.05	0.04	0.08	0.21	Footwear	0.07	0.05	0.09	0.16
Wood and wood products	0.31	0.38	0.40	0.55	Wood and wood products	0.37	0.32	0.35	0.47
Paper and paper products	0.38	0.32	0.33	0.48	Paper and paper products	0.25	0.12	0.10	0.12
Printing, publishing and recorded media	0.48	0.40	0.36	0.35	Printing, publishing and recorded media	0.35	0.30	0.27	0.27
Coke & refined petroleum products	1.39	1.84	1.63	1.69	Coke & refined petroleum products	0.18	0.29	0.27	0.30
Basic chemicals	0.58	0.71	0.78	1.17	Basic chemicals	0.16	0.14	0.16	0.23
Other chemicals & man made fibres	0.98	1.03	1.15	1.24	Other chemicals & man made fibres	0.36	0.48	0.52	0.57
Rubber products	0.12	0.12	0.14	0.30	Rubber products	0.07	0.05	0.06	0.10
Plastic products	0.39	0.42	0.48	0.70	Plastic products	0.26	0.14	0.16	0.20
Glass and glass products	0.09	0.09	0.12	0.29	Glass and glass products	0.06	0.05	0.05	0.05
Non-metallic minerals	0.53	0.56	0.53	0.68	Non-metallic minerals	0.39	0.31	0.37	0.39
Basic iron & steel	0.79	1.07	1.17	1.40	Basic iron & steel	0.23	0.40	0.44	0.50
Basic non-ferrous metals	0.39	0.40	0.44	0.65	Basic non-ferrous metals	0.14	0.17	0.20	0.29
Metal products excl.machinery	0.73	0.56	0.56	0.57	Metal products excl.machinery	0.94	0.44	0.45	0.46
Machinery and equipment	0.72	0.80	0.74	0.82	Machinery and equipment	0.78	0.95	0.97	1.01
Electrical equipment	0.35	0.61	0.60	0.74	Electrical equipment	0.29	0.51	0.50	0.55
Tv, radio & communication equipment	0.15	0.27	0.31	0.57	Tv, radio & communication equipment	0.04	0.06	0.07	0.11
Professional & scientific equipment	0.05	0.02	0.05	0.18	Professional & scientific equipment	0.07	0.04	0.05	0.07
Motor vehicles, parts & accessories	0.93	1.42	1.46	1.62	Motor vehicles, parts & accessories	0.58	0.70	0.70	0.73
Other transport equipment	0.16	0.19	0.23	0.40	Other transport equipment	0.09	0.07	0.08	0.11
Furniture	0.14	0.13	0.15	0.30	Furniture	0.21	0.15	0.19	0.31
Other industries	0.89	1.24	1.39	1.25	Other industries	0.40	0.58	0.62	0.63
Electricity, Gas and water	2.55	3.41	3.73	4.18	Electricity, Gas and water	0.42	0.37	0.43	0.47
Building construction and engineering	3.61	3.90	4.86	4.69	Building construction and engineering	7.77	8.23	10.26	10.71
Wholesale, retail trade, catering & acc.	14.41	13.21	14.40	13.25	Wholesale, retail trade, catering & acc.	24.22	28.35	30.76	31.01
Transport, storage, and communication	9.52	10.34	10.98	10.68	Transport, storage, and communication	5.40	5.65	5.73	5.72
Fincl.srvs, insurance & real estate	21.99	22.28	19.81	18.37	Fincl.srvs, insurance & real estate	15.09	15.43	14.65	14.29
Community, social & personal services	23.59	22.89	22.17	21.02	Community, social & personal services	30.07	28.95	24.67	22.84
Other services	3.45	3.82	4.87	4.85	Other services	2.80	2.89	2.58	2.38
Households	2.60	2.59	3.32	3.36	Households	13.40	12.80	10.86	10.05
General government	17.54	16.48	13.98	12.81	General government	13.87	13.25	11.24	10.40
Total economy	100.00	100.00	100.00	100.00	Total economy	100.00	100.00	100.00	100.00
Total mining	10.56	8.02	7.45	7.63	Total mining	8.28	4.50	4.48	4.67
Total manufacturing	13.77	15.95	16.61	20.18	Total manufacturing	8.74	8.52	9.01	10.30
Total services	75.67	76.03	75.94	72.19	Total services	82.98	86.98	86.51	85.03

Source: I&A-E&A Model (assumes no technological change)

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Source: LM-EM Model (www.ndrs-global.com)

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SETA Employment, 2015-2025, Moderate Scenario

