

Industry sector productivity

Updated: 14 February 2000

The ABS does not produce sectoral productivity estimates. The Productivity Commission has derived estimates using sectoral data on output, hours worked and capital input provided by the ABS. The same methodology is used to calculate sectoral productivity as is used by the ABS to calculate market sector productivity (ie a Tornqvist index approach).

Table 1 presents old and new estimates of multifactor productivity (MFP) growth at the sectoral level. The first points of comparison are old and new estimates for the common period, 1985-86 to 1997-98. The new estimates also cover an extra year. Comparisons between old and new estimates for the common period show signs of significant changes. The biggest changes are in Communication services (increase), Finance & insurance (decrease) and Cultural & recreational services (decrease).

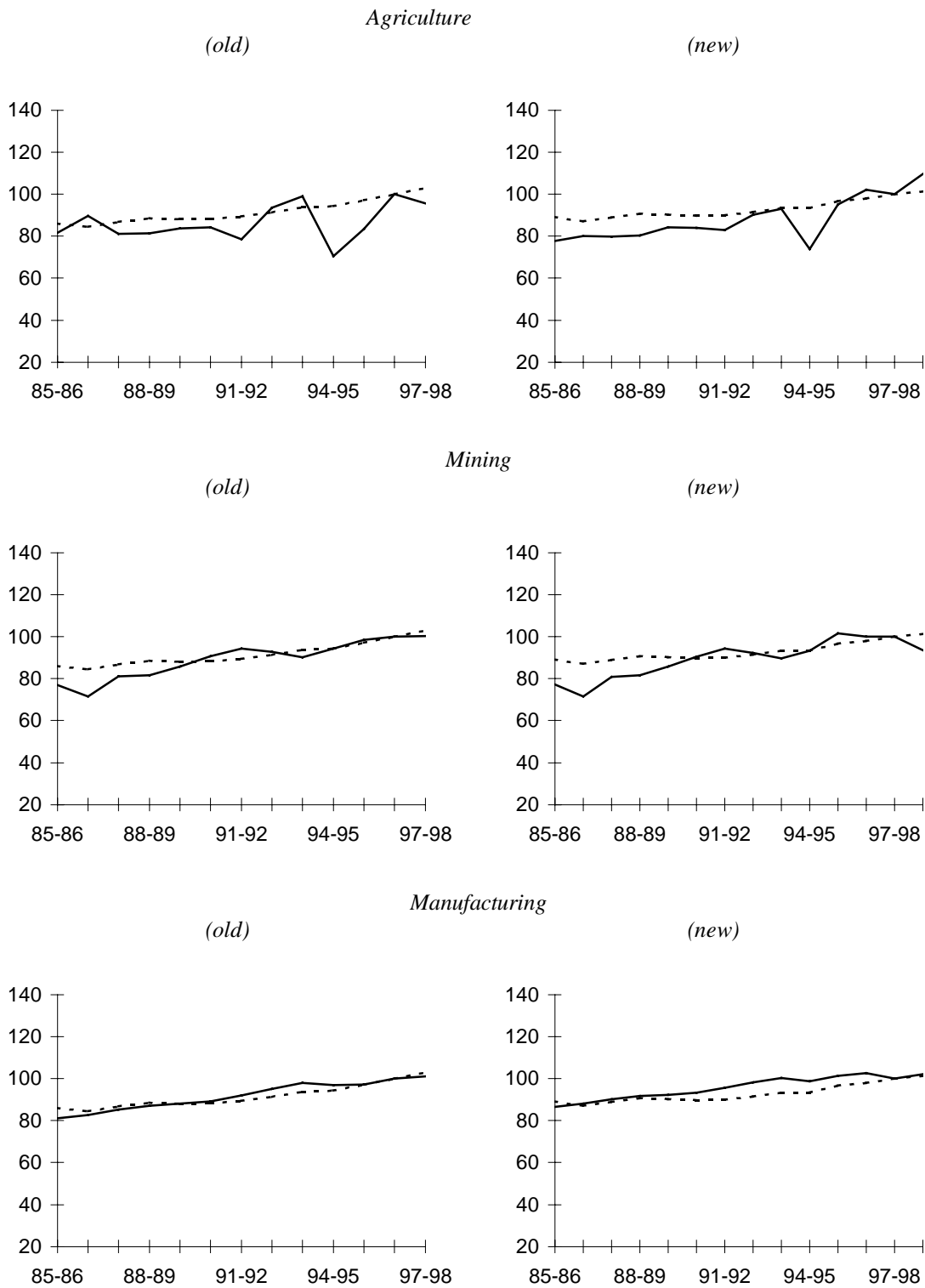
Year-to-year trends are shown in figure 1.

