

APPENDIX: DETAILED 46-SECTOR ANALYSIS

VALUE –ADDED

Table A1 and Figure A1 show that *Communication Services* registered the highest weighted growth in value-added between 1995-2001 with 14.6 per cent, followed by *Plastic Products* with 11.6 per cent and *Financial Services* (7.9 per cent). Table A1 also indicates that out of the top ten positions in terms of value-added growth, three are related to the chemical industry. Also of significance is the presence of *Financial Services* and *Business Services*, indicating a gradual shift in significance of the tertiary sector. Majority of the other top ten industries have made a relatively large jump upwards, notably the chemicals-related industries. Compared to the 1989-1994 period, there has been a notable leap forward recorded by the growth rates of *Motor Vehicles and Parts* (from position 42 to 11), *Leather Products* (from position 24 to 19), and *Financial Services* (from position 29 to 3).

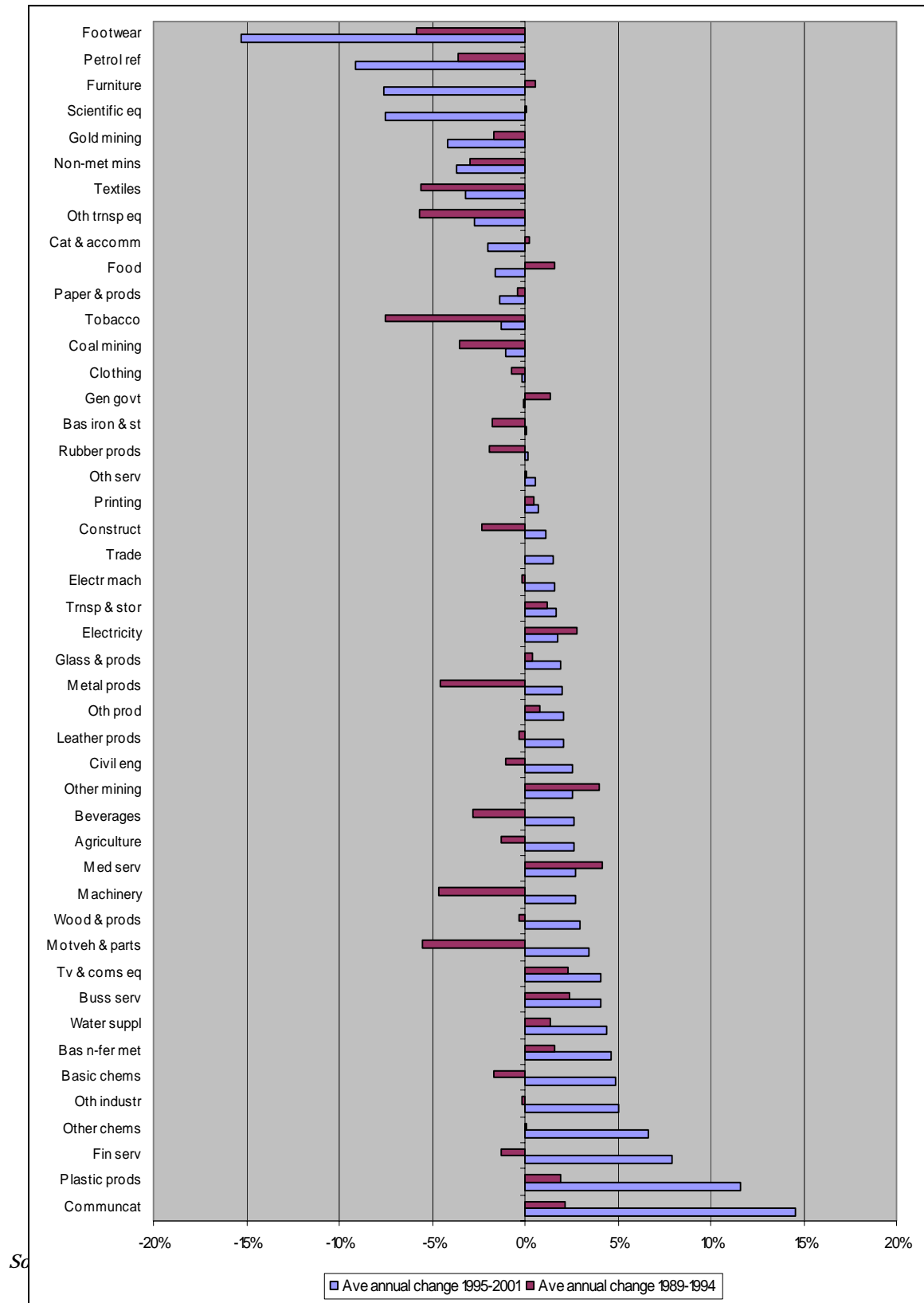
At the other end of the scale, *Footwear* has shown the lowest growth rates between 1995-2001, period with –15.3 per cent, followed by *Petroleum Refining* with –9.1 per cent and *Professional and Scientific Equipment* with –7.5 per cent. Important industries such as *Food Processing* are ranked 37, *Clothing* 33 and *Textiles* 4 out of 46 sectors in terms of average annual growth in value-added. In general, the non-performing sectors belong either to wage goods such as the *Clothing* and *Textiles* or the *Food* and *Beverage* complexes or are related to resources (except for chemicals) such as *Metal Products*, *Basic Iron and Steel*, *Non-ferrous Metals*, *Gold Mining*, *Coal Mining*, and *Paper and Paper Products*. While the latter may be related to exogenous factors such as global commodities markets, the poor performance of the wage goods sectors can perhaps be associated with policy options, such as the austere fiscal and monetary policies pursued during the middle of the 1990s, which constrained domestic demand.

Table A1: Growth and shares in value-added, 1989-2001(1995 constant prices)

	Sector	Ave ann Δ 1995- 2001	Ave ann Δ 1991-96	1989- 1994 Rank	Ave share 1995-2001	1995-2001 Rank	Ave share 1989-1994	Δ Rank 1989-1994 to 1995-2001
1	Communcat	14.6%	2.2%	6	3.7%	7	1.9%	5
2	Plastic prods	11.6%	1.9%	7	0.6%	33	0.4%	5
3	Fin serv	7.9%	-1.3%	29	8.5%	4	7.5%	26
4	Other chems	6.6%	0.1%	18	1.5%	16	1.2%	14
5	Oth industr	5.0%	-0.2%	22	1.0%	26	0.9%	17
6	Basic chems	4.9%	-1.7%	32	0.9%	28	0.8%	26
7	Bas n-fer met	4.6%	1.6%	8	0.8%	29	0.6%	1
8	Water suppl	4.4%	1.3%	11	0.4%	37	0.3%	3
9	Buss serv	4.1%	2.4%	4	9.0%	3	7.9%	-5
10	Tv & coms eq	4.1%	2.4%	5	0.3%	39	0.4%	-5
11	Motveh & parts	3.4%	-5.5%	42	1.5%	17	1.6%	31
12	Wood & prods	3.0%	-0.3%	25	0.4%	38	0.4%	13
13	Machinery	2.7%	-4.6%	41	1.1%	23	1.1%	28
14	Med serv	2.7%	4.2%	1	1.6%	14	1.2%	-13
15	Agriculture	2.7%	-1.3%	30	4.4%	6	5.1%	15
16	Beverages	2.6%	-2.8%	36	1.1%	22	1.1%	20
17	Other mining	2.6%	4.0%	2	2.8%	9	2.7%	-15
18	Civil eng	2.6%	-1.0%	28	1.3%	20	1.3%	10
19	Leather prods	2.1%	-0.3%	24	0.1%	46	0.1%	5
20	Oth prod	2.0%	0.8%	13	2.7%	10	2.9%	-7
21	Metal prods	2.0%	-4.5%	40	1.3%	18	1.4%	19
22	Glass & prods	2.0%	0.4%	16	0.2%	42	0.2%	-6
23	Electricity	1.8%	2.8%	3	3.3%	8	2.9%	-20
24	Trnsp & stor	1.7%	1.2%	12	6.4%	5	6.1%	-12
25	Electr mach	1.6%	-0.2%	23	1.1%	21	1.1%	-2
26	Trade	1.5%	0.0%	21	12.7%	2	12.8%	-5
27	Construct	1.1%	-2.4%	35	1.8%	13	2.1%	8
28	Printing	0.7%	0.5%	15	0.7%	30	0.8%	-13
29	Oth serv	0.5%	0.1%	19	1.0%	24	1.0%	-10
30	Rubber prods	0.2%	-1.9%	34	0.2%	40	0.3%	4
31	Bas iron & st	0.1%	-1.8%	33	1.5%	15	1.6%	2
32	Gen govt	-0.1%	1.4%	10	15.3%	1	16.4%	-22
33	Clothing	-0.2%	-0.7%	27	0.6%	32	0.6%	-6
34	Coal mining	-1.1%	-3.6%	38	1.3%	19	1.4%	4
35	Tobacco	-1.3%	-7.5%	46	0.1%	43	0.2%	11
36	Paper & prods	-1.4%	-0.4%	26	1.0%	27	1.1%	-10
37	Food	-1.6%	1.6%	9	2.1%	12	2.5%	-28
38	Cat & accomm	-2.0%	0.3%	17	1.0%	25	1.1%	-21
39	Oth trnsp eq	-2.7%	-5.7%	44	0.2%	41	0.3%	5
40	Textiles	-3.2%	-5.6%	43	0.5%	36	0.6%	3
41	Non-met mins	-3.7%	-3.0%	37	0.6%	34	0.7%	-4
42	Gold mining	-4.2%	-1.7%	31	2.3%	11	3.4%	-11
43	Scientific eq	-7.5%	0.0%	20	0.1%	45	0.1%	-23
44	Furniture	-7.6%	0.6%	14	0.5%	35	0.7%	-30
45	Petrol ref	-9.1%	-3.6%	39	0.7%	31	1.0%	-6
46	Footwear	-15.3%	-5.9%	45	0.1%	44	0.2%	-1

Source: TIPS South African Standardised Industry Database

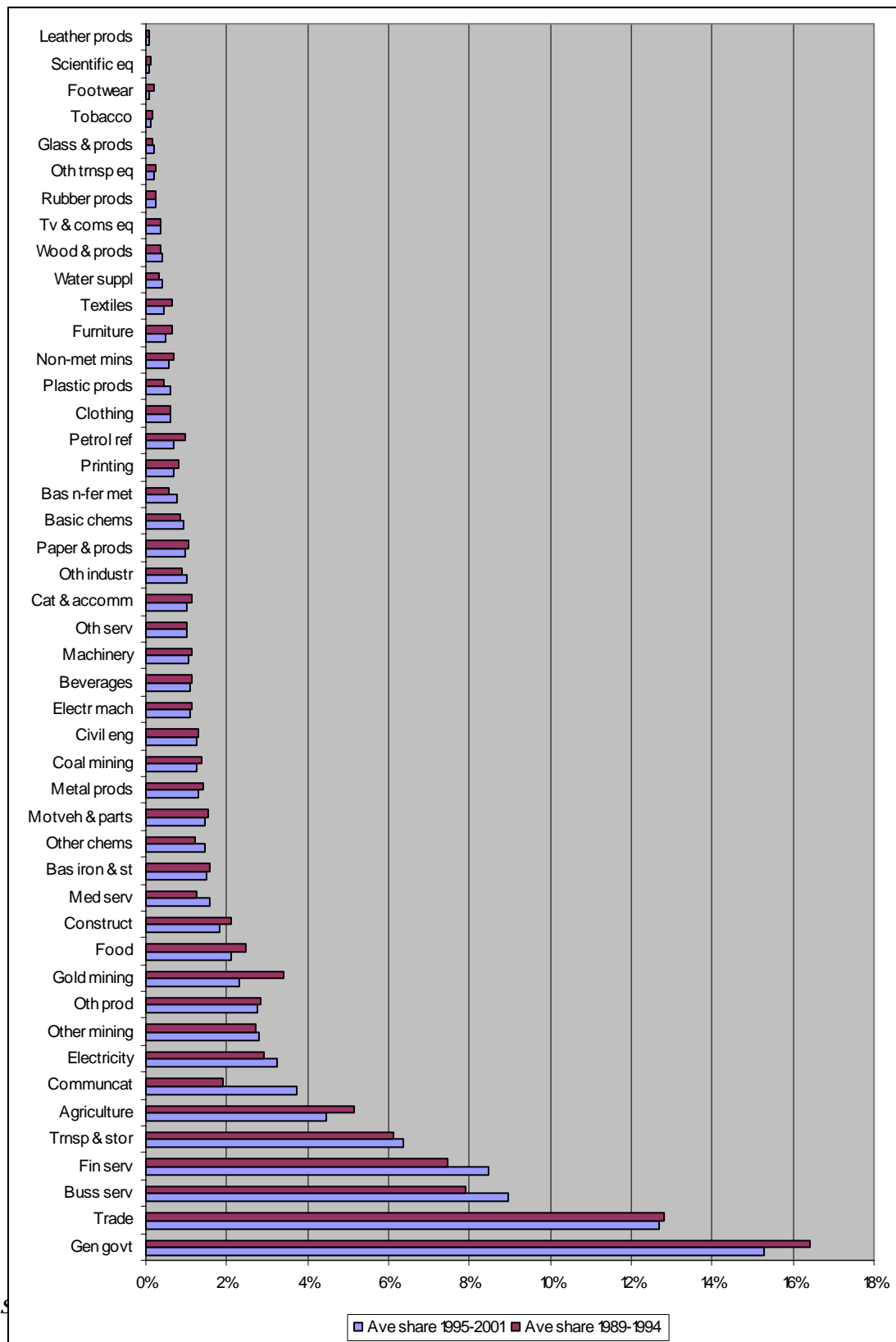
Figure A1: Growth in value-added, 1989-2001 (1995 constant prices)



Examining the sectoral shares of total value-added in more detail, Figure A2 also shows that *General Government* contributed the lion's share of value-added between 1995-2001, with 15.3 per cent, followed in second place by *Wholesale and Retail Trade* (12.7 per cent) and *Business Services* (9 per cent). The smallest shares in value-added were contributed by *Leather Products*, *Professional and Scientific Equipment* and *Tobacco Products*, all with 0.1 per cent. This ranking is no different to the 1989-1994 period, where the largest share of value-added was also attributed to *General Government* (16.4 per cent), followed by *Wholesale and Retail Trade* (12.8 per cent) and *Business Services* (7.9 per cent). At the lower end of the scale, *Leather products*, *Professional and Scientific Equipment* and *Tobacco Products* each contributed just 0.1 per cent of overall value-added. In spite of major changes in growth rates when comparing the 1995-2001 and 1989-1994 time frames, the structure of the economy, at least at this level of sectoral aggregation, has not really changed much.

At this juncture, it is sufficient to say that during the 1990s South Africa has followed the global trend towards an economic structure that relies less on primary and secondary industries, and more on the tertiary industries such as *Financial Services* and *Communications Services*. The latter, it has been shown, has a small spin-off for the *Television and Communications Equipment Sector*. Elsewhere, selective intervention in the form of the Motor Industry Development Programme (MIDP) seems to start paying off, as well as the earlier interventions that were undertaken in the chemicals industry. The observation by Levy (1992: 41) that the massive state involvement in the chemicals cluster, which was mainly driven by political strategic motivations could have developed a viable set of industries, may have been justified.

Figure A2: shares in total value-added, 1989-2001 (1995 constant prices)



EXPORTS

Turning now to exports, it can be seen in Table A2 and Figure A2 that the *Motor Vehicles, Parts and Accessories* sector recorded the highest weighted average annual growth rate in exports between 1995-2001 with 28.6 per cent, followed by *Television and Communication Equipment* with 23.8 per cent. At the other end of the scale, *Civil Engineering* had the lowest export growth rate over this period, with -9.3 per cent, followed by *Footwear* with -8.1 per cent and *Gold Mining* with -4.1 per cent. *Food* was ranked at position 33, *Clothing* position 5, and *Textiles* position 39 out of 46 industries in terms of average annual export growth between 1995-2001.

In the period 1989-1994, the highest export growth was attributed to *Footwear* (61.5 per cent), followed closely by *Leather Products* (39.3 per cent) and in third place *Printing and Publishing* (36.3 per cent), while *Other Services* with -5.6 per cent, *Medical Services* (-5 per cent) and *Financial Services* (-4.1 per cent), respectively brought up the rear.

Export growth has been consistent. The share of exports in total *Manufacturing* output has risen every year - even when the domestic economy has been in an expansion phase. This strongly suggests that instead of the "vent for surplus" phenomenon, characteristic of South African exports in the past, exporting has now become a permanent feature for many more firms (Kaplan, 2003). As firms engage far more consistently with the export market and as their export share rises, the efficiencies and learning entailed in competing in the most demanding markets can be expected to enhance productivity and competitiveness.

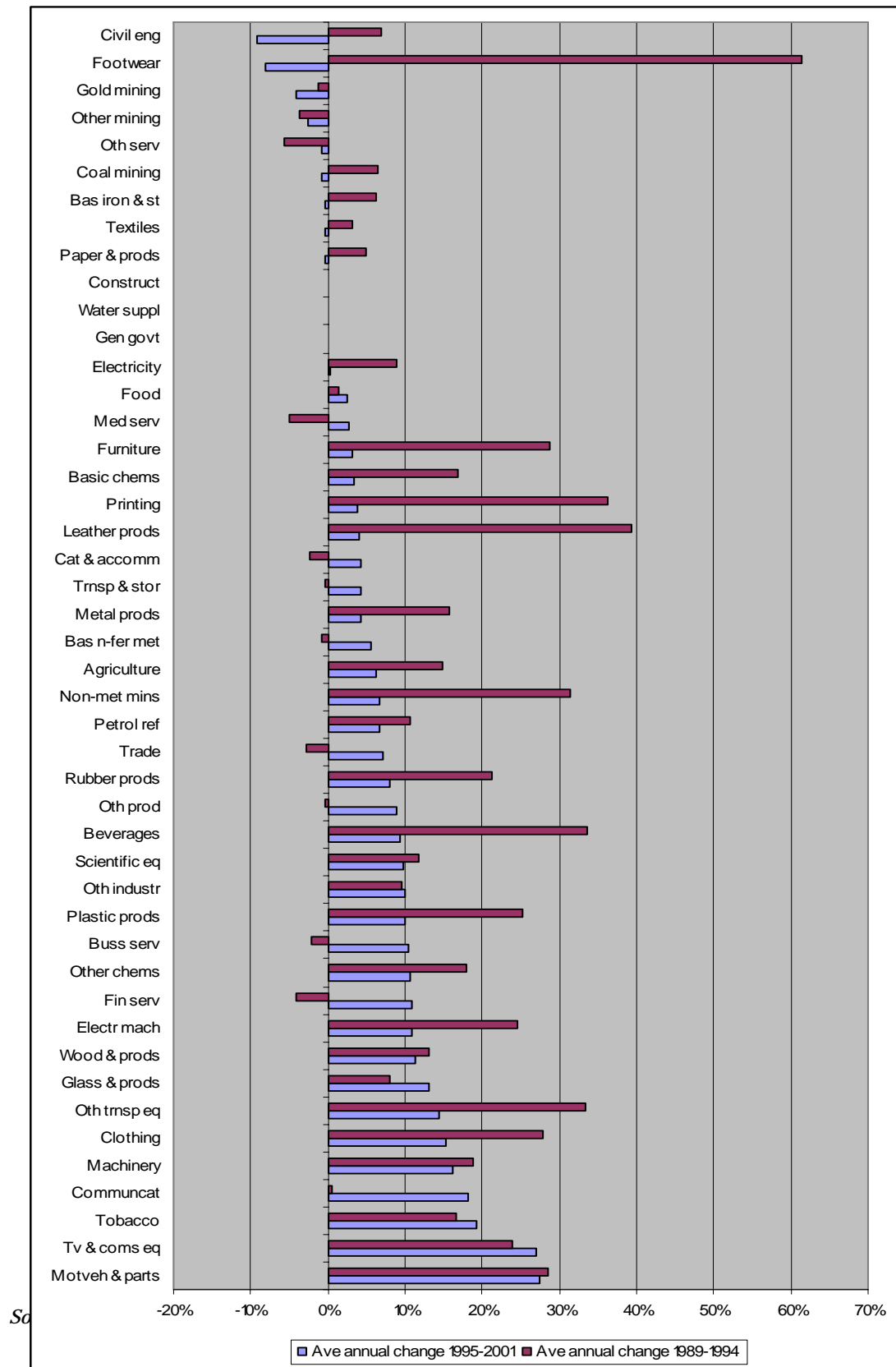
It would thus appear that a shift in the structure of South Africa's export has taken place between 1995-2001. Industries such as *Motor Vehicles, Parts and Accessories, Clothing, Machinery, Electrical Machinery, Television and Communications Equipment* and some of the chemical industries are perhaps starting to reap the benefits of liberalisation and selective export promotion, although this is achieved from a very low base. Export growth from these sectors is, however, not sufficient to offset the decline in exports recorded in the more traditional industries such as *Gold Mining, Coal Mining* and other resource-based industries. If, however, this trend continues, a more pronounced shift may still appear in the next 3-5 years.

