

BTE Road Construction Price Indexes 1975/76 to 1985/86

Information Paper

This Information Paper presents input-price indexes for national road construction activity for the period 1975-76 to 1985-86. This Paper contains a further update of the BTE Input-Price Indexes for the financial year 1985-86. Preliminary data which were used in compiling the indexes for 1985-86 have now been updated, and this has resulted in minor amendments to the previous 1984-85 figures. Earlier values of the indexes can be found in BTE Report 49, Road Construction Price Indexes 1969-70 to 1980-81.

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**BTE Road Construction
Price Indexes
1975-76 to 1985-86**

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FOREWORD

This Information Paper presents input-price indexes for national road construction activity for the period 1975-76 to 1985-86. Earlier values of the indexes can be found in BTE Report 49, *Road Construction Price Indexes 1969-70 to 1980-81*.

The BTE has compiled these indexes for use in its studies of the Australian road system. The indexes are also being published to assist those who require up-to-date information on movements in the prices of inputs to road construction.

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October 1986

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SUMMARY

The Bureau of Transport Economics (BTE) reviewed various road construction price indexes and produced new input-price indexes for the road construction industry for the period 1969-70 to 1980-81 in BTE Report 49, *Road Construction Price Indexes 1969-70 to 1980-81*. The BTE indexes have been updated for each financial year since 1981-82.¹ This Paper contains a further update of the BTE Input-Price Indexes for the financial year 1985-86. Preliminary data which were used in compiling the indexes for 1984-85 have now been updated, and this has resulted in minor amendments to the previous 1984-85 figures.

The BTE Road Construction Price Indexes were designed for use in the BTE's 1984 assessment of the Australian road system and, in particular, for the analysis of trends in road expenditure at constant prices. However, they also provide a general guide to trends in road construction costs in Australia. Important considerations in devising the indexes were that they should be statistically robust, timely, readily capable of being updated and easily interpreted.

The BTE price index for overall road construction activity registered a 7.4 per cent increase in 1985-86. This is a larger percentage increase than in the previous two years, but is still substantially lower than the increases registered in 1979-80 and 1980-81 of 15.9 per cent and 15.5 per cent respectively. The bitumen and 'plant acquisition and replacement' components of the index registered the highest increases of 16.2 per cent and 16.1 respectively. The other components of the index showed moderate increases in 1985-86, with 'other labour' recording the smallest rise of 4.5 per cent, followed by fuel which registered a rise of 5.8 per cent.

1. The updates for the financial years 1981-82, 1982-83, 1983-84 and 1984-85 are presented in BTE Information Papers 7, 9, 12 and 15 respectively.

CHAPTER 1 INTRODUCTION

Road construction price indexes are important tools for assessing the impact of changes in funding levels on the physical provision of road infrastructure. Such indexes have been developed in Australia by a number of agencies and for a variety of purposes.

BTE Report 49, *Road Construction Price Indexes 1969-70 to 1980-81* (BTE 1981) sets out details of a number of Australian road construction price indexes:

- . national indexes compiled previously by the BTE and by the former Commonwealth Bureau of Roads (CBR);
- . State indexes produced by individual State road authorities (SRAs); and
- . implicit price indexes derived from the Australian Bureau of Statistics (ABS) National Accounts (which have sometimes been used as a proxy for price changes in the road construction industry).

In addition, new BTE Input-Price Indexes for the road construction segment of the Australian economy were presented for the period 1969-70 to 1980-81 in that report. The reader is referred to the report for a full explanation of the indexes, and the reasons for choosing the form of specification of the new indexes. The BTE indexes introduced in Report 49 have the following features:

- . they are input-price indexes, and employ input components closely related to road authorities' actual expenditure items;
- . the overall index relates to Australia as a whole, and is composed of three sub-indexes relating to maintenance, SRA construction and local government authority (LGA) construction; and
- . each of the sub-indexes contains the following input components: salaried labour, other labour, fuel, bitumen, other materials and plant acquisition and replacement.

The BTE indexes have been updated for each year since 1981-82, in various BTE Information Papers.¹ This Information Paper presents the update of the indexes for the financial year 1985-86.

The Paper is organised in the following manner. Chapter 2 presents an outline of how the BTE Road Construction Price Indexes are constructed, including the weights attached to the three sub-indexes and to the various input components. The indexes (including their components) are set out on an annual basis for the period 1975-76 to 1985-86 in Chapter 3. The chapter also makes some comparisons of the BTE Input-Price Index for overall activity with SRA road construction indexes, an ABS implicit price deflator and the ABS Consumer Price Index (CPI). Some concluding remarks are presented in Chapter 4.