Table 1 Growth in multifactor productivity by industry sector
Per cent per year

	1985-86 to 1997-1998		1985-86 to 1998-99
	old	new	new
Agriculture	1.3	2.1	2.7
Mining	2.2	2.2	1.5
Manufacturing	1.9	1.2	1.3
Electricity, gas & water	4.3	3.6	3.0
Construction	0.4	0.3	0.3
Wholesale trade	2.3	1.7	1.9
Retail trade	0.3	0.1	-0.1
Accom., cafes & restaurants	-1.7	-2.2	-1.6
Transport & storage	1.1	1.3	1.2
Communication services	3.0	5.5	5.3
Finance & insurance	3.1	1.8	1.8
Cultural & rec. services	-1.0	-2.2	-2.1
Market sector	1.5	1.0	1.0

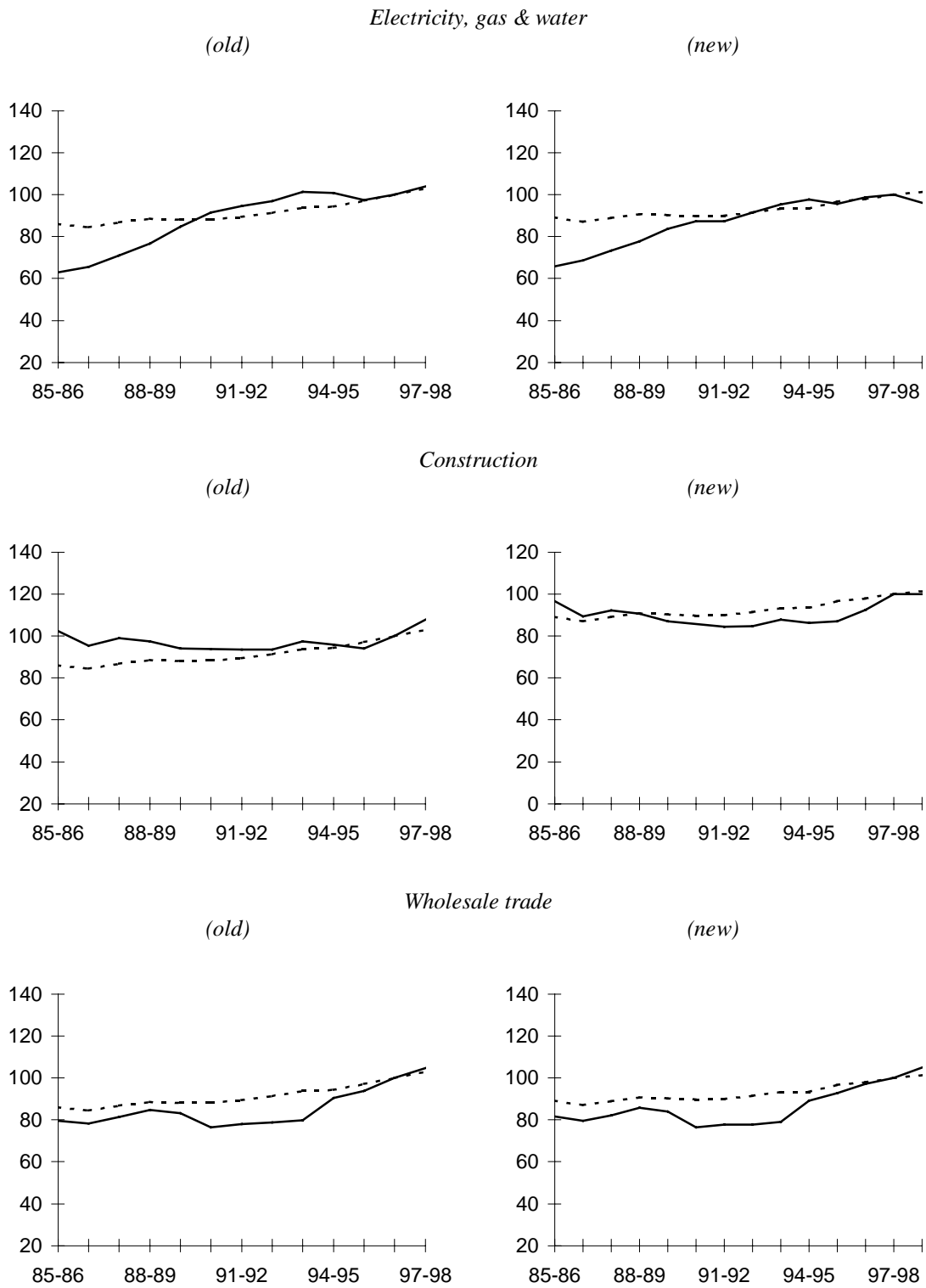
Source: Commission estimates based on ABS data.

