Expected Labour Demand in South Africa 1998-2003

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Abstract

The current misalignment of labour supply and demand in South Africa constitutes one of the factors that hold back the country's economic growth. Consequently, efforts have recently been made to estimate future labour demand so that current policies are designed in such a way as to attempt to minimise the skills mismatch. This paper investigates one such study that forecasts formal sector non-agricultural labour demand for the period 1998 to 2003. The paper also looks at the extent to which the forecasts deviate from previous trends and identifies some reasons underlying the varying accuracy of the forecasts across different sectors and occupations. Generally, however, the forecast predicts increased demand for labour in higher-skilled occupations and in the non-government tertiary sector, a continuation of previous labour market trends.

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Table of Contents

Introduction

The South African labour market has been influenced by powerful forces over the last decade. The opening up of the economy and greater integration into global markets has exposed South African firms to fierce international competition while also improving their access to new methods and technologies. This has meant that in order to become or remain internationally competitive, firms have often been forced to alter either the quantity or the quality of labour demanded, or both.

These changes on the demand side have occurred at the same time as important development in terms of the supply of labour. Most importantly, the removal of all legal barriers to education and advancement for black South Africans, not to mention the policies aimed specifically at improving this group's access to employment and other opportunities. However, due to the long lag related to education, as well as problems in terms of access to and quality of education, shortages in some skill categories continue to exist at the same time as surpluses in other categories. In order for the South African economy to grow at its full potential and for the benefits of such growth to be more fairly distributed amongst the population, it is important that these discrepancies between the supply of and demand for the various types of labour are minimised.

The aim of this paper is to investigate the expected trends in the demand for labour in the South African economy until the year 2003. This will be done by looking at a recent report released by the Human Sciences Research Council, entitled "The Demand for Labour in South Africa: 1998-2003", which makes labour demand projections for the non-agricultural formal sector. However, forecasts of labour market conditions "should be treated with great circumspection" (Barker 1999: 232), due to the many difficulties inherent in the process. Thus, an effort will be made to ascertain to what extent the forecasts deviate from the trends in previous years and also from the latest employment data.

Recent Trends in Employment

Before viewing the projections made in the HSRC report, it is perhaps useful to analyse briefly recent trends in employment in the South African economy as indicated by the October Household Surveys. The October Household Survey (OHS), based on a random sample of around 30 000 households and 140 000 individuals, appears annually and contains comprehensive data on employment inter alia. The employment trends between 1995 and 1999 were gleaned from the surveys of those two years. Unfortunately, since employment in the informal sector is very poorly measured in the 1995 OHS (Bhorat 1999), an analysis of the relative contributions of the formal and informal sector to employment changes is not possible from this data.

Total employment in the non-agricultural sectors grew at an annual rate of 3.5 percent over the period (Table 1), standing in stark contrast to popular perceptions regarding job creation in the recent past. Furthermore, employment growth has occurred across all skill levels, with highly skilled employment growing fastest. Only one sector (Utilities) experienced a net loss of jobs, with employment in the Services sector stagnating over the period. This means that employment in the non-government Service sector has grown relatively rapidly, more or less balancing the job losses due to a large extent to government employment cuts. Most rapid growth has occurred in Finance (12.7 percent p.a.), Construction (7.1 percent) and Trade (6.3 percent).

Table 1: Changes in Employment and Average Annual Growth Rates, 1995-1999

	Mining	Mfg	Utilities	Construc	Trade	Trans/ Comm	Finance	Services	TOTAL
Highly Skilled	11 338 *8.5%*	88 507 *11.2%*	-1 216 *-2.0%*	10 465 *5.6%*	27 708 *2.4%*	1 608 *0.3%*	177 514 *15.9%*	82 338 *2.1%*	398 262 *5.0%*
Skilled	-12 197 *-1.4%*	72 877 *3.7%*	-3 789 *-2.4%*	110 341 *8.6%*	208 423 *5.0%*	15 617 *2.5%*	115 253 *8.2%*	-117 666 *-4.0%*	388 859 *2.9%*
Semi/ Unskilled	43 614 *5.7%*	-95 692 *-3.2%*	-2 770 *-2.8%*	13 857 *3.1%*	218 279 *11.3%*	52 032 *6.2%*	59 345 *22.5%*	84 758 *1.8%*	373 423 *3.1%*
Unspecified	2 508 *15.0%*	28 808 *54.7%*	2 216 *27.6%*	1 534 *22.9%*	4 461 *17.0%*	4 636 *28.8%*	5 500 *41.6%*	-13 077 *-13.7%*	36 586 *14.5%*
TOTAL	45 263 *2.5%*	94 500 *1.6%*	-5 559 *-1.7%*	136 197 *7.1%*	458 871 *6.3%*	73 893 *3.7%*	357 612 *12.7%*	36 353 *0.3%*	1 197 130 *3.5%*

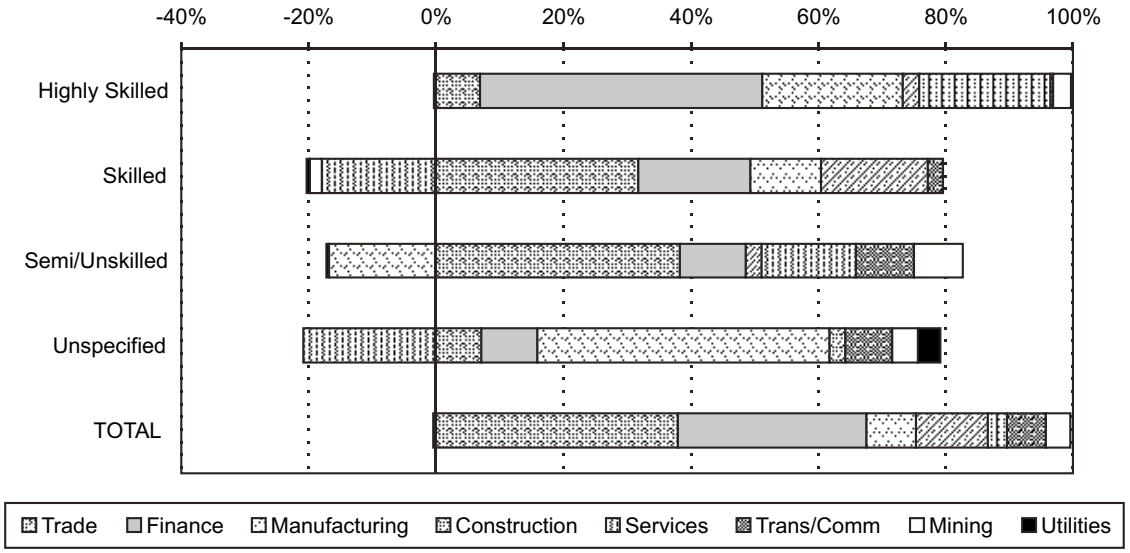
Source: Own calculations based on October Household Surveys, 1995 & 1999
Note: Highly skilled workers are Professionals, Managers and Technicians; Skilled workers are Clerks and Sales workers and Craftsmen; Semi/Unskilled workers are Operators and those in Elementary occupations.