Table A2: Growth and shares in exports, 1989-2001 (1995 constant prices)

	Sector	Ave ann Δ 1995-2001	Ave ann Δ 1989-1994	Ave ann Δ Rank	Ave share 1995-2001	1995- 2001 Rank	Ave share 1989- 1994	1989- 1994 Rank
1	Motveh & parts	27.3%	28.6%	8	4.2%	9	1.6%	15
2	Tv & coms eq	27.0%	23.8%	12	0.7%	27	0.2%	32
3	Tobacco	19.2%	16.6%	17	0.2%	36	0.1%	39
4	Communcat	18.2%	0.5%	32	0.7%	26	0.5%	22
5	Machinery	16.1%	18.8%	14	5.1%	5	1.7%	14
6	Clothing	15.2%	27.9%	9	0.7%	28	0.5%	23
7	Oth trnsp eq	14.3%	33.5%	5	1.1%	22	0.3%	28
8	Glass & prods	13.1%	8.0%	25	0.2%	35	0.2%	34
9	Wood & prods	11.3%	13.2%	20	0.7%	29	0.4%	25
10	Electr mach	10.8%	24.6%	11	1.0%	25	0.4%	26
11	Fin serv	10.8%	-4.1%	44	2.2%	15	1.8%	13
12	Other chems	10.7%	17.9%	15	1.8%	18	0.7%	21
13	Buss serv	10.5%	-2.1%	40	1.1%	23	0.9%	20
14	Plastic prods	9.9%	25.2%	10	0.4%	34	0.1%	36
15	Oth industr	9.9%	9.6%	23	1.9%	17	1.4%	16
16	Scientific eq	9.7%	11.7%	21	0.5%	31	0.3%	30
17	Beverages	9.4%	33.7%	4	1.2%	21	0.5%	24
18	Oth prod	9.0%	-0.5%	37	0.1%	39	0.1%	37
19	Rubber prods	8.0%	21.2%	13	0.4%	33	0.2%	33
20	Trade	7.1%	-2.7%	42	4.0%	11	3.5%	6
21	Petrol ref	6.7%	10.6%	22	2.4%	14	2.1%	12
22	Non-met mins	6.7%	31.4%	6	0.5%	32	0.3%	29
23	Agriculture	6.2%	14.7%	19	4.3%	8	3.4%	7
24	Bas n-fer met	5.7%	-0.7%	38	4.5%	7	3.4%	8
25	Metal prods	4.2%	15.7%	18	2.1%	16	1.2%	18
26	Trnsp & stor	4.2%	-0.3%	36	5.3%	4	4.8%	5
27	Cat & accomm	4.2%	-2.5%	41	1.3%	20	1.2%	17
28	Leather prods	4.1%	39.3%	2	0.5%	30	0.3%	31
29	Printing	3.9%	36.3%	3	0.2%	37	0.1%	41
30	Basic chems	3.4%	16.9%	16	5.1%	6	3.2%	9
31	Furniture	3.2%	28.7%	7	1.4%	19	0.3%	27
32	Med serv	2.8%	-5.0%	45	0.1%	41	0.1%	40
33	Food	2.4%	1.4%	31	3.4%	12	3.1%	10
34	Electricity	0.3%	8.9%	24	0.1%	38	0.1%	38
35	Gen govt	0.0%	0.0%	33	0.0%	44	0.0%	44
36	Water suppl	0.0%	0.0%	35	0.0%	46	0.0%	46
37	Construct	0.0%	0.0%	34	0.0%	45	0.0%	45
38	Paper & prods	-0.3%	4.9%	29	2.7%	13	2.3%	11
39	Textiles	-0.3%	3.2%	30	1.0%	24	1.0%	19
40	Bas iron & st	-0.3%	6.3%	28	8.2%	3	8.2%	3
41	Coal mining	-0.8%	6.4%	27	4.0%	10	5.4%	4
42	Oth serv	-0.9%	-5.6%	46	0.1%	40	0.1%	35
43	Other mining	-2.6%	-3.6%	43	10.5%	2	18.9%	2
44	Gold mining	-4.1%	-1.2%	39	14.2%	1	25.4%	1
45	Footwear	-8.1%	61.5%	1	0.1%	42	0.0%	42
46	Civil eng	-9.3%	6.8%	26	0.0%	43	0.0%	43

Source: TIPS South African Standardised Industry Database

Figure A3: Growth in Exports, 1989-2001 (1995 constant prices)

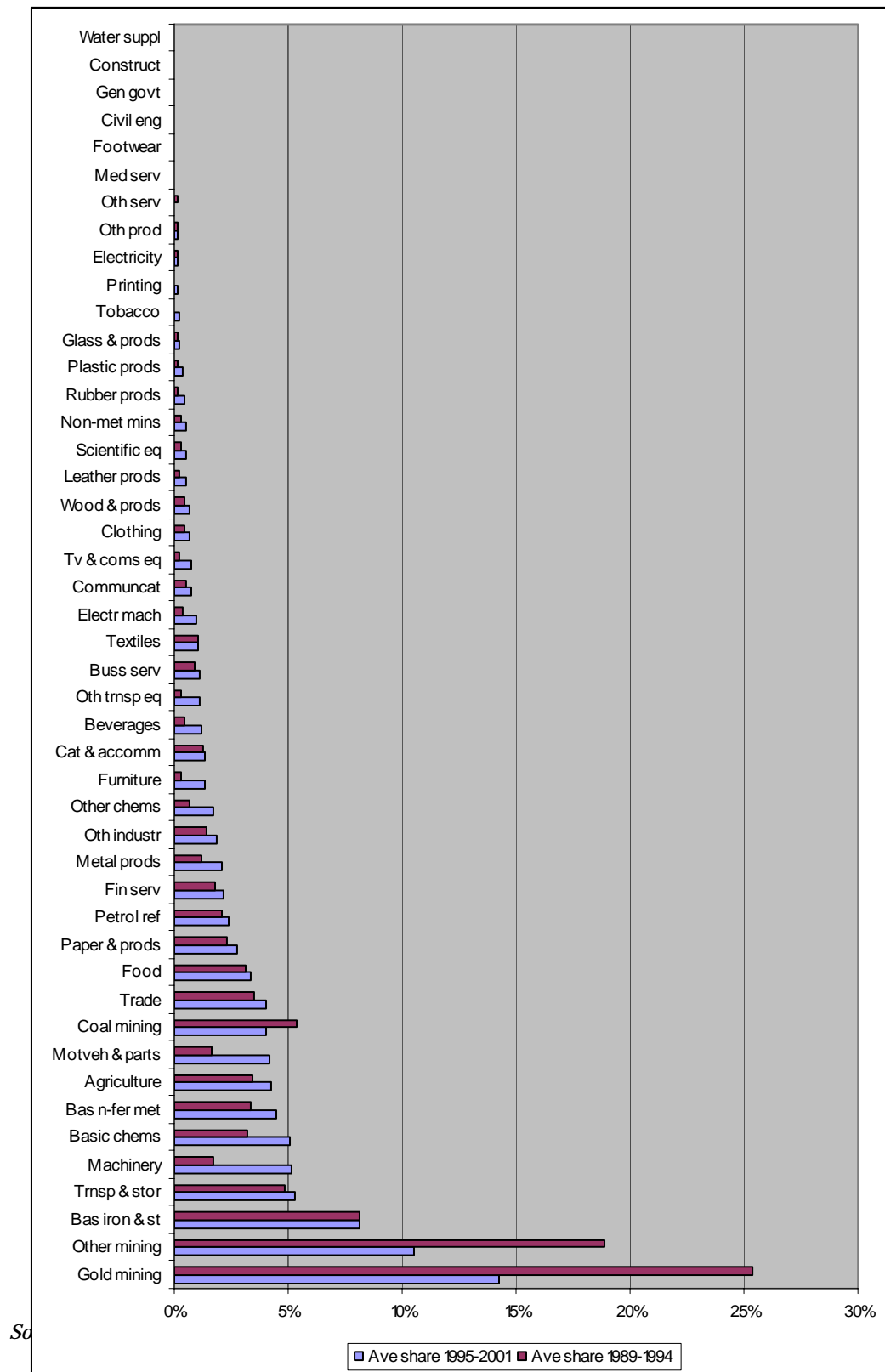


In terms of absolute shares, Table A2 suggests that in the period 1995-2001, *Gold Mining* led the way with 14.2 per cent of total exports, followed by *Other Mining* (10.5 per cent) and in third position *Basic Iron and Steel* (8.2 per cent). The smallest shares of total exports were attributable to *Water Supply*, *Construction*, *General Government* and *Civil Engineering*, which are largely non-tradable sectors. Between 1989-1994, *Gold Mining* was once again the leader in total export share, with 25.4 per cent, with *Other Mining* claiming second place (18.9 per cent) and *Basic Iron and Steel* 8.2 per cent, the non-tradable sectors once again not having any exports.

What is significant, however, is that with the export share almost trebling between the two time periods, *Motor Vehicles, Parts and Accessories* has shifted up from position 15 to 9 out of 46 sectors, while *Television and Communication Equipment* has climbed up 5 places to position 27, and *Communication Services* has risen to position 4 from 22 in the 1989 time period.

While mineral exports still constitute a significant portion of the export basket, it is gratifying to note the gradual emergence of non-traditional exports, and especially of tertiary services, which would imply that efforts to re-orient the economy towards high value-added exports is beginning to reap dividends (Figure A3).

Figure A3: Shares in total Exports, 1989-2001 (1995 constant prices)



EXPORT-OUTPUT RATIOS

The export-output ratio evaluates the degree to which an industry exports its output, and is a useful pointer as to the industries that have become more export oriented over time (Table A3).

Table A3: Export-output ratios, 1989-2001 (1995 constant prices)

	Sector	Period ave 1995-2001	Period ave 1989-1994	Ave ann Rank	Change 1st - 2nd	Change in ratio Rank
1	Gold mining	98.5%	98.5%	1	0.0%	42
2	Scientific eq	62.1%	20.8%	8	41.4%	2
3	Other mining	58.5%	86.2%	2	-27.7%	46
4	Oth trnsp eq	58.2%	11.6%	12	46.6%	1
5	Bas n-fer met	55.8%	53.4%	3	2.5%	30
6	Bas iron & st	48.1%	39.7%	4	8.4%	12
7	Coal mining	43.4%	34.8%	5	8.6%	11
8	Basic chems	42.5%	25.3%	6	17.2%	7
9	Machinery	40.1%	10.1%	15	30.0%	4
10	Oth industr	38.9%	24.8%	7	14.1%	8
11	Furniture	37.3%	7.0%	21	30.3%	3
12	Leather prods	34.7%	16.3%	9	18.4%	6
13	Tv & coms eq	27.7%	5.2%	24	22.5%	5
14	Paper & prods	22.5%	15.3%	10	7.2%	16
15	Petrol ref	21.4%	13.2%	11	8.2%	14
16	Rubber prods	16.2%	4.8%	26	11.4%	9
17	Agriculture	15.6%	10.6%	14	5.0%	22
18	Textiles	15.3%	11.4%	13	3.9%	26
19	Motveh & parts	14.1%	5.7%	23	8.4%	13
20	Glass & prods	13.6%	7.8%	19	5.8%	20
21	Electr mach	13.5%	4.5%	28	9.0%	10
22	Metal prods	13.0%	5.9%	22	7.2%	17
23	Wood & prods	12.9%	8.3%	18	4.6%	24
24	Cat & accomm	12.2%	9.3%	17	2.9%	28
25	Trnsp & stor	11.8%	9.7%	16	2.2%	31
26	Other chems	11.7%	3.6%	29	8.1%	15
27	Clothing	10.0%	5.2%	25	4.9%	23
28	Food	10.0%	7.1%	20	2.9%	27
29	Beverages	10.0%	2.8%	33	7.1%	18
30	Tobacco	9.6%	2.5%	34	7.1%	19
31	Non-met mins	8.5%	3.3%	32	5.2%	21
32	Plastic prods	6.2%	1.9%	35	4.3%	25
33	Trade	5.1%	3.6%	30	1.6%	33
34	Fin serv	4.7%	3.4%	31	1.3%	34
35	Communcat	4.2%	4.6%	27	-0.4%	45
36	Footwear	4.0%	1.3%	38	2.7%	29
37	Printing	2.6%	0.8%	39	1.8%	32
38	Buss serv	1.9%	1.6%	37	0.3%	35
39	Oth serv	1.7%	1.6%	36	0.1%	38
40	Oth prod	0.9%	0.7%	41	0.2%	36
41	Electricity	0.8%	0.6%	42	0.2%	37
42	Med serv	0.6%	0.8%	40	-0.2%	44
43	Civil eng	0.2%	0.1%	43	0.0%	39
44	Construct	0.0%	0.0%	44	0.0%	41
45	Gen govt	0.0%	0.0%	46	0.0%	40
46	Water suppl	0.0%	0.0%	45	0.0%	43

Source: TIPS South African Standardised Industry Database

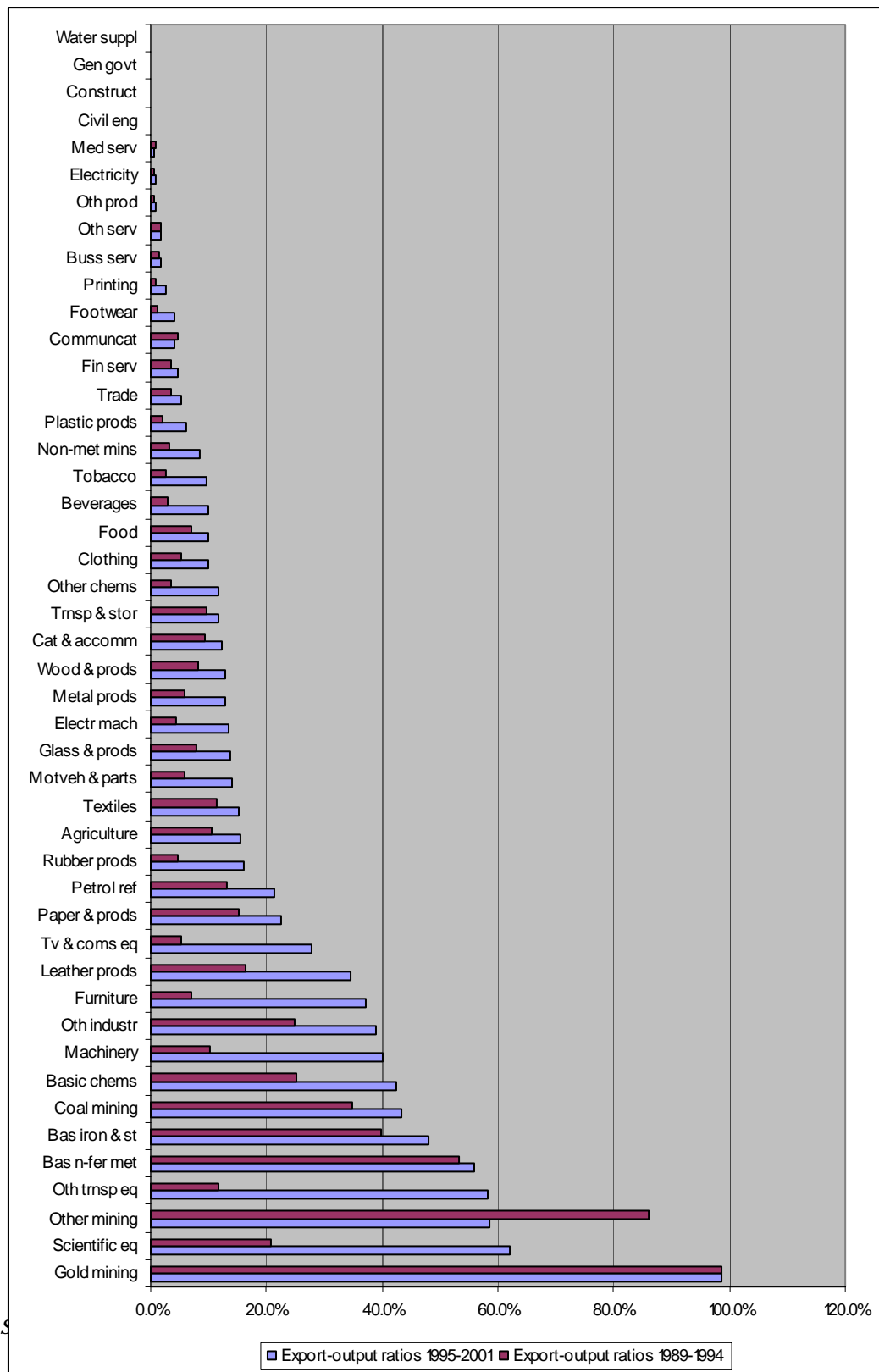
Table A3 further reveals that between 1995-2001 and 1989-1994, *Gold Mining* had the highest export-output ratio, with 98.5 per cent of all production exported. In second position between 1995-2001 was *Professional and Scientific Equipment* with 62.1 per cent, while *Other Mining* claimed third place, with 58.5 per cent of output exported. At the opposite end of the spectrum, *Business Services*, *Printing*, and *Footwear* had the lowest export orientation ratios (1.9 per cent, 2.6 per cent and 4 per cent). This is a marked departure from the 1989-1994 time frame, when the *Other Mining* category exported 86.2 per cent of its output, *Basic Non-ferrous Metals* (53.4 per cent), and in third place *Basic Iron and Steel* (39.7 per cent).

Although the increase in export orientation is widespread across all sectors, production activities immediately downstream from mining such as *Basic Iron and Steel*, *Non-ferrous metals* and *Metal Products* have all seen a considerable increase in export-output ratios, while other mining (including iron ore) has seen a decline. The export orientation of *Coal Mining* has also declined while the *Basic Chemicals* sector has seen an increase. This suggests that beneficiation of raw materials, which had been for a long time been reported as lacking in the South African economy, is now starting to take place.

According to Kaplan (2003), there are a number of factors account for the growing export orientation of South Africa's Manufacturing sector, including:

- A consistent industrial strategy that has placed considerable emphasis on exporting. Overall tariff liberalisation and export import complementation (in the Motor Vehicles, Parts and Accessories sector), have been combined with supply support measures, with many of these supply side measures giving particular support to export activities;
- Exchange rate depreciation has provided a direct stimulus to exports; but it has also provided considerable protection to domestic producers faced with declining tariffs;
- The rapid rate of growth in the world economy – at least until the end of 2000;
- The adoption of new technologies and the upgrading of existing systems have seen substantial rises in labour productivity. This has, in turn, impacted favourably on unit labour costs and resulted in increasing competitiveness.

Figure A4: Export-output Ratios, 1989-2001 (1995 constant prices)



IMPORTS

Interestingly, despite the trade liberalisation that took place during the second part of the decade, imports in goods by the *Manufacturing* sector industries have remained more or less constant in real terms, while those by the *Agriculture* sector have seen a decline in imports. The same applies to the *Business Services* sectors. Slow economic growth during this period may have lowered domestic demand, including demand for imported goods, lower tariffs notwithstanding.