Figure 1 Multifactor productivity by industry sector, 1985-86 to 1998-99
 Old index 1996-97 = 100, New index 1997-98 = 100



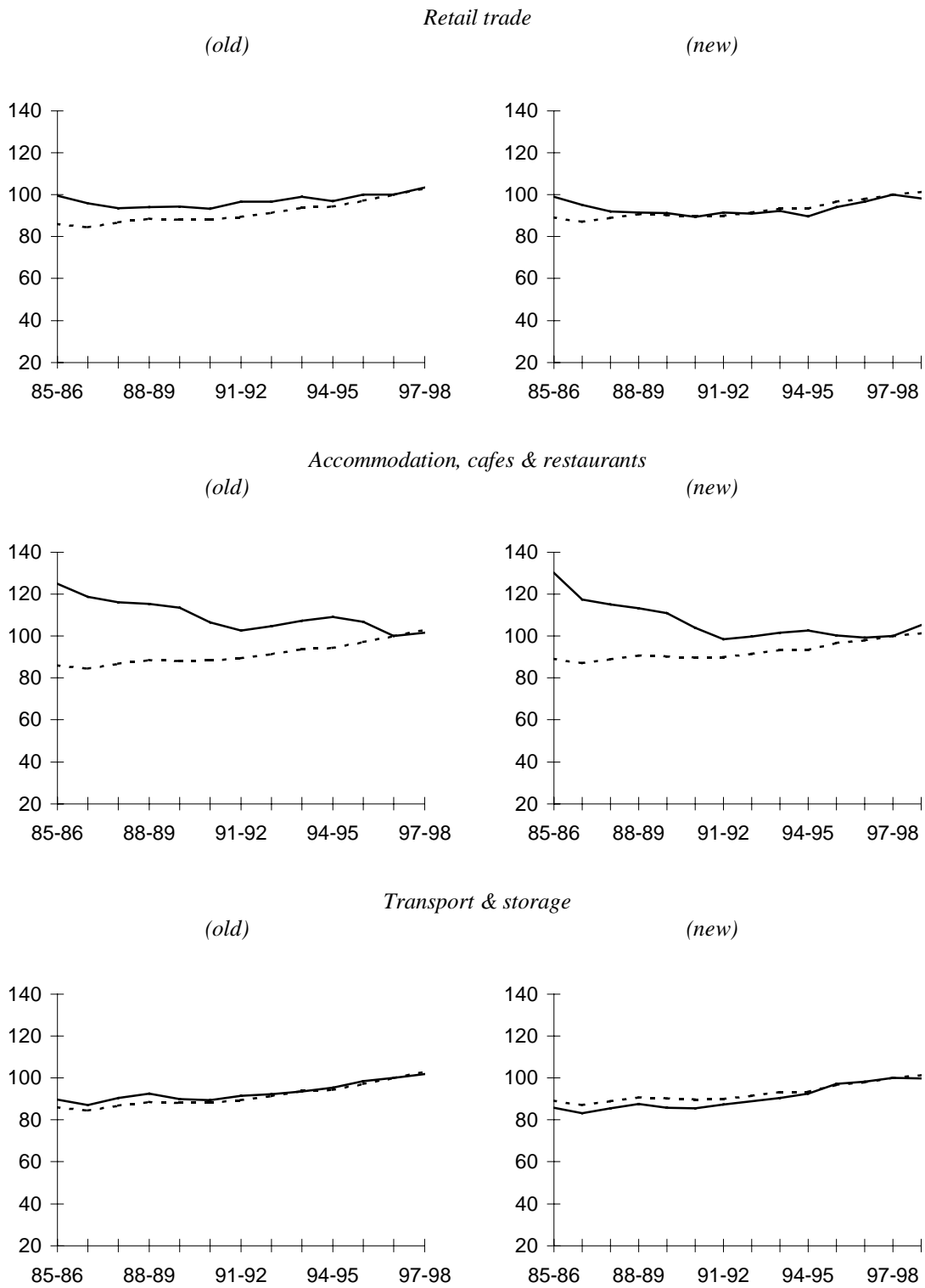
(Continued on next page)