Due to the rapid and often variable growth of the informal sector, as well as the poor quality of the OHS 1995 data on the informal sector, it is difficult to determine to what extent this growth in employment is due to the informal sector. According to the OHS, informal sector employment rose by 970 000 jobs between 1997, from when better data is available, and 1999, at a rate far in excess of formal sector employment growth. This however does not mean that the informal sector alone is responsible for employment expansion. Although this means that direct comparisons of OHS data and that of the HSRC are impossible, it does reveal a shortcoming of the HSRC report. In a country, such as South Africa, with a relatively large informal sector, the omission of informal sector employers and employees from the estimation of future labour demand in the economy results in the study being only a partial view of reality.

The economic sectors responsible for employment expansion are, due to varying capital-labour and skill ratios, hardly likely to be identical across all skill categories. In Figure 1, the contributions of the various sectors to employment changes are presented. It is clear that the important sectors for growth are different across skill levels. Such a graphical format yields information on the relative employment changes by sector in each occupational category: sectors cutting jobs and those creating new jobs are clearly visible, as is the direction of the net change in employment by each bar's position relative to the 0 percent line. For the Highly Skilled, the main driver of employment expansion during the period is the Finance sector, which contributed over 40 percent of all new jobs generated in the sector. The Manufacturing and Services sectors have also been important in creating highly skilled jobs.

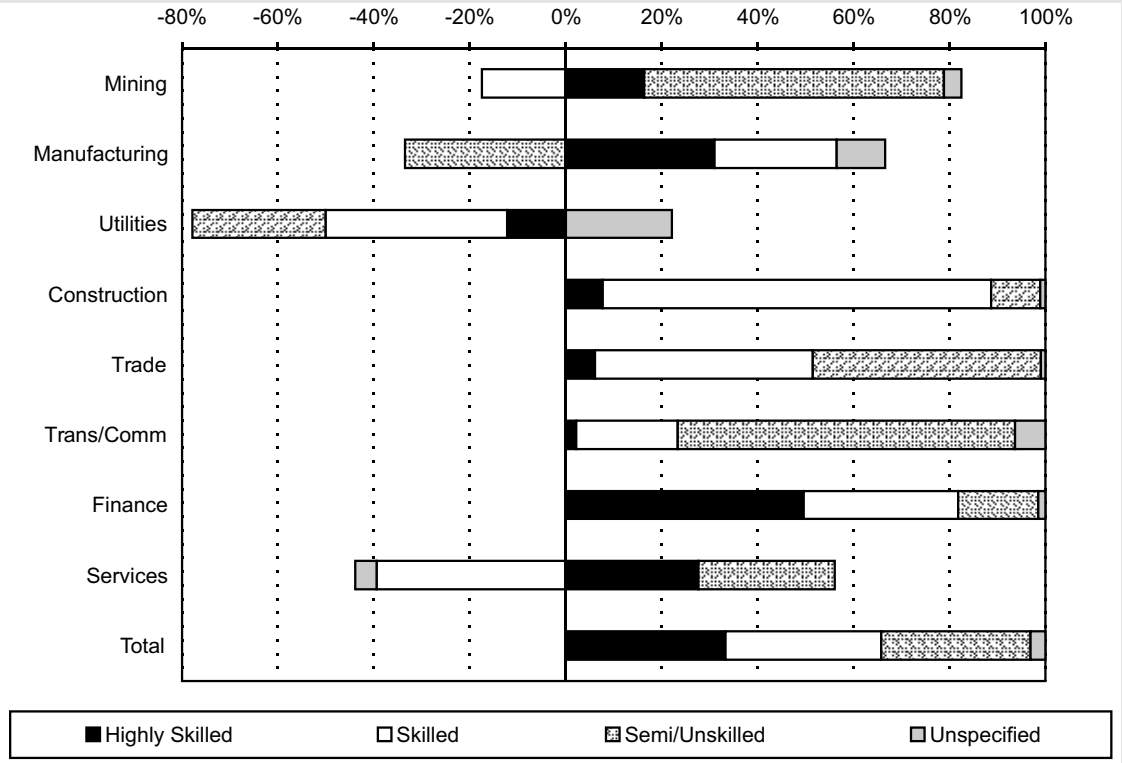
The Trade sector has been the greatest source of new jobs for Skilled workers, followed by the Finance and Construction sectors. This pattern is echoed to a certain extent amongst Semi/Unskilled occupations, where the Trade sector accounted for a large proportion of employment expansion, followed by the Services sector. While the Manufacturing and Services sectors were important job creators amongst Highly Skilled occupations, the former cut Semi/Unskilled jobs and the latter cut Skilled jobs.

Figure 1: Sectoral Shares in Change in Employment, 1995-1999 (OHS)



Source: Own calculations, OHS 95 & 99

Figure 2: Occupational Shares in Change in Employment, 1995-1999 (OHS)



Source: Own calculations, OHS 95 & 99

Figure 2 presents the data in a slightly different format: the relative shares of each occupation in employment growth in each sector are displayed. The increase in employment in South Africa during the period 1995 to 1999 can be divided almost equally amongst Highly Skilled, Skilled and Semi/Unskilled occupations. Skilled and Highly Skilled occupations drove growth in employment in the Manufacturing, Construction and Finance sectors, while Semi/Unskilled occupations drove growth in the Mining and Transport and Communications sectors. In the Trade sector, employment growth was balanced between Highly Skilled and Skilled occupations on the one hand, and Semi/Unskilled occupations on the other. Skilled occupations however also proved a drag on total employment in the Utilities and Services sectors, with Semi/Unskilled workers losing jobs in the former as well as the Manufacturing sector. Only the Utilities sector saw a reduction in the number of Highly Skilled occupations.

During the period 1995 to 1999, employment in the non-agricultural sector of the economy grew relatively rapidly. Growth has been most rapid for Highly Skilled workers, although all skill levels have seen a rise in employment levels. Only one sector has shown a net job loss, and this loss has been spread across the three skill levels. Three sectors, Trade, Finance and Construction, are responsible for most of the employment growth. These trends stand in sharp contrast to the belief that the South African economy has only been characterised by 'jobless growth' during the period.

The HSRC Report

"*The Demand for Labour in South Africa: 1998-2003*" aimed at providing forecasts of the demand for labour in the formal, non-agricultural sector of the South African economy, with comprehensive detail on three occupational groupings: Professionals, Managers and Artisans. Aggregate data on Clerical, Sales and Services (CSS) and Semi/Unskilled workers is also presented.

The study consisted of four main activities (HSRC 1999: 1-4), of which the first three are of prime interest to us. Firstly, a random sample of employers, made to include the major players in each sector, was surveyed. Information about current employment, growth in employment, changes in the skills structure of employment, amongst other things, was collected. Secondly, a demand model was developed and utilised to forecast the future demand for labour. These forecasts relied largely on the survey. Finally, projections were presented to representatives of a number of organisations. Adjustments were then made where these exports were not in agreement with the original projections.

The study underlying the HSRC report (Whiteford et al. 1999) utilised a number of sources to arrive at estimates of total employment in the non-agricultural economy. This includes the *Manpower Surveys*, for the occupational breakdown of employment, and *Standardised Employment Series*, for the sectoral breakdown, both published by Statistics South Africa. The most recent issue of the former, available to the study's authors, was that of 1994 and the authors were forced to extrapolate historical trends to obtain data on changes in the occupation-subsector breakdown of employment to arrive at 1998 figures. Data from the OHSs were considered for this purpose, but the Manpower Survey was preferred as it "is an establishment-based survey and this type of survey tends to render more accurate occupational data than household-based surveys" (Whiteford et al. 1999:1-C).

