

# REVISITING SOUTH AFRICAN EMPLOYMENT TRENDS IN THE 1990S

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## *Abstract*

This article revisits South African employment trends recorded since 1995. In particular, it investigates whether the job losses and gains recorded by the October Household Survey jobs in the mid-1990s reflect the reality. This is done by comparing the different official data sets, and by exploring alternative sources of information for three sectors that substantially influenced this trend, namely formal agriculture, mining, and community, social and personal services. Potential inconsistencies within the October Household data are assessed, particularly in relation to the distribution of employees across formal and informal sectors and the categorisation of unpaid family workers. The implications of possible changes to the employment trend from 1995-2006 are considered. This article finds that the evidence is strong enough to call into question published employment trends. According to the October Household Survey, formal employment fell by 1.4 million between 1995 and 1997. The OHS and Labour Force Survey shows that formal employment then grew by 1.9 million between 1997 and 2006. According to the revised figures presented in this paper, 73,000 to 530,000 formal jobs were lost between 1995 and 1997 and 1.4 million net new jobs were created between 1997 and 2006. It is therefore possible that the plummeting and “recovery” of employment in the 1990s were both considerably less dramatic than that reflected in the official statistics. Further research and investigation would be required to validate these trends.

*JEL Classification: E24, E26, J21, J43, J45, O13, O17*

*Keywords: Employment, labour markets, growth, agriculture, mining, community, social and personal services, public employment, formal sector, informal sector, South Africa*

## 1. INTRODUCTION

There is a general acceptance that formal employment fell dramatically in the second half of the 1990s. This is seen to be an important cause of rising unemployment over the 1990s, especially in the context of a rapidly expanding labour force (Altman, 2003, 2004; Borat, 2004). Formal and informal employment is then believed to have risen thereafter, albeit inconsistently. This view was mainly formed on the basis of data published by Statistics South Africa’s household and enterprise surveys over the past decade.

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There is substantial evidence that calls into question the published employment trends in the 1990s. Three main concerns are considered. First, employment trends made available by the household surveys and the enterprise surveys diverge widely. An explicit statement on their differences is essential to confusion that arose in making sense of employment trends until 2003. Second, there are four main sectors that contribute to the reported employment loss and gain. These are the agriculture, mining, and community, social and personal services (CSPS) and retail sectors. However, on closer inspection, the employment trends for the first three sectors do not correspond to other available information. Third, there are important inconsistencies in data coding within the household surveys.

This article begins with a review and comparison of employment trends put forward by Statistics South Africa's household and enterprise surveys. The second section considers different sources of evidence, obtained from other Statistics South Africa censuses and surveys, and public and private sector industry data sources. Particular attention is devoted to the three sectors that most influenced the household survey trend, namely formal agriculture, mining and CSPS. The retail sector also had an important impact on employment trends, but no other reliable data sources were available. The third section reviews potential sources of internal inconsistencies in the October Household Survey (OHS) and Labour Force Survey (LFS) data. The final section considers the combined impact of these possible changes to the employment trend from 1995-2006. Implications for employment growth and employment elasticities are evaluated.

## 2. CURRENT VIEWS ON SOUTH AFRICAN EMPLOYMENT IN THE 1990S BASED ON THE HOUSEHOLD AND ENTERPRISE SURVEYS

Understandably, researchers analysing employment trends mostly use employment data as provided by Statistics South Africa. The data are generally used uncritically, with research focused on interpreting the trends. Employment data are mostly sourced from the results of either household or enterprise surveys made available by Statistics South Africa. The differences between these sources are not well understood, and they are sometimes used on the basis of their availability.

### *2.1 Employment Data in Household Surveys*

As a result of the unemployment debate of the mid-1970s, the Department of Statistics (which later became the Central Statistical Service and then Statistics South Africa) introduced the monthly Current Population Survey. For various reasons, not least the flaws in the sample design, this survey fell into disrepute and was abandoned in the late 1980s. The annual OHS came into existence in 1993. The OHS had a detailed labour market module that covered a wide range of issues relating to formal and informal employment and unemployment. In February 2000, Statistics South Africa introduced a twice-yearly LFS to fulfil the stringent reporting requirements of the International Monetary Fund.

The OHSs and LFSs produced by Statistics South Africa are seen to be the most comprehensive and reliable sources of employment trend data for the past decade. The data are mostly used in the form made available by Statistics South Africa through its published reports or electronic data. Examples of research interpreting this data include

Altman (2003, 2004), Bhorat and Hodge (1999), Bhorat (2004), Banerjee *et al.* (2006) and Statistics South Africa (2001).

### 2.2 1996 and 2001 Population Censuses

To date, there have only been two full population census of the whole of South Africa – in 1996 and 2001. These censuses asked a few simple questions about work status. Because only a small number of questions are asked, it is not possible to probe deeply for information about activities that might be regarded as “work” but which the respondent does not regard as such. Consequently, the population censuses underestimate employment. For example, the 2001 census and September 2001 LFS find unemployment rates of 41.6% and 29.3%, respectively, almost wholly due to the variations amongst African respondents. It must be emphasised that Statistics South Africa make it very clear that the LFS is the official source of labour market information. This analysis uses sector information provided by the population census sparingly, and only where there are few alternative sources.

### 2.3 Employment Data in Enterprise-Based Surveys

The enterprise-based surveys are another important source of employment data produced by Statistics South Africa. Statistics South Africa conducted 17 monthly or quarterly business surveys until 1997. From 1998, Statistics South Africa consolidated and streamlined its enterprise surveys by replacing the various business surveys. Its aim was to improve coverage and reliability, reduce the respondent burden, and fulfil the requirements of the IMF’s Special Data Dissemination Standards. The Survey of Total Employment and Earnings was therefore launched, and later renamed the Survey of Employment and Earnings (SEE), and then the Quarterly Employment Survey (QES).

The SEE was a quarterly survey covering a sample of 10,183 private and public enterprises in the formal non-agricultural business sector. It covered VAT registered enterprises with an annual turnover of R300,000 or more. It was replaced by the QES in September 2005. The QES has a sample size of 24,000 firms. It offers a better coverage of small firms as it is not limited to VAT registration. Instead, it includes all enterprises registered for income tax.

The SEE and QES mining employment is sourced from the Minerals Bureau, Department of Minerals and Energy (DME). Public employment data are obtained from the Personnel Administration System (PERSAL, <http://www.vulindlela.gov.za>).

Before March 2003, Statistics South Africa published the findings of the SEE as a “*Discussion paper*” (as opposed to a release containing official data). It was aware that the survey had significant limitations because it did not collect information from the following industries: agriculture, hunting, forestry and fishing; restaurants and other eating and drinking places, boarding houses, caravan parks and guest farms; storage, water and air transport; telecommunication services; financial institutions other than banking institutions and insurance companies; real estate and business services; educational services; medical, dental and other health services; welfare organisations; religious organisations; and recreational and cultural services.

Statistics South Africa, in collaboration with the South African Revenue Services and the Departments of Trade and Industry and Labour, re-engineered the register of businesses in 2003 which now forms the basis of its sampling frame. This new sample covers all the industries in the formal non-agricultural business sectors, *i.e.* all previously excluded industries mentioned above are now covered by the sample.