Figure 1 (Continued)



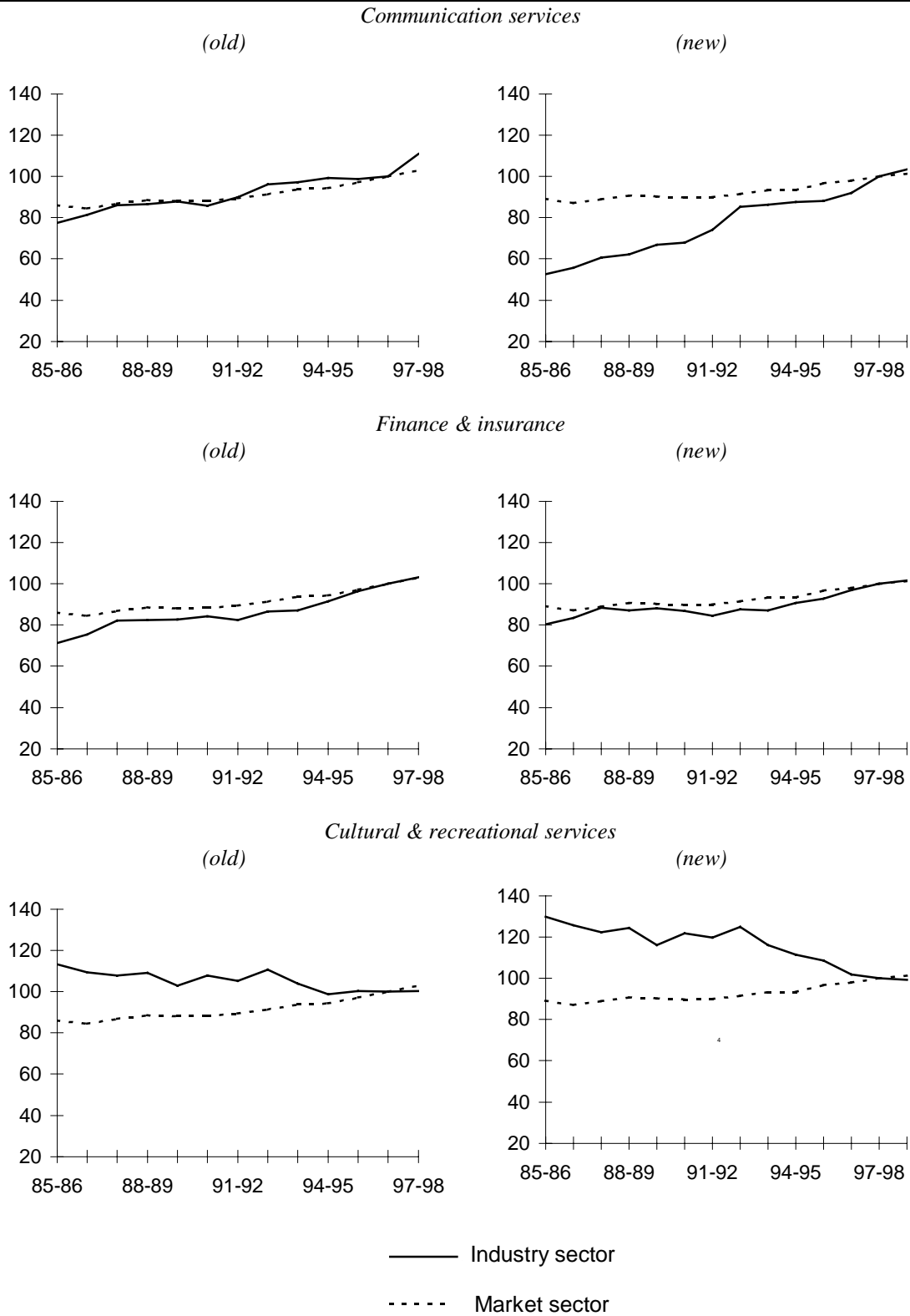
(Continued on next page)