1. BTE (1983, 1984, 1985b).

CHAPTER 2 OUTLINE OF BTE INDEXES

TYPE OF INDEX

BTE Road Construction Price Indexes are input-price indexes. That is, they measure changes in the prices of inputs to road construction on the basis of general national price indexes. No adjustment for productivity is made. BTE Report 49 (BTE 1981) examined the issues involved in measuring productivity changes (and associated changes in the quality and composition of both inputs and outputs), with a view to deriving an output-cost index which reflects change in input prices and productivity. It was concluded in that report that further substantial work on obtaining comparable data on unit cost movements in the road construction industry would be necessary to estimate productivity changes and output costs in a robust manner.

The BTE index for overall road construction activity relates to Australia as a whole, and no disaggregation by State was attempted. It is made up of three sub-indexes:

- . construction by SRAs
- . construction by LGAs
- . total maintenance.

INPUT COMPONENT INDEXES

The major input categories to the road construction industry were identified as:

- . Labour = salaried
- other
- . Materials - fuel
- bitumen
- other
- . Plant acquisition and replacement.

The component indexes considered appropriate to measure price movements in these input categories are set out in Table 2.1.

Up until 1980-81, fuel prices were measured by an automotive distillate index which is an unpublished component of the ABS *Price Indexes of Articles Produced by Manufacturing Industry* (ABS 1982). Prices used by the ABS in compiling these indexes are manufacturers' selling prices exclusive of excise and sales tax. However, it was decided to measure fuel prices from 1981-82 to 1983-84 by means of an index which measures wholesale prices to dealers inclusive of excise tax and franchise fees. This was because of a number of changes in excise duty and franchise fees on automotive distillate in recent times (particularly changes in the off-road use exemptions from diesel fuel excise in the 1982-83 Commonwealth Budget (BTE 1983, 3-4)).

TABLE 2.1 INPUT COMPONENT INDEXES

| <i>Component</i> | <i>Price indexes</i> | <i>Source</i> |
|------------------|---|---|
| Labour | | |
| Salaried | Average weekly earnings, males, Australia | ABS, <i>Average Weekly Earnings, Australia</i> (Cat. No. 6302.0) (ABS 1986a) |
| Other | Weighted average minimum weekly award rate, wage earners, males, all industry groups, Australia | ABS, <i>Award Rates of Pay Indexes, Australia</i> (Cat. No. 6312.0) ^a ABS (1986b) |
| Materials | | |
| Fuel | Price index of automotive distillate | Petroleum Products Pricing Authority <i>Maximum Justified Prices</i> ^b (PPPA 1983) and ABS, automotive fuel index, unpublished component of Consumer Price Index |
| Bitumen | Price of bitumen index | The Shell Company of Australia's Melbourne price of road-making grade of bitumen |

TABLE 2.1 (Cont.) INPUT COMPONENT INDEXES

| <i>Component</i> | <i>Price indexes</i> | <i>Source</i> |
|-----------------------------------|--|---|
| Other materials and store items | Price index of materials used in building (other than house building), Australia | ABS, <i>Price Index of Materials Used in Building Other Than House Building, Six State Capital Cities</i> (Cat. No. 6407.0) (ABS 1986d) |
| Plant acquisition and replacement | Price index of construction and earth moving machinery and equipment | ABS unpublished ^c |

- a. Prior to 1981-82 'other labour' costs were measured by an ABS Wage Rates index, which has been replaced by the Award Rates of Pay Indexes (ABS 1986b).
- b. Prior to 1981-82 fuel prices were measured by an index of automotive distillate prices, which is an unpublished component of ABS *Price Indexes of Articles Produced by Manufacturing Industry* (ABS 1982) (Cat. No. 6412.0); between 1981-82 and 1983-84, by PPPA's *Maximum Justified Prices* (PPA 1983) as described below. Since 1984-85 fuel prices were measured by a specially constructed index, involving PPPA's *Maximum Justified Prices* and ABS, automotive fuel index.
- c. The index for Australian Standard Industrial Classification (ASIC) Class 3332 is an unpublished component of ABS *Price Indexes of Articles Produced by Manufacturing Industry* (ABS 1982) (Cat. No. 6412.0), and is available on request from the ABS.

This new fuel component index introduced in 1981-82 was derived by calculating an average price of automotive distillate (over all companies) for each of the six capital cities based on Petroleum Products Pricing Authority's (PPPA) *Maximum Justified Prices* at 31 December of each year (PPPA 1983).¹ These prices include Commonwealth excise charges and State franchise fees. The average prices are weighted by the population proportion relating to each city; ABS population estimates for 1979-80 are used so that these weights have the same base as other weights in the indexes.