In order to generate the forecasts the authors of the report assumed an average annual economic growth rate of 2.7 percent per annum between 1998 and 2003 (HSRC 1999: vi). This, the authors of the original study believe, is "a 'moderate' scenario … based on both the industry experts' expectations and forecasts made by the Industrial Development Corporation" (Whiteford et al. 1999: 4). Indeed, this is not far from the average annual gross domestic product (GDP) growth rate of 2.8 percent during 1998-2001 (based on South African Reserve Bank. 2001). This growth rate is projected to translate into net employment growth of a paltry 0.2 percent in the non-agricultural economy. Of the eight sectors, four exhibit negative employment growth while in a fifth sector the number of jobs will remain more or less constant.

Labour Demand Projections, 1998-2003

i) Detailed Occupational Employment Changes

The authors of the HSRC report expect that "[p]revious trends in terms of changes in the occupational composition of employment … [will] continue throughout the forecast period" (HSRC 1999: vi), and projections were made accordingly. These are presented in Table 2. In terms of occupations, employment opportunities for Professionals are predicted to increase by 1.9 percent annually, by 1.2 percent for Managers and by 0.8 percent for Artisans, while there will be no growth in the number of Clerical Sales and Services (CSS) jobs, and negative growth in Semi/Unskilled jobs.

Fastest growth is projected to occur for Professional occupations in the Finance (5.7 percent p.a.), Transport & Communications (3.9 percent) and Trade (3.0 percent) sectors. The employment of Managers is expected to grow fastest in the Trade (2.4 percent p.a.) and Construction (1.4 percent) sectors, while for CSS workers employment opportunities will grow most rapidly in the Trade (2.4

Table 2: Total Employment changes, 1998-2003, and Average Annual Growth Rate by Occupation (HSRC)

	Professiona	Manager	Clerical/Sales /Service	Artisan	Semi/ Unskilled	TOTAL
Mining	-136 -0.2%	-147 -0.9%	-4 214 -1.5%	-278 -0.2%	-24 912 -1.2%	-29 687 -1.2%
Utilities	334 *0.8%*	-57 *-0.4%*	-1 115 *-2.1%*	-178 *-0.6%*	-3 900 *-1.9%*	-4 916 *-1.4%*
Construction	490 *1.6%*	636 *1.4%*	1 148 *0.8%*	3 974 *1.7%*	20 116 *1.8%*	26 364 *1.7%*
Trans/Comm	3 525 *3.9%*	216 *0.4%*	28 *0.0%*	323 *0.2%*	-4 433 *-1.2%*	-341 *0.0%*
Mfg	7 779 *2.1%*	1 159 *0.4%*	-12 566 *-0.9%*	1 453 *0.3%*	-41 568 *-1.0%*	-43 743 *-0.7%*
Trade	3 919 *3.0%*	11 716 *2.4%*	73 733 *2.4%*	3 502 *2.1%*	16 130 *1.5%*	109 000 *2.2%*
Finance	30 285 *5.7%*	343 *0.2%*	6 918 *0.3%*	604 *3.0%*	2 796 *4.2%*	40 946 *1.5%*
Services	46 636 1.3%	1 953 1.1%	-68 682 -1.6%	2 151 0.8%	-33 437 -2.7%	-51 379 -0.5%
TOTAL	92 832 1.9%	15 819 1.2%	-4 750 0.0%	11 551 0.8%	-69 208 -0.7%	46 244 0.2%

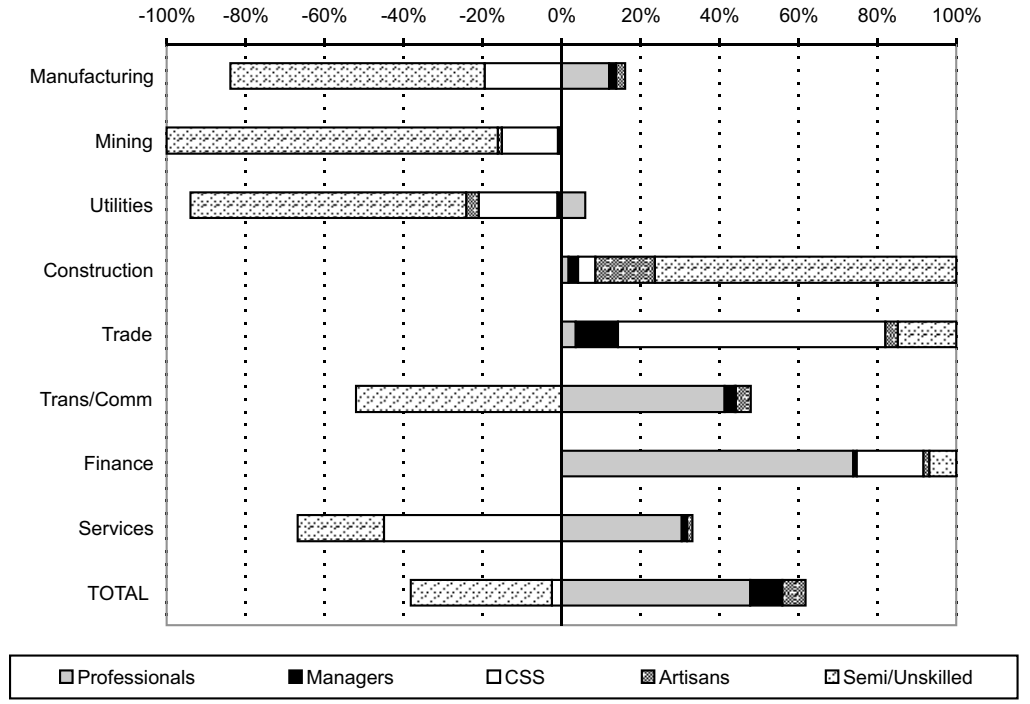
Source: Own calculations, HSRC (1999)

percent) and Construction (0.8 percent) sectors. Artisans will see job opportunities grow fastest in the Finance (3.0 percent p.a.), Trade (2.1 percent) and Construction sectors (1.7 percent), while for Semi/Unskilled workers the fastest growing sectors will be Finance (4.2 percent), Construction (1.8 percent) and Trade (1.5 percent).

On the other hand, Managerial jobs will be cut fastest in the Mining sector (-0.9 percent p.a.) while Artisans will see the demand for their skills shrink fastest, at an average annual rate of 0.6 percent in the Utilities sector and 0.2 percent in the Mining sector. For CSS workers, the Utilities (-2.1 percent p.a.), Services (-1.6 percent) and Mining (-1.5 percent) sectors will shed jobs fastest, although it is in the Services sector where CSS workers will see the largest reduction in demand for their skills: a loss of 69 000 jobs. A similar pattern of jobs cuts exists for Semi/Unskilled occupations, except that the Manufacturing sector will reduce demand the most (42 000 jobs).