Table 4.4: Projection of SETA Employment for Moderate Scenario (2015-2025, Thousand)

SETAs	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
FASSET	315	322	330	338	347	356	365	375	386	396	408
BankSETA	256	262	268	275	283	291	299	308	318	328	339
CHIETA	139	144	150	157	167	176	188	199	215	232	250
FP&MSETA	508	507	508	513	520	530	542	560	579	606	636
CETA	1,449	1,469	1,528	1,600	1,684	1,774	1,874	1,980	2,100	2,245	2,403
ETDP	1,491	1,531	1,565	1,594	1,619	1,640	1,656	1,666	1,673	1,673	1,667
EWSETA	196	201	209	218	229	240	253	266	280	298	317
FOODBEV	184	186	189	191	194	196	199	202	205	207	211
HWSETA	1,572	1,614	1,652	1,687	1,719	1,748	1,773	1,795	1,815	1,830	1,841
INSETA	91	93	95	98	100	103	106	109	113	116	120
LGSETA	759	779	797	813	826	838	848	855	860	862	862
MICT/ICTSETA	323	331	340	349	359	369	380	391	403	416	430
MQA	557	551	560	545	548	546	541	534	539	552	570
MERSETA	1,088	1,105	1,136	1,176	1,224	1,277	1,340	1,410	1,495	1,595	1,706
SASSETA	352	360	369	376	384	390	397	403	408	412	416
AGRISETA	1,170	1,164	1,153	1,145	1,138	1,134	1,133	1,135	1,150	1,165	1,184
PSETA	110	112	115	117	119	120	122	122	123	123	122
SERVICES	1,042	1,068	1,094	1,121	1,148	1,176	1,204	1,233	1,263	1,293	1,324
CATHSSETA	1,352	1,391	1,445	1,504	1,568	1,637	1,710	1,789	1,878	1,981	2,092
TETA	475	488	503	519	536	555	575	597	621	648	677
W&RSETA	1,941	2,002	2,098	2,206	2,325	2,454	2,595	2,748	2,922	3,130	3,357
Total	15,370	15,681	16,103	16,542	17,037	17,550	18,098	18,678	19,344	20,109	20,933

Source: LM-EM Model (www.ndrs-global.com)

Job Openings

- LM-EM's projections of sector employment combined with analysis of changing occupations and qualifications within sectors provide projections of future trends in **employment by occupation and qualification**.
- This facilitates the model's projections of the total number of **job openings by educational qualification**, which takes account of job openings due to net employment changes (expansion demand) and job openings due to the replacement of those leaving for retirement and other reasons (replacement demand).

Total Employment by Occupation: Actual & Projections

Main occupation grouped	(Thousand)				(Shares, %)			
	2008	2010	2012	2014	2008	2010	2012	2014
Manager	1,166	1,184	1,152	1,337	7.9	8.5	7.9	8.7
Professional	807	802	861	654	5.5	5.8	5.9	4.3
Technician	1,615	1,559	1,609	1,467	10.9	11.2	11.1	9.6
Clerk	1,523	1,502	1,546	1,750	10.3	10.8	10.6	11.4
Sales and services	1,828	2,000	2,123	2,448	12.4	14.4	14.6	16.0
Skilled agriculture	115	74	63	94	0.8	0.5	0.4	0.6
Craft and related trade	2,034	1,659	1,773	1,957	13.8	11.9	12.2	12.8
Plant and machine operator	1,313	1,205	1,222	1,315	8.9	8.7	8.4	8.6
Elementary	3,269	2,964	3,216	3,356	22.1	21.3	22.1	21.9
Domestic worker	1,097	947	958	943	7.4	6.8	6.6	6.2
Total	14,768	13,898	14,524	15,320	100	100	100	100

Source: Statistics South Africa, Quarterly Labour Force Survey, Quarter 4 for all years.

Occupations	(Thousands)				Compound Average Growth Rate			Shares (%)		
	2015	2025			2015-2025			2025		
		Low	Moderate	High	Low	Moderate	High	Low	Moderate	High
Manager	1,263	1,536	1,827	1,972	3.32	6.35	7.72	8.65	8.73	8.72
Professional	813	936	995	1,027	2.39	3.43	3.97	5.28	4.75	4.54
Technician	1,456	1,655	1,731	1,770	2.15	2.92	3.31	9.32	8.27	7.83
Clerk	1,705	2,031	2,329	2,481	2.95	5.33	6.45	11.44	11.13	10.98
Sales and services	2,529	3,060	3,523	3,723	3.23	5.68	6.66	17.24	16.83	16.47
Skilled agriculture	86	57	67	73	-6.69	-4.19	-2.65	0.32	0.32	0.32
Craft and related trade	1,856	2,170	2,885	3,274	2.64	7.63	9.92	12.23	13.78	14.48
Plant and machine operator	1,312	1,461	1,774	2,018	1.80	5.15	7.43	8.23	8.47	8.93
Elementary and domestic worker	4,350	4,844	5,803	6,270	1.81	4.92	6.28	27.29	27.72	27.73
Total	15,370	17,749	20,933	22,607	2.43	5.28	6.64	100.00	100.00	100.00