From April 1984, the PPA ceased producing its *Maximum Justified Prices*. This necessitated the use of a specially constructed index which involves splicing together the fuel index based on PPPA's

Maximum Justified Prices and ABS automotive fuel index to provide a comparable movement in fuel price since 1984-85.

Prior to 1981-82 the 'other labour' component was measured by an index of ABS Wage Rates. This index has been discontinued and replaced by the series *ABS Award Rates of Pay Indexes*, which are used as the basis of the 'other labour' component from 1981-82 onwards. The wage rates indexes were based on the occupational structure in 1954, and included only those awards relating solely or mainly to 'wage' earners (as opposed to 'salary' earners).² The *Award Rates of Pay Indexes* are based on the occupational structure existing in May 1976. All full-time adult wage and salary earners whose rates of pay are normally varied in accordance with awards, determinations or registered collective agreements are covered in the new indexes. However, the new index relating only to wage earners is employed in the BTE Road Construction Price Indexes. Salary earners are covered by the 'salaried labour' component.

COMPONENT WEIGHTINGS

The BTE index for overall road construction activity is made up of three sub-indexes which have the following weights attributed to them:

- . SRA construction, 35 per cent
- . LGA construction, 31 per cent
- . Maintenance, 34 per cent.

The weights relating to the six input components for each of the sub-indexes and the overall activity index are set out in Table 2.2. Estimated expenditure on the input components in the base year 1979-80 was used to determine the weights employed. Further details of the derivation of the weights is given in BTE (1981, 22-25).

2. 'Wage' earners are engaged mainly in manual work or employed in blue collar occupations. 'Salary' earners are engaged mainly in non-manual work or employed in white collar occupations.

TABLE 2.2 COMPONENT WEIGHTS, ESTIMATED FOR BASE YEAR 1979-80
(per cent)

| Component | Sub-indexes | | | Overall activity |
|-----------------------------------|------------------|------------------|-------------|------------------|
| | SRA construction | LGA construction | Maintenance | |
| Labour | | | | |
| Salaried | 22.8 | 20.4 | 15.9 | 19.7 |
| Other | 32.1 | 32.1 | 44.1 | 36.1 |
| Total | 54.9 | 52.5 | 60.0 | 55.8 |
| Materials | | | | |
| Fuel | 9.1 | 10.3 | 11.7 | 10.4 |
| Bitumen | 9.3 | 9.4 | 6.2 | 8.3 |
| Other | 20.9 | 18.2 | 14.6 | 17.9 |
| Plant acquisition and replacement | 5.8 | 9.6 | 7.5 | 7.6 |
| Total | 100.0 | 100.0 | 100.0 | 100.0 |

Source BTE (1981, Table 4.3)