Figure 3 presents the proportions of each occupational grouping in the projected change in employment during the period 1998-2003. In six sectors, changes in the employment of Semi/Unskilled workers determine the direction of overall change in employment. This is not surprising due to the preponderance of this group in total employment. However, in the Trade and Finance sectors, CSS workers and Professionals respectively have accounted for most of the change. The projected rapid growth in demand for Professionals can be seen in the disproportionately high share of this occupational category in the employment change in the Transport & Communications, Finance and Services sectors (Professionals account for only 16 percent of formally employed individuals). Furthermore, the consistency of expected demand

Figure 3: Occupational Shares of Projected Employment Change, 1998-2003 (HSRC)



Source: Own calculations, HSRC (1999)

growth for Professionals across all sectors is reflected in this grouping's large share of the total change in employment.

In summary, the report predicts declines in employment in the primary (non-agricultural) and secondary sectors and gains in the numbers of workers employed in the tertiary sector. Furthermore, while demand for skilled and highly skilled occupations continues, as in the past, to rise, semi- and unskilled workers will find it increasingly difficult to find employment. Three sectors emerge as important drivers of employment growth across all occupational categories: Trade, Construction and Finance. Finally, the low growth of total employment and net job losses in Semi/Unskilled occupations will occur despite net output expansion in all sectors. This is often due to the increased implementation of labour-saving technologies, computerisation and increased productivity.

ii) Detailed Sectoral Employment Changes

The HSRC report details employment changes in the eight major non-primary sectors of the economy, as well as for the various subsectors.

The Mining Sector – Table 3 presents the total change in employment over the period 1998-2003, as well as the equivalent average annual growth rates, for the Mining and Utilities sectors. The Mining sector, as a whole, is predicted to shed around 30 000 jobs over the period, the bulk of this occurring in the semi- and unskilled occupations. This will occur despite slowly rising production levels (0.8 percent p.a.), as gold production slowly falls and coal production rises at 3 percent per annum. Within each sub-sector, as well as each occupation, there will be net job losses, although employment of Professionals and Artisans within this sector will hardly be changed. Labour-saving technologies, the increasing computerisation of administrative duties and flattening management structures are the main culprits behind job losses

The Utilities Sector – The Utilities sector is projected to cut about 5 000 jobs by 2003, due mainly to the amalgamation of local electricity departments with Eskom and consequent rationalisation. This is equivalent to an average annual decline in employment of 1.4 percent. CSS workers, as er

Table 3: Total Employment Changes, 1998-2003, and Average Annual Growth Rate in the Mining and Utilities Sectors

	Professionals	Managers	Clerical/ Sales/ Service	Artisans	Semi/ Unskilled	TOTAL
Coal Mining	137 0.9%	-17 -0.4%	-1 059 -2.1%	430 1.4%	-7 877 -4.3%	-8 386 -2.9%
Gold & Uranium Mining	-220 -0.6%	-30 -0.8%	-1 716 -1.2%	-352 -0.7%	-10 145 -0.8%	-12 467 -0.8%
Other Mining	-53 -0.2%	-100 -1.3%	-1 439 -1.5%	-356 -1.2%	-6 890 -1.2%	-8 838 -1.2%
MINING TOTAL	-136 -0.2%	-147 -0.9%	-4 204 -1.5%	-278 -0.2%	-24 912 -1.2%	-29 691 -1.2%
Electricity, Gas & Water	334 0.8%	-57 -0.4%	-1 115 -2.1%	-178 -0.6%	-3 900 -1.9%	-4 916 -1.4%
UTILITIES TOTAL	334 0.8%	-57 -0.4%	-1 115 -2.1%	-178 -0.6%	-3 900 -1.9%	-4 916 -1.4%

Source: Own calculations, HSRC (1999)

annum. This is due to growth in mainly two professional groupings: IT professionals and chartered accountants.

well as those in Semi/Unskilled occupations are expected to be hardest hit, both numerically as well as proportionally. Annually, employment of CSS workers is expected to decline by 2.1 percent and that of Semi/Unskilled workers by 1.9 percent, due to rationalisation with computerisation another factor for the former. Professionals are the only occupation grouping projected to experience growth, although at only 0.8 percent per annum. This is due to growth in mainly two professional groupings: IT professionals and chartered accountants.

The Construction Sector – Within Construction, more than 26 000 jobs are projected to be created (Table 4), as economic growth results in output growth in both the Civil Engineering (2 percent p.a.) and the Building subsectors (2.8 percent p.a.). This translates into an average annual growth rate of 1.7 percent per annum for the sector as a whole, with the largest number of jobs being created in the Building sector. Employment in none of the occupational groupings is expected to decline, although growth will be slowest in CSS occupations as increased demand is offset by computerisation. Other occupations will generally experience annual growth of over 1.5 percent, and there will be minimal change in the composition of the workforce in this sector.

Table 4: Total Employment Changes, 1998-2003, and Average Annual Growth Rate in the Construction, and Transport & Communications Sectors

	Professionals	Managers	Clerical/ Sales/ Service	Artisans	Semi/ Unskilled	TOTAL
Civil Engineering	231 1.5%	148 1.4%	276 0.6%	345 1.7%	5 065 1.7%	6 065 1.6%
Building	259 1.7%	488 1.4%	872 1.0%	3 629 1.7%	15 051 1.8%	20 299 1.7%
CONSTRUCTION TOTAL	490 1.6%	636 1.4%	1 148 0.8%	3 974 1.7%	20 116 1.8%	26 364 1.7%
Transport	1,300 3.4%	5 0.0%	-2 682 -0.6%	-474 -0.7%	-6 111 -2.3%	-7 962 -0.9%
Communications	2,225 4.3%	211 1.2%	2 710 1.2%	797 0.7%	1 678 1.9%	7 621 1.5%
TRANS/COMM TOTAL	3,525 3.9 %	216 0.4%	28 0.0%	323 0.2%	-4 433 -1.2%	-341 0.0%

Source: Own calculations, HSRC (1999)

Employment is dominated by Semi/Unskilled workers in both subsectors (over 70 percent of employment) and growth in output is expected to raise employment in this category by 20 000.

The Transport and Communications Sector – Over the period under scrutiny, there will practically be no change within the Transport and Communications sector. However, within the two subsectors, and within the occupational groupings, workers will have varying fortunes. In the Transport subsector, almost 8 000 jobs are expected to be shed, with the burden falling largely on Semi/Unskilled and CSS workers. The former category will lose over 6 000 jobs, at an average annual rate of 2.3 percent of employment. In contrast, Professionals within the Transport sector will experience rapid growth, with 1 300 jobs being created and employment growing at 3.4 percent per annum. The source of job losses in this subsector is the ongoing retrenchments occurring at Transnet, which will outweigh growth in the rest of the subsector.

The Communications subsector, South Africa's fastest-growing subsector, is expected to grow at about 8 percent per annum and create more than 7 600 jobs by 2003. The occupations that will experience the most dramatic growth are Professionals (4.3 percent p.a.) and Semi/Unskilled workers (1.9 percent p.a.), although numerically CSS occupations will see the most growth. The adoption of new technology by Telkom will result in the demand for Artisans being dampened.