Source: LM-EM (www.adrs-global.com)

Total Employment by Qualification: Actual & Projections

Table 7.1: Employment by Educational Qualification (2008-2014)

Main Education Groups	(Thousand)				(Shares, %)			
	2008	2010	2012	2014	2008	2010	2012	2014
No schooling	613	421	382	386	4.1	3.0	2.6	2.5
Less than primary completed	1,508	1,135	1,129	1,092	10.1	8.1	7.7	7.0
Primary completed	761	665	639	603	5.1	4.7	4.4	3.9
Secondary not completed	5,004	4,619	4,978	5,204	33.5	32.9	34.0	33.6
Secondary completed	4,187	4,261	4,525	4,887	28.1	30.4	30.9	31.5
Tertiary	2,662	2,748	2,857	3,164	17.8	19.6	19.5	20.4
Other	185	187	144	171	1.2	1.3	1.0	1.1
Total	14,919	14,035	14,654	15,507	100	100	100	100

Source: Statistics South Africa, Quarterly Labour Force Survey, Quarter 4 for all years.

Table 7.2: Total Employment by Qualification (2015-2025)

Qualifications	(Thousands)				Compound Average Growth Rate (%)			Shares (%)		
	2015	2025			2015-2025			2025		
		Low	Moderate	High	Low	Moderate	High	Low	Moderate	High
No schooling	408	206	244	265	-6.61	-5.00	-4.24	1.16	1.17	1.17
Incomplete primary	1,194	741	888	970	-4.65	-2.91	-2.05	4.18	4.24	4.29
Complete primary	646	606	729	798	-0.64	1.22	2.13	3.41	3.48	3.53
Secondary incomplete	5,148	5,539	6,690	7,315	0.73	2.65	3.58	31.21	31.96	32.36
Secondary complete	4,796	5,604	6,653	7,194	1.57	3.33	4.14	31.57	31.78	31.82
Certificate & Diploma less than G12	95	90	105	113	-0.55	1.02	1.75	0.50	0.50	0.50
Certificate G12	390	800	936	1,005	7.46	9.16	9.94	4.51	4.47	4.45
Diploma G12	1,039	1,466	1,666	1,766	3.50	4.84	5.44	8.26	7.96	7.81
Degree	1,654	2,697	3,021	3,182	5.01	6.21	6.76	15.19	14.43	14.07
Total	15,370	17,749	20,933	22,607	1.45	3.14	3.93	100.00	100.00	100.00

Source: LM-EM (www.adrs-global.com)

SETA Employment by Occupation, 2025 (Moderate Scenario)

Fig 6.2: SETA Employment by Occupation (2025, Moderate scenario, levels)