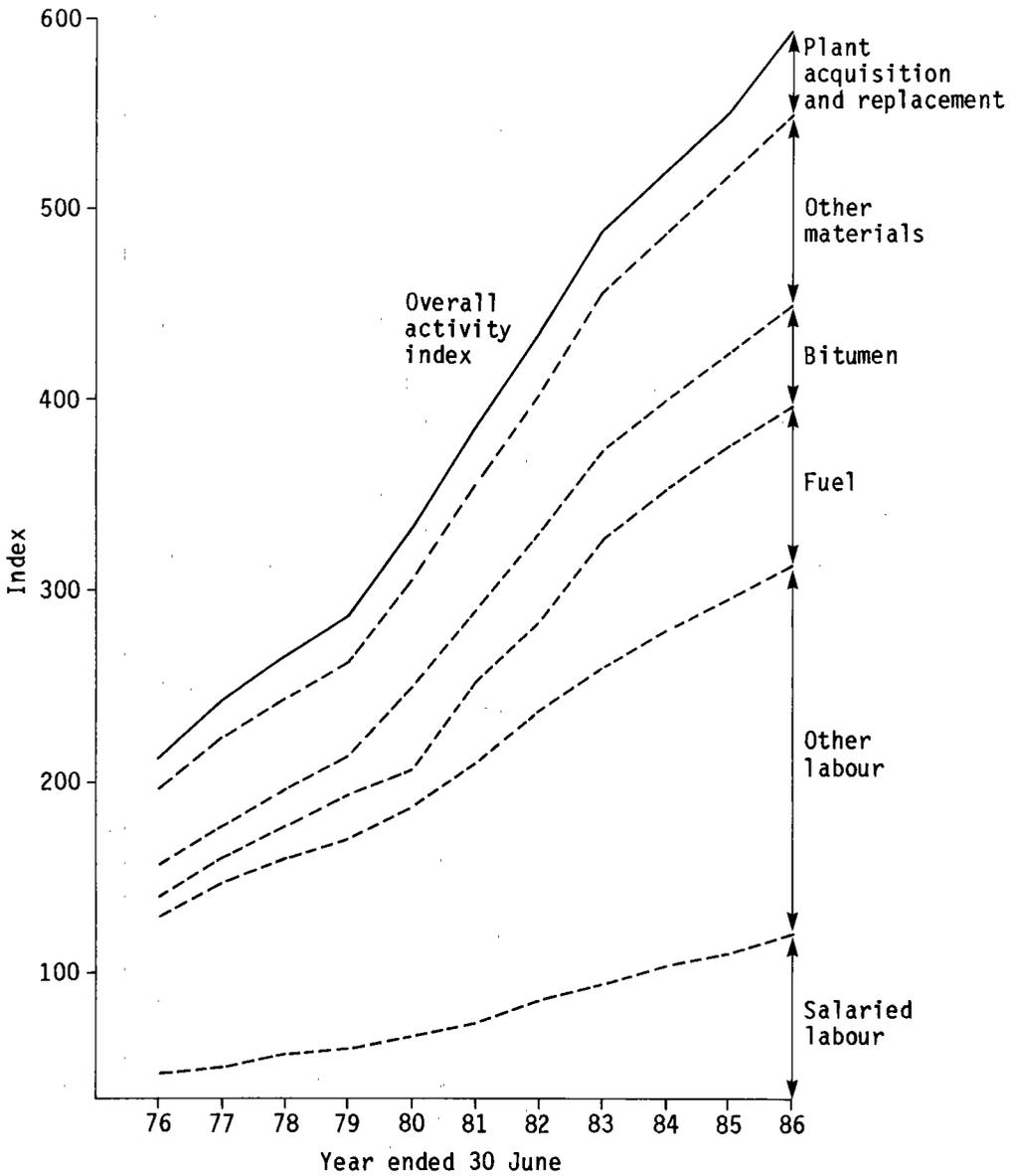
CHAPTER 3 BTE ROAD CONSTRUCTION PRICE INDEXES

In the first part of this chapter the input component indexes of the BTE Road Construction Price Indexes are tabulated and reviewed for the period 1975-76 to 1985-86. These component indexes are then combined with the component weights to produce the sub-indexes (SRA construction, LGA construction and maintenance) and the index for overall road construction activity for 1975-76 to 1985-86. The chapter concludes with some comparisons of the BTE Input-Price Index for overall activity with SRA road construction indexes, the ABS implicit price deflator for private sector fixed capital expenditure on non-dwelling construction and the ABS Consumer Price Index.

INPUT COMPONENTS

The six input component indexes for 1975-76 to 1985-86 are set out in Table 3.1 and are presented in diagrammatic form in Figure 3.1. It can be observed from these data that:

- . The rate of growth in labour costs in 1985-86 continued the decline shown since 1982-83. The growth rate recorded for labour as a whole (both salaried and other) was the smallest since the BTE indexes commenced in 1969-70, with the next smallest increase occurring in 1984-85. The annual growth in labour costs gradually declined from the high 25.4 per cent in 1974-75 to a moderate 7.7 per cent in 1978-79, and then accelerated again in 1980-81 and 1981-82.
- . The slow down in the rate of increase in fuel prices since 1983-84 continued into 1985-86. The rise in fuel prices in 1985-86 was the smallest since 1973-74 when the price of fuel fell by 0.3 per cent. There had previously been large rises in fuel prices in 1975-76 and again in the years 1977-78 to 1980-81 and in 1982-83.
- . There was a very rapid growth in bitumen prices in 1985-86, in contrast to the very small rises experienced from 1982-83 to 1984-85. The rise of 16.2 per cent in the price of bitumen is, however, still lower than the increases of around 35 per cent recorded in 1979-80 and 1980-81 and the 18.4 per cent increase registered in 1981-82.



Note The curve for each component index reflects its relative weight in the total activity index, as well as the growth in the price of that component.