Table 5: Total Employment Changes, 1998-2003, and Average Annual Growth Rate in the Manufacturing Sector

	Professional	Managers	Clerical/ Sales/ Service	Artisans	Semi/ Unskilled	TOTAL
Food Mfg	642 2.4%	-128 -0.4%	-3 453 -1.4%	192 0.6%	-8 491 -1.8%	-11 239 -1.4%
Beverages & Tobacco Products	285 2.3%	-46 -0.4%	-853 -1.9%	21 0.2%	-1 838 -2.3%	-2 432 -1.5%
Textiles	106 1.5%	-21 -0.2%	-292 -0.6%	63 0.9%	-3 210 -1.1%	-3 355 -0.9%
Clothing	425 3.3%	522 2.7%	1 293 1.2%	177 3.0%	12 566 2.2%	14 984 2.1%
Leather & Footwear	151 7.1%	227 5.6%	499 4.4%	165 5.7%	7 292 4.9%	8 334 4.9%
Wood & Wood Products	107 2.3%	36 0.5%	287 0.4%	129 1.2%	-6 578 -3.3%	-6 019 -2.0%
Furniture	86 2.7%	-68 -0.8%	-861 -3.4%	-329 -1.2%	-5 207 -3.4%	-6 379 -2.9%
Paper & Paper Products	285 2.3%	16 0.2%	-437 -0.7%	43 0.2%	-2 447 -2.0%	-2 540 -1.1%
Printing & Publishing	771 2.4%	183 0.8%	-2 142 -2.1%	-911 -3.0%	-4 076 -7.6%	-6 176 -2.5%
Chemicals	1 916 2.7%	-188 -0.4%	-1 181 -0.9%	428 0.8%	-6 337 -3.0%	-5 362 -1.1%
Rubber & Plastic Products	157 1.3%	-7 -0.0%	-277 -0.4%	184 1.2%	-6 372 -3.1%	-6 315 -2.0%
Non-Metallic Mineral Products	174 1.6%	-59 -0.4%	-382 -0.8%	-153 -0.8%	-1 618 -0.8%	-2 038 -0.7%
Basic Metals	386 1.2%	23 0.4%	-216 -0.4%	229 0.4%	-4 279 -2.3%	-3 856 -1.1%
Fabricated Metal Products	218 1.4%	280 1.1%	-1 920 -1.9%	690 1.2%	-1 661 -0.4%	-2 393 -0.4%
Machinery	308 1.2%	46 0.2%	-1 503 -1.7%	410 0.8%	-3 345 -2.0%	-4 084 -1.2%
Electrical Machinery	1 479 3.1%	424 1.6%	-150 -0.2%	242 0.8%	-2 931 -1.0%	-936 -0.2%
Motor Mfg	283 0.6%	-81 -0.5%	-978 -1.3%	-127 -0.3%	-3 036 -1.4%	-3 939 -1.0%
TOTAL	7 779 2.1%	1 159 0.4%	-12 566 -0.9%	1 453 0.3%	-41 568 -1.0%	-43 745 -0.7%

Source: Own calculations, HSRC (1999)

Combined with the changes in the Transport sector, growth in the Communications sector will mean that while Managers, CSS workers and Artisans do not experience raised demand for their services, demand for Professionals will rise by almost 4 percent annually and the number of Semi/Unskilled jobs will decline by 1.2 percent of employment annually.

The Manufacturing Sector – Table 5 presents the employment changes and equivalent annual growth rates for the Manufacturing sector. Forty-four thousand jobs will be lost in this sector over the five-year period. All subsectors bar two, the Clothing and Leather & Footwear subsectors, will shed jobs. Significant changes in occupational composition of employment will occur for many of the subsectors, due to the varying experiences of the occupational categories. Whereas no Manufacturing subsector is expected to reduce demand for Professionals, only the Clothing and Leather & Footwear subsectors will not cut Semi/Unskilled jobs, a total of 41 500 of which will be lost over the period. Demand for Professionals will grow fastest in the two subsectors mentioned above. However, the largest absolute increases will occur in the Chemicals and Electrical Machinery subsectors, representing 44 percent of the total increase in demand for Professionals in Manufacturing.

Over 1 700 Managerial jobs will be created in the sector, concentrated in the Clothing and Electrical Machinery subsectors, while about 600 will be lost in eight subsectors. There will be a net loss of 12 500 jobs for CSS workers, with Food Manufacturing, Printing & Publishing and Fabricated Metal Products cutting the most jobs. Demand for Artisans will rise by nearly 1 500 job opportunities, due largely to increases in demand in the various metals and machinery subsectors. The Printing & Publishing and Furniture subsectors are expected to reduce demand for Artisans relatively rapidly.

The shift in the occupational breakdown of employment in the Manufacturing sector is therefore clear: away from CSS and Semi/Unskilled occupations towards Professionals, and to a lesser extent Managers and Artisans.

Table 6: Total Employment Changes, 1998-2003, and Average Annual Growth Rate in the Trade and Finance Sectors

	Professionals	Managers	Clerical/ Sales/ Service	Artisans	Semi/ Unskilled	TOTAL
Retail & Wholesale Trade	3 165 2.8%	5 521 1.7%	29 291 1.7%	1 501 1.7%	8 459 1.2%	47 937 1.6%
Motor Trade	63 1.5%	705 1.5%	5 882 2.0%	1 782 2.6%	358 0.2%	8 790 1.6%
Accommodation & Catering	691 5.2%	5 490 4.4%	38 560 3.5%	219 4.4%	7 313 3.4%	52 273 3.5%
TRADE TOTAL	3 919 3.0%	11 716 2.4%	73 733 2.4%	3 502 2.1%	16 130 1.5%	109 000 2.2%
Financial Intermediation	5 758 8.4%	-1 157 -2.2%	-16 491 -3.2%	0 0.0%	-231 -2.0%	-12 121 -1.9%
Business Services	23 106 5.5%	1 607 1.5%	30 416 2.5%	619 3.5%	2 922 5.6%	58 670 3.3%
Insurance	1 421 3.4%	-107 -0.3%	-7 007 -2.3%	-15 -1.5%	105 3.2%	-5 604 -1.5%
FINANCE TOTAL	30 285 5.7%	343 0.2%	6 918 0.3%	604 3.0%	2 796 4.2%	40 945 1.5%

Source: Own calculations, HSRC (1999)

The Trade Sector – In the Trade sector, and indeed in each of its three subsectors, no occupational category is expected to suffer net job losses (Table 6). Labour demand is projected to rise by 109 000 jobs in this sector by 2003, an average annual increase of 2.2 percent of employment. Although annual employment growth in Retail and Wholesale Trade and the Motor Trade will be slightly below the assumed economic growth rate of 2-3 percent annually, demand from Accommodation and Catering will be in excess of 3 percent for all occupational categories.
employment. Although annual employment growth in Retail and Wholesale Trade and the Motor Trade will be slightly below the assumed economic growth rate of 2-3 percent annually, demand from Accommodation and Catering will be in excess of 3 percent for all occupational categories.

In the Retail and Wholesale Trade subsector, demand for Professionals is expected to increase by 2.8 percent per annum over the period, driven by demand for IT and marketing professionals. On the other hand, the outsourcing of labour intensive activities combined with the implementation of various labour-saving methods will result in subdued expansion of demand for Semi/Unskilled workers.

Despite the fact that the turnover of motor dealers is predicted to increase by roughly 4 percent per annum, total employment in the Motor Trade sector is set to increase by an average of only about 1.6 percent per annum. Demand for Artisans and CSS workers will increase by 2.6 percent and 2.0 percent per annum respectively, with two-thirds of new jobs accruing to the latter category.