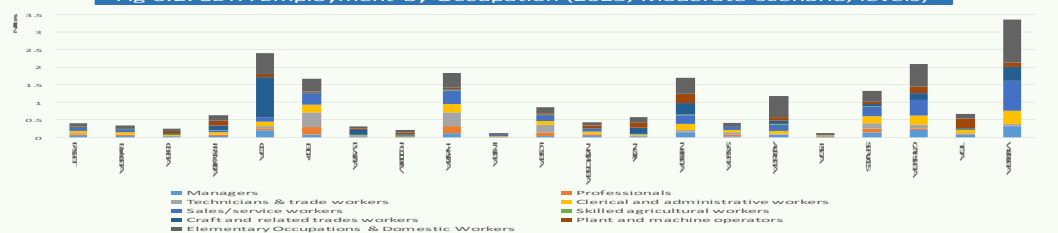
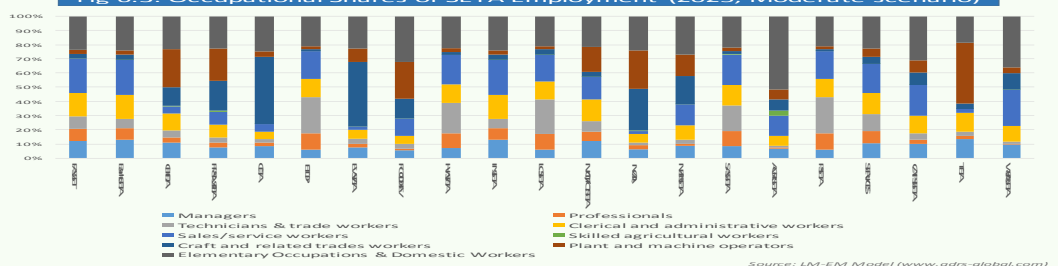
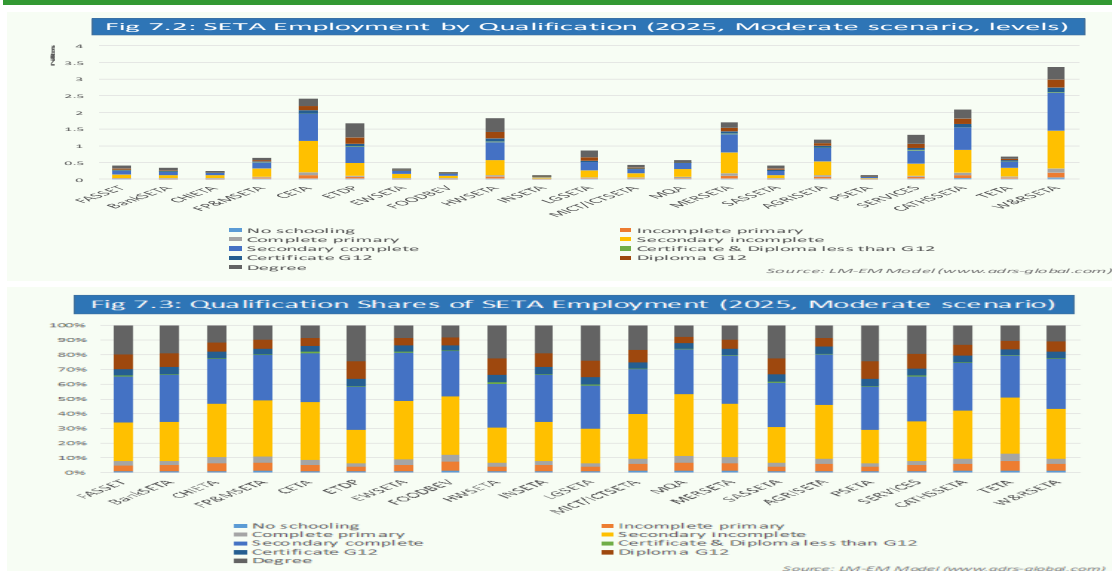


Fig 6.3: Occupational Shares of SETA Employment (2025, Moderate scenario)



SETA Employment by Qualification, 2025 (Moderate Scenario)

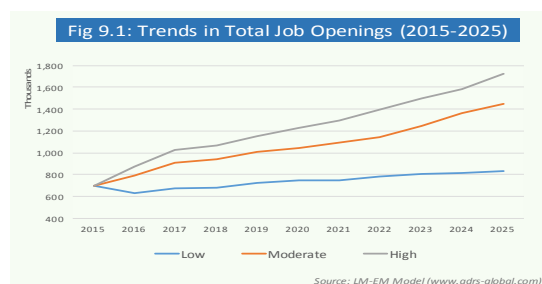


Trends in Job Openings (2015-2025)

Table 9.1: Components of Job Openings (Three Scenarios)

	Job Openings	Total JO (2015-2025)	Average Annual	CAGR (%)	% of JO
Low	Expansion Demand	2,604,640	236,785	2.47	32.1
	Replacement Demand	5,518,932	501,721	1.43	67.9
	Total Job Openings	8,123,572	738,506	1.78	100.0
Moderate	Expansion Demand	5,788,279	526,207	13.81	49.6
	Replacement Demand	5,873,869	533,988	2.89	50.4
	Total Job Openings	11,662,148	1,060,195	7.62	100.0
High	Expansion Demand	7,463,111	678,464	16.68	55.2
	Replacement Demand	6,068,293	551,663	3.60	44.8
	Total Job Openings	13,531,404	1,230,127	9.52	100.0

Source: LM-EM (www.adrs-global.com)



Job Openings by Qualification & Occupation (2015-2025)

Composition of Job Openings: Expansion and Replacement Demand by Qualification (2015-2025)