Figure 3.1 Component indexes of BTE Road Construction Price Indexes

TABLE 3.1 COMPONENT INDEXES OF BTE ROAD CONSTRUCTION PRICE INDEXES, 1976 TO 1986^a

Indexes (Base year 1979-80, adjusted so that 1969-70 = 100.0)

| <i>Year ended 30 June</i> | <i>Salaried^b labour</i> | <i>Other^c labour</i> | <i>Fuel^d</i> | <i>Bitumen</i> | <i>Other materials</i> | <i>Plant acquisition and replacement</i> |
|---------------------------|------------------------------------|---------------------------------|-------------------------|-----------------|------------------------|--|
| 1976 | 222.3 (14.4) | 236.0 (14.7) | 169.3 (34.5) | 212.6 (12.3) | 186.6 (15.0) | 169.4 (17.3) |
| 1977 | 249.9 (12.4) | 266.2 (12.8) | 192.4 (13.6) | 254.5 (19.7) | 208.4 (11.7) | 198.2 (17.0) |
| 1978 | 274.6 (9.9) | 290.6 (9.1) | 232.9 (21.0) | 272.8 (7.2) | 226.0 (8.4) | 215.8 (8.9) |
| 1979 | 295.7 (7.7) | 309.7 (6.6) | 308.7 (32.5) | 274.7 (0.7) | 242.6 (7.3) | 228.1 (5.7) |
| 1980 | 324.9 (9.9) | 336.9 (8.8) | 497.4 (61.1) | 380.8 (38.6) | 274.2 (13.0) | 252.1 (10.5) |
| 1981 | 369.1 (13.6) | 373.9 (11.0) | 631.8 (27.0) | 512.4 (34.6) | 309.7 (12.9) | 281.5 (11.7) |
| 1982 | 422.7 (14.5) | 420.3 (12.4) | 697.8 (10.4) | 606.9 (18.4) | 344.0 (11.1) | 311.1 (10.5) |
| 1983 | 465.3 (10.1) | 467.6 (11.3) | 962.5 (37.9) | 615.6 (1.4) | 383.3 (11.4) | 328.4 (5.6) |
| 1984 | 508.0 (9.2) | 492.7 (5.4) | 1 067.4 (10.9) | 630.0 (2.3) | 403.6 (5.3) | 333.0 (1.4) |

TABLE 3.1 (Cont.) COMPONENT INDEXES OF BTE ROAD CONSTRUCTION PRICE INDEXES, 1976 TO 1986^a*Indexes (Base year 1979-80, adjusted so that 1969-70 = 100.0)*

| <i>Year ended 30 June</i> | <i>Salaried^b labour</i> | <i>Other^c labour</i> | <i>Fuel^d</i> | <i>Bitumen</i> | <i>Other materials</i> | <i>Plant acquisition and replacement</i> |
|-------------------------------|--|-------------------------------------|-------------------------|-----------------|----------------------------|--|
| 1985 | 548.8 (8.0) | 517.7 (5.1) | 1 147.5 (7.5) | 637.1 (1.1) | 425.5 (5.4) | 357.5 (7.4) |
| 1986 | 581.4p (5.9p) | 541.1p (4.5p) | 1 214.1p (5.8) | 740.6 (16.2) | 460.0 (8.1) | 415.1 (16.1) |

- a. The data series used to compute the component indexes are set out in Table 2.1.
- b. The ABS Average Weekly Earnings series is used to measure 'salaried labour'. From the September quarter 1981, this series was based on a new survey of employers which replaced the previous series based principally on information from payroll tax returns. The new series was linked to the old in order to provide an index on a comparable basis over the whole period.
- c. The new ABS Average Weekly Award Rates Index is used to measure 'other labour' from 1981-82 onwards. This series replaced the wage rates indexes which were used in the BTE indexes prior to 1981-82 (see Chapter 2 for details). The new index was linked to the old in order to provide an index on a comparable basis over the whole period.
- d. An automotive distillate index (which is an unpublished component of ABS Price Indexes of Articles Produced by Manufacturing Industry) was used as the fuel component index until 1980-81; another series based on the Petroleum Products Pricing Authority's *Maximum Justified Prices* of automotive distillate was used from 1981-82 to 1983-84 (see Chapter 2 for details); a new especially constructed series based on PPPA fuel index and ABS automotive fuel index was used in 1984-85.

p Preliminary estimates.

Note Figures in brackets represent percentage changes.

- . Prices of 'other materials' rose faster in 1985-86 than in 1984-85.
- . The increase of 16.1 per cent in the 'plant acquisition and replacement' index in 1985-86 was twice the increase recorded in 1984-85. The devaluation of the Australian dollar may be largely responsible for this sharp rise.