Rapid growth in demand for all occupational categories is projected in the Accommodation and Catering subsector, as numbers of both foreign and local tourists increase. This subsector is expected to grow by 5 percent per annum and create over 52 000 jobs over the period. Professionals, Managers and Artisans will experience the most rapid growth in demand, although this is admittedly off a low base. In 1998, CSS workers accounted for three in four of all employment in this subsector. With a projected demand growth rate of 3.5 percent per annum, this means that nearly 39 000 jobs will be created, or three-quarters of all new jobs in this subsector. Growth in this occupational category may be slightly dampened due to outsourcing.

The Finance Sector – Over 40 000 jobs are expected to be created in the Finance sector over the period, representing an average annual growth rate of 1.5 percent (Table 6). Only in one of the subsectors, Business Services will there be a net job gain, but in the Financial Intermediation and Insurance subsectors net losses of around 12 000 and 5 000 jobs are expected respectively. In the Financial Intermediation sector, only the demand for Professionals will rise, and at a staggering average rate of 8.4 percent per annum. This is due to the increasing sophistication of banking as well as technological advances made in this subsector. While the demand for Artisans is unchanged, the demand for the remaining occupational categories is expected to decline rapidly, as banks continue to shed jobs.

The Insurance subsector is expected to display a broadly similar pattern: net job losses amongst Managers, CSS workers and Artisans, and net job gains amongst Professionals and Semi/Unskilled workers. Artisans and Semi/Unskilled workerscombined, number fewer than 1 000, barely 1 percent of employees in this subsector, and can therefore be ignored in this analysis. Demand for Professionals is expected to increase by an average of 3.4 percent per annum, creating 1 400 jobs over the period. In contrast, due to computerisation and productivity improvements, a net loss of about 7 000 CSS jobs will occur.

In contrast to the other two subsectors, the Business Services subsector is likely to raise its overall demand for labour by 3.3 percent on average per annum (or nearly 60 000 jobs over the period). Demand increases will be numerically highest amongst Professionals (23 000), especially those involved in IT and financial services, and CSS workers (30 500), particularly service workers such as security guards. Demand for skills from all the other occupational categories will also increase over the period, with demand for Managers exhibiting slowest growth (1.5 percent p.a.) and that for Semi/Unskilled workers growing fastest (5.6 percent p.a.).

The Services Sector – Due to the preponderance of government within the Services sector (local, provincial and national government accounts for almost 84.6 percent of employment), its process of downsizing means that the sector, as a whole, is expected to shed jobs: a total of over 51 000 at a rate of 0.5 percent of employment per annum for the period (Table 7). Community and Social Services and Recreational and Cultural Services on the other hand are expected to create jobs, albeit at a rather moderate rate.

Expected substantial growth in output of the Community and Social Services sector will lead to an increase of about 19 000 jobs (1.6 percent of employment per annum) over the period. Most rapid growth will occur amongst Professionals and Managers, the growth of the former category driven by increased demand for medical professionals and teachers in the private health and education sectors respectively. Due to differences in growth rates, Professionals will become the largest single occupational grouping in the subsector, overtaking CSS workers. Employment in the Recreational and Cultural Services subsector is expected to grow relatively slowly, at an average rate of less than 1 percent per annum. Professionals, Managers and Artisans will grow slightly faster than average, while CSS positions will increase slightly slower than average.

Table 7: Total Employment changes, 1998-2003, and Average Annual Growth Rate in the Services Sector

	Professional	Managers	Clerical/ Sales/ Service	Artisans	Semi/ Unskilled	TOTAL
Community & Social Services	11 343 2.2%	703 1.9%	5 968 1.1%	166 0.9%	854 1.6%	19 034 1.6%
Local government	1 489 1.2%	183 0.7%	-3 482 -0.9%	347 0.7%	-4 680 -1.1%	-6 144 -0.6%
Recreational & Cultural Services	592 1.3%	236 1.3%	2 577 0.9%	80 1.2%	-25 -0.1%	3 460 0.9%
Government	33 212 1.1%	831 0.9%	-73 745 -2.5%	1 558 0.7%	-29 586 -4.1%	-67 730 -1.0%
TOTAL	46 636 1.3%	1 953 1.1%	-68 682 -1.6%	2 151 0.8%	-33 437 -2.7%	-51 380 -0.5%

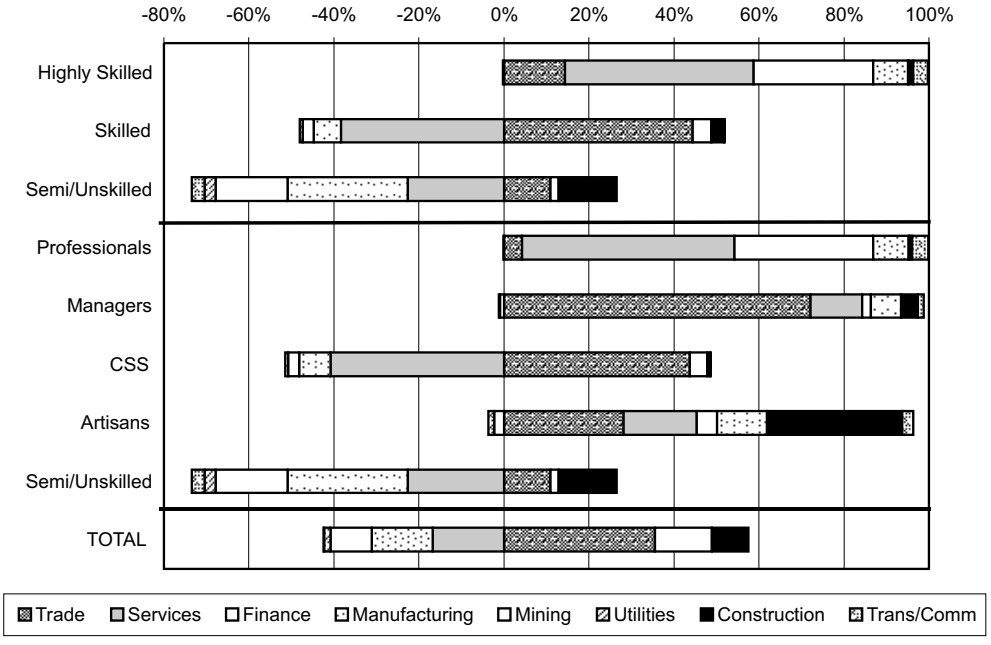
Source: Own calculations, HSRC (1999)

Due to the challenges currently faced by local governments in South Africa, total employment is expected to fall by about 6 000 jobs. CSS and especially Semi/Unskilled workers will endure most of the job losses, about 8 000 in all. In contrast, about 1 500 Professional jobs will be created over the period, with slight gains for Managers and Artisans. Financial considerations are the root of the relatively low growth of Professional positions, as outsourcing and resource reprioritisation dampen demand for these types of skills.

As mentioned above, Government will be actively shedding jobs over the period. More than 67 000 jobs will be lost. CSS and Semi/Unskilled workers will be worst affected, with 74 000 and 30 000 jobs lost respectively. This is equivalent to an average annual rate decrease of 2.5 percent for CSS occupations and 4.1 percent for Semi/Unskilled occupations. This stands in contrast with the relatively large increase in demand for Professional workers (1.1 percent p.a.). These differences will result in a significant change in the composition of the workforce in this sector.