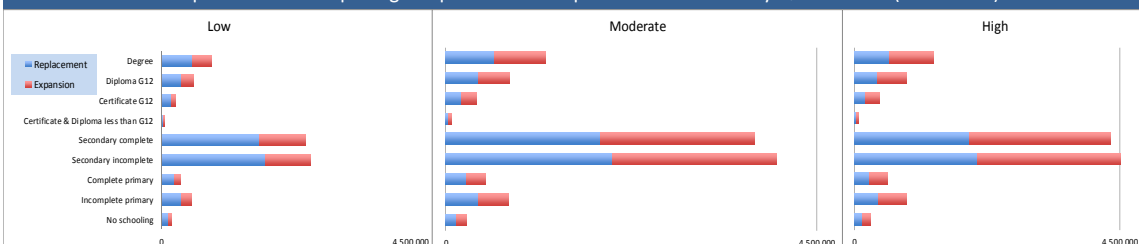
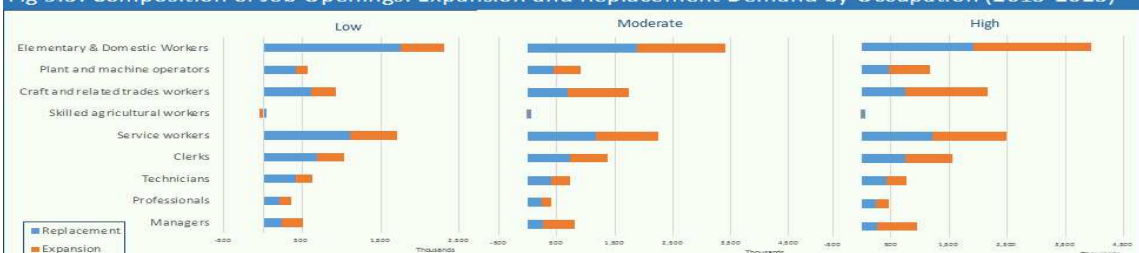


Fig 9.3: Composition of Job Openings: Expansion and Replacement Demand by Occupation (2015-2025)



Source: Linked Macro-Education Model (LM-EM) (www.adrs-global.com)

Fig 9.4: Job Openings by Qualification, 2015-2025



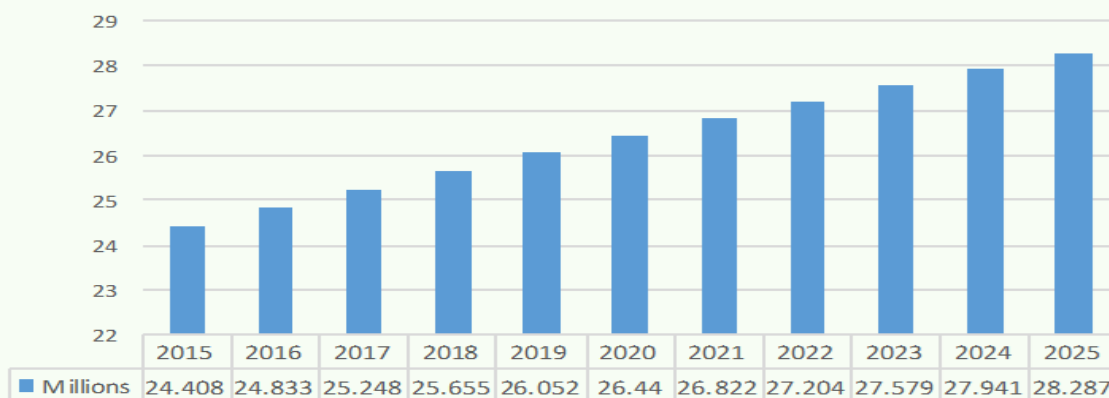
Source: Linked Macro-Education Model of South Africa (LM-EM). (www.adrs-global.com)

Job Seekers

- The LM-EM's labour supply module (LMEM-LS) is developed to generate annual projections of the labour force and its breakdown by qualification of unemployed and their occupational preference.
- Related to the labour supply module is the job seekers module (LMEM-JS) that produces annual projections of the size of job seekers in the economy and its break down by qualification and occupation. Job seekers refer to the portion of the labour force that is not employed and seeks employment.