RESULTANT INDEXES

Combining the component weights (Table 2.2) with the component indexes (Table 3.1) yields the road construction input-price indexes set out in Table 3.2. The indexes were computed for the base year 1979-80, but have been scale-adjusted so that 1969-70 = 100.0 for easier analysis. The major conclusions to be drawn are:

- . The 1985-86 increase in the overall activity index of 7.4 per cent reverses the trend to slower growth which began in 1983-84. This increase is still less than that registered during the period 1979-80 to 1982-83. It was pointed out in Information Paper 9 (BTE 1984, 15) that the growth in road construction costs eased somewhat in the latter half of 1982-83 and this trend continued through to 1984-85.
- . Price movements in the three sectors examined (SRA construction, LGA construction and maintenance) were very similar in 1985-86, as has generally been the case since 1969-70.

In interpreting these BTE Road Construction Price Indexes, it must be remembered that the indexes are based on input prices, and therefore they do not reflect productivity gains. To the extent that such gains occur, the indexes will tend to overstate increases in output costs and output prices for the road construction industry.

COMPARISON WITH OTHER INDEXES

In Table 3.3, the BTE Input-Price Index for overall road construction activity is compared with seven other indexes: the ABS implicit price deflator for private sector gross fixed capital expenditure on non-dwelling construction (which has been used as a proxy for price changes in road construction); the input-price indexes of the Main Roads Departments of Queensland and Western Australia; and the input-cost indexes of the New South Wales Department of Main Roads, the Road Construction Authority in Victoria, the South Australian Highways Department and the Main Roads Department of Tasmania.

TABLE 3.2 BTE ROAD CONSTRUCTION INPUT-PRICE INDEXES, 1976 TO 1986^a
Indexes (Base year 1979-80, adjusted so that 1969-70 = 100.0)

| <i>Year ended 30 June</i> | <i>SRA construction</i> | <i>LGA construction</i> | <i>Maintenance</i> | <i>Overall activity</i> |
|-------------------------------|-----------------------------|-----------------------------|--------------------|-----------------------------|
| 1976 | 209.7 (15.5) | 207.9 (15.7) | 212.1 (15.8) | 209.9 (15.6) |
| 1977 | 237.4 (13.2) | 235.9 (13.5) | 240.2 (13.2) | 237.9 (13.3) |
| 1978 | 260.3 (9.6) | 258.7 (9.7) | 263.7 (9.8) | 260.9 (9.7) |
| 1979 | 280.7 (7.8) | 279.2 (7.9) | 285.5 (8.3) | 281.8 (8.0) |
| 1980 | 325.1 (15.8) | 324.6 (16.3) | 330.3 (15.7) | 326.7 (15.9) |
| 1981 | 376.1 (15.7) | 375.9 (15.8) | 380.1 (15.1) | 377.4 (15.5) |
| 1982 | 424.8 (12.9) | 424.2 (12.8) | 428.0 (12.6) | 425.8 (12.8) |
| 1983 | 476.8 (12.2) | 476.7 (12.4) | 484.9 (13.3) | 479.6 (12.6) |
| 1984 | 507.0 (6.3) | 506.2 (6.2) | 515.5 (6.3) | 509.7 (6.3) |
| 1985 | 536.6 (5.8) | 536.0 (5.9) | 545.9 (5.9) | 539.8r (5.9) |
| 1986 | 577.1p (7.5p) | 577.9p (7.8p) | 584.2p (7.0p) | 579.9p (7.4p) |

- a. The indexes are derived by combining the component weights (Table 2.2) with the component indexes (Table 3.1).
- b. The overall activity index and the sub-indexes were derived for the base year 1979-80 and then scale-adjusted to give 1969-70 = 100.0, to facilitate comparison. Note that the adjusted scale (1969-70 = 100.0) version of the overall activity index cannot be derived simply from the three sub-indexes (SRA construction, LGA construction and maintenance) by using the weights given in the text. Similarly, in the adjusted scale, the three sub-indexes cannot be derived simply from the component indexes in Table 3.1. Each of the required indexes must be constructed from the component indexes as their base year (1979-80 = 100.0).

p Preliminary estimates.

r Revisions to the index values presented in Information Paper 15 BTE (1985b) resulting from updated information.

Note Figures in brackets represent percentage change.