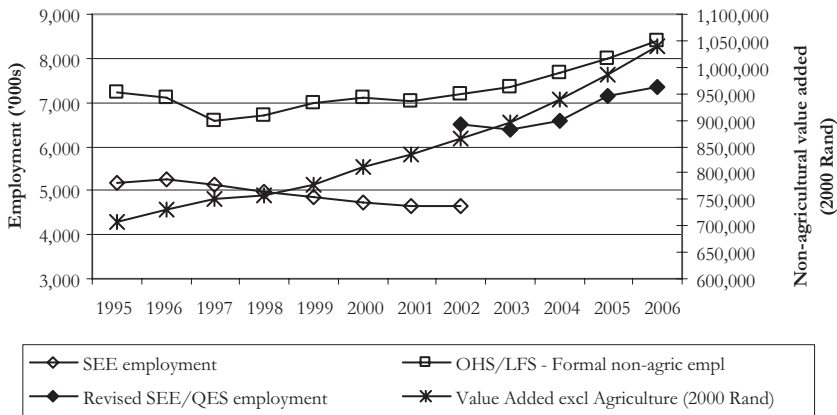


Figure 1. Employment in the household and enterprise surveys compared

Sources: Statistics South Africa: October Household Surveys (1995-1999), Labour Force Surveys (September 2000-2005), Surveys of Employment and Earnings (September 1995-2004), Quarterly Employment Surveys (September 2005, 2006).

The change to the sampling frame in 2002 led to a break in the series, with a leap in the measured employment in “banks, insurance, real estate and business services”, wholesale and retail, and to a lesser extent in community services and construction.

Unlike the data sourced from households, the enterprise-based surveys enable comparisons of employment, output and remuneration. This is helpful to economic analysis of changes in labour productivity or employment elasticities. However, one of the most common errors has been to report on total employment using the enterprise-based surveys. This has most notably been done in reviews prepared by Statistics South Africa (Statistics South Africa 2000, fig. 7.1). The South African Reserve Bank (SARB) is a prominent user of employment data sourced from the SEE and QES. As a result, many private companies, banks and private sector research firms also use the SEE/QES employment figures (Lewis, 2001; Moolman, 2003; Teixeira and Masih, 2003). Quantec is a company that constructs data sets, based on a variety of sources (<http://www.quantec.co.za>). Before 2002, its employment data were closely aligned to the SEE. This data was made available without charge to academics through a research organisation called Trade and Industry Policy Strategies and is therefore widely used (<http://www.tips.org.za>). Use of this data has led to conclusions of a falling wage share (Nattrass, 2003), falling manufacturing employment due to import penetration (Rodrik, 2006) and dramatically weakened employment–growth relationships (Pollin *et al.*, 2006).

Fig. 1 compares total formal non-agricultural employment in the OHS and LFS with that published in the SEE and QES. A researcher using the OHS employment figures would have found formal non-agricultural employment falling by over 600,000 between 1995 and 1997 (or about –8.7%),<sup>1</sup> then recovering that amount by 2002 and 2003. The SEE would have shown stagnant employment between 1995 and 1997, then falling 474,000 (–9.2%) by 2002. Fig. 1 compares the employment trend to non-agricultural value added in 2,000 rand. Prior to the SEE’s revision, the contrast between the SEE

<sup>1</sup> If agriculture is included, formal employment contracted by 16% between 1995 and 1997 according to the OHS.

figures and GDP trends between 1995 and 2002 raised concerns that formal employment was falling despite economic growth. That part of the diagram presented in Fig. 1 was reproduced in a number of important publications, most notably the Quarterly Bulletin of the SARB (2003). The contrast between the SARB commentary about diverging GDP and SEE employment trends and complementary GDP and OHS/LFS trends was first published in Altman (2004:431), and is updated by Fig. 1.

Casale *et al.* (2004) offer the first published analysis that interrogates the validity of the OHS and LFS trends. In their article, they raise concerns about reporting on subsistence agriculture and the self-employed. Casale *et al.* (2004) query whether “two million net new jobs” were created between 1995 and 2003, as reported in the OHS and LFS figures. They suggest that 1.4 million to 2.0 million net new jobs may have been created over that period as a result of two factors:

- Subsistence agriculture distorts the picture as the employment numbers fluctuate considerably. Moreover, subsistence agriculture was hardly recorded in 1995 and 1996. Therefore, the figures balloon from 1997 simply by virtue of their inclusion. They then inexplicably spike in 2000.
- The number of “self-employed” doubled between 1995 and 1999, and then grew by a further 25% between 1999 and 2000. There was virtually no increase in “self-employed” between 2000 and 2002, which Casale *et al.* (2004) attribute to inconsistent definitions and population weights. They suggest the rapid expansion in “self-employed” resulted from the introduction of deeper probing with respondents.

Casale *et al.* (2004) also suggest that deeper prompting of respondents about their employment status could have affected the surveys from year to year. The first such prompt was introduced in 1996, and then in 2000, the LFS offered even more detailed explanations. Casale *et al.* (2004) do not ascribe a possible value to these shifts. It seems probable that this should have affected informal employment numbers more than formal. If so, a large increase in informal employment should have been revealed in 2000. Yet, only subsistence farmers were reported to have expanded dramatically in 2000.

More insight is needed into the employment trends offered by the OHS and LFS. This article interrogates whether there is evidence to validate the dramatic fall in employment between 1995 and 1997, and what the pace of employment expansion might have been thereafter. This is done by exploring alternative sources of information, and by reviewing additional inconsistencies in how the OHS and LFS data were categorised.

### 3. INTERROGATING SOUTH AFRICAN EMPLOYMENT TRENDS FROM 1995-2006

Two central questions were investigated in respect of the OHS employment trends in particular. The first set of questions sought to verify curious trends in three sectors, namely agriculture, mining and CSPS. These trends were compared to other sources of industry data. The second set of questions focused on inconsistencies in data coding and definitions.

#### 3.1 Revisions to Three Major Sectors

(a) *Agriculture* Agricultural employment is extremely difficult to measure, mostly because enumerators have difficulty gaining access to farms sufficiently to form a representative sample. Measuring output does not involve the same difficulties. The National Department

of Agriculture directly collects output data for the national accounts, providing them to Statistics South Africa and the SARB, respectively. Neither the industry nor government collects reliable time-series employment data.

The OHS shows dramatic job losses in agriculture and substantial recovery between 1995 and 1999. It reflects 733,000 formal agricultural jobs being lost between 1995 and 1997, and 274,000 formal agricultural jobs created between 1997 and 1999. Between 1997 and 2002, formal agricultural employment grew by 304,000 and then fell by 150,000 in 2004. This is shown in Fig. 2. These figures have been quoted often. Research on agricultural employment generally seeks to explain why it is falling in South Africa, not why it is rising. However, it is usually in reference to the Statistics South Africa data that researchers seek to explain this employment loss. It is not corroborated by other time-series evidence (Simbi and Aliber, 2000; PAETA, 2001; Vink and Kirsten, 2001). Micro-studies have been inconclusive. For example, Simbi and Aliber (2000) conducted a mini-survey in two areas of Northern Province. Forty-one farm workers were interviewed near the towns of Dendron and Tzaneen and asked whether they thought employment had changed. Dendron workers believed it had fallen and Tzaneen-based workers believed it had not changed. Simbi and Aliber (2000:23) also conducted 29 telephone interviews with staff of commercial institutions that mainly serve large-scale commercial farmers, such as agricultural co-operatives, producer organisations and input suppliers. They found that there was a common view that commercial agricultural employment had been falling over the “past decade”.