Figure 1 (Continued)



(Continued on next page)

Figure 1 (Continued)



Source: Commission estimates based on unpublished ABS data. Old estimates reported in PC (1999) p.39-42.

The charts confirm that there are a number of major changes in the new estimates. Communication services show much stronger productivity growth from the mid 1980s to the early 1990s in the new estimates. Agriculture is less volatile in MFP levels over the period 1985-86 to 1998-99 in the new estimates. Productivity in Finance & insurance has not grown as fast as in the old estimates, and Cultural & recreational services showed more marked decline in MFP levels especially from 1992-93.

The extra year's data has mostly continued recent trends. However, over the final year there were changes in Agriculture (increase), Mining (decrease), Electricity, gas & water (decrease), Retail trade (decrease) and Accommodation, cafes & restaurants (increase).

Table 2 provides sectoral comparisons of MFP growth between the old and new estimates across various periods. The periods correspond to peak-to-peak productivity cycles for the market sector as a whole (with the exception of the first period, given that there was a productivity peak in 1984-85). The table also shows differences across a number of the sectors.

Table 2 Growth in multifactor productivity by industry sector, various periods
Per cent per year

	1985-86 to 1988-89		1988-89 to 1993-94		1993-94 to 1997-98		1993-94 to 1998-99
	old	new	old	new	old	new	new
Agriculture	-0.1	1.0	4.0	3.0	-0.8	1.8	3.3
Mining	2.0	1.9	2.0	1.9	2.7	2.8	0.8
Manufacturing	2.4	2.0	2.4	1.8	0.8	-0.1	0.3
Electricity, gas & water	6.8	5.8	5.8	4.2	0.6	1.2	0.2
Construction	-1.6	-2.1	0.0	-0.6	2.6	3.3	2.6
Wholesale trade	2.1	1.7	-1.2	-1.6	7.1	6.1	5.8
Retail trade	-1.9	-2.7	1.1	0.2	1.1	2.0	1.3
Accom., cafes & restaurants	-2.7	-4.5	-1.4	-2.2	-1.4	-0.4	0.7
Transport & storage	1.1	0.7	0.2	0.6	2.1	2.5	1.9
Communication services	3.7	5.7	2.4	6.8	3.3	3.8	3.7
Finance & insurance	4.9	2.7	1.2	0.0	4.3	3.5	3.1
Cultural & rec. services	-1.2	-1.4	-1.0	-1.3	-0.9	-3.7	-3.1
Market sector ^a	1.0	0.6	1.1	0.5	2.4	1.7	1.7

^a Market sector estimates for the periods 1988-89 to 1993-94, 1993-94 to 1998-99 are from ABS 5204.0

Source: Commission estimates based on ABS data. Old estimates are reported in PC (1999) p. xxi.