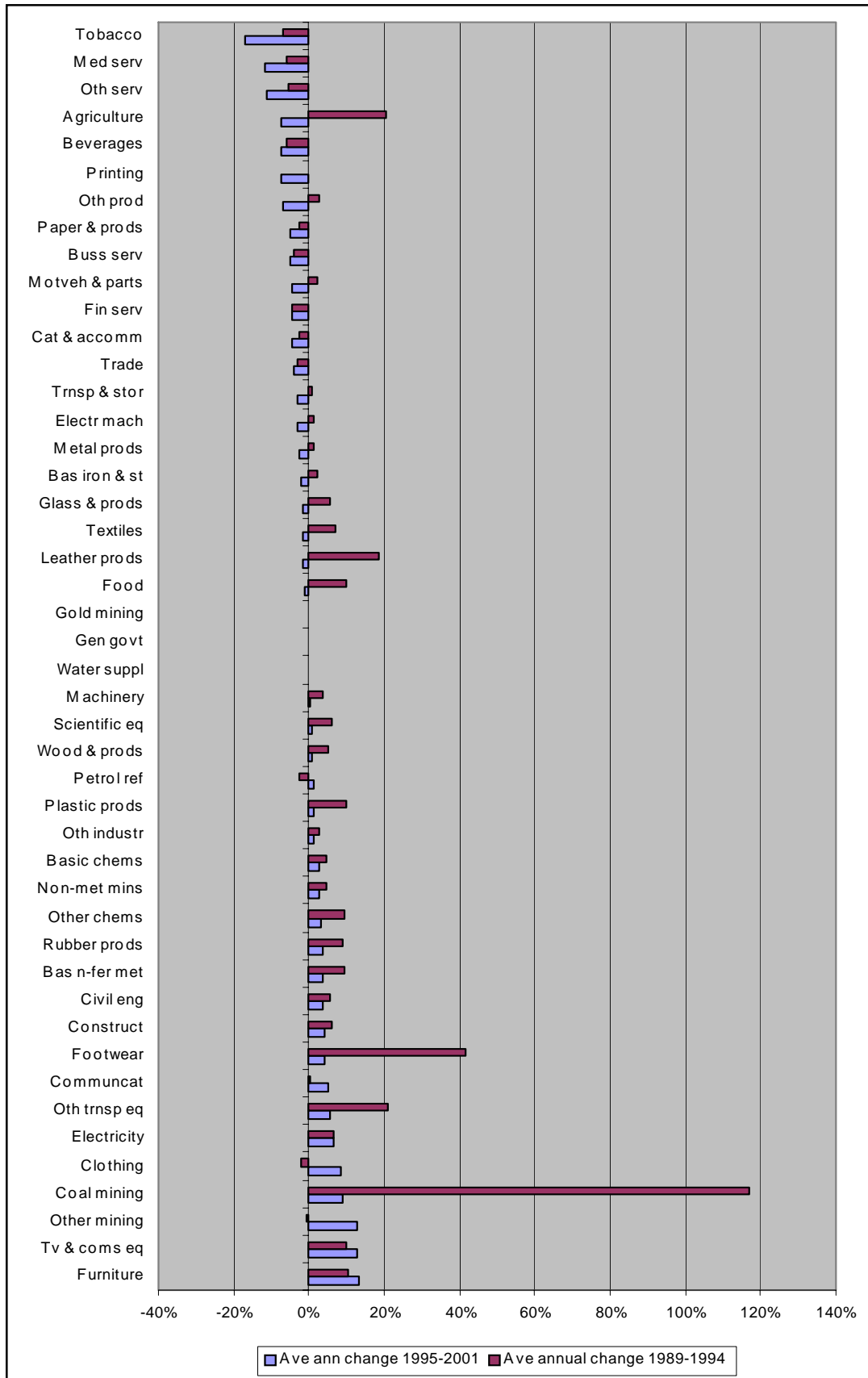
At a more detailed sectoral level, it is apparent that the *Furniture* sector has been characterised by the highest weighted annual import growth rate between 1995-2001, with 13.3 per cent, closely followed by *Television and Communication Equipment* (12.9 per cent) and *Other Mining* (12.7 per cent). Conversely, import growth has been lowest in *Tobacco* (-16.8 per cent), *Medical Services* (-11.6 per cent) and *Other Services* (-11.4 per cent). In terms of import growth ranking, the *Food* sector is in position 26, *Clothing* occupies position 5 and the *Textile* sector lies in 28th place, *Motor Vehicles, Parts and Accessories* 37th, *Television and Communication Equipment* in 2nd place (Table A4). Negative import growth was witnessed in the *Tobacco*, *Beverages* and *Medical Services* sectors with -6.7 per cent, -6 per cent and -5.7 per cent respectively. Between the two periods, the sharpest rise in imports was evident for *Other Mining*, *Clothing* and *Television and Communication Equipment* (Figure A5).

Table A4: Growth and shares of imports, 1989-2001 (1995 constant prices)

	Sector	Ave ann Δ 1995- 2001	Ave ann Δ 1989- 1994	Ave ann Δ Rank	Ave share 1995- 2001	1995-2001 Rank	Ave share 1989- 1994	1989- 1994 Rank
1	Furniture	13.3%	10.2%	6	0.3%	35	0.2%	37
2	Tv & coms eq	12.9%	9.7%	9	7.2%	4	3.5%	10
3	Other mining	12.7%	-0.8%	35	11.6%	2	9.9%	3
4	Coal mining	8.9%	116.9%	1	0.2%	36	0.1%	39
5	Clothing	8.4%	-2.1%	36	0.8%	27	0.9%	24
6	Electricity	6.8%	6.5%	14	0.0%	46	0.0%	46
7	Oth trnsp eq	5.4%	21.0%	3	2.2%	12	2.1%	16
8	Communcat	5.1%	0.1%	30	0.7%	29	0.9%	25
9	Footwear	4.3%	41.6%	2	0.6%	30	0.3%	35
10	Construct	4.2%	6.1%	15	0.0%	40	0.0%	42
11	Civil eng	3.9%	5.4%	18	0.1%	39	0.0%	40
12	Bas n-fer met	3.7%	9.4%	10	1.6%	17	0.8%	27
13	Rubber prods	3.5%	8.8%	12	1.0%	22	0.7%	29
14	Other chems	3.4%	9.2%	11	4.7%	6	4.3%	6
15	Non-met mins	2.5%	4.7%	20	0.9%	24	0.8%	26
16	Basic chems	2.5%	4.7%	21	6.6%	5	6.4%	4
17	Oth industr	1.5%	2.9%	23	3.3%	9	3.9%	7
18	Plastic prods	1.1%	10.1%	8	0.8%	26	0.6%	30
19	Petrol ref	1.1%	-2.6%	37	1.2%	20	1.2%	23
20	Wood & prods	0.9%	5.3%	19	0.6%	31	0.6%	31
21	Scientific eq	0.8%	5.9%	16	2.9%	11	3.5%	9
22	Machinery	0.5%	3.9%	22	18.6%	1	16.2%	1
23	Water suppl	0.0%	0.0%	34	0.0%	43	0.0%	44
24	Gen govt	0.0%	0.0%	33	0.0%	45	0.0%	45
25	Gold mining	0.0%	0.0%	32	0.0%	44	0.0%	43
26	Food	-1.1%	10.1%	7	3.4%	8	2.8%	11
27	Leather prods	-1.4%	18.5%	5	0.5%	32	0.4%	34
28	Textiles	-1.6%	7.2%	13	1.9%	15	2.3%	14
29	Glass & prods	-1.7%	5.7%	17	0.4%	34	0.4%	33
30	Bas iron & st	-2.3%	2.1%	26	1.2%	19	1.4%	21
31	Metal prods	-2.5%	1.1%	28	2.1%	13	2.2%	15
32	Electr mach	-3.0%	1.5%	27	3.0%	10	3.8%	8
33	Trnsp & stor	-3.2%	0.9%	29	3.4%	7	4.9%	5
34	Trade	-4.1%	-3.2%	40	0.0%	42	0.0%	41
35	Cat & accomm	-4.3%	-2.6%	39	1.1%	21	1.7%	18
36	Fin serv	-4.6%	-4.6%	42	0.7%	28	1.2%	22
37	Motveh & parts	-4.6%	2.4%	25	9.0%	3	10.9%	2
38	Buss serv	-4.9%	-3.9%	41	0.8%	25	1.5%	20
39	Paper & prods	-5.1%	-2.6%	38	1.4%	18	2.3%	13
40	Oth prod	-6.7%	2.9%	24	1.0%	23	1.6%	19
41	Printing	-7.2%	0.0%	31	1.6%	16	2.5%	12
42	Beverages	-7.3%	-6.0%	45	0.5%	33	0.7%	28
43	Agriculture	-7.5%	20.3%	4	1.9%	14	1.8%	17
44	Oth serv	-11.4%	-5.6%	43	0.2%	37	0.5%	32
45	Med serv	-11.6%	-5.7%	44	0.1%	38	0.2%	36
46	Tobacco	-16.8%	-6.7%	46	0.0%	41	0.1%	38

Source: TIPS South African Standardised Industry Database

Figure A5: Growth in Imports, 1989-2001 (1995 constant prices)

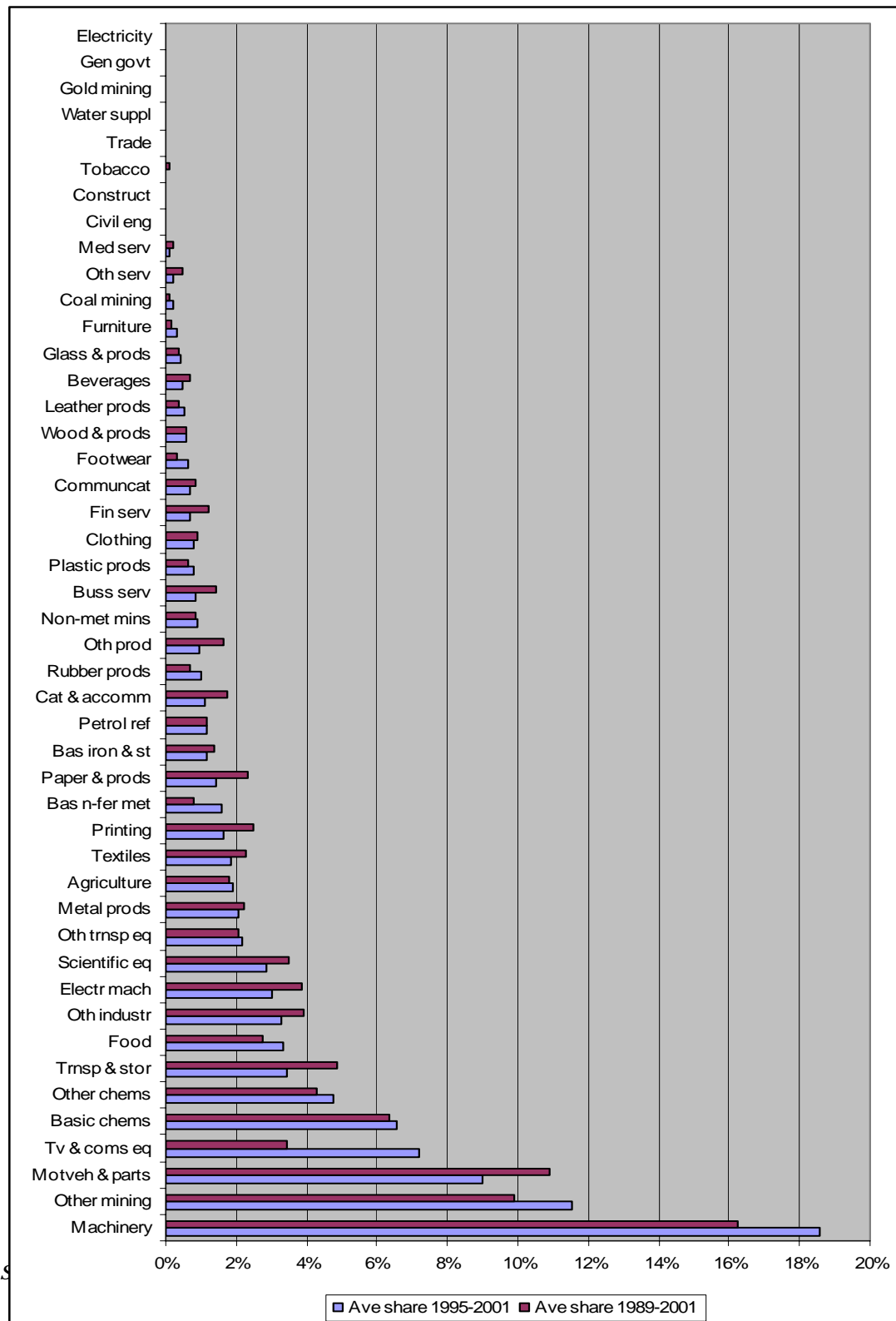


Source: TIPS South African Standardised Industry Database

In terms of import shares, the *Machinery* sector was responsible for the largest share of total imports in both the 1995-2001 and 1989-1989 periods, with 18.6 per cent and 16.8 per cent respectively. In the 1995-2001 period, the second largest share of imports was realised for *Other Mining* (11.6 per cent) and in third place *Motor Vehicles, Parts and Accessories* (9 per cent). The smallest shares of imports, disregarding the non-tradable sectors were seen mostly in the services sectors such as *Civil Engineering* (0.1 per cent), *Medical Services* (0.1 per cent) and *Other Services* (0.2 per cent). Despite having the highest growth in imports, the *Furniture* sector accounted for only 0.3 per cent of total imports during this period.

In the 1989-1994 period, the second largest share of imports was attributed to *Motor Vehicles, Parts and Accessories* (10.9 per cent), while *Other Mining* occupied third place with 9.9 per cent. The smallest shares of imports were seen in the *Tobacco*, *Medical Services* and *Furniture* sectors, with 0.1 per cent, 0.2 per cent and 0.2 per cent respectively. It is instructive to note that the share of imports by the *Television and Communication* equipment sector has more than doubled between the 1989-1994 and 1995-2001 period, the main reason being the boom in cellular telephony and the massive rollout in fixed telephone lines after 1994. Generally, though, there has not been much change in the share of imports and ranking thereof between both time periods.

Figure A6: Shares in Imports, 1989-2001 (1995 constant prices)



As with the trends in exports, there is also need to consider the import penetration ratio, hereby defined as imports divided by the sum of total output and imports less exports.

The results in Table A5 and Figure A7 indicate that at a detailed 46-sector aggregation, *Professional and Scientific Equipment* had the highest weighted average annual import penetration ratio between 1995-2001 with 88.9 per cent, followed in second place by the *Television and Communication Equipment* sector with 76.7 per cent, and in third place *Other Transport Equipment* (72.4 per cent). At the other end of the scale, not taking into consideration the non-tradable sectors, lay *Medical Services*, *Tobacco* and *Business Services*, with import penetration ratios of 0.6 per cent, 1.3 per cent and 1.4 per cent respectively. The more vulnerable sectors such as *Footwear*, *Textiles* and *Clothing* had import penetration ratios of 28.4 per cent, 23.2 per cent and 10.3 per cent respectively.

Between 1989-1994, the *Other Mining* sector topped the import penetration rankings with 75.6 per cent of total imports, followed in second place by *Professional and Scientific Equipment* with 73.8 per cent and in third place *Machinery and Equipment* with 46.4 per cent. There was negligible import penetration in the *Medical Services* sector (1.4 per cent), with low import penetration being witnessed for *Financial Services*, *Business Services* and the *Tobacco* sectors (1.9 per cent, 2.1 per cent and 2.7 per cent respectively). *Footwear*, *Textiles* and *Clothing* had import penetration ratios of 8.3 per cent, 18.4 per cent and 7.8 per cent respectively.

In terms of the change in import penetration, Table A5 further shows that *Television and Communication Equipment* had the highest increase (33.5 per cent), followed by *Other Transport Equipment* (30.3 per cent) and *Machinery and Equipment* (22.6 per cent), whereas the most significant drop in import penetration was the case for the *Other Mining* (-18.2 per cent), *Communication Services* (-2.7 per cent) and both *Other Services* and *Tobacco* (-1.4 per cent). Generally, the import penetration ratios were higher in 1995-2001 than in 1989-1994.

Notwithstanding the trade liberalisation policies, introduced during the middle of the period, the *Clothing* and *Motor Vehicles, Parts and Accessories* sectors seems to have experienced only a mild increase in the import penetration ratio relatively to industries such as *Television and Communications Equipment*.

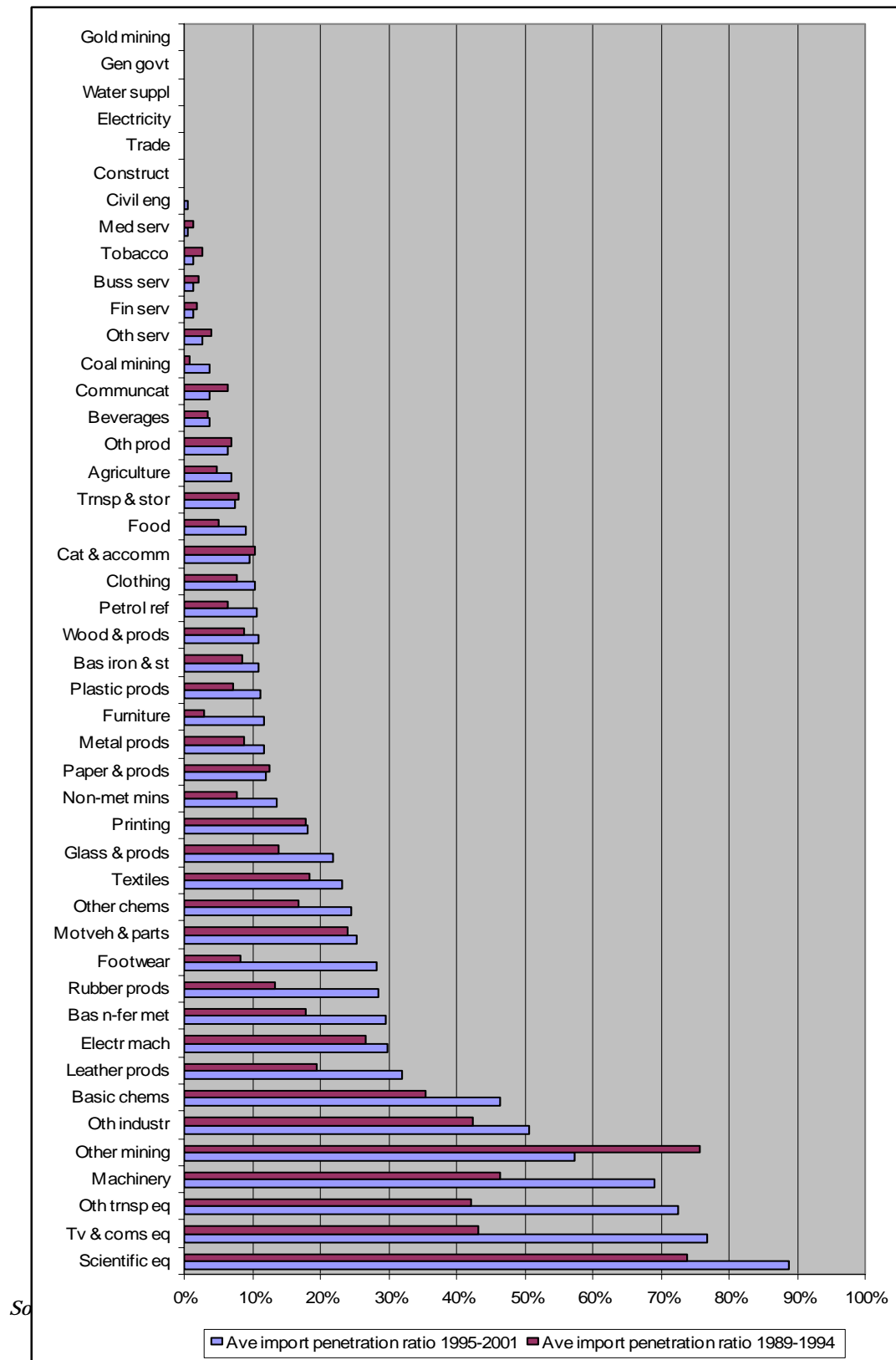
Table A5: Import penetration ratios, 1989-2001(1995 constant prices)

	Sector	Period ave 1995-2001	Period ave 1989-1994	Ave ann Rank	Δ in ratio 1989-1994 to 1995- 2001	Δ in ratio Rank
1	Scientific eq	88.9%	73.8%	2	15.1%	6
2	Tv & coms eq	76.7%	43.2%	4	33.5%	1
3	Oth trnsp eq	72.4%	42.1%	6	30.3%	2
4	Machinery	69.0%	46.4%	3	22.6%	3
5	Other mining	57.4%	75.6%	1	-18.2%	46
6	Oth industr	50.7%	42.5%	5	8.1%	11
7	Basic chems	46.4%	35.4%	7	11.0%	9
8	Leather prods	31.9%	19.5%	10	12.4%	7
9	Electr mach	29.8%	26.8%	8	3.0%	20
10	Bas n-fer met	29.6%	17.9%	12	11.8%	8
11	Rubber prods	28.5%	13.3%	16	15.2%	5
12	Footwear	28.4%	8.3%	22	20.1%	4
13	Motveh & parts	25.3%	24.1%	9	1.2%	26
14	Other chems	24.6%	16.8%	14	7.8%	13
15	Textiles	23.2%	18.4%	11	4.8%	15
16	Glass & prods	21.9%	13.8%	15	8.0%	12
17	Printing	18.1%	17.8%	13	0.3%	28
18	Non-met mins	13.6%	7.7%	25	5.9%	14
19	Paper & prods	12.1%	12.6%	17	-0.5%	37
20	Metal prods	11.8%	8.7%	19	3.0%	19
21	Furniture	11.6%	3.0%	34	8.6%	10
22	Plastic prods	11.2%	7.1%	26	4.1%	17
23	Bas iron & st	10.8%	8.5%	21	2.3%	23
24	Wood & prods	10.8%	8.7%	20	2.1%	25
25	Petrol ref	10.8%	6.5%	28	4.3%	16
26	Clothing	10.3%	7.8%	24	2.6%	22
27	Cat & accomm	9.7%	10.4%	18	-0.6%	40
28	Food	9.1%	5.2%	30	3.9%	18
29	Trnsp & stor	7.4%	8.0%	23	-0.6%	39
30	Agriculture	7.0%	4.8%	31	2.1%	24
31	Oth prod	6.3%	6.9%	27	-0.6%	38
32	Beverages	3.8%	3.4%	33	0.4%	27
33	Communcat	3.7%	6.4%	29	-2.7%	45
34	Coal mining	3.7%	0.9%	39	2.8%	21
35	Oth serv	2.6%	4.0%	32	-1.4%	44
36	Fin serv	1.5%	1.9%	37	-0.5%	36
37	Buss serv	1.4%	2.1%	36	-0.7%	41
38	Tobacco	1.3%	2.7%	35	-1.4%	43
39	Med serv	0.6%	1.4%	38	-0.8%	42
40	Civil eng	0.5%	0.2%	40	0.3%	29
41	Construct	0.2%	0.1%	41	0.1%	30
42	Trade	0.0%	0.0%	42	0.0%	35
43	Electricity	0.0%	0.0%	46	0.0%	31
44	Water suppl	0.0%	0.0%	44	0.0%	32
45	Gen govt	0.0%	0.0%	43	0.0%	33
46	Gold mining	0.0%	0.0%	45	0.0%	34

Source: TIPS South African Standardised Industry Database

Note: import penetration ratio is defined as the ratio of imports and the sum of total output and imports less exports.