The trend for agricultural employment reflected in the OHSs and the September LFSs seems odd for a number of reasons:

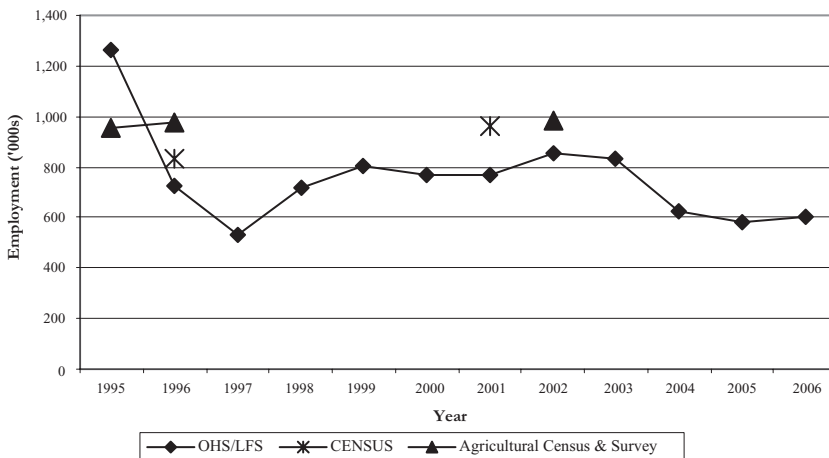


Figure 2. Formal agricultural employment

Sources: Statistics South Africa: October Household Surveys (1995-1999), Labour Force Surveys (September 2000-2005), Statistics South Africa (1999 and 2003), and Annual Commercial Agricultural Surveys and Agricultural Censuses. Statistics South Africa and National Department of Agriculture (2000).

Note: The agricultural surveys up to the early to mid-1990s did not include formal homeland agriculture.

*Table 1. Formal agricultural employment 1988-2002, agricultural censuses and surveys*

	1988	1990	1991	1992	1993	1994	1995	1996	2002
Full-time employees	724,439	728,414	702,323	656,772	647,839	620,244	601,925	610,100	
Casual & seasonal employees	495,209	456,262	413,239	394,425	491,588	302,185	289,810	304,490	
TOTAL PAID EMPLOYEES	1,219,648	1,184,676	1,115,562	1,051,197	1,139,427	922,429	891,735	914,590	940,815
Working proprietors/tenants & family members	77,821	68,210	63,283	58,314	68,667	67,216	64,964	65,138	
TOTAL	1,297,469	1,252,886	1,178,845	1,109,511	1,208,094	989,645	956,699	979,728	986,842

*Sources:* Annual Commercial Agricultural Surveys and Agricultural Censuses. Statistics South Africa and Department of Agriculture.

*Note:* The agricultural surveys up to the early to mid-1990s did not include formal homeland agriculture.

First, it appears that agricultural employment losses precede this period. The Central Statistical Services, later renamed Statistics South Africa, produced agricultural censuses until 1993, and agricultural surveys to 1996. The latest agricultural census was produced for 2002. While these instruments also suffer from access problems, they are specially designed to investigate agricultural employment and might be seen as more reliable than a survey designed to measure employment as a whole. Table 1 shows that agricultural employment was at a high of almost 1.3 million in 1988, and by 1994 had already fallen to just under 990,000 jobs. The agricultural surveys and census of 1995, 1996 and 2002, and the population census of 1996 and 2001 all find agricultural employment between 910,000 and 950,000 (Statistics South Africa, 1999, 2003 and 2004). This indicates substantial stability in the total number of formal agricultural jobs over the period.<sup>2</sup>

Second, the Department of Agriculture notes a methodological change between 1995 and 1996 in the "other and unspecified employment category", which indicates a difficulty Statistics South Africa had in classifying by industrial sector in 1996. Moreover, in 1995, non-urban enumerator areas (EAs) were identified on the basis of the 1991 population census estimates. In 1996, non-urban EAs were identified on the basis of the 1996 population census demarcations. As a result, more agricultural workers were enumerated in the 1995 OHS than in 1996 or 1997.

Third, it is counter-intuitive that agricultural employment might have increased substantially between 1997 and 2000. Although production was relatively stable over this period, there were quite a number of forces that may have led to labour shedding or stagnation. The Department of Agriculture (DoA, 2004) asserts that some of these factors include loss of investor confidence in the run-up to the democratic elections in 1994, the introduction of new labour-displacing technologies such as combine harvesters, the winding down of agricultural support policies such as agricultural boards, fixed product prices and state-supported co-operatives that encouraged farmers to cut costs, jobs losses where farmers could not adjust to new policies, and finally the abolition of influx control that enabled Africans freer mobility. The impact of tenure and labour laws are also indicated as having employment impacts, although these are not well understood and may be transitory.

<sup>2</sup> When comparing results of the 1993 and 2002 censuses, certain limitations must be noted (Statistics South Africa, 2002, 2004). First, the 2002 census included commercial farmers in the former TBVC (Transkei, Bophuthatswana, Venda and Ciskei) and self-governing states. Second, the frame improved as the business register was updated with data obtained from the South African Revenue Service (SARS).

Although employment figures are not available, the Department of Agriculture does publish production volumes disaggregated by commodity. Between 1996 and 2002, output grew by 2.5%, or about 0.4% per annum. Between 1990 and 2002, the volume of agricultural output grew by an average of about 1.1% per annum. It does not seem plausible that employment would have grown in a context of mechanisation.

However, it is also possible that new sectors emerged over this period. Horticultural output has been expanding, but it is still a small part of the overall agricultural sector, accounting for 15.6% of total output in 2002 (or 13.4% in 1990).

Flower and bulb production was investigated specifically, as it is seen to be expanding but is not included in the Department of Agriculture’s data. The South African Flower Export Council estimates formal employment in this sub-sector to be in a range of 20,000 to 25,000 workers, probably about 23,000 (SAFEC, 2004). They are fairly confident of the accuracy of this figure, given that it is compiled from numbers supplied by the producers’ organisations of each commodity, and there is a good level of agreement within the sector on this figure. These figures do not include seasonal employment: in contrast to the rest of agriculture, it appears that bulb and flower sector seasonal labour has fallen in recent years, as production increasingly takes place in greenhouses that operate all year round.

SAFEC estimates that flower and bulb employment has been increasing, particularly in the last 5 years or so. It estimates that in 1999, employment was about 20,000, and much lower than that in the mid-1990s. In 1996, local sales *via* Multiflora auctions in Johannesburg were R99.8 million and exports through Johannesburg were R133.8 million. In 2003, local sales had almost doubled to R193.4 million, while exports had risen to R268.9 million (all in nominal terms). The sector remains highly labour-intensive, as there is not much scope for mechanisation.