Fig 10.1: Labour Force (2015 -2025)

Expanded Definition



Source: LM-EM Model (www.adrs-global.com)

Labour Force by Qualification (2015-2025)

Table 5.1: Labour Force by Education Qualification 2015-2025 (Millions, Expanded Definition of Unemployed)

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
No schooling	0.59	0.59	0.58	0.58	0.57	0.56	0.55	0.53	0.52	0.50	0.48
Incomplete Primary	1.78	1.77	1.76	1.74	1.72	1.69	1.66	1.62	1.58	1.53	1.48
Complete Primary	1.08	1.09	1.10	1.10	1.10	1.10	1.10	1.10	1.09	1.08	1.06
Secondary incomplete	9.00	9.12	9.22	9.32	9.39	9.45	9.49	9.50	9.48	9.43	9.32
Secondary complete	7.98	8.17	8.34	8.52	8.69	8.86	9.01	9.16	9.29	9.39	9.46
Certificate less than G12	0.06	0.06	0.06	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Diploma less than G12	0.08	0.09	0.09	0.09	0.09	0.09	0.09	0.10	0.10	0.10	0.10
Certificate G12	0.69	0.71	0.73	0.76	0.78	0.81	0.85	0.90	0.96	1.05	1.17
Diploma G12	1.28	1.30	1.33	1.35	1.38	1.41	1.44	1.47	1.51	1.55	1.59
Degree	1.86	1.94	2.03	2.13	2.25	2.39	2.56	2.75	2.98	3.24	3.56
Total	24.41	24.83	25.25	25.66	26.05	26.44	26.82	27.20	27.58	27.94	28.29

Source: LM-EM Model (www.adrs-global.com)

Labour Force by Qualification, 2015-2025

Fig 10.2: Trend in Qualification Shares of Labour Force (2015-2025)

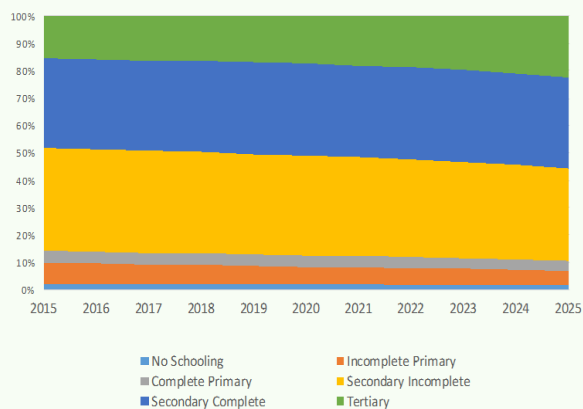
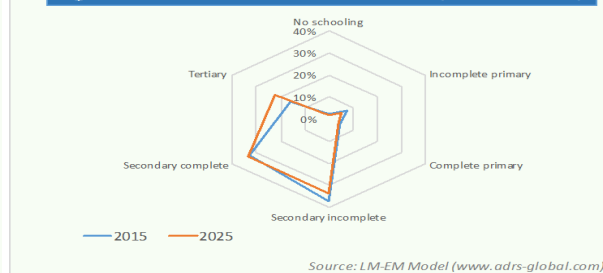


Fig 10.3: Labour Force Qualifications (2015 & 2025)



Labour Force by Occupation, 2015-2025

Table 10.3: Labour Force by Occupation 2015-2025 (Millions, Expanded Definition of Unemployed)

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Managers	1.67	1.71	1.76	1.80	1.85	1.90	1.96	2.02	2.08	2.16	2.24
Professionals	1.03	1.06	1.09	1.13	1.17	1.21	1.26	1.31	1.37	1.44	1.52
Technicians	1.83	1.88	1.92	1.97	2.03	2.08	2.15	2.22	2.29	2.38	2.48
Clerks	2.85	2.90	2.96	3.02	3.08	3.13	3.19	3.25	3.31	3.37	3.43
Service workers	4.56	4.63	4.68	4.74	4.79	4.84	4.88	4.92	4.96	4.99	5.00
Skilled agricultural workers	0.09	0.09	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Craft & trades workers	2.76	2.80	2.84	2.87	2.91	2.93	2.96	2.98	2.99	2.99	2.99
Plant & machine operators	2.48	2.51	2.53	2.55	2.57	2.58	2.58	2.58	2.58	2.56	2.53
Elementary & domestic workers	7.13	7.25	7.36	7.47	7.57	7.66	7.75	7.83	7.90	7.95	7.99
Total	24.41	24.83	25.25	25.66	26.05	26.44	26.82	27.20	27.58	27.94	28.29

Source: LM-EM Model (www.adrs-global.com)

Fig 10.4: Trends in Occupation Shares of Labour Force (2015-2025)

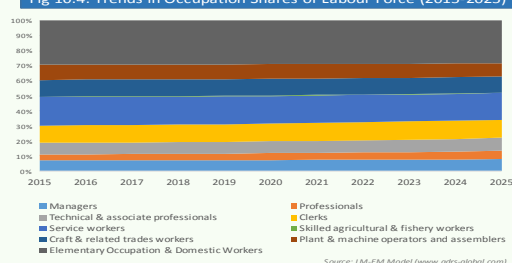
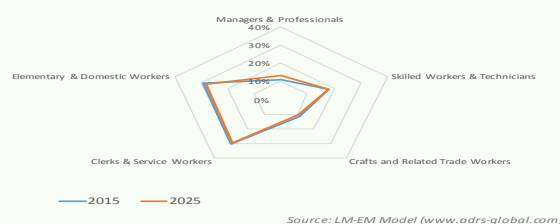