It is probably quite useful to identify those economic sectors that play important roles in the changes in demand experienced by the various skill and occupational categories (Figure 4). In the Highly Skilled occupational category, the main growth sector is predicted to be the Services sector, creating over 40 percent of new jobs in this category. The Finance (28 percent of new jobs) and Trade (14 percent) sectors are the next most important in terms of job creation for Highly Skilled workers. This pattern is due to the rapid growth in the Services and Finance sectors for Professionals and in the Trade sector for Managers. In fact, almost 20 percent of all new jobs created in the five occupational categories are predicted to be for Professionals in the Services sector.

Figure 4: Shares in Projected Change in Employment, 1998-2003 (HSRC)



Source: Own calculations, HSRC (1999)

For Skilled workers, the projections are slightly gloomier, due clearly to the prospects for CSS workers. Although the Trade sector is expected to create about 77 000 new Skilled jobs, the Services sector will shed nearly 67 000 Skilled jobs. Other sectors will have little further impact, combining to shedding a net total of 4 000 jobs between them. New CSS jobs created in the Trade sector account for three in ten of all new jobs throughout the non-agricultural economy, slightly lower than the proportion of Service sector CSS job cuts in total job losses.

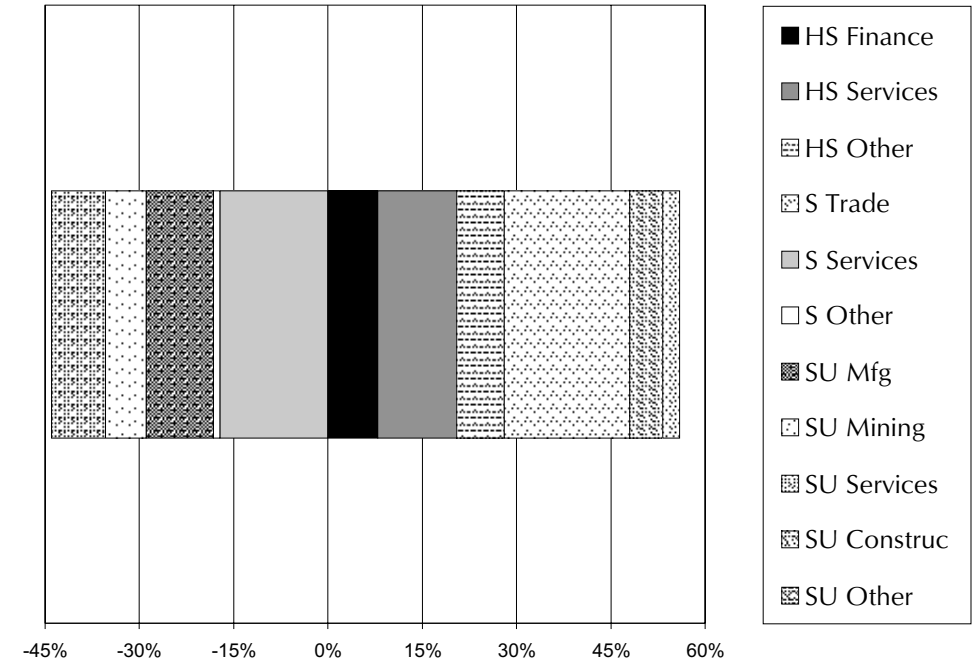
For Semi/Unskilled workers, the major sectors cutting employment are expected to be Manufacturing, Services and Mining. Job losses in the Manufacturing sector in fact are expected to outweigh all gains made in the employment growth sectors. Semi/Unskilled job losses account for 55 percent of all job losses, while only 16 percent of new jobs are expected to accrue to this occupational group.

iii) Summary

Overall, an average increase in employment of 0.2 percent per annum, or 45 000 jobs over the period, is expected. Only three sectors will exceed this growth rate: Trade (2.2 percent p.a.), Construction (1.7 percent), and Finance (1.5 percent). Eleven subsectors will drive job creation: Clothing and Leather and Footwear in the Manufacturing sector; Building and Civil Engineering in the Construction sector; Retail and Wholesale Trade, Motor Trade and Accommodation and Catering in the Trade sector; Business Services in the Finance sector; and Community and Social Services and Recreational and Cultural Services in the Services sector. These subsectors combined are responsible for a net gain of almost one-quarter of a million jobs.

Figure 5 presents the shares of the projected change in total employment of the numerically most important skill-sector groupings. It is clear that the most important skill-sector category for employment growth is Skilled Trade occupations, with Skilled Services occupations the major category for employment reduction. Highly-Skilled Finance and Services occupations are also expected to be important job creation categories. In contrast, Semi/Unskilled Manufacturing, Services and Mining are major job loss categories.

Figure 5: Shares of Projected Change in Total Employment, 1998-2003



Source: Own calculations, HSRC (1999)

It is crucial to take cognisance of the factors responsible for slower or negative growth in employment, so as to ensure that labour market policies can effectively achieve their objectives. The main reasons underlying projections of job cuts are varied, and include the adoption of flatter management structures, capital intensification, the introduction of new technologies, rising productivity and the rise in popularity of outsourcing. Probably the most important factors (in terms of being most often cited in the HSRC report as a reason for slower employment growth, or even job cuts) are the computerisation of administrative tasks and the implementation of labour saving technologies.
productivity and the rise in popularity of outsourcing. Probably the most important factors (in terms of being most often cited in the HSRC report as a reason for slower employment growth, or even job cuts) are the computerisation of administrative tasks and the implementation of labour saving technologies.

Policy-makers and employers must clearly understand the ability of technology and computerisation to cause massive changes in the demand for certain workers, e.g. positive demand changes for IT professionals and certain technicians, and negative demand changes for CSS and Semi/Unskilled workers, and certain artisans. The introduction of new technology in the Furniture Manufacturing subsector is causing its "de-crafting" (HSRC 1999: 80). It is therefore essential that policy-makers are able to proactively identify developments threatening certain occupations, and that reskilling occurs before individuals are made redundant.

The Observed Accuracy of the Forecasts

i) Deviations from Previous Observed Trends

A comparison of the trend in employment growth between 1995 and 1999, with the HSRC projections for 1998 to 2003, reveals that the relative accuracy of the projections declines with skill levels (see Figures 1 and 4). Amongst Highly Skilled occupations, the four most important sectors for growth during the first period are also the most important for the second, although their relative importance has changed. During the former period, the Finance sector contributed over 40 percent of the net gain in jobs, followed by Manufacturing, Services and Trade, while for the latter period, Services accounted for more than 40 percent of the net gain in jobs, followed by Finance, Trade and Manufacturing.

The two most important sectors in terms of changes in employment amongst Skilled occupations are the same for both periods: a large and positive impact for the Trade sector, and a smaller negative impact for the Services sector. In the earlier period, the Construction and Finance sectors were the next most important sectors, and both contributed to positive employment growth. However, in the latter period, the next most important sectors are the Manufacturing and Finance sectors, which should both experience a net job loss.

Amongst Semi/Unskilled occupations, the similarities between the sources of employment change in the two periods are very few. Between 1995 and 1999, the Trade sector was a net creator of jobs, while there were net job losses in the Manufacturing sector. The Services and Finance sectors also made positive contributions to employment growth. According to the HSRC projections, in the most important sectors for changes in employment, net job losses will occur in the Manufacturing, Services and Mining sectors, and gains in Construction.