It is clear that the growth in employment in flowers and bulbs of a few thousand jobs – or even if growth in employment in this subsector were actually several times more – is not on a scale that could conceivably outweigh trends in other traditional agricultural sectors where the volume of production has been stable.

For the formal agriculture sector, Fig. 3 compares output, gross domestic fixed investment (GDFI) and labour productivity, calculated using the OHS/LFS and the

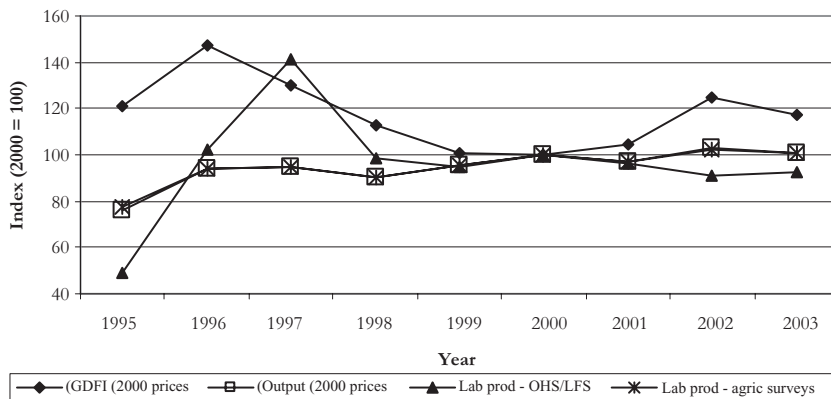


Figure 3. Output, investment and labour productivity in formal agriculture, 1995-2003  
 Sources: GDFI from Quantec Research; Output from Statistics South Africa, release P0441; Employment calculated as for Fig. 2.



estimates from the Statistics South Africa agricultural surveys. In value terms, real agricultural output was stagnant between 1995 and 1999.

Using the agricultural surveys, labour productivity grew in alignment with the value of real output growth. Using the OHS, labour productivity has little relationship to output growth trends. In 2002 and 2003, the LFS data counter-intuitively show a fall in labour productivity as new investment is made.

Therefore, OHS agricultural employment trend data does not appear to accurately reflect the reality. This means that it is not probable that formal agriculture employed 1.2 million people in 1995, nor that formal agricultural employment fell over 700,000 jobs in 1996 and 1997 and rose again by 233,000 by 1999. Agricultural employment was more likely to have stabilised at approximately 980,000 workers between 1994 and 2003.<sup>3</sup> It is also possible that formal agricultural employment may have slowly declined between 1996 and 2002, although there is only anecdotal evidence based on reports from some farming areas. The LFS records a sudden drop of 207,000 formal agricultural jobs in 2004, not recovered in subsequent years. Statistics South Africa believes this was caused by a drought.

(b) *Mining* Mining is a second major source of employment loss. According to the OHS, mining employment fell by 200,000 jobs between 1995 and 1996. Mining then rebounds, with employment expanding by almost 350,000 by 2000, then stabilising, falling again in 2004 and again stabilising. This is shown in Fig. 4. The rise in mining employment

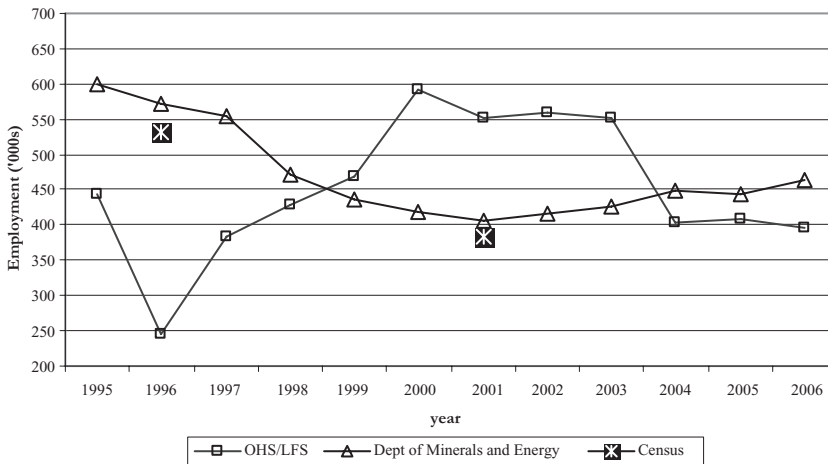


Figure 4. Formal mining employment, 1995-2006

Sources: Statistics South Africa, OHS and September LFS; Department of Minerals and Energy mining database; Statistics South Africa, population censuses 1996 and 2001.

<sup>3</sup> To add to the confusion, Statistics South Africa published a report on its survey of large and small agriculture in 2002. The survey was undertaken in 2000, and unlike previous surveys did include former homelands. It found 150,000 farm operations in the “former RSA” and 943,000 farm operations in the “former homelands”. Approximately 99.7% of agricultural income was generated in the “former RSA”. Nevertheless, the survey had criteria to ensure that all respondents produced some surplus in the year, ruling them out as subsistence farmers. Still, the 2002 agricultural census identified 986,842 people working in commercial agriculture.

between 1996 and 2000 is surprising as mining output was stagnant in real terms between 1995 and 2002. In this context, gradual job losses might be expected instead.

Fig. 4 compares trends available from the DME database, the OHS and LFS, and the population census. The DME database shows substantial employment losses in mining from the mid-1980s (Department of Minerals and Energy, 2003). More specifically, mining employment fell from about 830,000 in 1986 to 600,000 in 1995, to a low of 406,000 in 2001. About 75% of these jobs were lost in the gold mining sector. A slight increase from 2004 could reflect a rise in real output as from 2003. Employment figures from the population census of 1996 and 2001 are also presented, and closely match the DME figures.

The DME figures are the most comprehensive and reliable available for the mining sector. The Minerals Act requires mines to submit monthly returns (form DME 113) to the DME. The information required in these forms includes the average number of employees at work, both employed by the mine itself and as outside contractors, and broken down into opencast workers and surface (including office) workers; the number of employees in service on the last day of the month (including both those directly employed and those employed as outside contractors), disaggregated by gender; as well as gross earnings for the month, and severance, termination and redundancy payments. The data are intended to include anyone working on the mine in whatever capacity and irrespective of who actually employ them, except cement workers who are not included. The data include all employees who are in service, and not only those who are actually at work (*i.e.* it includes workers who are off sick, on leave, or strike, *etc.*)

The DME data are a reliable source, as mines face a legal obligation to submit information regularly and accurately. However, the figures only cover mines that are actually on the DME database, and there may be some (particularly small and relatively informal) mines of whose existence the Department is not even aware. The DME estimates that over 95% of mines in terms of employment are included (DME, 2004).

For the formal mining sector, Fig. 5 compares output, GDFI and labour productivity (or employment-output ratios), calculated using the OHS/LFS and DME figures. If the OHS data are used, labour productivity falls dramatically between 1996 and 2000. The DME data show rising labour productivity between 1995 and 1999. The DME trend is more consistent, with stagnant output growth combined with rising GDFI over this period.