Fig 10.6: Occupation Composition of Labour Force (2015 & 2025)



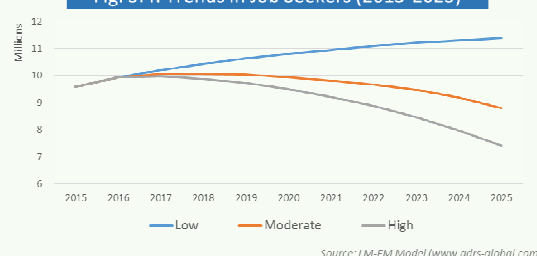
Job Seekers, 2015-2025

Table 5.2: Job Seekers by Qualification (2015 & 2025)

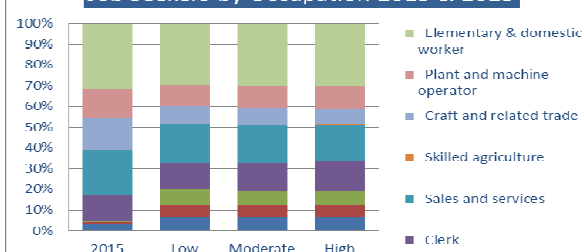
	2015	2025		
		Low	Moderate	High
Total Job Seekers	9,589,026	11,389,889	8,815,299	7,414,394
by Qualification (% of total)				
No Schooling	1.99	2.16	2.38	2.56
Incomplete Primary	7.57	5.93	6.14	6.27
Complete Primary	5.04	3.98	3.96	3.91
Secondary Incomplete	42.87	34.82	34.34	33.74
Secondary Complete	34.03	36.10	37.07	37.99
Certificate & Diploma less than	0.21	0.69	0.75	0.80
Certificate G12	2.97	4.24	4.36	4.48
Diploma G12	1.55	2.38	1.21	0.32
Degree	3.78	9.91	9.95	10.09
Total	100.0	100.2	100.2	100.2

Source: LM-EM (www.adrs-global.com)

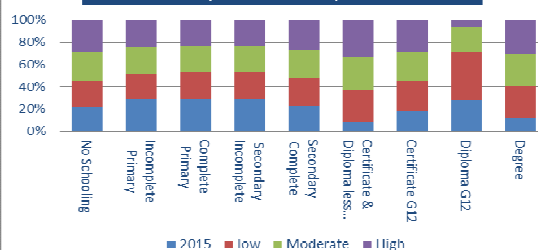
Fig. 5.4: Trends in Job Seekers (2015-2025)



Job Seekers by Occupation 2015 & 2025



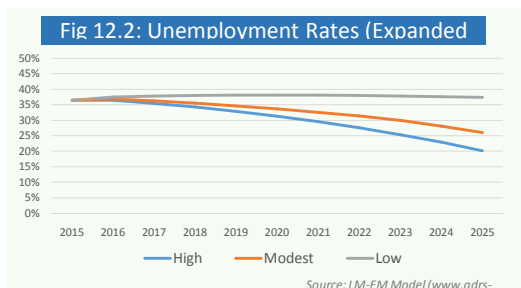
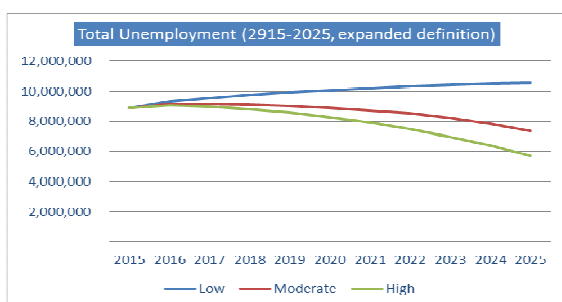
Job Seekers by Qualification, 2015 and 2025