Figure A7 Import Penetration Ratios, 1989-2001 (constant 1995 prices)



GDFI AND CAPITAL STOCK

There are a number of manufacturing industries that have seen robust growth in capital stock between 1995-2001, as can be seen on the left hand side of Table A6 and Figure A8, notably *Plastic Products*, *Communications Services* (15.8 per cent), *Communication Services* (12.1 per cent), *Medical Services* (6.1 per cent) and *Paper and Paper Products* (5.8 per cent). Low capital stock growth has been manifest in the *Footwear*, *Transport and Storage* and *Electricity* sectors (-6 per cent, -3.9 per cent and -3.7 per cent respectively). However, apart from the communications industry, these industries are, however, relatively small in terms of the share of capital stock.

Between 1989-1994, high capital stock growth rates were evident for *Basic Non-Ferrous Metals* (16.7 per cent), *Coal Mining* (10.7 per cent) and *Petroleum Refining* (8.5 per cent), while at the opposite end of the scale, *Other Producers* had the lowest capital stock growth rate of -16.7 per cent, followed by *Plastic Products* (-5.4 per cent) and *Television and Communication Equipment* (-4.4 per cent).

In terms of overall shares in total capital stock, Table A6 and Figure A9 demonstrate that Industries with a relatively high share in the total capital stock, such as *Financial Services*, *Wholesale and Retail Trade* and *Business Services*, have reported only modest growth rates.

Table A6: Growth in capital stock for 46 industries, 1989-2001 (1995 constant prices)

	Sector	Ave ann Δ 1995- 2001	Ave ann Δ 1989- 1994	Ave ann Δ Rank	Ave share 1995- 2001	1995- 2001 Rank	Ave share 1989-1994	1989-1994 Rank
1	Plastic prods	17.1%	-5.4%	45	0.1%	36	0.1%	35
2	Communcat	12.1%	3.2%	12	7.4%	5	3.6%	10
3	Motveh & parts	6.8%	6.0%	7	0.6%	21	0.5%	21
4	Med serv	6.1%	5.6%	8	0.9%	17	0.7%	17
5	Paper & prods	5.8%	-1.8%	31	0.6%	22	0.5%	22
6	Basic chems	5.8%	-3.5%	39	1.0%	16	0.9%	15
7	Water suppl	5.7%	-3.5%	40	1.1%	14	1.1%	13
8	Scientific eq	5.7%	0.1%	22	0.0%	46	0.0%	45
9	Leather prods	5.0%	6.3%	6	0.0%	45	0.0%	46
10	Oth serv	4.4%	4.9%	9	0.4%	25	0.3%	26
11	Beverages	4.3%	7.4%	5	0.7%	19	0.6%	19
12	Bas iron & st	4.3%	1.8%	16	2.8%	12	2.2%	12
13	Coal mining	3.8%	10.1%	2	1.0%	15	0.7%	18
14	Oth industr	3.6%	7.7%	4	0.0%	42	0.0%	42
15	Oth trnsp eq	3.6%	0.0%	23	0.1%	33	0.1%	34
16	Other mining	3.5%	2.3%	14	3.8%	8	3.8%	9
17	Oth prod	3.3%	-16.7%	46	0.0%	41	0.1%	39
18	Fin serv	3.2%	-0.9%	25	12.7%	2	12.8%	3
19	Furniture	2.8%	-2.4%	35	0.1%	39	0.1%	40
20	Trade	2.7%	0.7%	21	4.5%	7	4.4%	6
21	Printing	1.7%	-2.3%	33	0.2%	32	0.1%	32
22	Food	1.2%	2.0%	15	1.3%	13	1.0%	14
23	Gen govt	1.0%	1.6%	17	19.8%	1	19.7%	1
24	Civil eng	0.8%	-1.0%	26	0.2%	28	0.3%	29
25	Wood & prods	0.8%	-1.5%	29	0.1%	34	0.1%	33
26	Tv & coms eq	0.7%	-4.9%	44	0.1%	40	0.1%	41
27	Glass & prods	0.7%	-1.8%	32	0.1%	35	0.1%	37
28	Petrol ref	0.6%	8.5%	3	3.6%	9	3.3%	11
29	Bas n-fer met	0.3%	16.7%	1	0.8%	18	0.3%	25
30	Construct	0.2%	-2.8%	36	0.3%	27	0.3%	27
31	Textiles	0.1%	-4.1%	42	0.2%	30	0.2%	31
32	Other chems	0.1%	1.4%	18	0.7%	20	0.7%	16
33	Buss serv	0.0%	4.1%	10	9.9%	3	9.2%	4
34	Clothing	-0.2%	-4.7%	43	0.1%	38	0.1%	38
35	Electr mach	-0.2%	-3.6%	41	0.2%	31	0.2%	30
36	Agriculture	-0.6%	-1.8%	30	3.5%	10	4.0%	8
37	Non-met mins	-0.7%	-2.8%	37	0.5%	24	0.5%	20
38	Machinery	-0.8%	-3.4%	38	0.2%	29	0.3%	28
39	Tobacco	-0.8%	1.3%	19	0.0%	44	0.0%	43
40	Rubber prods	-1.0%	3.6%	11	0.1%	37	0.1%	36
41	Cat & accomm	-1.1%	0.8%	20	0.5%	23	0.5%	23
42	Metal prods	-2.3%	2.8%	13	0.4%	26	0.4%	24
43	Gold mining	-3.6%	-1.3%	28	3.4%	11	4.4%	7
44	Electricity	-3.7%	-2.4%	34	6.2%	6	8.1%	5
45	Trnsp & stor	-3.9%	-0.8%	24	9.7%	4	13.2%	2
46	Footwear	-6.0%	-1.0%	27	0.0%	43	0.0%	44

Source: TIPS South African Standardised Industry Database

Figure A8: Growth in Capital Stock, 1989-2001 (1995 constant prices)

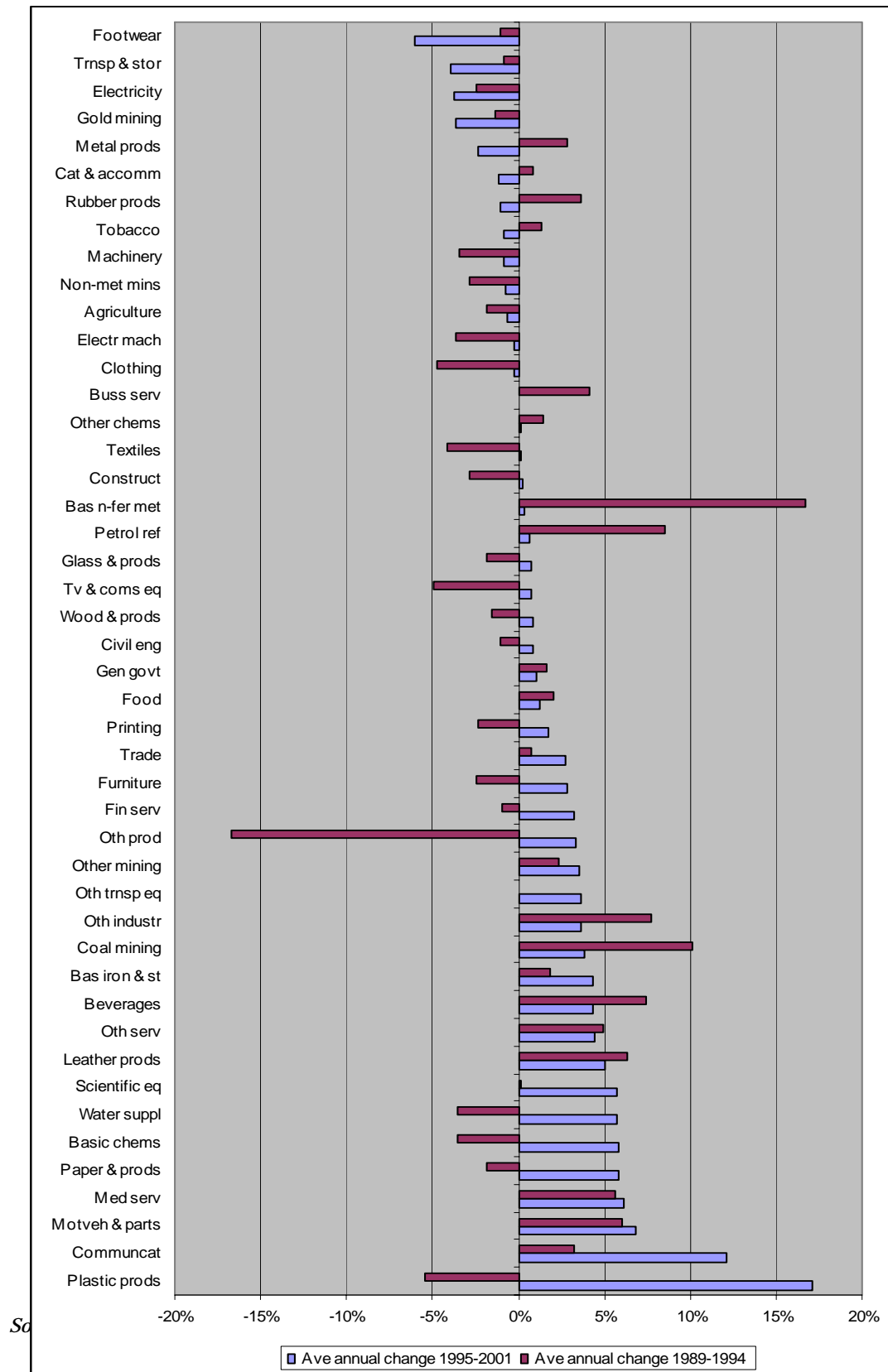
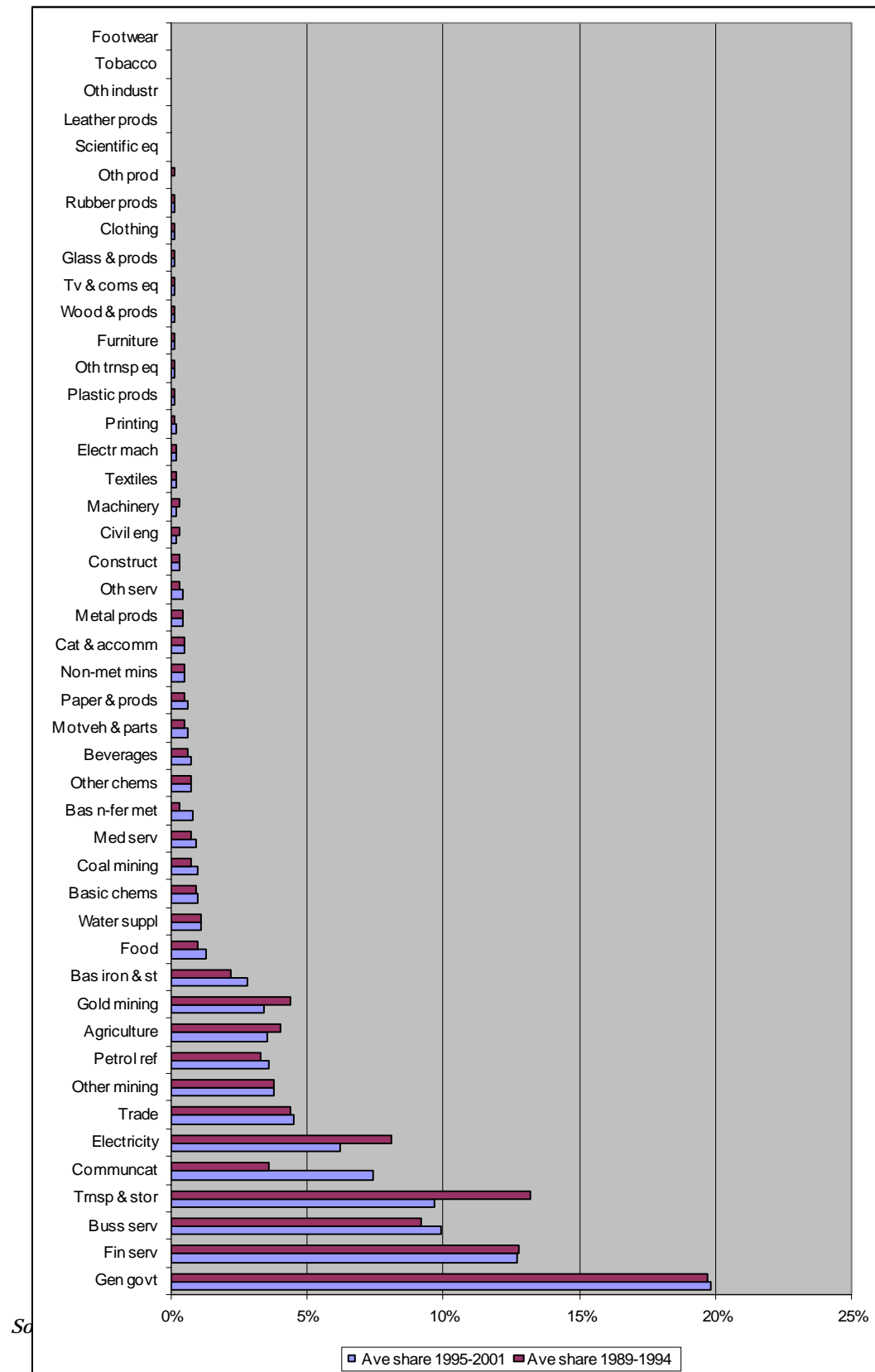


Figure A9: Shares in Total Capital Stock, 1989-2001 (1995 constant prices)



INVESTMENT RATES

The investment rate for the economy as a whole, shown in the last row of Table A7, is still below 20 per cent. This corresponds with the rates observed in countries like Argentina, Mexico, Venezuela, Egypt, Nigeria and Pakistan (see World Bank World Development Indicators) but does not compare well with investment rates in other “Emerging Markets” such as Brazil (20 per cent - 25 per cent), Chile (20 per cent - 25 per cent), China (35 per cent – 40 per cent), Indonesia (25 per cent – 30 per cent), Korea (30 per cent – 35 per cent), Malaysia (35 per cent – 40 per cent), Philippines (20 per cent – 25 per cent), Thailand (35 per cent – 40 per cent), India (20 per cent – 25 per cent).

Table A7 and Figure A10 indicate that the *Petroleum Refining* sector had the highest investment rate (74.2 per cent) between 1995-2001, with *Basic Iron and Steel* coming in a distant second at 49.9 per cent. In third place was the *Basic Chemicals* sector, which posted an average investment rate of 37.3 per cent. The lagging sectors in this period were *Other Producers*, *Other Industries* and *Construction*, which respectively had investment rates of 0.4 per cent, 1.5 per cent and 5.1 per cent. The *Food* sector investment rate was 21.4 per cent, *Clothing* 5.7 per cent and *Textiles* 18.5 per cent.

In comparison, 1989-1994 saw the *Petroleum Refining* sector once again top the table with an investment rate of 93.6 per cent, followed by *Water Supply* (45.6 per cent) and in third place *Electricity* (40.9 per cent). Bringing up the rear were *Other Producers* (0.5 per cent), *Other Industries* (2 per cent) and *Furniture* (2.5 per cent).

In terms of the change in investment rate between the two sectors, the most dramatic change was seen for *Basic Chemicals*, where the investment rate almost trebled from 13.9 per cent to 37.3 per cent, and *Basic Iron and Steel*, where the investment rate nearly doubled from 28.3 per cent to 49.9 per cent. Other significant changes were evidenced for *Other Transport Equipment* and *Paper and Paper Products*. The most dramatic plunge in investment rate was seen for *Petroleum Refining* and *Electricity*.

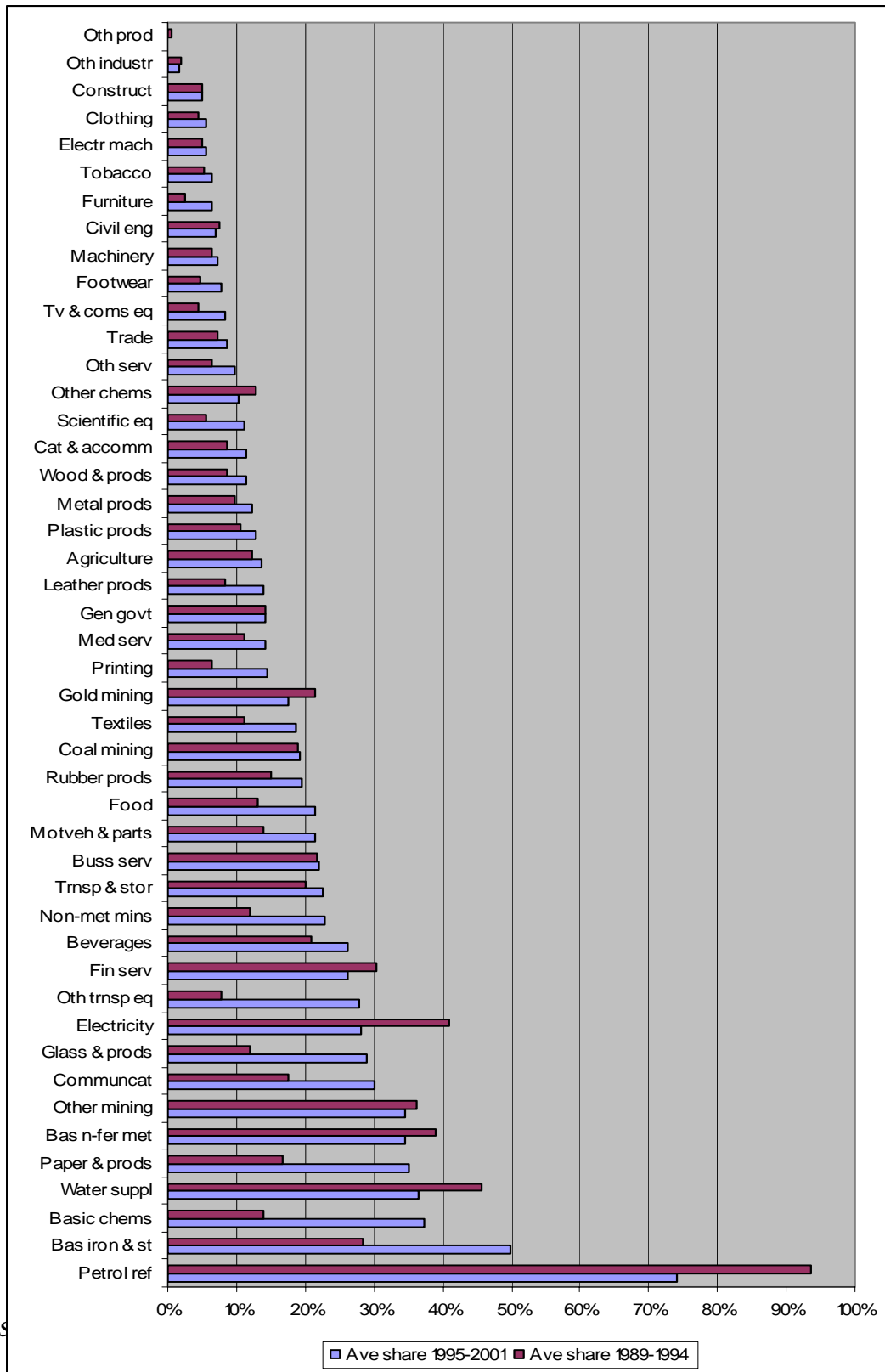
Table A7: Investment rates for 46 sectors, 1989-2001 (1995 constant prices)