(c) *Community, Social and Personal Services* The CSPS sector is highly heterogeneous. About 60% of its employment is found in the public service, accounting for national and provincial public personnel. Employees in local government account for another 12% of CSPS. A wide range of private health- and education-related services account for another 7% of CSPS employment. A large proportion of this employment is in skilled professions and managerial positions. An assortment of private activities make up the remaining 20% of CSPS employment, activities found in non-governmental organisations, trade unions, professional associations, sanitation, recreational, cultural and sporting activities.

The OHS reported that 451,000 jobs in CSPS were lost between 1995 and 1997, subsequently growing again by 360,000 jobs by 2003 and then contracting. This is surprising, since it is contrary to the trend in public service, which accounts for about 60% of employment in this sector. The PERSAL database shows that public service

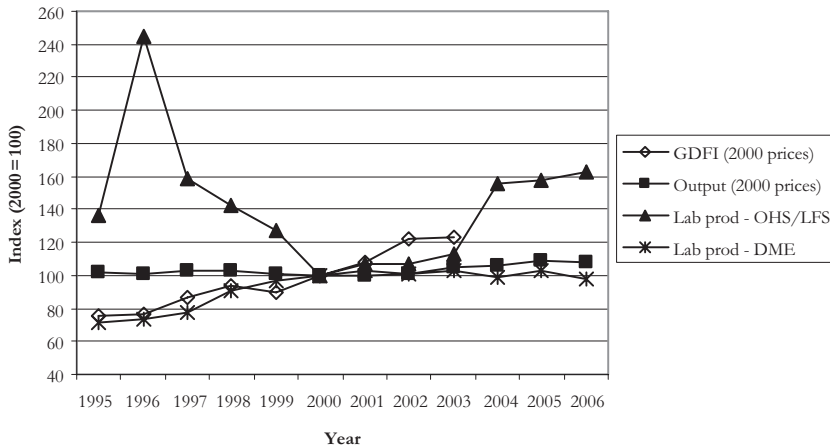


Figure 5. Labour productivity, output and investment in mining

Sources: GDFI sourced from Quantec Research; output sourced from Statistics South Africa (2007), Table 3; employment sources are the same as for Fig. 4.

Table 2. CSPS employment figures sourced from industry databases

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
PERSAL	1,276	1,188	1,144	1,141	1,066	1,042	1,032	1,041	1,037	1,044	1,109	1,151
Private education	68	72	75	79	84	88	93	97	103	<b>108</b>	113	119
Private health	75	78	80	82	<b>85</b>	88	90	93	96	99	101	105
Local government	245	245	245	245	245	232	210	<b>210</b>	210	210	210	210
Other private social & personal services	236	243	250	258	266	274	283	292	301	<b>310</b>	319	329
Total	1,900	1,825	1,795	1,806	1,746	1,724	1,708	1,733	1,746	1,771	1,853	1,913

Source: PERSAL, Statistics South Africa (2004:P9001), Akoojee (2004), DoE (2002), Lockwood (2004), Public Service Commission (2004), Services SETA (2004), LGWSETA (2004) and DoH (2005).

employment shrank consistently and incrementally, losing 244,000 jobs between 1995 and 2001. About 114,000 public service jobs were then created between 2004 and 2006.

An estimate of CSPS employment was constructed from industry sources, as presented in Table 2. These include:

- The PERSAL database for the public service. This is the most comprehensive source of employment data for national and provincial governments. It does not include public entities or local government.
- Point estimates of local government employment. Neither the Department of Provincial and Local Government nor the South African Local Government Association has information on local government employment. Figures provided by the Demarcation Board for 2002, broken down into 284 municipalities, show a total of 202,700 local government employees. The Department of Public Service and Administration (DPSA) does not have figures on local government employment but estimates it to be in the region of 200,000 (DPSA, 2004). The Local Government and Water Sector Education and Training Authority (LGWSETA) sent out a detailed questionnaire to all local governments in the fourth quarter of 2002. The response rate was 48%, but was estimated to offer a disproportionately large coverage as the non-responding

municipalities were very small ones. The results of this study were cross-checked with other sources in order to verify information that had been reported, and where no response was received estimates were made based on other information (such as the amounts of levies paid, taking into account the mean levy paid per employee). This study led to a figure of 208,000 employees in local government in 2002. This seems to be the most reliable figure available on local government employment. The LGWSETA notes that its skills levy receipts have remained constant between 2001 and 2005, suggesting that personnel have not grown.<sup>4</sup> The LGWSETA believes that local government employment fell significantly between 1999 and 2000, possibly reduced by about 30,000 to 40,000 jobs. It explains these job losses as being the result of privatisation of services, and of the streamlining and amalgamation of local authorities in those years.

- Point estimates of private health and education employment. Statistics South Africa's 2004 survey of personal services reports 108,000 people working in private education and 191,000 people working in private health and social work activities (Statistics South Africa, 2004:P9001). According to the National Department of Health, there were 85,049 private health practitioners in 1999 (DoH, 2005). This figure excludes an estimated 200,000 "traditional healers". Akoojee (2004) shows that private further education and training facilities were expanding by 5% per annum between 1996 and 2001. While not precise, it is also possible that employment in private education grew at the same pace. No estimates for the pace of expansion in private health services were available, so the average rate of employment growth for private non-agricultural employment (3%) between 1996 and 2006 was used.

- Point estimates of private personal and social services. This category includes a wide range of activities, such as cleaning, religious, cultural, sporting and recreational activities; trade unions; professional organisations and others. Two sources of information are used in this article. The Services SETA claims that its membership accounts for approximately 75% to 80% of this sector. While its full membership in 2004 was 320,617 employees, not all can be categorised in the CSPS Standard Industrial Classification. For example, some categories include coffin manufacturing. Qualifying employment in CSPS is about 227,000 to 314,311. If this covers 75% to 80% of sector employment, then private CSPS employment would be estimated as 227,000 to 392,000 workers. This is a fast growing sector in South Africa, and we assume that it is growing at least as fast as average private non-agricultural employment over the full period, or about 3% p.a. Statistics South Africa provides the second data source in its 2004 Survey of the Personal Services Industry (Statistics South Africa, 2005:P9001). This finds 318,000 workers in personal services, including 191,000 in private health and social work activities. As noted above, industry sources reported that there may have been about 99,000 private health workers by 2004. If correct, Statistics South Africa's survey would put corresponding personal services employment at 219,000. Statistics South Africa could well underestimate the size of

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<sup>4</sup> A compulsory skills-development levy was introduced in April 2000, payable by employers who are registered with the SARS for employees' tax purposes, or by employers with an annual payroll in excess of R250,000. The levy rate is 1% of the total payroll and are put in a special fund, from which 80% is distributed to the different SETAs and 20% paid into the National Skills Fund. The SETAs then pay grants to employers who appoint a Skills Development Facilitator, while the National Skills Fund funds skills development projects that do not fall under the SETAs.