TABLE 3.3 COMPARISONS WITH BTE ROAD CONSTRUCTION PRICE INDEX, 1976 TO 1986

Indexes (1969-70 = 100.0)

| Year ended 30 June | BTE input-price index (overall activity) | SRA input-price index | | SRA input-cost index | | | | ABS implicit price deflator ^a private sector |
|-----------------------|--|-----------------------|-----------------|------------------------|-----------------|----------------------|-----------------|--|
| | | MRD (Qld) | MRD (WA) | DMR (NSW) ^b | RCA (Vic) | HD (SA) ^c | DMR (Tas) | |
| 1976 | 209.9 (15.6) | 222.2 (15.4) | 200.3 (17.4) | 217.0 (15.7) | 222.2 (14.7) | 231.5 (17.6) | 233.6 (17.2) | 209.4 (15.9) |
| 1977 | 237.9 (13.3) | 248.5 (11.8) | 229.0 (14.3) | 244.4 (12.6) | 241.4 (8.6) | 260.0 (12.3) | 263.5 (12.8) | 234.5 (12.0) |
| 1978 | 260.9 (9.7) | 270.1 (8.7) | 252.7 (10.3) | 264.6 (8.3) | 257.9 (6.8) | 278.2 (7.0) | 283.3 (7.5) | 254.8 (8.6) |
| 1979 | 281.8 (8.0) | 287.0 (6.3) | 275.7 (9.1) | 281.4 (6.3) | 273.5 (6.0) | 302.9 (8.9) | 300.6 (6.1) | 274.2 (7.6) |
| 1980 | 326.7 (15.9) | 314.9 (9.7) | 317.4 (15.1) | 323.3 (14.9) | 324.4 (18.7) | 337.7 (11.5) | 337.6 (12.3) | 303.0 (10.5) |
| 1981 | 377.4 (15.5) | 353.9 (12.4) | 363.1 (14.4) | 373.2 (15.5) | 367.5 (13.3) | 377.6 (11.8) | 374.1 (10.8) | 340.0 (12.2) |
| 1982 | 425.8 (12.8) | 396.1 (11.9) | 406.2 (11.8) | 435.2 (16.6) | 414.9 (12.9) | 429.7 (13.8) | 429.7 (13.8) | 383.9 (12.9) |
| 1983 | 479.6 (12.6) | 441.2 (11.4) | 453.7 (11.7) | 512.7 (17.8) | 450.7 (8.6) | 479.5 (11.6) | 451.0 (6.9) | 435.8 (13.5) |

TABLE 3.3 (Cont.) COMPARISONS WITH BTE ROAD CONSTRUCTION PRICE INDEX, 1976 TO 1986
Indexes (1969-70 = 100.0)

| Year ended 30 June | BTE input-price index (overall activity) | SRA input-price index | | SRA input-cost index | | | | ABS implicit price deflator ^a private sector | |
|--------------------------|--|-----------------------|----------------|------------------------|----------------|----------------------|----------------|--|-----------------|
| | | MRD (Qld) | MRD (WA) | DMR (NSW) ^b | RCA (Vic) | HD (SA) ^c | DMR (Tas) | | |
| 1984 | 509.7 (6.3) | 214.2 (6.3) | 469.2 (5.6) | 479.3 (7.0) | 548.6 (7.1) | 482.8 (13.1) | 542.6 (8.1) | 487.5 (5.1) | 457.9 (5.1) |
| 1985 | 539.8 (5.9) | 206.9 (5.3) | 494.1 (6.3) | 509.5 (4.1) | 571.1 (5.2) | 507.8 (2.8) | 558.0 (6.4) | 518.6 (6.4) | 490.2 (7.1r) |
| 1986 | 579.9 (7.4) | 243.8 (5.6) | 521.8 (9.1) | 555.9 (6.4) | 607.6 (4.4) | 530.1 (5.5) | 588.7 (5.3) | 546.1 (5.3) | 547.4 11.7 |

a. Gross fixed capital expenditure non-dwelling construction.

b. The DMR (NSW) input-cost index has been extensively reviewed from 1980-81. The new index is based on a wider range of representative inputs to the road construction industry in New South Wales, such as property acquisition and financial costs which were not included in the index prior to the 1980-81 financial year. This has necessitated revisions to the DMR (NSW) input-cost index starting from 1981.

c. The RCA (Vic), HD (SA) and DMR (Tas) input-cost indexes relate to costs at 30 June of the designated year (not average costs over the year).

p Preliminary estimates.

r Revisions to the index values presented in Information Paper 15 (BTE 1985b) resulting from updated information.