The information in tables 3a and 3b present old and new estimates respectively of outputs, inputs and productivity at the sectoral level. There are some significant differences between the two sets of estimates, especially in relation to capital inputs. For most industries growth in capital has increased compared with the previous estimates. However, a revision downward in growth in capital services appears to be the source of the upward revision in productivity in Communication services. Communication services, Agriculture and Transport & storage saw significant increases in their capital productivity estimates in the new estimates.

Table 3.a Annual average rates of growth in output, inputs and productivity by industry sector^a, 1988-89 to 1997-98 (OLD)
Per cent per year

	Output	Inputs			Capital labour ratio	Productivity		
		Labour	Capital	Total		Labour	Capital	MFP
Agriculture	2.3	0.1	0.8	0.5	0.7	2.2	1.5	1.8
Mining	5.4	-0.8	4.8	3.0	5.7	6.3	0.6	2.3
Manufacturing	0.9	-2.2	2.0	-0.8	4.3	3.2	-1.1	1.7
Electricity, gas & water	2.5	-5.8	1.1	-0.9	7.4	8.8	1.3	3.4
Construction	2.3	0.7	2.9	1.2	2.2	1.6	-0.6	1.1
Wholesale trade	3.1	0.4	1.6	0.7	1.3	2.8	1.5	2.4
Retail trade	3.0	1.0	4.3	1.9	3.2	1.9	-1.3	1.1
Accomm., cafes & restaurants	2.6	3.4	6.4	4.1	2.9	-0.8	-3.6	-1.4
Trans. & storage.	3.1	1.2	3.2	2.0	2.0	1.9	-0.2	1.1
Communication	9.4	1.1	12.1	6.5	10.9	8.3	-2.3	2.8
Finance & insur.	3.7	-0.8	3.5	1.1	4.3	4.5	0.2	2.5
Cultural & recr. services	3.1	3.2	5.9	4.1	2.6	0.0	-2.6	-0.9
Market sector ^b	3.0	0.5	3.1	1.3	2.6	2.5	-0.1	1.7

^a Growth rates are calculated from end points, that is, levels recorded for 1988-89 and 1997-98. ^b Drawn from published data (ABS 5204.0).

Source: PC (1999) p. 43.

Table 3.b **Annual average rates of growth in output, inputs and productivity by industry sector^a, 1988-89 to 1998-99 (NEW)**
Per cent per year

	Output	Inputs			Capital labour ratio	Productivity		
		Labour	Capital	Total		Labour	Capital	MFP
Agriculture	3.4	-0.6	0.8	0.3	1.4	4.1	2.6	3.2
Mining	4.8	-0.9	4.9	3.4	5.9	5.7	-0.1	1.4
Manufacturing	0.9	-2.1	3.1	-0.1	5.4	3.2	-2.1	1.1
Electricity, gas & water	1.8	-4.6	1.6	-0.4	6.6	6.7	0.1	2.2
Construction	2.8	1.2	3.4	1.8	2.1	1.6	-0.5	1.0
Wholesale trade	3.3	0.5	3.0	1.3	2.4	2.8	0.3	2.0
Retail trade	3.2	1.2	7.2	2.4	5.9	1.9	-3.8	0.7
Accomm., cafes & restaurants	3.3	3.2	6.6	4.1	3.3	0.1	-3.1	-0.7
Trans. & storage	3.4	1.4	3.2	2.1	1.8	2.0	0.2	1.3
Communication	9.5	1.3	6.9	4.1	5.5	8.1	2.5	5.2
Finance & insur.	4.4	-0.3	7.2	2.8	7.5	4.7	-2.6	1.5
Cultural & recr. services	2.7	3.1	7.9	5.0	4.7	-0.4	-4.9	-2.2
Market sector ^b	3.1	0.5	4.0	2.0	3.5	2.5	-0.9	1.1

^a Growth rates are calculated from end points, that is, levels recorded for 1988-89 and 1998-99. ^b Drawn from published data (ABS 5204.0).