	Sector	Period ave 1995-2001	Period ave 1989-1994	1989- 1994 Rank	Δ in ratio 1st - 2 nd half	Δ in ratio Rank
1	Petrol ref	74.2%	93.6%	1	-19.5%	46
2	Bas iron & st	49.9%	28.3%	7	21.6%	2
3	Basic chems	37.3%	13.9%	18	23.5%	1
4	Water suppl	36.5%	45.6%	2	-9.1%	44
5	Paper & prods	35.0%	16.6%	14	18.4%	4
6	Bas n-fer met	34.6%	39.0%	4	-4.3%	43
7	Other mining	34.6%	36.1%	5	-1.4%	39
8	Communcat	30.0%	17.7%	13	12.4%	6
9	Glass & prods	28.9%	11.8%	23	17.0%	5
10	Electricity	28.2%	40.9%	3	-12.7%	45
11	Oth trnsp eq	27.8%	7.7%	31	20.1%	3
12	Fin serv	26.3%	30.2%	6	-3.9%	42
13	Beverages	26.2%	20.9%	10	5.3%	14
14	Non-met mins	22.9%	11.9%	22	10.9%	7
15	Trnsp & stor	22.5%	20.0%	11	2.5%	24
16	Buss serv	21.9%	21.6%	8	0.3%	32
17	Motveh & parts	21.6%	14.0%	17	7.6%	10
18	Food	21.4%	13.0%	19	8.4%	8
19	Rubber prods	19.4%	15.0%	15	4.4%	15
20	Coal mining	19.2%	19.0%	12	0.2%	33
21	Textiles	18.5%	11.1%	25	7.5%	11
22	Gold mining	17.5%	21.4%	9	-3.9%	41
23	Printing	14.6%	6.4%	35	8.2%	9
24	Med serv	14.2%	11.2%	24	3.1%	20
25	Gen govt	14.2%	14.1%	16	0.1%	34
26	Leather prods	13.8%	8.4%	30	5.4%	13
27	Agriculture	13.5%	12.4%	21	1.2%	28
28	Plastic prods	12.9%	10.5%	26	2.3%	25
29	Metal prods	12.3%	9.7%	27	2.6%	23
30	Wood & prods	11.4%	8.6%	28	2.8%	21
31	Cat & accomm	11.3%	8.5%	29	2.8%	22
32	Scientific eq	11.1%	5.6%	37	5.5%	12
33	Other chems	10.3%	12.9%	20	-2.6%	40
34	Oth serv	9.6%	6.5%	34	3.1%	18
35	Trade	8.5%	7.1%	33	1.4%	26
36	Tv & coms eq	8.5%	4.5%	42	4.0%	16
37	Footwear	7.9%	4.8%	41	3.1%	19
38	Machinery	7.1%	6.3%	36	0.8%	30
39	Civil eng	6.9%	7.6%	32	-0.6%	38
40	Furniture	6.4%	2.5%	44	3.9%	17
41	Tobacco	6.4%	5.2%	38	1.2%	29
42	Electr mach	5.7%	5.1%	39	0.6%	31
43	Clothing	5.7%	4.4%	43	1.3%	27
44	Construct	5.1%	5.1%	40	0.0%	35
45	Oth industr	1.5%	2.0%	45	-0.5%	37
46	Oth prod	0.4%	0.5%	46	-0.2%	36

Source: TIPS South African Standardised Industry Database

Note: the investment rate .is defined as gross domestic investment divided by value added

Figure A10: Investment Rates for 46 sectors, 1989-2001 (1995 constant prices)



Comparing capital stock growth rates in the second half of the decade with the first period, it is evident that a range of smaller sectors are indeed continuing to grow their capital stock at above average rates. However, this can also be said of some of the traditional sectors such as *Basic Chemicals* and *Basic Iron and Steel*. This is confirmed by an examination of the investment rates, where it appears that the larger industries, which had benefited in the past from state intervention, still claim relatively high rankings. The restructuring of the South African capital stock towards a more diversified pattern is therefore expected to take longer than was initially anticipated.

EMPLOYMENT

Only a handful of sectors have shown an increase in their demand for labour, amongst others, *Leather Products*, *Plastic Products*, *Wood and Wood Products*, *Wholesale and Retail Trade*, *Printing and Publishing*, *Medical Services*, *Basic Chemicals* and *Other Chemicals* and *Television and Communications Equipment* producers (Table A8). In terms of labour demand, these industries are also relatively new on the scene, judging from the positions they held during the 1989-1994 period. However, with the exception of the *Wholesale and Retail Trade* sector, none of these industries have a large weight in the total demand for labour, as can be attested by the second last column of the table. On the contrary, labour shedding has been the trend in the relatively large sectors such as *Gold Mining*, *Agriculture*, and *General Government*, and this has obliterated whatever little gains in labour demand that have been recorded anywhere.

Table A8 and Figure A11 show that both *Plastic Products* and *Wholesale and Retail Trade* had the highest weighted average annual growth rate in employment between 1995-2001, with 3.6 per cent, followed in third place by *Printing and Publishing* with 2.9 per cent. At the other end of the scale, both the *Footwear* and *Non-Metallic Minerals* sectors posted the greatest decline in the demand for labour (-12 per cent), followed by *Gold Mining* with -10.8 per cent. The *Food* sector's demand for labour shrank by -3.2 per cent in this period, as did that of *Textiles* (-5.7 per cent) and *Clothing* (-0.8 per cent). Overall, the top ten sectors in this table were largely in services or upstream sectors.

Table A8: Growth in labour demand for 46 sectors, 1989-2001

	Sector	Ave ann Δ 1995-2001	Ave ann Δ 1989-1994	1989-1994 Rank	Ave share 1995-2001	1995- 2001 Rank	Ave share 1989-1994	1989-1994 Rank
1	Plastic prods	3.6%	-0.3%	16	0.7%	28	0.6%	31
2	Trade	3.6%	-1.5%	21	10.1%	4	9.1%	4
3	Printing	2.9%	1.5%	8	0.7%	27	0.6%	29
4	Wood & prods	2.8%	1.7%	6	0.9%	20	0.8%	28
5	Buss serv	1.6%	1.5%	7	3.8%	5	3.3%	7
6	Other chems	1.2%	-1.1%	20	0.9%	23	0.9%	26
7	Med serv	1.0%	0.1%	12	0.9%	22	0.8%	27
8	Oth serv	1.0%	0.4%	10	1.5%	15	1.3%	16
9	Oth prod	0.8%	-0.6%	18	14.7%	2	14.0%	2
10	Leather prods	0.8%	-6.1%	38	0.1%	42	0.1%	42
11	Electricity	0.7%	-6.2%	39	0.9%	24	0.9%	24
12	Tv & coms eq	0.2%	2.6%	3	0.2%	38	0.2%	41
13	Other mining	-0.1%	3.4%	1	2.0%	12	1.5%	15
14	Basic chems	-0.2%	-1.6%	22	0.4%	33	0.4%	34
15	Motveh & parts	-0.7%	-4.6%	33	1.0%	19	1.0%	20
16	Clothing	-0.8%	0.3%	11	1.8%	13	1.6%	14
17	Furniture	-1.1%	2.4%	5	0.6%	32	0.5%	32
18	Gen govt	-1.2%	3.2%	2	19.9%	1	16.9%	1
19	Fin serv	-1.4%	1.0%	9	2.7%	8	2.3%	11
20	Agriculture	-1.8%	-0.9%	19	10.7%	3	11.0%	3
21	Machinery	-1.9%	-4.7%	34	0.9%	21	1.0%	21
22	Electr mach	-2.1%	2.5%	4	1.1%	18	1.1%	18
23	Beverages	-2.8%	-1.9%	23	0.4%	34	0.5%	33
24	Paper & prods	-2.8%	-0.1%	14	0.6%	31	0.6%	30
25	Water suppl	-2.9%	-3.7%	31	0.1%	44	0.1%	43
26	Food	-3.2%	-2.1%	24	2.2%	10	2.5%	10
27	Metal prods	-3.5%	-3.2%	30	1.5%	16	1.6%	13
28	Oth industr	-3.9%	-2.8%	27	0.3%	35	0.3%	36
29	Scientific eq	-4.7%	0.0%	13	0.1%	45	0.1%	45
30	Coal mining	-4.8%	-8.5%	44	0.7%	26	0.9%	22
31	Tobacco	-4.9%	-7.2%	42	0.0%	46	0.0%	46
32	Communcat	-4.9%	-2.2%	25	1.2%	17	1.3%	17
33	Trnsp & stor	-5.4%	-7.7%	43	2.8%	7	3.8%	6
34	Rubber prods	-5.4%	-3.1%	29	0.2%	39	0.2%	40
35	Textiles	-5.7%	-9.5%	45	0.8%	25	1.1%	19
36	Oth trnsp eq	-5.7%	-9.8%	46	0.2%	41	0.2%	39
37	Petrol ref	-6.0%	-2.8%	26	0.2%	37	0.3%	38
38	Cat & accomm	-6.2%	-4.1%	32	2.7%	9	3.1%	8
39	Bas n-fer met	-6.7%	-6.7%	41	0.2%	40	0.3%	37
40	Glass & prods	-7.2%	-0.1%	15	0.1%	43	0.1%	44
41	Civil eng	-7.6%	-0.4%	17	1.6%	14	1.9%	12
42	Bas iron & st	-8.5%	-6.4%	40	0.6%	30	0.9%	25
43	Construct	-9.1%	-4.9%	35	2.0%	11	2.9%	9
44	Gold mining	-10.8%	-5.0%	36	3.7%	6	5.6%	5
45	Non-met mins	-12.0%	-2.9%	28	0.7%	29	0.9%	23
46	Footwear	-12.0%	-5.1%	37	0.3%	36	0.4%	35

Source: TIPS South African Standardised Industry Database

Figure A11: Growth in labour demand for 46 sectors, 1989-2001

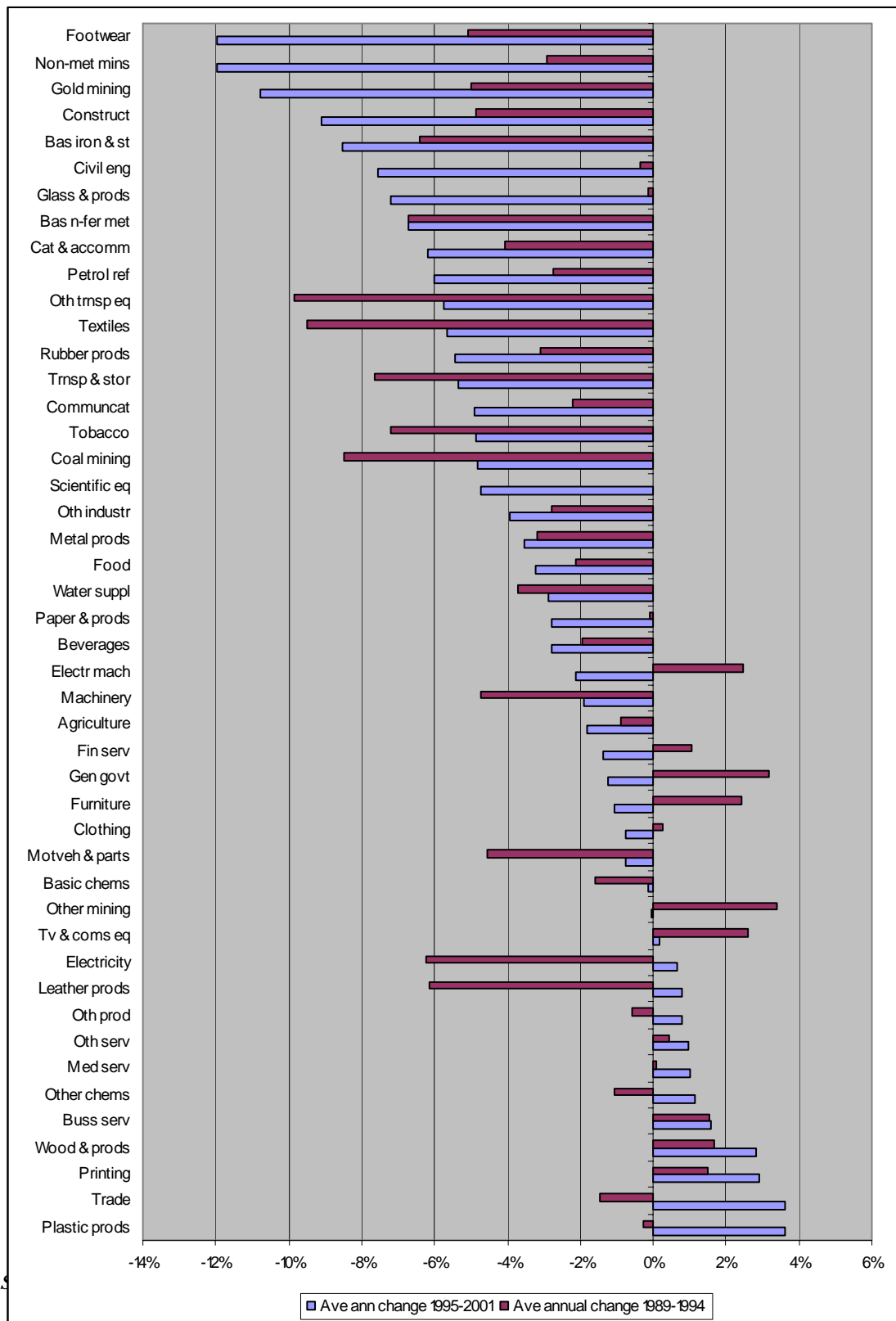
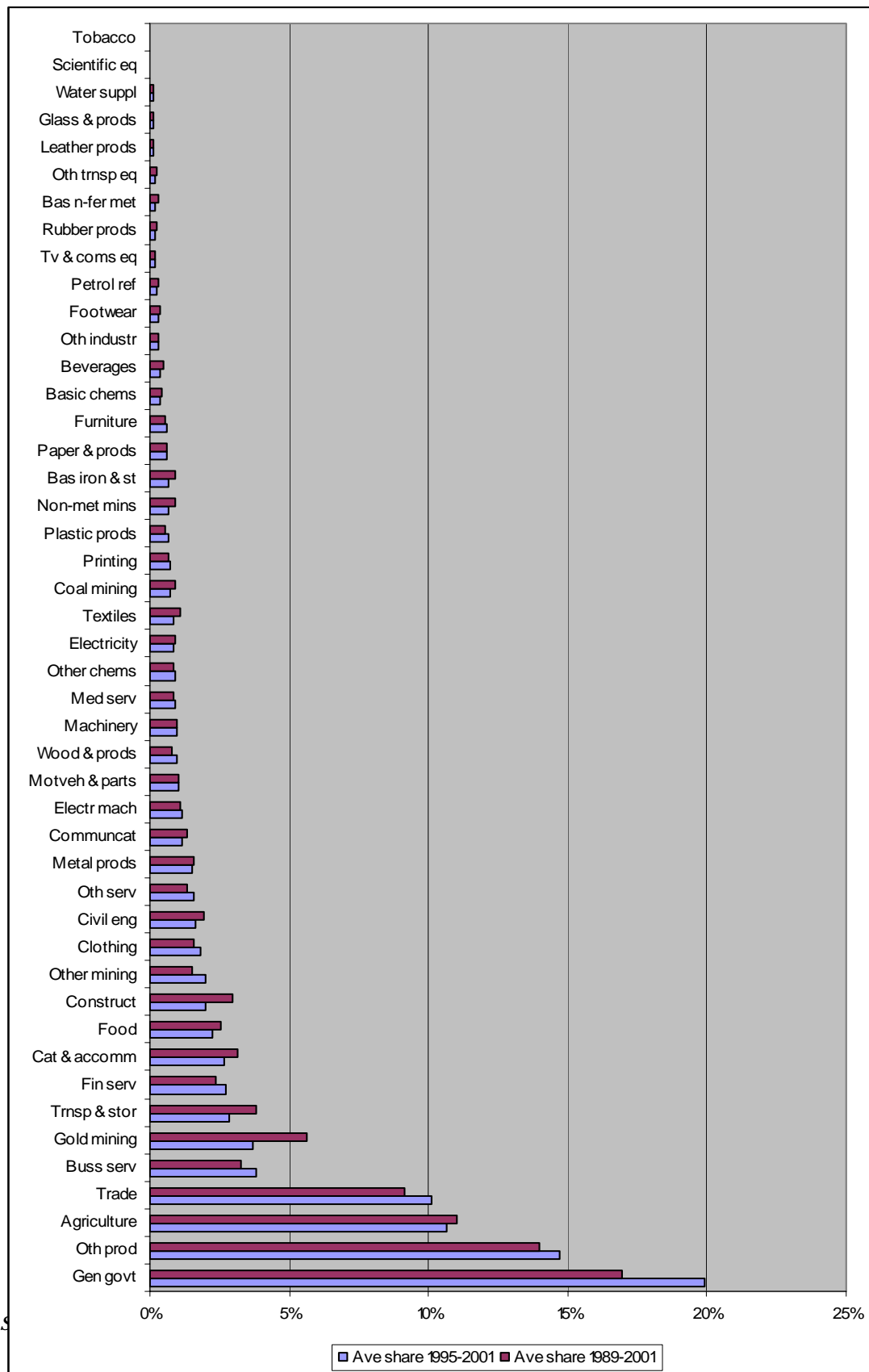


Figure A12: Shares in the Demand for Labour, 1989-2001



To further compound the employment crisis, a number of industries have achieved relatively high growth in value-added while shedding labour at the same time, amongst others, *Plastic Products* (0.7 per cent), *Business Services* (3.8 per cent) and *Medical Services* (0.9 per cent). Between 1995-2001 for instance, the largest share of total employment was attributed to the General Government category (19.9 per cent), followed in second place by *Other Producers* (14.7 per cent), and in third place the *Agriculture* sector (10.7 per cent). The smallest share of total labour demand was evident for the Tobacco sector (less than 0.1 per cent), Professional and Scientific Equipment (0.1 per cent) and Glass and Glass Products (0.1 per cent).

In the 1989-1994 era, the *General Government* sector once again had the largest share of total labour demand, with 16.9 per cent, followed by *Other Producers* (14 per cent) and in third place *Agriculture* (11 per cent). The smallest shares were attributable to *Tobacco* (less than 0.1 per cent), *Professional and Scientific Equipment* (0.1 per cent) and *Glass and Glass Products* (0.1 per cent).

It would therefore appear that while the structure of the South African economy has adopted the global trends with a move in the direction of the “New Economy” and has seen a shift in production towards tertiary industries, it now becomes clear that this alone is not able to address the employment crisis. Many of the sectors that have seen rapid increases in output, such as *Television and Communication Equipment*, *Motor Vehicles, Parts and Accessories* and *Basic and Other chemicals*, are also less labour intensive than the manufacturing sector as a whole (Kaplan, 2003). The more labour intensive sectors are consumer goods industries that tend to be strongly oriented towards the domestic market. With domestic demand constrained due to tight macro policy, and with a limited exposure to export markets, these sectors have seen significant declines in output.

Furthermore, a number of these most labour intensive sectors - such as *Clothing*, *Wood and Wood Products*, *Footwear* and *Furniture* - have seen significant declines in employment intensity as measured by the incremental employment/output ratio.

DEMAND FOR HIGH SKILLED LABOUR

The demand for high skilled labour is represented in Table A9 and Figure A13. In the 1995-2001 period, the highest weighted annual average change in the demand for high skilled labour was found in the Agriculture sector (6.6 per cent), followed in second place by Wholesale and Retail Trade (3.8 per cent) and Wood and Wood Products (3.5 per cent). The lagging sectors in this category were Footwear (-13.9 per cent), Non-metallic Minerals (-12.3 per cent) and Gold Mining (-11.4 per cent). It is instructive to note that with the exception of Agriculture and Wood and Wood Products, the bulk of the top ten sectors are either those that manufacture high value-added products or are services.