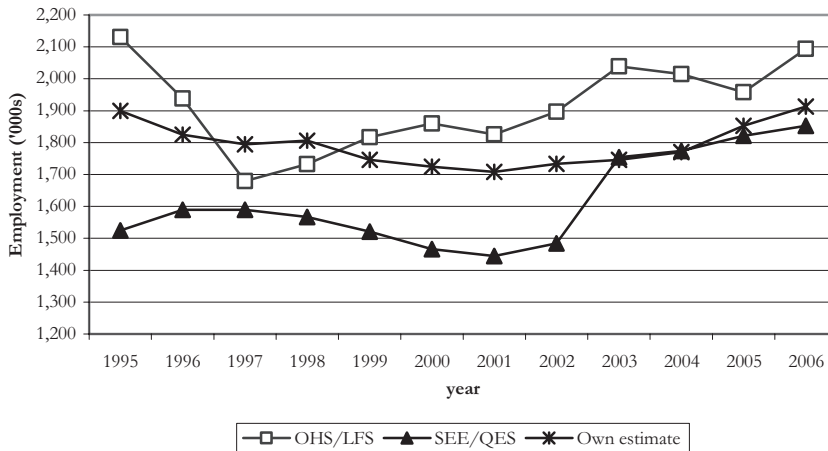


Figure 6. Formal employment in CSPS

Sources: Statistics South Africa, OHSs, September LFSs, Survey of Employment and Earnings, Quarterly Employment Survey; own estimate calculated as explained in Table 2.

personal services, since many firms are very small and its accuracy would depend on the quality of its business register.

Fig. 6 offers a comparison of the OHS/LFS and constructed estimates. A comparison to output and investment is less helpful for this sector, as there is a large publicly administered element. For the OHS to stand, some explanation would be needed for the very large fall in employment between 1995 and 1997, as this was not the trend associated with the contraction of public service employment. Moreover, the rise from 1997 to 2003 and subsequent drop are contrary to the trend in public employment and to the expected response in personal services employment to GDP growth. The SEE and QES CSPS employment is also presented in Fig. 6. This shows that the author's estimate has a similar trend to the SEE and QES from 1997, and a similar level to the SEE in 2004 and 2005 and by the QES.

### 3.2 Impact of Revisions to Three Sectors on Formal Employment

Fig. 7 and Table 3 show how the total employment figures would be altered if the revised industry data for mining, agriculture and CSPS, as described above, replaced the OHS/LFS figures.

Agricultural employment estimates are revised by linking the total formal agricultural employment in the agricultural censuses and surveys in 1995, 1996 and 2002. As no further alternative information is available, agricultural employment is assumed to change by the same amount as that indicated by the LFS in 2003, 2004, 2005 and 2006.

Table 3 lays out the original formal employment figures for agriculture, mining and CSPS, and compares them to the ones sourced from agricultural censuses and surveys, DME and the author's estimates for CSPS. The difference between the original and the revised figures is presented. This shows that there were 381,000 more people working in 1995, and 471,000 fewer in 1996, in the OHS than in the revised figures. The OHS had

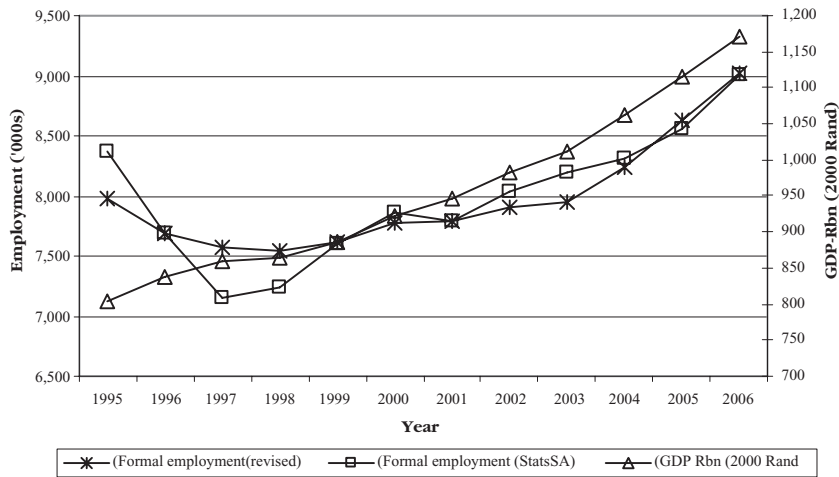


Figure 7. Implications of revised employment figures for three sectors on total formal employment

Sources: “Statistics South Africa” source from OHS (1995-1999) and September LFS (2000-2006). Revised figures as explained in this article. GDP sourced from Statistics South Africa (2007) release P0441, Table 3.

Table 3. Comparison of formal employment in three sectors, based on official statistics and other sources (’000s)

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Agriculture (OHS/LFS)	1,262	722	529	717	803	769	766	853	833	626	579	606
Agriculture (based on agriculture surveys)	957	980	980	980	980	980	980	987	967	760	713	740
Mining (OHS/LFS)	444	245	381	424	462	586	550	553	550	404	409	395
Mining (DME)	599	572	554	472	436	418	407	417	425	449	443	463
CSPS (OHS/LFS)	2,131	1,938	1,732	1,673	1,757	1,850	1,805	1,854	2,004	2,015	1,958	2,094
CSPS (own estimate)	1,900	1,825	1,795	1,806	1,746	1,724	1,708	1,733	1,746	1,771	1,853	1,913
<b>Difference (OHS/LFS – revised)</b>	<b>381</b>	<b>-471</b>	<b>-687</b>	<b>-444</b>	<b>-140</b>	<b>83</b>	<b>26</b>	<b>123</b>	<b>249</b>	<b>65</b>	<b>-63</b>	<b>-21</b>
Original “unspecified”	178	546	267	144	118	46	24	53	24	13	3	16
New “unspecified” – revised	178	75	0	0	0	46	50	53	24	13	3	16
<b>Final difference (OHS/LFS – revised)</b>	<b>381</b>	<b>0</b>	<b>-420</b>	<b>-300</b>	<b>-22</b>	<b>83</b>	<b>0</b>	<b>123</b>	<b>249</b>	<b>65</b>	<b>-63</b>	<b>-21</b>

Notes: Original “unspecified” refers to formal employment not allocated to a sector in the OHS or LFS. If the revised employment figure is higher than that in the OHS or LFS, the unspecified figure is allocated and explains at least part of difference.

a large “unspecified” category, which contributes to total employment but is not allocated to a specific sector. Where the revised employment figure is higher than the OHS, the number of unspecified are treated as allocated to that difference. In other words, the new information is treated as if it explains what the unspecified category were doing. The unspecified category is untouched where the revised figures are lower than the OHS. With this adjustment, 381,000 more people were working in 1995 in the OHS than in the revised figures. The re-allocated of unspecified results in no ultimate difference in the OHS and revised figures in 1996.

Fig. 7 presents total formal employment in the OHS and according to the revised figures. These are then compared to GDP in 2000 Rand.

According to the OHS, formal employment fell by 16% between 1995 and 1997, translating into the loss of 1.5 million formal jobs. In this original interpretation, agriculture is largely responsible for the job losses (-733,000), followed by the public sector (-399,000) and retail (-306,000).

If the revised three-sector figures are used, 532,000 formal jobs were lost over the same period. The majority of these jobs would have been lost in the retail sector (-306,000). The second largest source of job loss would have been the public service (-105,000). Smaller numbers of jobs were taken from construction and mining.