This varying accuracy can be explained by the presence of informal sector data being included in the 1995-1999 trends. Closer inspection of the OHS data reveals that in 1999, while the skill category breakdown of the formal sector was 27.4 percent Highly Skilled, 42.6 percent Skilled and 30.0 percent Semi/Unskilled, in the informal sector the breakdown was 3.6 percent, 23.8 percent & 72.7 percent respectively. This means that while the trend calculated for Highly Skilled occupations for 1995-1999 is a reasonably accurate reflection of the trends in formal sector employment, the same cannot be said for Skilled, and definitely not for Semi/Unskilled, occupations.

ii) The Informal Sector

The importance of the informal sector in the analysis of the South African labour market cannot be overemphasised. With as many as 30 percent of working individuals active in the informal sector in 1999 according to the OHS 1999, meaningful estimates of labour demand cannot be made without taking this sector into consideration.

The extent to which total employment is underestimated in 1998 is significant. The HSRC report estimates total employment in the formal non-agricultural economy to be about 5 951 000 in 1998, and 5 960 000 in 1999 (HSRC 1999: 6; own calculations). In contrast, according to the OHS of 1999, 9 135 000 are employed in the non-agricultural economy, and this figure only includes those individuals who have proper occupational and sectoral details. This represents an underestimation of at least one-third of actual total employment. In terms of formal sector employment, the number of employed individuals ranges between about 6.4 million and 7.8 million people. This is still an underestimation of between 6 percent and 23 percent of the actual figure according to the OHS.

Admittedly, forecasting the size of the informal sector is an extremely difficult task, due in part to the lack of exact and reliable data from which to derive trends, and in part due to its dynamism and unpredictability. Nevertheless, a forecast of 0.2 percent growth in labour demand over the five-year period between 1998 and 2003 does not accurately reflect the current realities of the South African labour market, especially when available OHS data suggests that informal sector employment has grown at an average rate of around 17 percent annually between 1998 and 2000.

iii) Other Methodological Issues Surrounding the HSRC Report

Despite the fact that the projections presented in the HSRC report are relatively accurate when compared to the real figures, there remain some methodological issues that may have resulted in inaccuracies.

The first such issue pertains to the use of the *Manpower Surveys* as a basis for forecasts. De Lange (1993: 53) disputes the accuracy of the Manpower Surveys, and claims that the "variability from one survey to the next is such that no useful trend information can be extracted for surveys after 1983". This problem persists even when occupations are aggregated to a small number of major groups, "rendering these surveys essentially useless for establishing trends, and making suspect any information extracted from a specific survey" (De Lange 1993: 64). One of the reasons for this is the constant changes made in defining the various occupations over the years.

Another problem with the *Manpower Surveys* is actually not unique to this survey, but common to all surveys detailing employment. When measuring the levels of employment for different occupational groupings, depending on the labour market conditions for each occupation, different aspects of the market will be measured. Thus, in occupational categories characterised by a shortage of suitable labour, employment surveys will measure supply for labour, while in those categories experiencing an oversupply of suitable labour, the surveys will measure the demand for labour (De Lange 1993: 53).

The most recent issue of the Manpower Survey that the authors of the HSRC report had available was that of 1994, as mentioned earlier. This was used to obtain the occupational breakdown of employment within each subsector for 1994, and historical trends were then used to estimate changes between 1994 and 1998, a risky procedure when one considers all the economic and other changes impacting employment that occurred during this time. It is uncertain to what extent this voids the base figures for the occupational breakdown of employment, but it is clear that this is not a satisfactory method of obtaining the 1998 figures. The Survey trends were also used as a subsidiary basis for the 1998-2003 projections, as well as being employed to ascertain whether the projections were consistent or not (HSRC 1999: 2-3).

The second problem revolves around the way in which firms were chosen to take part in the employer survey. Companies were randomly chosen from the *McGregors* database of companies. However, this means that none of the smaller, unlisted companies were surveyed. It is not certain that all employers, across the size spectrum, will experience identical trends in employment. Smaller firms are also not insignificant in terms of their share of total employment: in the Greater Johannesburg Area manufacturing firms employing between 50 and 99 workers accounted for 12.2 percent of total employment, and firms employing between 100 and 199 workers a further 16 percent (Bhorat & Lundall 2001: 5). Using a biased sample of employers may result in the predictions and opinions elicited during the survey being unrepresentative of the true situation.

Conclusion

The matching of the supply of labour with the demand for labour within various skill categories is a crucial element in any attempt at reducing unemployment in South Africa. This paper has aimed at describing and analysing the projections for future labour demand presented in the HSRC report in greater detail, and relative to previous trends in employment growth.

The HSRC projections fit the OHS trends very well for Highly Skilled occupations, but less well for Skilled and very poorly for Semi/Unskilled occupations. This can be explained as being due to the inclusion of the informal sector, the composition of which leans heavily towards lower skilled occupations, in the OHS data. However, since the HSRC projections are for non-agricultural formal sector employment, a dynamic and fast-growing sector of the South African economy, employing a significant proportion of the working population, remains unaccounted for.

It is clear that recent trends in demand for labour in terms of occupations are not all set to continue. As in the past, Highly-skilled professionals and managers will experience a rapid increase in the demand for their skills. For Clerical, Sales and Services workers there will be little change in demand, with slow growth in the demand for Artisans. This translates to a net gain of a mere 7 000 skilled job opportunities. For Semi/Unskilled workers, the picture is bleakest with demand for their

skills falling by 70 000 jobs over the period. Although this deviates from the trends observed in the OHS during the 1995-1999 period, this is probably as a result of the distortion of the OHS trends due to the more rapid creation of jobs in the informal sector.

Only three sectors are projected to show a net increase in employment: Trade (109 000 jobs), Finance (41 000) and Construction (27 000). In the Transport and Communications sector, employment should remain stable. Thus, we see a continued decline in employment in the non-agricultural sectors, and to a lesser extent in the secondary sector (especially in Manufacturing), and further employment growth in the tertiary sector despite rationalisation of government's workforce. The composition of public sector employment is set to change, as government moves towards a leaner and more skilled workforce.

Due to the pressure of competitive forces as South Africa integrates further into the global economy, local firms will have to take cognisance of any new developments, especially in terms of technology, within their industries. It has been seen that some of the most often cited reasons for slow projected employment expansion are computerisation and the introduction of new technologies and labour-saving techniques. If employers are serious about job creation, it is important that factors such as these, which may threaten employment, are identified quickly and action is taken to retrain affected workers before they are made redundant.

Despite the problems with the *Manpower Surveys* highlighted above and the resulting dubious nature of the 1998 base figures, the projections in the HSRC report do not seem to be at great odds with projections made by De Lange (1993). Using the "relatively good trends in the changing proportions of the various skill categories" from the pre-1983 Surveys, a "very significant trend towards increasing levels of highly skilled manpower and a decline in the requirements for lesser skilled manpower" was found (De Lange 1993: 64).

We are therefore left with an image of changing labour demand conditions, favouring more skilled workers over less and unskilled workers. The non-agricultural primary and secondary sectors are generally expected to be the worst-performing in terms of job creation. However, the non-government tertiary sector is expected to see significant employment growth, as is the informal sector if previous trends are anything to go by.

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