Source: Commission estimates based on unpublished ABS data.

Tables 4a and 4b present the old and new estimates respectively of the sectoral contributions to market sector MFP growth. There have been many changes to the proportional contributions for each sector. Some of the big changes have been:

- Communication services contribution to market sector MFP growth has increased markedly in the new estimates, particularly over the period 1988-89 to 1993-94;
- Agriculture, over the second half of the 1990s, has moved from a negative to a significant positive contribution to market sector MFP growth;
- Manufacturing has gone from a positive to negative contribution in the second half of the 1990s; and
- Wholesale trade, though still the major contributor, has reduced its contribution in the latter part of the 1990s.

Table 4.a **Sectoral contributions to market sector multifactor productivity growth^a (OLD)**

Percentage points and (per cent)

	1988-89 to 1993-94		1993-94 to 1997-98		1988-89 to 1997-98	
Agriculture	0.2	(17)	-0.1	(-3)	0.1	(6)
Mining	0.1	(10)	0.2	(10)	0.1	(9)
Manufacturing	0.6	(45)	0.2	(10)	0.4	(26)
Electricity, gas & water	0.3	(21)	0.0	(1)	0.2	(10)
Construction	0.0	(0)	0.2	(12)	0.1	(7)
Wholesale trade	-0.1	(-9)	0.6	(31)	0.2	(14)
Retail trade	0.1	(8)	0.1	(5)	0.1	(6)
Accomm., cafes & restaurants	-0.1	(-4)	-0.1	(-3)	-0.1	(-3)
Trans. & storage.	0.0	(2)	0.2	(11)	0.1	(7)
Communication	0.1	(5)	0.1	(7)	0.1	(5)
Finance & insurance.	0.1	(8)	0.4	(21)	0.2	(15)
Cultural & recr. Services	0.0	(-2)	0.0	(-1)	0.0	(-2)
Total	1.3	(100)	2.0	(100)	1.6	(100)

^a The sum of contributions does not add to the published growth in market sector productivity due to the use of base-period weights. The differences in the total in this table and in published estimates are due to industry composition effects.

Source: PC (1999) p. 48.

Table 4.b **Sectoral contributions to market sector multifactor productivity growth^a (NEW)**

Percentage points and (per cent)

	1988-89 to 1993-94		1993-94 to 1998-99		1988-89 to 1998-99	
Agriculture	0.2	(18)	0.2	(12)	0.2	(13)
Mining	0.1	(13)	0.2	(9)	0.1	(6)
Manufacturing	0.5	(54)	0.0	(-1)	0.3	(22)
Electricity, gas & water	0.2	(21)	0.0	(3)	0.1	(7)
Construction	-0.1	(-7)	0.2	(15)	0.1	(8)
Wholesale trade	-0.1	(-10)	0.4	(24)	0.2	(14)
Retail trade	0.0	(2)	0.1	(9)	0.1	(5)
Accomm., cafes & restaurants	-0.1	(-9)	0.0	(-1)	0.0	(-2)
Trans. & storage.	0.1	(7)	0.2	(11)	0.1	(9)
Communication	0.2	(23)	0.1	(8)	0.2	(12)
Finance & insurance.	0.0	(0)	0.3	(17)	0.2	(12)
Cultural & recr. services	0.0	(-5)	-0.1	(-6)	-0.1	(-5)
Total	0.9	(100)	1.7	(100)	1.3	(100)

^a The sum of contributions does not add to the published growth in market sector productivity due to the use of base-period weights. The differences in the total in this table and in published estimates are due to industry composition effects.

Source: Commission estimates.

References

Productivity Commission 1999, *Microeconomic Reforms and Australian Productivity: Exploring the Links*, Commission Research Paper, AusInfo, Canberra.

Other update links

[Background](#)

[Market sector productivity](#)