In the original OHS figures, formal employment creation experienced a sharp turn, generating 811,000 net new jobs between 1997 and 1999. The average rate of formal employment growth would have been 5.8% *p.a.*, which exceeded the rate of GDP growth (1.44%) over this period (Statistics South Africa, 2007:PO4412). Using the revised data, the upward turn was not as steep: between 1997 and 1999, formal employment grew by 168,000 jobs. In this case, the average rate of employment growth would have been 1.1% *p.a.* This would mean that formal employment grew more slowly than GDP.

The trend that incorporates "revised" sector data should not be seen as a new employment series. Instead, it is intended to raise questions about whether the employment trend was correctly measured in the 1990s within the OHSs.

The OHS is not a survey constructed to allow for replacements of whole sectors in the way suggested by this paper. It is not built up as the sum of a survey of sectors. Instead, it is a survey based on a probability sample of households, weighted to estimates of the population size. It is designed to identify the proportion of working people and non-working people in the population, and to capture effectively a representative picture of the sectors in which people work. Questioning the overall size of the workforce calls into question the survey itself. There is sufficient evidence from sector data to question the OHS trends in agriculture, mining and CSPS. However, this does not necessarily mean that the overall employment figure is wrong. An alternative explanation could be made: perhaps the respondents were incorrectly allocated across sectors. However, this would mean that up to 10% of the sample was incorrectly allocated. Furthermore, the sectors in question have very different geographical configurations, with agriculture and CSPS more dispersed amongst rural and urban areas, and mining concentrated in a few nodes. They are also driven by different economic factors. That they should experience similar divergence in the trend represented by the OHS and other data sources is surprising.

Quite a number of changes were made to the design and sampling of the OHS without revisions being made to the entire series. Some of these changes include:

- The samples differed quite considerably, with the scale depending on funding available to the statistical agency. In 1995, 30,000 households were reached, 10 in each of 3,000 EAs. In 1996, 16,000 households were reached in 1,600 EAs that were less dispersed than in 1995: the survey was conducted in 800 pairs of adjacent EAs (Statistics South Africa, 2001). In 1997, 30,000 households were again included in the sample, from 3,000 EAs. In 1998, the sample was reduced to 20,000 households in 2,000 EAs and then increased again to 30,000 households in 3,000 EAs in 1999. Different weighting procedures were used to account in 1996 due to the small sample size.
- Each of these surveys was independent, with different samples designed. The Statistics South Africa master sample was first used in 1999 and subsequently used for the LFSs.

- The database of EAs for the OHS 1995 was based on the 1991 census and was based on selecting areas within magisterial districts. The sampling frame for the OHS 1996 to 1999 relied on the demarcations identified by the 1996 census. The 1995 OHS was subsequently re-weighted. This may have resulted in a greater representation of rural areas in the 1995 OHS.<sup>5</sup>

### 3.3 Data Inconsistencies

A second set of concerns arises as a result of possible inconsistencies in categorising the data in the OHS and LFS. Within the same overall reported number of employed by the OHS and LFS, a number of these inconsistencies were uncovered. These have the greatest impact on the distribution between formal and informal employment in 1995 and 1996. By making these adjustments, the aim was to develop a series that is more comparable over time. This investigation involved the following steps:

- Klasen and Woolard (1999) recommend categorising respondents on the basis that they say they are informal, and other more objective criteria. These criteria involve the respondents saying that they do not (or do not think they) have benefits associated with formality, such as unemployment insurance contributions or medical aid. Moreover, they suggest excluding those who say they work for government, since all public employees are by definition formal. This is meant to offer a consistent series, as the questions used to classify respondents as informal differed across the OHSs. However, this method did not have a noticeable impact on the distribution between formal and informal. This classification will be less helpful in the LFSs, as a large percentage of workers in formal firms do not benefit from medical aid contributions. The Department of Labour's extension of unemployment insurance coverage to domestic workers and other vulnerable workers would also cause a misleading trend. Therefore, the Statistics South Africa categorisation is used.
- In the 1995 and 1996 OHS, the informal sector included only self-employed. In subsequent years, the informal sector included both self-employed and employees. This contributed to a leap in the informal employment figures, which may simply reflect this change. Therefore, the informal sector appears to be undercounted in 1995 and 1996. In subsequent years, the average ratio of self-employed to employed in the informal sector is approximately 1:1. The size of the informal sector is adjusted accordingly in 1995 and 1996 (*i.e.* the number is doubled). These "additional" informal sector workers are then subtracted from the formal sector employment total. It is assumed that this number of employees was incorrectly assigned to formal employment in 1995 and 1996.
- Unpaid family workers were not included as working or even as economically active in the OHSs. We add unpaid family workers to the OHS informal figures, based on the information from the September LFSs. Between 2000 and 2006, there was an average of 110,000 unpaid workers in non-agricultural activity. This average is added to the OHSs to enable consistency. Unlike the other changes made, this figure is added to the total (and not moved from the formal to informal categories) since in the OHS they were not considered to be economically active.

<sup>5</sup> "The sampling procedure for the master sample in 1999 involved explicit stratification by province and, within each province, by urban and non-urban areas. Independent samples of PSUs were drawn for each stratum within each province. The smaller provinces were given a disproportionately larger number of PSUs than the bigger provinces" (Statistics South Africa, 2001).



- It is not clear why the category called “private households” is in the formal sector and the category called “domestic workers” is in the informal sector. In the household surveys, workers are asked for information about their employer. From this, Statistics South Africa office-codes into which economic sector (agriculture, mining, *etc.*) the worker should be classified. One of the sectoral categories used by Statistics South Africa is “private households”. The overwhelming majority of employees in private households are domestic workers (such as domestic helpers, charwomen and gardeners) but private households may also employ child-minders, nursing aides, security guards, tutors, *etc.* Some of these individuals are coded as working in the formal or informal sector, despite all being employed directly by households. After close scrutiny of the data, it was not possible to find a clear difference in the characteristics of formal- and informal-sector workers employed by private households versus those classified as “domestic workers”. Therefore, a single category called “domestic workers” has been created. “Employees in private households” have been pulled out of formal employment and grouped with the “domestic workers” category.
- Subsistence agriculture is excluded, as suggested by Casale *et al.* (2004). Subsistence agriculture employment figures vary in ways that are not well understood, and the leaps do affect the overall employment trends. For example, the OHS shows 37,000 subsistence farmers in 1996, 188,000 in 1997, over one million in September 2000 and 383,000 in September 2001.

The impact of these changes can be seen in Fig. 8. Informal employment is 664,000 and 815,000 higher in 1995 and 1996 in the revised estimates than in the OHS, mainly due to the inclusion of employees. In 1997, 1998 and 1999, informal employment is 373,000, 355,000 and 388,000 higher in the revised estimates. The formal sector is not correspondingly smaller, due to the addition of unpaid employees. In the OHS, unpaid labour was categorised as not economically active.