Labour Market Imbalances

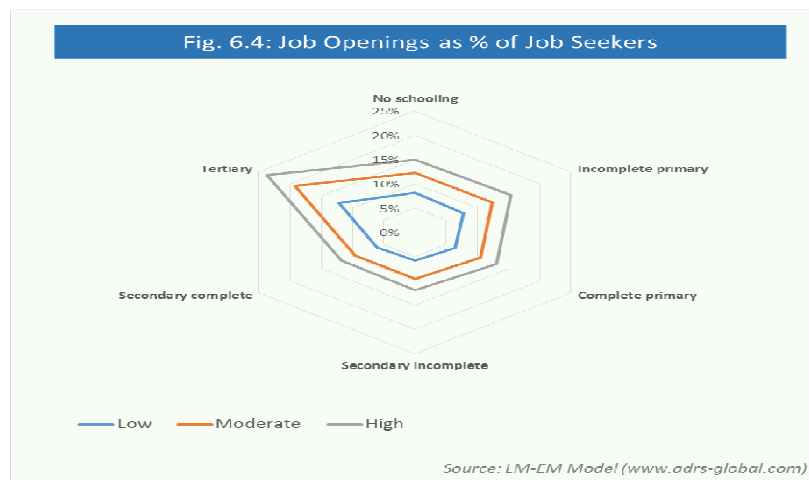
- The skills gap module of LM-EM uses the model's annual projections of job openings and job seekers to estimate the extent of labour market imbalances, skills gap, and unemployment over time.
- Skills gaps are estimated for all educational qualification categories by calculating the difference between the model's projections of job seekers and job openings for qualification categories.
- The module produces projections of unemployment and unemployment rates for segments of the labour force by qualification.

Unemployment & Unemployment Rates, 2015-2025

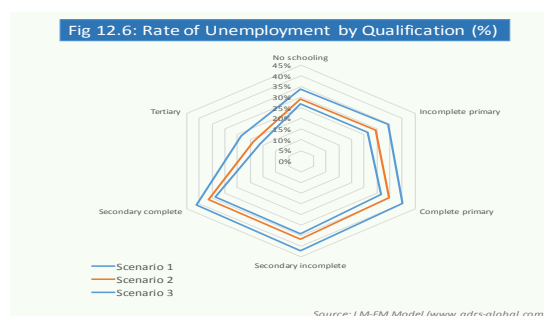
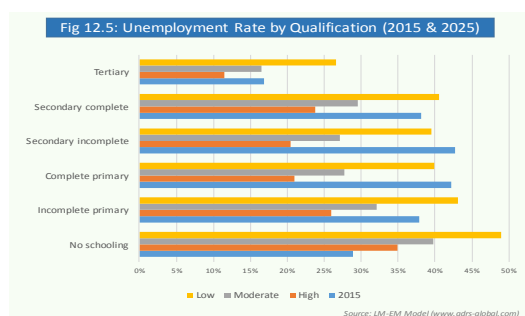


Job Openings as % of Job Seekers

(Avg. Annual, 2015-2026)



Skills Gap, 2015-2025



Labour Market Imbalances

- Until recently, South Africa did not have a comprehensive system to perform consistent skills projections.
- Through the economic modelling programme ADRS undertook in conjunction with LMIP, a firm foundation has been put in place to regularly undertake such forecasts using the Linked Macro-Education Model.
- Moreover, the new tool for skills planning includes a user-friendly web-platform that is internationally unique by allowing policymakers, analysts, researchers, students, and others to have direct access to the model to design and simulate their own economic and education policy scenarios.
- Regular training workshops over the last two years, organised by the Department of Higher Education, have started to build capacity within the public and private sector, including SETAs, to effectively use the tool.

Where do we go from here?

LM-EM groundwork: Benefits

- Link to a multi-sectoral macroeconomic model
- Wide scope of outputs, which is expected to grow
- Capacity to regularly forecast economic and education sector indicators that are comprehensive, systematic and consistent
- Capacity to quantitatively answer a wide range of simple and complex policy questions
- Easy to use web-platform makes designing and running scenarios easy
- 24/7 easy access boosts productivity, effectiveness and value contributions of LM-EM users.

LM-EM groundwork: Software as a service

- Cloud based system:
 - no hardware to purchase
 - no software to purchase and install
 - no download to implement
 - no user maintenance
 - no internal IT support
- Ready-to-use and up-to-date system
- Accessible on all devices anywhere, anytime via the Internet
- Automatic updates, upgrades, uptime, and security

Going forward

LM-EM has laid the groundwork for future developments in evidence-based intelligence. To make the most of LM-EM, it requires forward thinking, commitment, and support

- **Forward Thinking:** This is just the beginning. The more the model is used, the better it will get. The process is dynamic and evolving. The model and its forecasts will improve over time.
- **Commitment:** Commitment to build capacity to effectively integrate the model in policy design and skills planning processes.
- **Support:** Provision of institutional and financial support for the LM-EM system whose infrastructure needs to be maintained, updated and upgraded regularly.

END