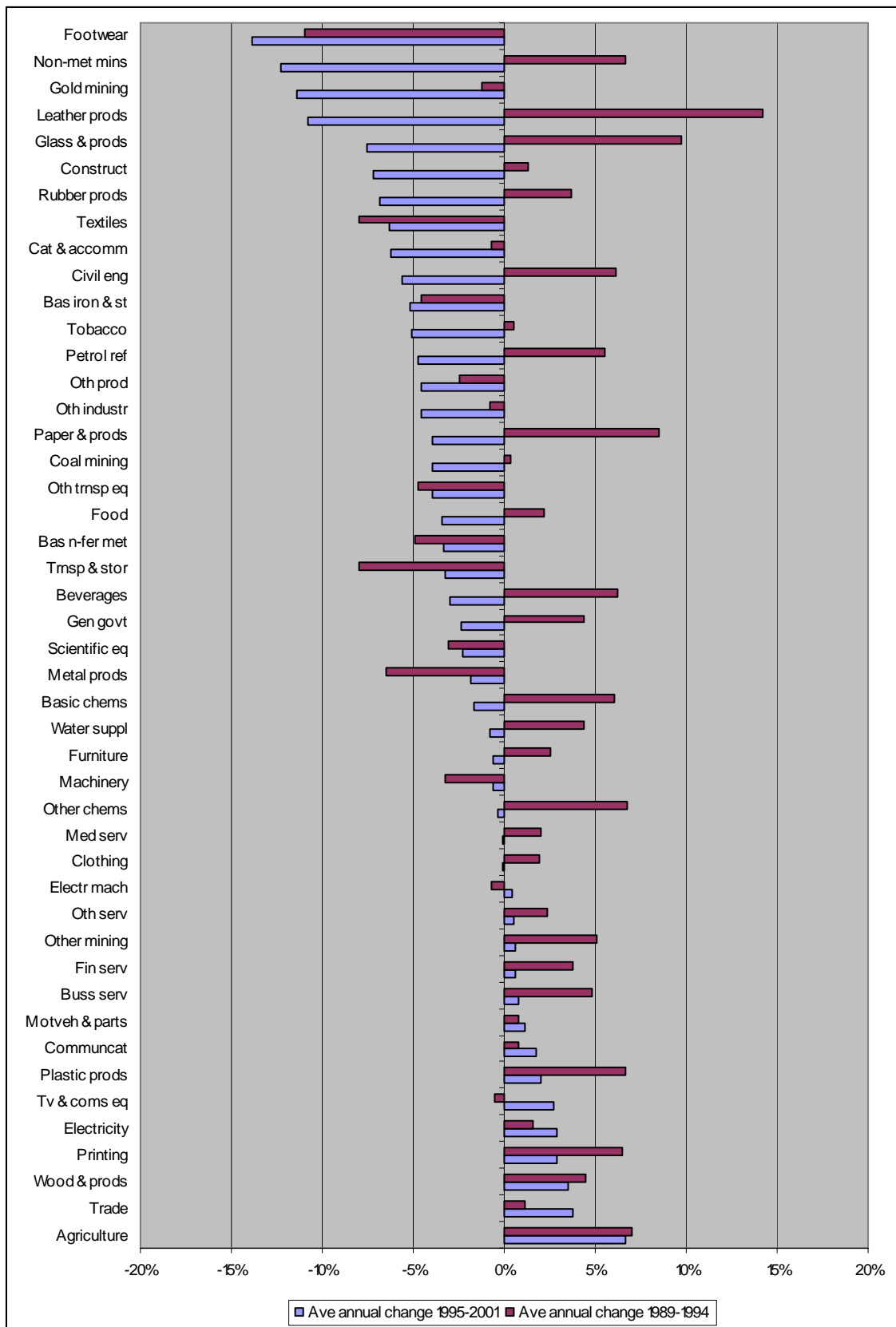
Between 1989-1994, the greatest demand for high skilled labour was evident for *Leather Products*, with 14.2 per cent, followed in distant second place by *Glass and Glass Products* (9.7 per cent) and *Paper and Paper Products* (8.5 per cent). Once again, however, these sectors have a minimal share of the total demand for skilled labour.

Table A9: Demand for High Skilled Labour, 1989-2001

	Sector	Ave ann Δ 1995-2001	Ave ann Δ 1989-1994	1989-1994 Rank	Ave share 1995-2001	1995- 2001 Rank	Ave share 1989-1994	1989-1994 Rank
1	Agriculture	6.6%	7.0%	4	1.2%	12	0.9%	17
2	Trade	3.8%	1.2%	27	8.0%	2	7.7%	2
3	Wood & prods	3.5%	4.4%	15	0.2%	36	0.2%	39
4	Printing	2.9%	6.5%	8	0.9%	16	0.8%	20
5	Electricity	2.9%	1.6%	25	1.3%	10	1.2%	11
6	Tv & coms eq	2.7%	-0.6%	32	0.2%	34	0.2%	36
7	Plastic prods	2.0%	6.7%	6	0.4%	26	0.3%	31
8	Communcat	1.8%	0.8%	29	0.7%	19	0.7%	21
9	Motveh & parts	1.2%	0.8%	28	1.1%	13	1.0%	14
10	Buss serv	0.8%	4.8%	14	5.0%	3	4.6%	3
11	Fin serv	0.6%	3.8%	18	4.5%	4	4.3%	4
12	Other mining	0.6%	5.1%	13	0.6%	22	0.5%	24
13	Oth serv	0.6%	2.4%	21	4.3%	5	4.3%	5
14	Electr mach	0.4%	-0.7%	34	1.2%	11	1.3%	10
15	Clothing	0.0%	1.9%	24	0.5%	24	0.5%	25
16	Med serv	-0.1%	2.0%	23	2.9%	7	3.1%	7
17	Other chems	-0.4%	6.8%	5	1.0%	14	1.0%	15
18	Machinery	-0.6%	-3.2%	39	0.8%	17	0.9%	18
19	Furniture	-0.6%	2.6%	20	0.2%	35	0.2%	37
20	Water suppl	-0.8%	4.4%	17	0.2%	37	0.2%	40
21	Basic chems	-1.6%	6.0%	11	0.4%	27	0.4%	27
22	Metal prods	-1.8%	-6.5%	43	0.7%	18	0.9%	19
23	Scientific eq	-2.3%	-3.1%	38	0.1%	42	0.1%	42
24	Gen govt	-2.4%	4.4%	16	50.5%	1	48.8%	1
25	Beverages	-3.0%	6.2%	9	0.3%	28	0.4%	29
26	Trnsp & stor	-3.3%	-8.0%	45	1.5%	9	2.0%	8
27	Bas n-fer met	-3.3%	-4.9%	42	0.1%	40	0.2%	35
28	Food	-3.4%	2.2%	22	1.0%	15	1.1%	12
29	Oth trnsp eq	-3.9%	-4.7%	41	0.2%	38	0.2%	34
30	Coal mining	-4.0%	0.3%	31	0.3%	31	0.3%	33
31	Paper & prods	-4.0%	8.5%	3	0.3%	29	0.3%	32
32	Oth industr	-4.6%	-0.8%	35	0.2%	39	0.2%	38
33	Oth prod	-4.6%	-2.4%	37	4.1%	6	4.1%	6
34	Petrol ref	-4.7%	5.5%	12	0.3%	33	0.4%	28
35	Tobacco	-5.1%	0.5%	30	0.0%	46	0.0%	45
36	Bas iron & st	-5.2%	-4.6%	40	0.5%	25	0.7%	23
37	Civil eng	-5.7%	6.1%	10	0.6%	23	0.7%	22
38	Cat & accomm	-6.2%	-0.7%	33	1.5%	8	2.0%	9
39	Textiles	-6.3%	-7.9%	44	0.3%	32	0.4%	30
40	Rubber prods	-6.9%	3.7%	19	0.1%	41	0.1%	41
41	Construct	-7.2%	1.3%	26	0.7%	20	1.1%	13
42	Glass & prods	-7.6%	9.7%	2	0.1%	44	0.1%	44
43	Leather prods	-10.8%	14.2%	1	0.0%	45	0.0%	46
44	Gold mining	-11.4%	-1.2%	36	0.7%	21	1.0%	16
45	Non-met mins	-12.3%	6.7%	7	0.3%	30	0.4%	26
46	Footwear	-13.9%	-11.0%	46	0.1%	43	0.1%	43

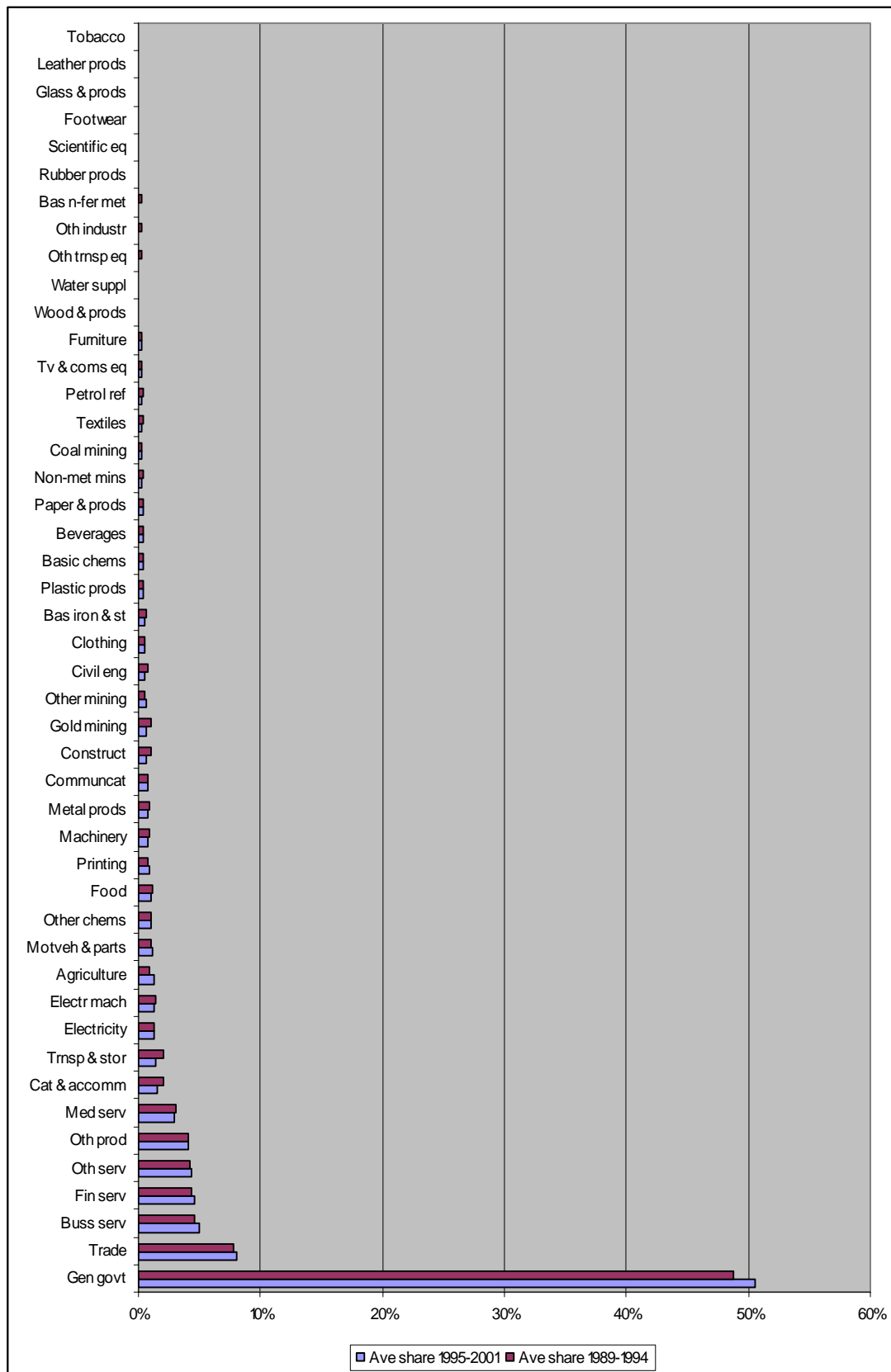
Source: TIPS South African Standardised Industry Database

Figure A13: Demand for High Skilled Labour, 1989-2001



Source: TIPS South African Standardised Industry Database

Figure A14: Shares in the demand for high skilled labour, 1989-2001



Source: TIPS South African Standardised Industry Database

Looking at the absolute shares of the total demand for high skilled labour, Table A9 and Figure A14 also indicate that the *General Government* sector claimed the lion's share of highly skilled labour between 1995-2001 with 50.5 per cent of the total, followed in second place by *Wholesale and Retail Trade* (8 per cent) and *Business Services* (5 per cent). In bottom position lay the *Tobacco* sector (less than 0.1 per cent), followed by *Leather Products* (also less than 0.1 per cent). Despite the high value-added and export performance, the *Motor Vehicles, Parts and Accessories* sector claimed just 1.1 per cent of the total high skilled labour force.

Between 1989-1994, the *General Government* sector also topped the table with 48.8 per cent of total high skilled employment, with *Wholesale and Retail Trade* coming in second with 7.7 per cent, and *Business Services* third with 4.6 per cent. The bottom end of the scale was occupied by the same categories as the 1995-2001 period (Figure A13).

DEMAND FOR MEDIUM SKILLED LABOUR

The trends in demand for medium skilled labour are reproduced in Table A10 and Figure A15. In the 1995-2001 period, the highest demand for medium skilled labour was attributed to the *Wood and Wood Products* sector, which grew at an average of 8.5 per cent, followed by *Leather Products* (6.4 per cent) and *Wholesale and Retail Trade* (3.8 per cent). At the bottom of the table were *Gold Mining* (-15 per cent), *Footwear* (-13.9 per cent) and *Non-metallic Minerals* (-10.6 per cent). As in the case with high skilled employment, these are relatively small sectors in terms of overall labour demand. As opposed to high skilled labour, majority of the top ten positions are occupied by primary product categories.

Between 1989-1994, the highest demand for medium skilled labour was evident for *Other Mining* (6.3 per cent), followed by *Paper and Paper Products* (5.6 per cent) and *Glass and Glass Products* (5.2 per cent). The lowest growth in demand for medium skilled labour was in the *Other Transport Equipment* category, where this shrank by -10.5 per cent, followed by *Petroleum Refining* (-9.7 per cent) and *Transport and Storage* (-9.5 per cent).

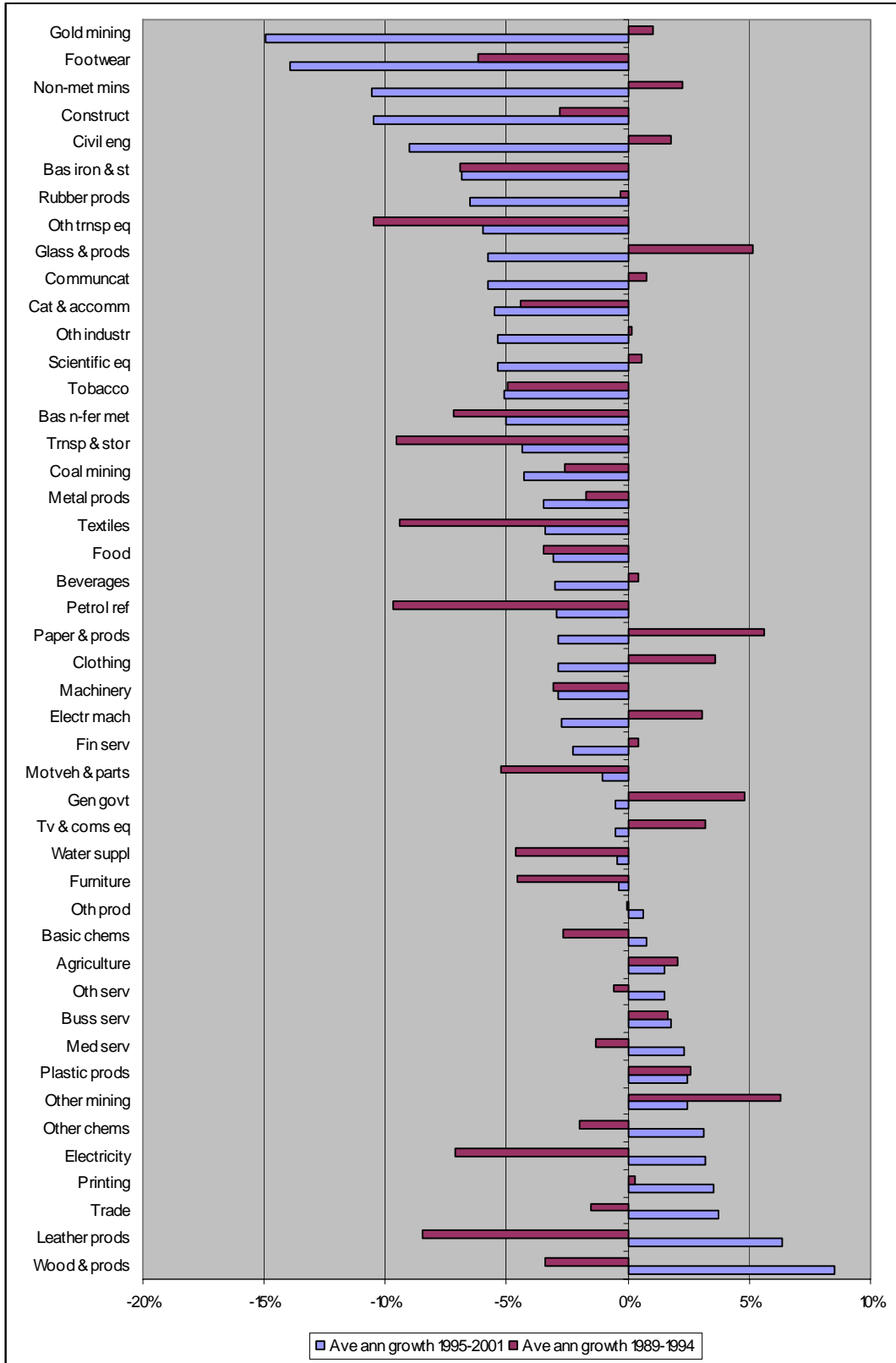
In terms of absolute share between 1995-2001, *General Government* once again claimed the bulk of labour demand in the medium skilled category, with 24.2 per cent of the total, followed by *Paper and Paper Products* (5.6 per cent) and *Glass and Glass Products* (5.2 per cent), with the smallest shares going to *Other Transport Equipment* (-10.5 per cent), *Petroleum Refining* (-9.7 per cent) and *Transport and Storage* (-9.5 per cent) as Figure A15 demonstrates.

Table A10: Demand for Medium Skilled Labour, 1989-2001

	Sector	Ave ann Δ 1995-2001	Ave ann Δ 1989-1994	1989-1994 Rank	Ave share 1995-2001	1995- 2001 Rank	Ave share 1989-1994	1989-1994 Rank
1	Wood & prods	8.5%	-3.4%	31	0.8%	22	0.9%	23
2	Leather prods	6.4%	-8.5%	42	0.0%	45	0.1%	45
3	Trade	3.8%	-1.6%	24	18.7%	2	17.7%	2
4	Printing	3.5%	0.3%	18	1.1%	16	1.0%	17
5	Electricity	3.2%	-7.1%	40	0.8%	23	0.9%	21
6	Other chems	3.1%	-2.0%	26	0.9%	20	0.9%	20
7	Other mining	2.5%	6.3%	1	0.9%	18	0.7%	25
8	Plastic prods	2.4%	2.6%	8	0.4%	29	0.3%	35
9	Med serv	2.3%	-1.3%	23	1.2%	12	1.2%	14
10	Buss serv	1.8%	1.6%	12	6.5%	4	5.8%	5
11	Oth serv	1.5%	-0.6%	22	2.3%	9	2.2%	9
12	Agriculture	1.5%	2.1%	10	1.2%	11	1.1%	15
13	Basic chems	0.7%	-2.7%	28	0.3%	33	0.4%	33
14	Oth prod	0.6%	-0.1%	20	9.5%	3	9.7%	3
15	Furniture	-0.4%	-4.5%	34	0.4%	30	0.4%	30
16	Water suppl	-0.4%	-4.6%	35	0.1%	41	0.1%	40
17	Tv & coms eq	-0.5%	3.2%	6	0.1%	39	0.1%	41
18	Gen govt	-0.5%	4.8%	4	24.2%	1	20.9%	1
19	Motveh & parts	-1.0%	-5.2%	37	0.9%	21	0.9%	19
20	Fin serv	-2.3%	0.5%	16	5.2%	5	4.9%	7
21	Electr mach	-2.8%	3.0%	7	0.7%	24	0.8%	24
22	Machinery	-2.9%	-3.1%	30	1.0%	17	1.0%	18
23	Clothing	-2.9%	3.6%	5	0.7%	25	0.6%	26
24	Paper & prods	-2.9%	5.6%	2	0.5%	28	0.5%	29
25	Petrol ref	-3.0%	-9.7%	45	0.2%	36	0.3%	36
26	Beverages	-3.0%	0.4%	17	0.4%	31	0.4%	32
27	Food	-3.1%	-3.5%	32	2.4%	8	2.5%	8
28	Textiles	-3.4%	-9.4%	43	0.3%	35	0.4%	31
29	Metal prods	-3.5%	-1.7%	25	1.1%	13	1.3%	13
30	Coal mining	-4.3%	-2.6%	27	0.6%	26	0.6%	27
31	Trnsp & stor	-4.4%	-9.5%	44	4.8%	6	7.1%	4
32	Bas n-fer met	-5.0%	-7.2%	41	0.2%	37	0.3%	37
33	Tobacco	-5.1%	-5.0%	36	0.0%	46	0.0%	46
34	Scientific eq	-5.3%	0.6%	15	0.1%	44	0.1%	44
35	Oth industr	-5.4%	0.1%	19	0.3%	32	0.3%	34
36	Cat & accomm	-5.5%	-4.4%	33	4.7%	7	5.8%	6
37	Communcat	-5.8%	0.8%	14	1.9%	10	1.9%	10
38	Glass & prods	-5.8%	5.2%	3	0.1%	42	0.1%	43
39	Oth trnsp eq	-6.0%	-10.5%	46	0.1%	38	0.2%	38
40	Rubber prods	-6.5%	-0.3%	21	0.1%	40	0.1%	39
41	Bas iron & st	-6.8%	-6.9%	39	0.5%	27	0.9%	22
42	Civil eng	-9.0%	1.8%	11	0.9%	19	1.1%	16
43	Construct	-10.5%	-2.8%	29	1.1%	15	1.6%	11
44	Non-met mins	-10.6%	2.2%	9	0.3%	34	0.5%	28
45	Footwear	-13.9%	-6.2%	38	0.1%	43	0.1%	42
46	Gold mining	-15.0%	1.0%	13	1.1%	14	1.5%	12