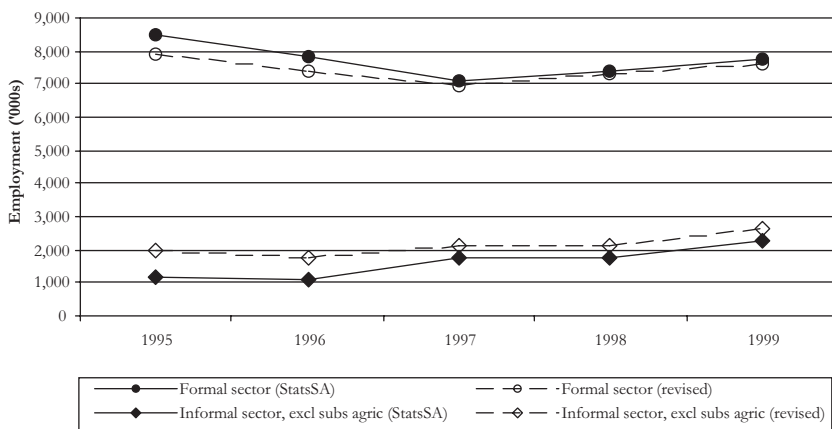


Figure 8. Revised formal and informal employment, 1995-1999

Source: Statistics South Africa, published records and electronic data for OHS (1995-1999).

Note: Informal employment excludes subsistence agriculture.

#### 4. IMPLICATIONS FOR EMPLOYMENT TRENDS

Table 4 summarises the potential implications for revisions to employment trends between 1995 and 2006. It compares the original OHS/LFS formal employment figures as made available by Statistics South Africa, to those revised for agriculture, mining and CSPS, to those revised for the three sectors plus internal inconsistencies. Table 4 also compares the original OHS/LFS informal employment figures to those revised for internal inconsistencies. It then compares total employment in the original OHS/LFS series to the revised one. Subsistence agriculture is excluded. GDP in 2000 Rand is also given.

The employment figures are mostly unaffected from 2001 to 2006 in respect of the LFS figures. However, the analysis has important implications for employment trends from 1995 to 2000. According to the OHS, 1.4 million formal jobs were lost between 1995 and 1997, subsequently expanding by 1.9 million between 1997 and 2006. According to the revised figures, 73,000 to 530,000 formal jobs were lost between 1995 and 1997, subsequently expanding by 1.4 million between 1997 and 2006.

The OHS and LFS report the creation of 2.16 million informal employment opportunities between 1995 and 2006, including all forms of “informal sector” work except for subsistence agriculture. In contrast, the revised figures show a possible expansion in informal employment of 1.36 million.

Therefore, instead of a dramatic shock to the economy, with 6% of the workforce being put out of work (and a 16% reduction in formal employment) between 1995 and 1997, it is more likely that a growing workforce was entering an economy not generating net new employment. The “recovery” has therefore also been less dramatic, so that employment was growing more slowly than reported by the OHS and LFS between 1997 and 2001.

This has implications for estimates of the employment elasticity, here measured as the change in employment in respect of a change in real GDP. Using the OHS and LFS, van der Berg (2007) and Oosthuizen (2006) respectively estimate an employment elasticity of production of 0.83 and 0.75 between 1995 and 2004. If so, these are extremely high by global standards. For example, the average employment elasticity between 1995 and 2003 was 0.14 to 0.18 in East Asia, 0.20 to 0.42 in South East Asia, 0.41 to 0.64 in Latin America and 0.21 to 0.34 in developed economies (KILM, 2004, chapter 8, p. 9). The estimates made for this article identify a simple employment elasticity for 1995-2004 of 0.55 if the OHS and LFS data are used, and 0.50 if the “combined revised” estimates are used. These rise to 0.61 and 0.66, respectively, if analysed for the period 1995-2006. If looking only at the period covered by the LFS (2000 to 2006), the employment elasticity would be 0.45 and 0.51, respectively.

The elasticity for informal employment (0.24) is much lower than that for formal employment (0.66) between 2000 and 2006 in the “combined revised” estimates. Before any revision, the LFS reports very similar results of 0.26 and 0.61, respectively.

#### 5. CONCLUSION

This article revisited employment trends between 1995 and 2006. Evidence was examined that raises questions about employment trends represented through published Statistics South Africa, particularly in the period up to 2000. The article focuses on

Table 4. Overview of potential implications for revisions to employment figures, 1995-2006

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Formal employment – OHS/LFS	8,479	7,824	7,118	7,419	7,790	7,860	7,794	8,033	8,201	8,311	8,565	9,006
Formal employment – revised for 3 sectors	8,113	7,834	7,581	7,681	7,749	7,774	7,792	7,910	7,952	8,243	8,625	9,027
Formal employment – revised for 3 sectors + inconsistencies	7,518	7,517	7,591	7,628	7,605	7,718	7,690	7,770	7,818	8,128	8,556	9,006
Informal employment – OHS/LFS	1,165	1,061	1,762	1,769	2,274	3,106	2,978	2,735	2,891	2,909	3,445	3,324
Informal employment – revised for inconsistencies	1,980	1,725	2,135	2,124	2,662	3,136	2,990	2,751	2,891	2,909	3,459	3,343
Total employment – OHS/LFS	9,644	8,885	8,880	9,188	10,064	10,966	10,772	10,768	11,092	11,220	12,010	12,330
Total employment – revised	9,498	9,242	9,726	9,752	10,267	10,854	10,680	10,521	10,709	11,037	12,015	12,349
GDP (2,000 Rand)	804	838	861	865	885	922	947	982	1,013	1,062	1,116	1,171

Source: As described above.

Notes: Informal employment includes the “informal sector”, domestic workers and workers in private households. It excludes subsistence agriculture.

possible errors in estimating total employment in the OHS, and the sector distributions particularly for agriculture, mining and CSPS. It also considers the impact of improved alignment of coding within the OHS. The central findings included:

- There are critical differences in employment levels and trends sources from the SEE/QES or OHS/LFS. Data providers and researchers should be more explicit about these.
- The employment trends for agriculture, mining and CSPS do not appear correct as made available in the OHS/LFS. This might be explained as the result of a misallocation within the survey. Alternatively, the number of employed may be incorrectly specified in some years making trend analysis inappropriate.
- Inconsistencies in coding were found, particularly in relation to the inclusion of employees in the informal sector in 1995 and 1996, the inclusion of unpaid family workers between 1995 and 1999, and the categorisation of workers in private households.

Faulty comparisons may have created the impression that employment fell and rose dramatically, and yet it is also possible that employment was stagnant. The latter result is still a concern to policy-makers, but less than that caused by the perception of losing one-fifth of all formal employment.

Information on employment in agriculture, retail and CSPS is extremely weak. These are important sources of employment, and future research would benefit greatly from reliable annual time series data for these three sectors.

This article did not aim to interrogate the statistical quality of Statistics South Africa surveys, although it is hoped that it does stimulate such research. Future research could interrogate the extent to which the OHS captured the actual level of employment, the weightings used to evaluate whether the industrial and occupational distributions reflect the reality, and possible sampling errors.

The employment statistics have improved over time; however, while they are being strengthened it is important that Statistics South Africa evaluate the central findings of its surveys against secondary and complementary sources of information to adjust its published data. Similarly, users of employment statistics needs to be more careful about claims in respect of trends when the statistical uncertainty may be greater than the measured shifts.

In conclusion, the reader is reminded that the findings in this article do not constitute a new employment trend. However, they may well offer a better indication of how employment growth has proceeded over the past decade. Further research and investigation would be required to validate these trends.

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