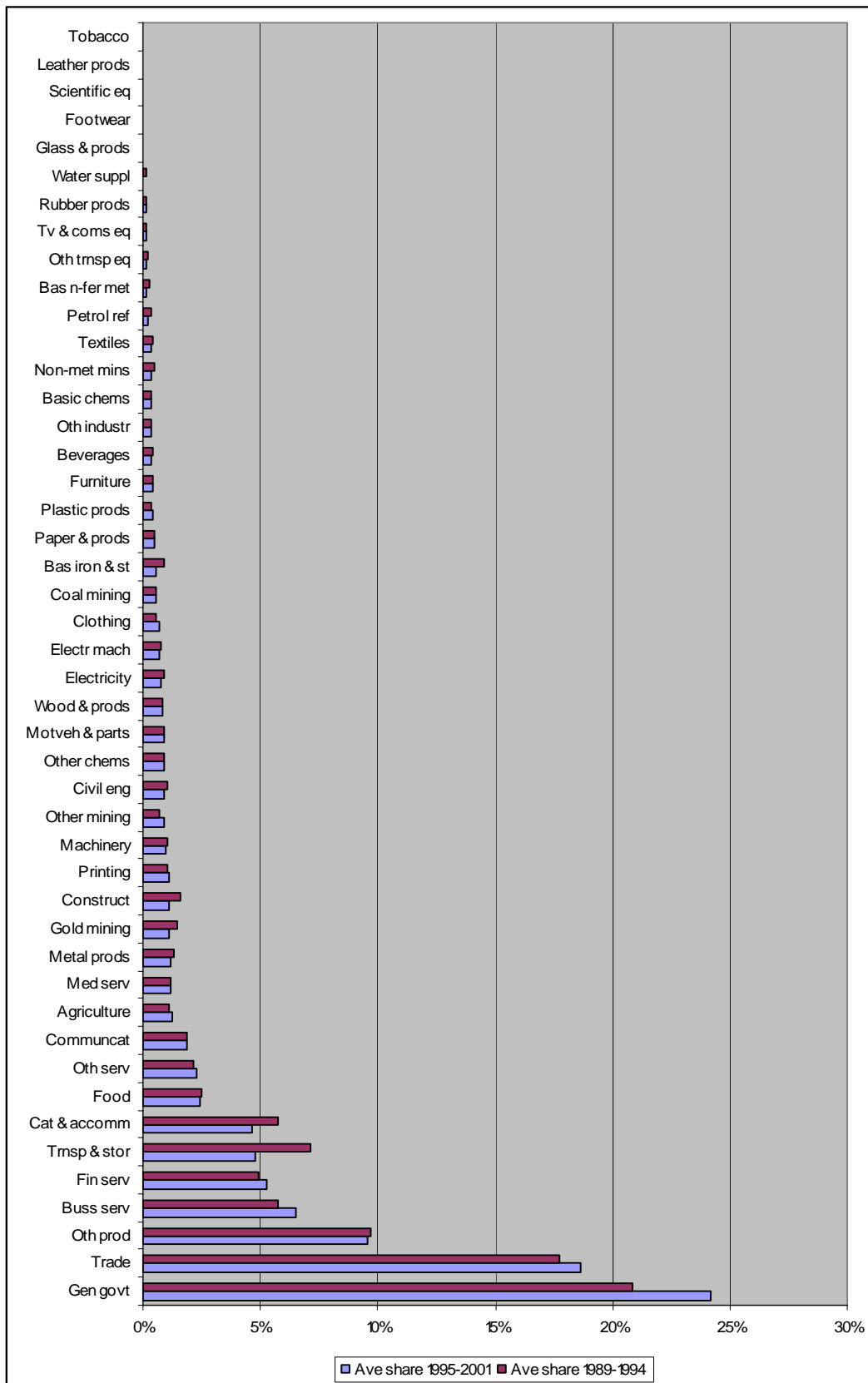
Source: TIPS South African Standardised Industry Database

Figure A15: Growth in the Demand for Medium Skilled Labour, 1989-2001



Source: TIPS South African Standardised Industry Database

Figure A16: Shares in the Demand for Medium Skilled Labour 1989-2001



Source: TIPS South African Standardised Industry Database

DEMAND FOR LOW SKILLED LABOUR

The trends in demand for low skilled labour are reproduced in Table A11 and Figure A17. Between 1995-2001, the highest growth in the demand for low skilled labour came from the *Plastic Products* sector (4.3 per cent), followed closely by *Wholesale and Retail Trade* and *Financial Services* with 3 per cent. At the bottom of the table were *Non-metallic Minerals* (-12.3 per cent), *Footwear* (-11.7 per cent) and *Gold Mining* (-10.2 per cent). No trend is discernible in the demand for low skilled labour, as the top ten positions seem to be evenly spread between services, primary products and first level benefited goods.

In the preceding period, the *Furniture* sector had the highest growth in demand for low skilled labour (5.2 per cent), followed by *Wood and Wood Products* (4 per cent) and in third position *Television and Communication Equipment* (3.2 per cent). The tail-enders in 1989-1994 were *Other Transport Equipment* (-10.7 per cent), *Coal Mining* (-10.6 per cent) and *Tobacco* (-9.7 per cent).

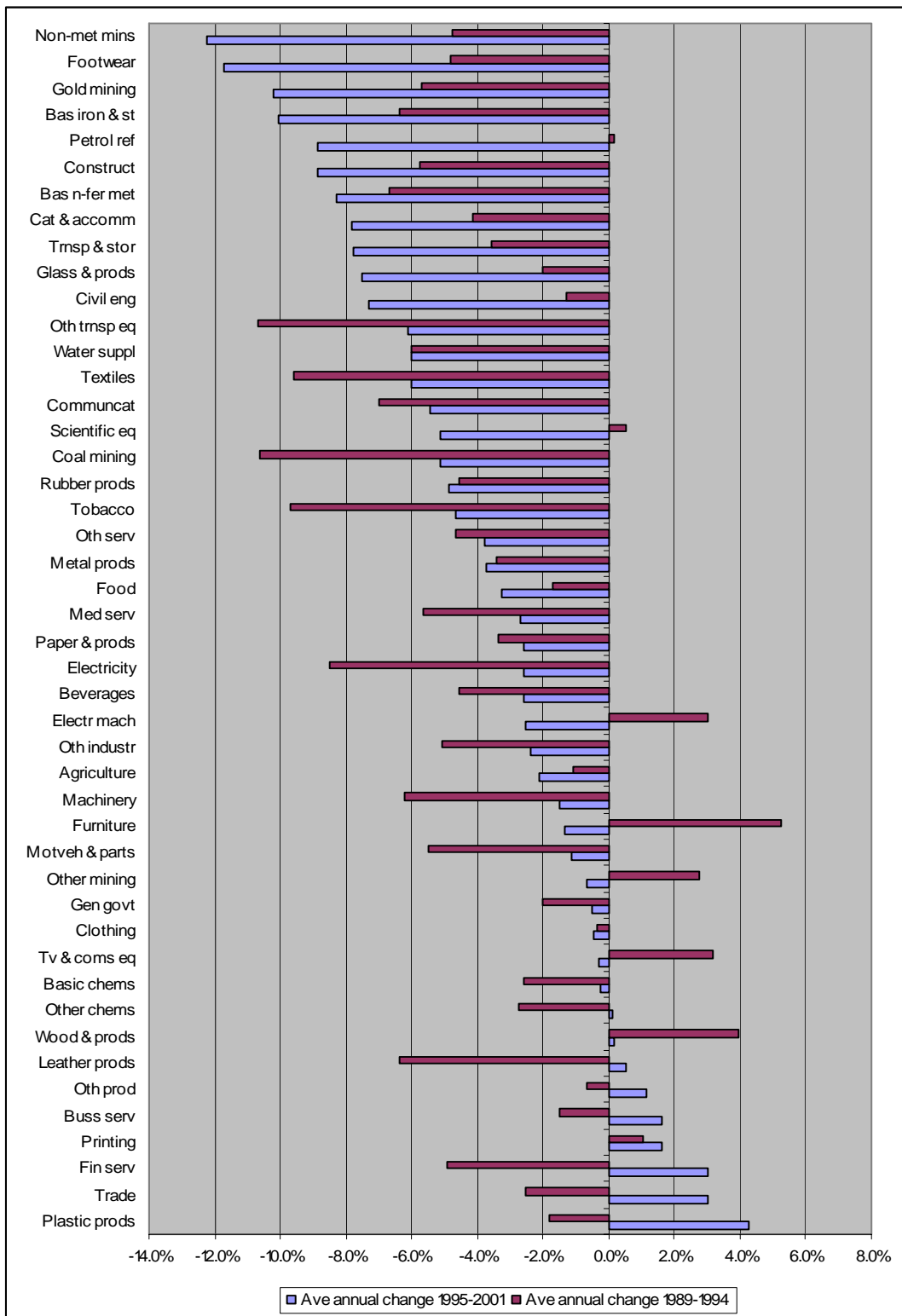
In terms of absolute share between 1995-2001, the *Other Producers* sector topped the table with 22.1 per cent, followed by *Agriculture* (20.9 per cent) and in third place *General Government* (6.9 per cent). Bottom of the table was occupied by *Tobacco* and *Medical Services* (less than 0.1 per cent) and *Other Services* (0.1 per cent). The order was somewhat reversed in 1989-1994, when *Agriculture* led with 20 per cent of the share of low skilled employment, followed by *Other Producers* (19.1 per cent) and *Gold Mining* (9.5 per cent) as shown in Figure A18.

Table A11: Demand for Low Skilled Labour, 1989-2001

	Sector	Ave ann Δ 1995-2001	Ave ann Δ 1989-1994	1989-1994 Rank	Ave share 1995-2001	1995- 2001 Rank	Ave share 1989-1994	1989-1994 Rank
1	Plastic prods	4.3%	-1.8%	15	1.0%	21	0.8%	27
2	Trade	3.0%	-2.6%	18	4.3%	5	3.7%	6
3	Fin serv	3.0%	-4.9%	30	0.2%	38	0.1%	41
4	Printing	1.6%	1.1%	6	0.4%	32	0.3%	32
5	Buss serv	1.6%	-1.5%	13	1.4%	15	1.3%	18
6	Oth prod	1.2%	-0.7%	10	22.1%	1	19.1%	2
7	Leather prods	0.5%	-6.4%	38	0.2%	39	0.2%	38
8	Wood & prods	0.2%	4.0%	2	1.3%	17	0.9%	23
9	Other chems	0.1%	-2.7%	20	0.8%	24	0.8%	25
10	Basic chems	-0.3%	-2.6%	19	0.4%	30	0.4%	31
11	Tv & coms eq	-0.3%	3.2%	3	0.3%	35	0.2%	39
12	Clothing	-0.4%	-0.4%	9	3.1%	8	2.5%	9
13	Gen govt	-0.5%	-2.0%	16	6.9%	3	6.9%	4
14	Other mining	-0.6%	2.7%	5	3.2%	6	2.3%	10
15	Motveh & parts	-1.2%	-5.5%	32	1.1%	18	1.1%	20
16	Furniture	-1.3%	5.2%	1	0.9%	23	0.7%	28
17	Machinery	-1.5%	-6.2%	37	0.9%	22	0.9%	22
18	Agriculture	-2.1%	-1.1%	11	20.9%	2	20.0%	1
19	Oth industr	-2.4%	-5.1%	31	0.3%	34	0.3%	34
20	Electr mach	-2.5%	3.0%	4	1.4%	14	1.3%	17
21	Beverages	-2.6%	-4.6%	25	0.4%	31	0.5%	30
22	Electricity	-2.6%	-8.5%	42	0.8%	28	0.9%	24
23	Paper & prods	-2.6%	-3.4%	21	0.8%	25	0.8%	26
24	Med serv	-2.7%	-5.7%	33	0.0%	45	0.1%	46
25	Food	-3.2%	-1.7%	14	2.5%	9	2.9%	7
26	Metal prods	-3.7%	-3.4%	22	2.0%	11	2.0%	12
27	Oth serv	-3.8%	-4.7%	27	0.1%	43	0.1%	44
28	Tobacco	-4.6%	-9.7%	44	0.0%	46	0.1%	45
29	Rubber prods	-4.8%	-4.6%	26	0.3%	33	0.3%	35
30	Coal mining	-5.1%	-10.6%	45	1.0%	19	1.3%	15
31	Scientific eq	-5.1%	0.5%	7	0.1%	42	0.1%	43
32	Communcat	-5.5%	-7.0%	41	0.8%	27	1.1%	19
33	Textiles	-6.0%	-9.6%	43	1.4%	16	1.7%	13
34	Water suppl	-6.0%	-6.0%	36	0.1%	44	0.1%	42
35	Oth trnsp eq	-6.1%	-10.7%	46	0.2%	41	0.2%	36
36	Civil eng	-7.3%	-1.3%	12	2.5%	10	2.8%	8
37	Glass & prods	-7.5%	-2.0%	17	0.2%	40	0.2%	40
38	Trnsp & stor	-7.8%	-3.6%	23	1.8%	12	2.0%	11
39	Cat & accomm	-7.8%	-4.2%	24	1.5%	13	1.7%	14
40	Bas n-fer met	-8.3%	-6.7%	40	0.2%	36	0.3%	33
41	Construct	-8.8%	-5.8%	35	3.1%	7	4.3%	5
42	Petrol ref	-8.9%	0.2%	8	0.2%	37	0.2%	37
43	Bas iron & st	-10.1%	-6.4%	39	0.8%	26	1.0%	21
44	Gold mining	-10.2%	-5.7%	34	6.6%	4	9.5%	3
45	Footwear	-11.7%	-4.8%	29	0.5%	29	0.7%	29
46	Non-met mins	-12.3%	-4.8%	28	1.0%	20	1.3%	16

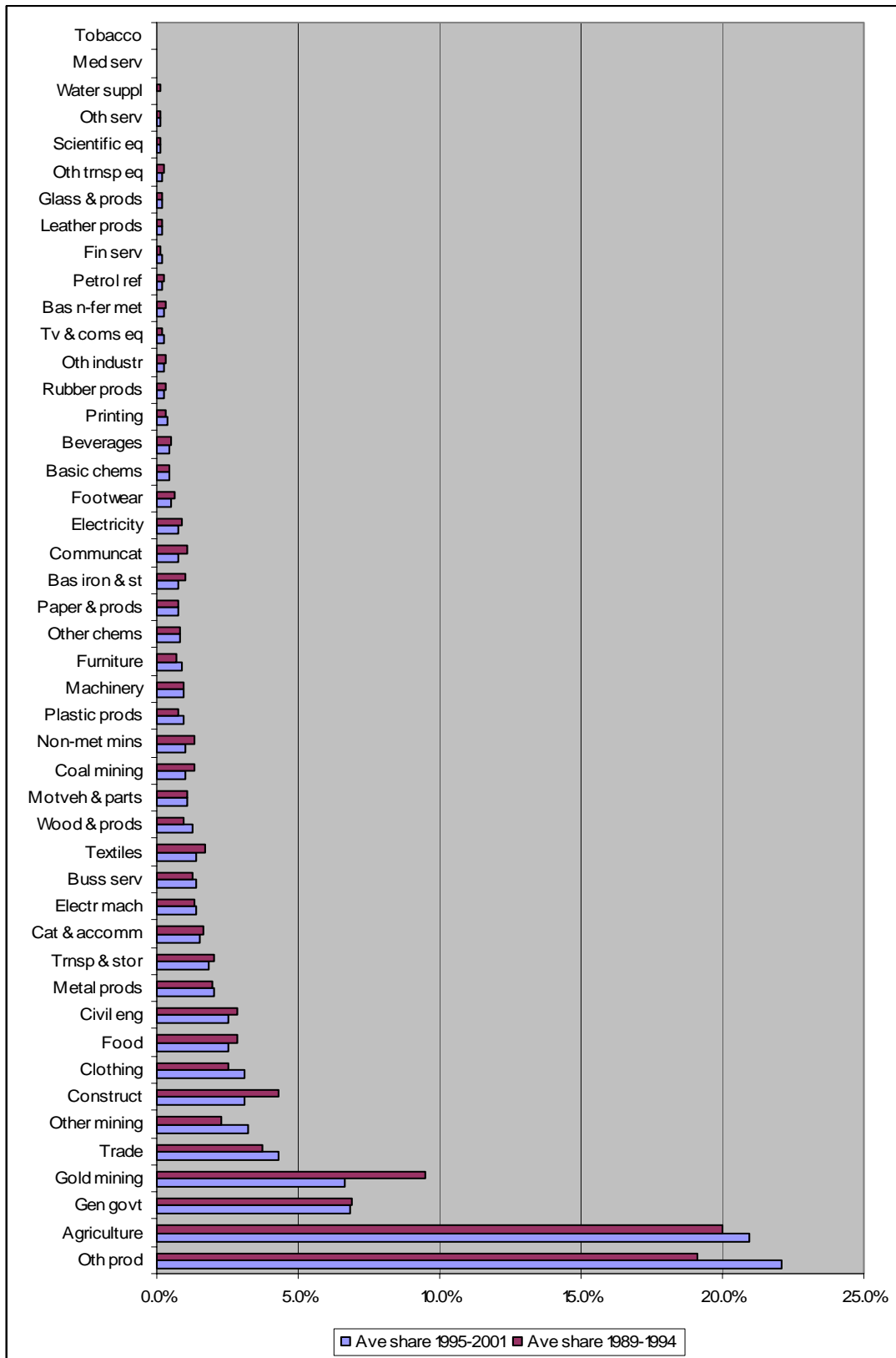
Source: TIPS South African Standardised Industry Database

Figure A17: Growth in the Demand for Low Skilled Labour, 1989-2001



Source: TIPS South African Standardised Industry Database

Figure A18: Shares in the Demand for Low Skilled Labour



Source: TIPS South African Standardised Industry Database

EMPLOYMENT-OUTPUT RATIOS

Turning now to the employment intensity of production, employment-output ratios are calculated for the 46 industrial sectors of the South African economy (Table A12). What immediately becomes apparent is that the ranking of these ratios does not significantly change between 1989-1994 and 1995-2001.

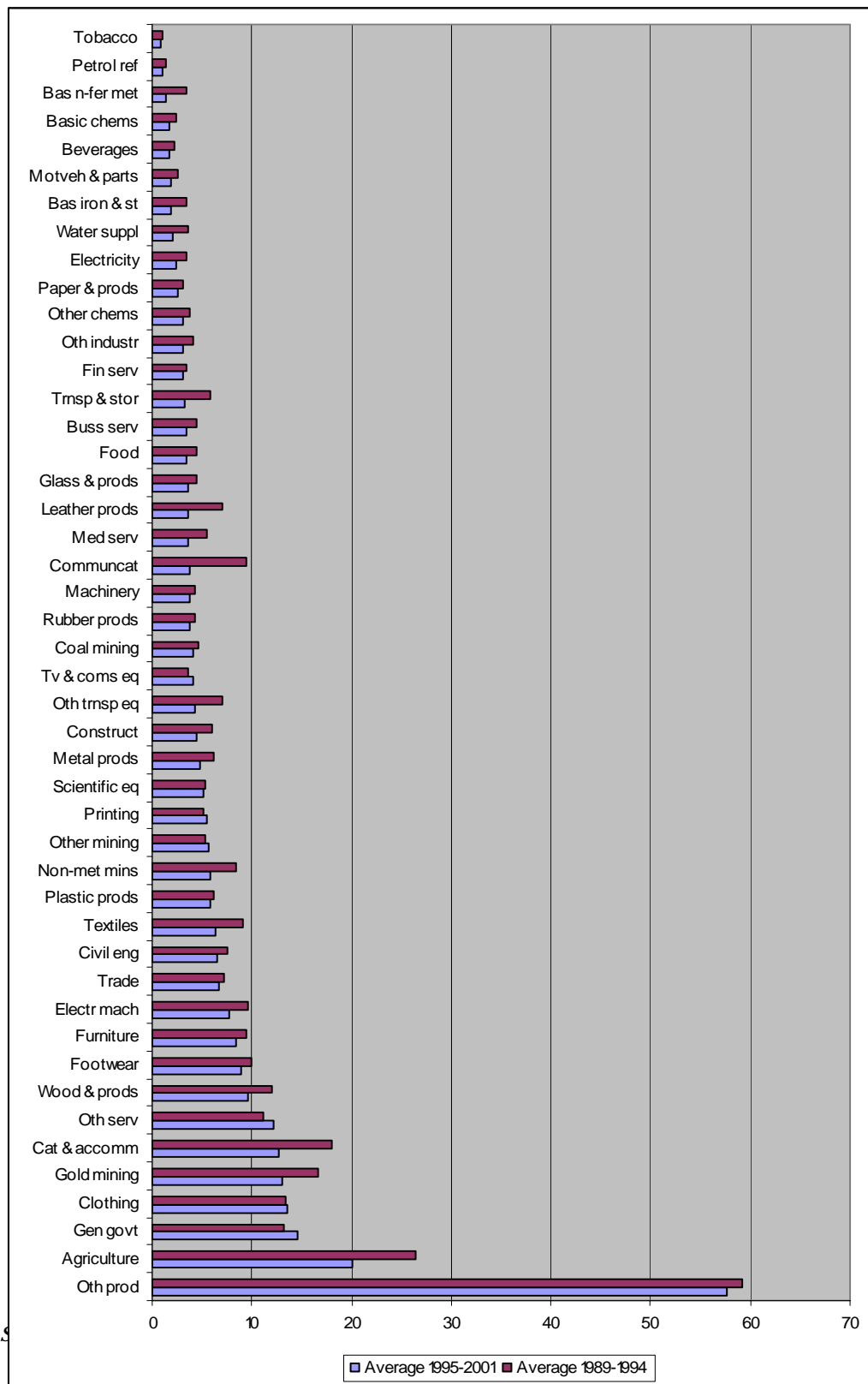
Relatively labour intensive sectors are *Clothing, Gold Mining, Catering and Accommodation, Wood Products, Footwear, Furniture and Electrical Machinery*. However, each one of these industries has experienced a relatively high decline in employment intensity. On the other side of the scale some of the star performers of the South African industry, such as basic and other chemicals, *Financial Services, Business Services, Television and Communications Equipment and Motor Vehicles, Parts and Accessories* employ less labour per unit of output relative to the economy-wide average.

Table A12: Employment-output ratios for 46 sectors, 1989-2001

	Sector	Period ave 1995-2001	Period ave 1989-1994	1989-1994 Rank	Δ Rank 1989- 1994 to 1995- 2001
1	Oth prod	57.6	59.2	1	-2
2	Agriculture	20.2	26.4	2	-6
3	Gen govt	14.6	13.3	6	1
4	Clothing	13.6	13.4	5	0
5	Gold mining	13.0	16.7	4	-4
6	Cat & accomm	12.8	18.0	3	-5
7	Oth serv	12.2	11.1	8	1
8	Wood & prods	9.6	12.0	7	-2
9	Footwear	8.9	9.9	9	-1
10	Furniture	8.4	9.4	12	-1
11	Electr mach	7.8	9.6	10	-2
12	Trade	6.6	7.2	16	-1
13	Civil eng	6.5	7.5	15	-1
14	Textiles	6.4	9.0	13	-3
15	Plastic prods	5.8	6.2	19	0
16	Non-met mins	5.8	8.5	14	-3
17	Other mining	5.6	5.3	25	0
18	Printing	5.6	5.2	26	0
19	Scientific eq	5.1	5.4	24	0
20	Metal prods	4.8	6.1	20	-1
21	Construct	4.4	6.0	21	-2
22	Oth trnsp eq	4.3	7.1	17	-3
23	Tv & coms eq	4.2	3.6	36	1
24	Coal mining	4.1	4.6	27	-1
25	Rubber prods	3.8	4.4	31	-1
26	Machinery	3.8	4.3	32	-1
27	Communcat	3.8	9.4	11	-6
28	Med serv	3.7	5.5	23	-2
29	Leather prods	3.6	7.0	18	-3
30	Glass & prods	3.5	4.5	28	-1
31	Food	3.4	4.4	29	-1
32	Buss serv	3.4	4.4	30	-1
33	Trnsp & stor	3.3	5.9	22	-3
34	Fin serv	3.1	3.5	38	0
35	Oth industr	3.1	4.1	33	-1
36	Other chems	3.0	3.7	34	-1
37	Paper & prods	2.5	3.1	41	-1
38	Electricity	2.4	3.5	37	-1
39	Water suppl	2.1	3.6	35	-1
40	Bas iron & st	2.0	3.4	40	-1
41	Motveh & parts	1.9	2.6	42	-1
42	Beverages	1.7	2.2	44	0
43	Basic chems	1.7	2.5	43	-1
44	Bas n-fer met	1.3	3.4	39	-2
45	Petrol ref	1.0	1.4	45	0
46	Tobacco	0.8	1.0	46	0

Source: TIPS South African Standardised Industry Database

Figure A19: Employment-output ratios for 46 sectors, 1989-2001



In conclusion then, it appears that the employment crisis is not only the result of the poor performance of some industries - in fact, a number have reported excellent growth as was shown earlier, but also because production processes have become less labour intensive, across the board but specifically those industries that have performed well in terms of their contribution to GDP.

SKILLED LABOUR-TOTAL EMPLOYMENT RATIO

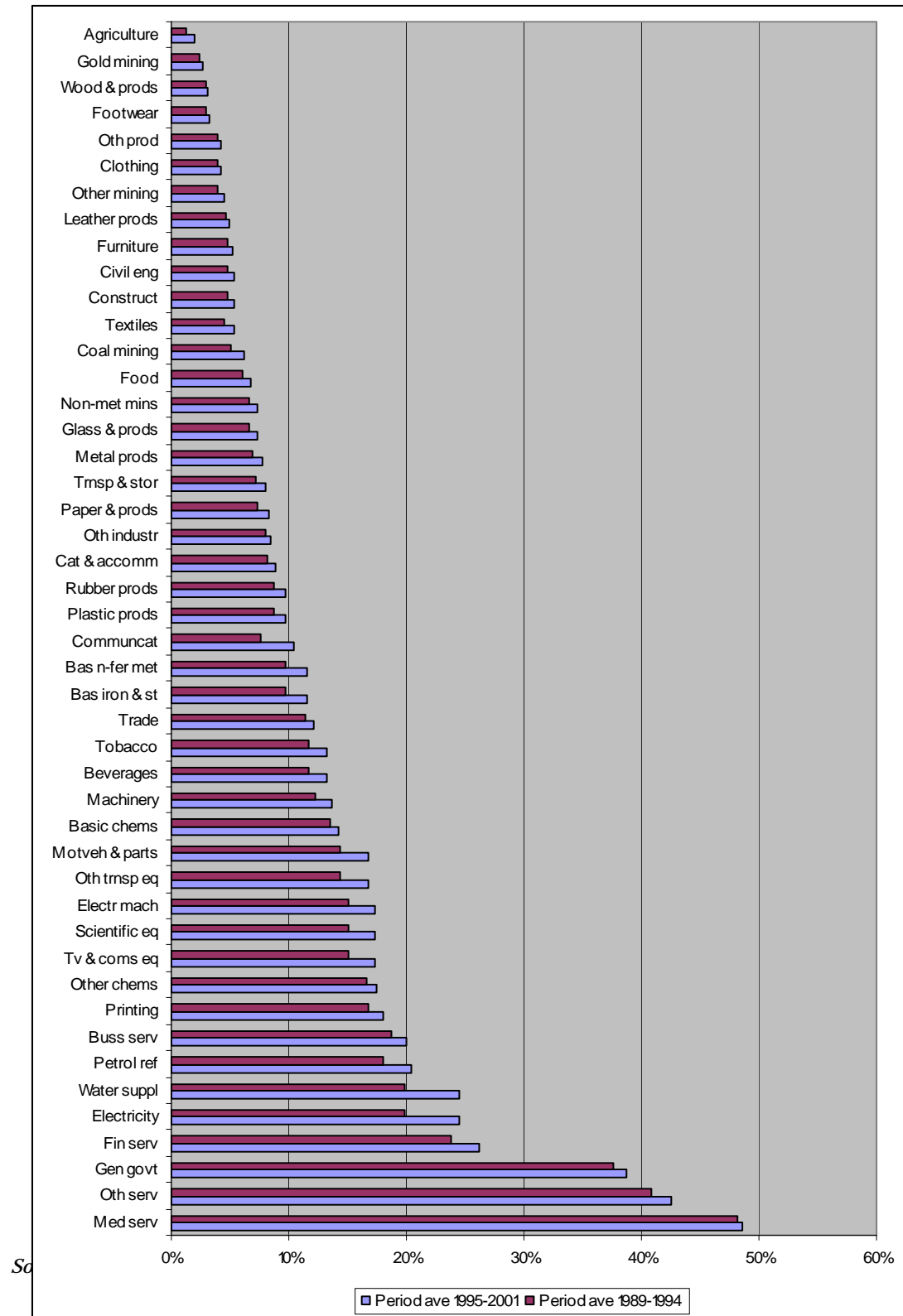
The skilled labour-total employment ratio at a 46-sector aggregation is presented in Table A13 and Figure 20. It is evident that there is not much difference in the ratio between the 1995-2001 and 1989-1994 periods, as *Medical Services* tops the table in with 48.6 per cent and 48.2 per cent respectively. In second place lies *Other Services*, and *General Government* third. In terms of *Manufacturing* sectors, it would seem that highly skilled labour is more in demand in *Chemicals*, *Machinery* and *Basic Iron and Steel* and *Basic Non-ferrous Metals* relative to the *Manufacturing* average, while it is in less demand in wage good industries such as *Food*, *Textiles*, *Clothing*, *Leather* and *Footwear*.

Table A13: Skilled Labour to Total Employment Ratios for 46 sectors, 1989-2001

	Sector	Period ave 1995-2001	Period ave 1989-1994	1989-1994 Rank
1	Med serv	48.6%	48.2%	1
2	Oth serv	42.5%	40.9%	2
3	Gen govt	38.7%	37.5%	3
4	Fin serv	26.2%	23.8%	4
5	Electricity	24.5%	19.9%	6
6	Water suppl	24.5%	19.9%	5
7	Petrol ref	20.5%	18.1%	8
8	Buss serv	19.9%	18.7%	7
9	Printing	18.0%	16.7%	9
10	Other chems	17.5%	16.6%	10
11	Tv & coms eq	17.3%	15.1%	11
12	Scientific eq	17.3%	15.1%	12
13	Electr mach	17.3%	15.1%	12
14	Oth trnsp eq	16.8%	14.4%	14
15	Motveh & parts	16.8%	14.4%	15
16	Basic chems	14.3%	13.5%	16
17	Machinery	13.6%	12.3%	17
18	Beverages	13.2%	11.7%	18
19	Tobacco	13.2%	11.7%	19
20	Trade	12.2%	11.4%	20
21	Bas iron & st	11.5%	9.7%	21
22	Bas n-fer met	11.5%	9.7%	22
23	Communcat	10.4%	7.6%	27
24	Plastic prods	9.8%	8.8%	23
25	Rubber prods	9.8%	8.8%	24
26	Cat & accomm	8.8%	8.2%	25
27	Oth industr	8.4%	8.0%	26
28	Paper & prods	8.3%	7.4%	28
29	Trnsp & stor	8.1%	7.1%	29
30	Metal prods	7.7%	6.9%	30
31	Glass & prods	7.4%	6.6%	31
32	Non-met mins	7.4%	6.6%	32
33	Food	6.8%	6.0%	33
34	Coal mining	6.2%	5.1%	34
35	Textiles	5.4%	4.5%	39
36	Construct	5.3%	4.8%	37
37	Civil eng	5.3%	4.8%	36
38	Furniture	5.1%	4.8%	35
39	Leather prods	5.0%	4.6%	38
40	Other mining	4.5%	4.0%	42
41	Clothing	4.2%	4.0%	41
42	Oth prod	4.2%	4.0%	40
43	Footwear	3.2%	2.9%	44
44	Wood & prods	3.1%	3.0%	43
45	Gold mining	2.7%	2.4%	45
46	Agriculture	1.9%	1.2%	46

Source: TIPS South African Standardised Industry Database

Figure A20: Skilled Labour to Total Employment Ratios for 46 sectors, 1989-2001



SUMMARY OF THE FINDINGS

At a detailed 46- sector aggregation, it is clear that the five highest growth rates recorded between 1995-2001 fall either in the services sectors (*Communication* with 14.6 per cent and *Financial Services* with 7.9 per cent) or are related to the Chemicals sector (*Plastic Products* with 11.6 per cent and *Other Chemicals* with 6.6 per cent). This is in contrast with the 1989-1994 period, when the high growth in value-added was seen in *Other Mining* (4 per cent), *Electricity* (2.9 per cent), *Business Services* (2.4 per cent), *Television and Communication Equipment* (2.4 per cent) and *Communication* (2.2 per cent). The leap in value added for *Communication Services* can be attributed to the roll-out of telephony to previously under-serviced areas by the state monopoly Telkom (in terms of its service obligations), together with the entrenching of mobile telephony. The decline in the growth of the *Electricity* sector could be attributed to, among other things, subdued economic activity and lessening demand for electricity from neighbouring countries. The improvement in the value-added of the *Financial Services* sector can be seen as a function of increased openness as the South African economy was once again globally integrated and economic sanctions were lifted. In addition, some of the larger financial institutions now have a marked presence both in the rest of Africa and globally.

Looking at the sectors that have performed poorest, it is instructive to note that in 1995-2001, the value-added growth attributable to the *Footwear* sector dropped by 15.3 per cent, followed closely by that of *Petroleum Refining* (-9.1 per cent), *Furniture* (-7.6 per cent), *Professional and Scientific Equipment* (-7.5 per cent) and *Gold Mining*. In the 1989-1994 period, the *Tobacco* sector had the lowest growth in value-added with -7.5 per cent, followed by *Footwear* with -5.9 per cent, *Other Transport Equipment* (-5.7 per cent), *Textiles* (-5.6 per cent) and *Motor Vehicles and Parts* (-5.5 per cent). Generally, value-added growth in the wage-goods sectors has been constrained due to weak domestic demand. Generally, value-added growth was weak in the 1989-1994 period due to among other things, inefficient domestic production processes, the inward looking nature of *Manufacturing* sub-sectors, which aimed at meeting domestic demand, which was in any case constrained, together with the international isolation brought about by international sanctions.

Turning now to exports, the star performers in terms of growth between 1995-2001 have respectively been *Motor Vehicles, Parts and Accessories* sector recorded the highest weighted average annual growth rate in exports between 1995-2001 with 28.6 per cent, followed by *Television and Communication Equipment* with 27.3 per cent, *Tobacco* (19.2 per cent), *Communication Services* (18.2 per cent) and *Machinery* (16.1 per cent). The performance of the automotive sector can be ascribed to the MIDP, through its import-export facilitation scheme, while that of *Television and Communication Equipment* and *Communication Services* can be attributed to the increasing involvement of telecommunications companies on the African continent and other previously untapped foreign markets. The same can be said of the *Machinery* sector, where there has been a marked increase in exports to otherwise untapped markets, following the end of economic sanctions.

At the opposite end of the scale, the negative growth in exports is seen for *Footwear* (-9.3 per cent), *Gold Mining* (-4.1 per cent), *Other Mining* (-2.6 per cent), *Coal Mining* (-0.8 per cent) and *Basic Iron and Steel* (-0.3 per cent). This is largely due to

depressed commodity prices, especially after 1997, when there was a general slowdown of the global economy. Between 1989-1994, the greatest growth in exports was characteristic of the *Footwear* sector (61.5 per cent), *Leather Products* (39.3 per cent), *Printing and Publishing* (36.3 per cent), *Beverages* (33.7 per cent) and *Other Transport Equipment* (33.5 per cent). This could possibly be as a consequence of the introduction of the GEIS, which was a price-distorting incentive, which encouraged manufactured exports by lowering the anti-export bias inherent in the economy. The lowest export growth in this period was attributed to the *Financial Services* sector (-4.1 per cent), followed by *Other Mining* (-3.6 per cent), *Gold Mining* (-1.2 per cent), *Basic Non-ferrous Metals* (-0.7 per cent) and *Food* (1.4 per cent). With the exception of the *Financial Services* sector, which was probably constrained by economic sanctions, and *Food*, which essentially is more domestic demand driven and less oriented towards exports, the low growth in the export of the above listed commodities points towards an economy in the process of reorienting itself away from exports.

In the case of imports, the highest growth rates between 1995-2001 were seen for the *Furniture* sector (13.3 per cent), followed in second place by *Television and Communication Equipment* (12.9 per cent), *Other Mining* (12.7 per cent), *Coal Mining* (8.9 per cent), *Clothing* and *Electricity* (6.8 per cent). In the case of *Furniture* and *Television and Communication Equipment*, this can be ascribed to higher Gross Domestic Fixed Investment (GDFI), prospects for demand-led growth and a steep rise in the international price of crude oil contributed to an increase in the value of imports. The lowest growth in imports during this period was seen for the *Tobacco* sector (-16.8 per cent), *Agriculture* (-7.5 per cent), *Beverages* (-7.3 per cent), *Printing and Publishing* (-7.2 per cent) and *Paper and Paper Products* (-5.1 per cent), and this could possibly be due to the increase in the price of imported goods relative to those domestically produced, as a result of the pronounced depreciation of the Rand. Between 1989-1994, the highest import growth rates were seen for *Coal Mining* (116.9 per cent), followed in second place by *Footwear* (41.6 per cent), *Other Transport Equipment* (21 per cent), *Agriculture* (20.3 per cent) and *Leather Products* (18.5 per cent). These trends are as a consequence of a fairly high marginal propensity to import for some commodities (SARB, 1996), although the increase in economic activity after the end of sanctions could also have played a part. The lowest import growth was characteristic of *Tobacco Products* (-6.7 per cent), *Beverages* (-6 per cent), *Petroleum Refining* (-2.6 per cent), *Clothing* (-2.1 per cent) and *Other Mining* (-0.8 per cent). With the exception of Other Mining, these sectors are typically import competing, hence the low growth figures.

Turning now to highly skilled employment, the highest growth in job creation between 1995-2001 was attributed to the *Plastic Products* (3.6 per cent), *Printing and Publishing* (2.9 per cent), *Wood and Wood Products* (2.8 per cent), *Business Services* (1.6 per cent) and *Other Chemicals* (1.2 per cent) sectors. It is instructive to note that these sectors have very small shares of total high skilled employment. However, with the increasing trend towards capital intensity, it is intuitive that they would increase their demand for highly skilled employment. Indeed, observing the growth in value-added (Table A1), these sectors performed impressively, with the exception of *Printing and Publishing*. In the case of the sectors that recorded the lowest growth in highly skilled employment – *Footwear* was last in the 46-sector aggregation (-13.9 per cent), followed by *Non-metallic minerals* (-12.3 per cent),

Gold Mining (-11.4 per cent), *Leather Products* (-7.6 per cent) and *Glass and Glass Products* (-7.6 per cent). This can be explained by the poor performance of international commodity prices, in the case of *Gold Mining* and *Non-metallic minerals*. Between 1989-1994, the highest growth in high skilled employment was seen for *Leather Products* (14.2 per cent), *Glass and Glass Products* (9.7 per cent), *Paper and Paper Products* (8.5 per cent), *Agriculture* (7 per cent) and *Other Chemicals* (6.8 per cent). This is possibly due to increased capital investment in these sectors, although the resulting drop in employment in the *Glass and Glass Products* sector can be seen as a function of depressed economic conditions.

Turning to medium skilled labour, the highest growth in job creation was seen in the *Wood and Wood Products* sector (8.5 per cent), *Leather Products* (6.4 per cent), *Printing and Publishing* (3.8 per cent), *Other Chemicals* (3.1 per cent) and *Other Mining* (2.5 per cent), largely for the same reasons as highly skilled employment. With regard to the lowest growth in medium skilled employment, this was highest for *Gold Mining* (-15 per cent), *Footwear* (13.9 per cent), *Non-metallic minerals* (-10.6 per cent), *Construction* (-10.5 per cent) and *Basic Iron and Steel* (-6.8 per cent). In the case of commodities, this can be seen against the backdrop of depressed international commodity prices, while for *Construction*, this can be attributed to a combination of restrictive fiscal policies that have seen more government expenditure allocated to welfare services, and also prohibitively high interest rates. For *Basic Iron and Steel*, the possible reason could be the rationalisation of the sector in order to be more competitive internationally. Between 1989-1994, the highest growth in employment was seen for *Other Mining* (6.3 per cent), followed by *Paper and Paper Products* (5.6 per cent), *Glass and Glass products* (5.2 per cent), *Clothing* (3.6 per cent) and *Television and Communication Equipment* (3.2 per cent). The reasons for these trends include – slow economic growth and the economic sanctions, which impeded growth in productive investments, together with inflexible labour market institutions (SARB, 1996).