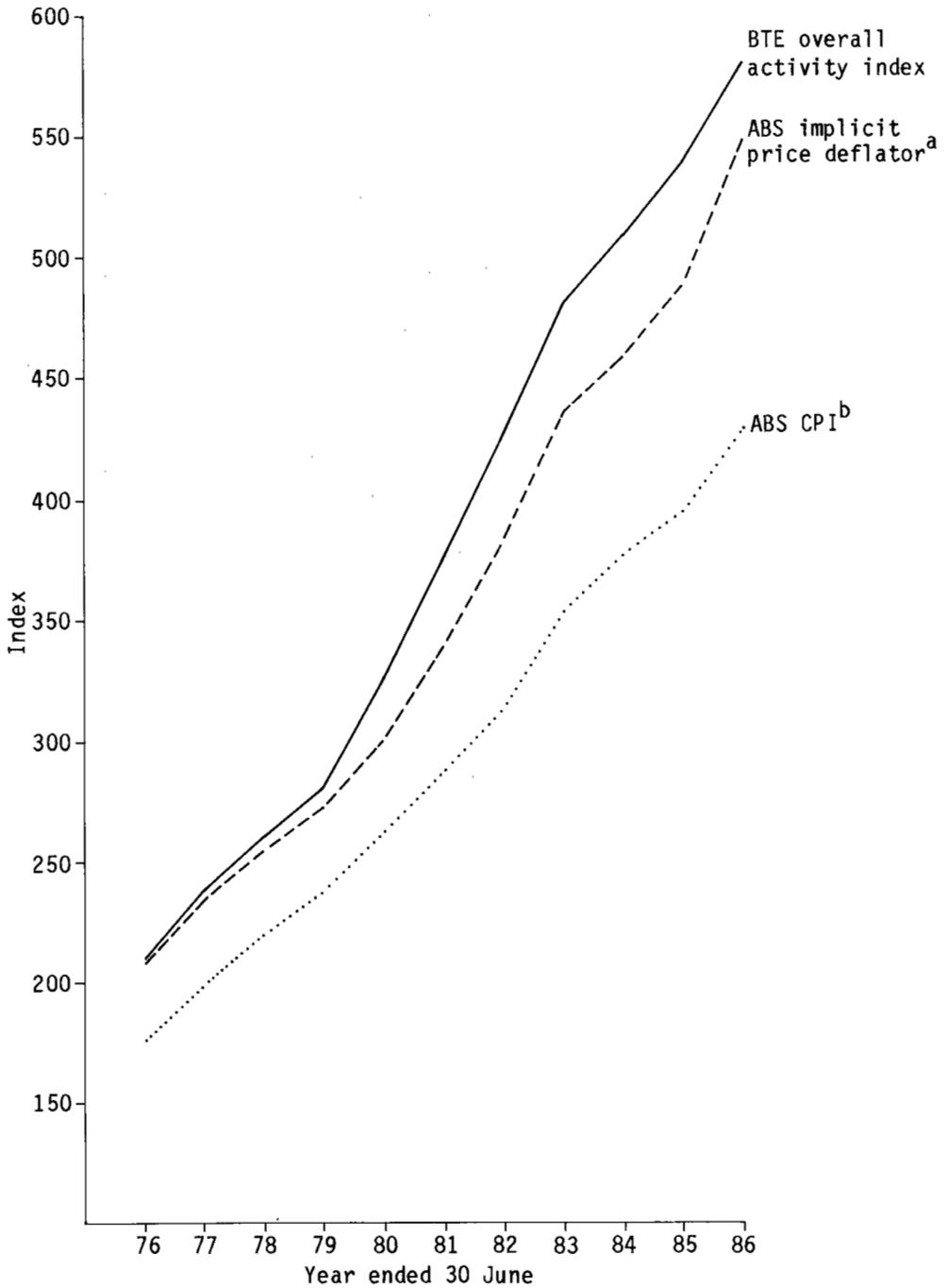
Note Figures in brackets represent percentage changes.

Sources Table 3.2. BTE (1985b, Table 3.3). ABS (1986e). Personal communication with SRAs.

On the basis of these comparisons the following points can be made:

- . Most of the road construction indexes produced by the various authorities recorded increases in 1985-86 in the range of 4 to 9 per cent. The index produced by the Road Construction Authority of Victoria registered the smallest increase (4.4 per cent). The highest increase (9.1 per cent) was for the index prepared by the Main Roads Department of Western Australia.
- . In 1985-86, the ABS implicit price deflator for private sector fixed capital expenditure on non-dwelling construction showed a significantly larger rise than the BTE input-price index (11.7 per cent compared with 7.4 per cent).

Price movements in the road construction industry are compared with general price movements in the economy in Figure 3.2. This figure presents, for the period 1975-76 to 1985-86, the BTE Input-Price Index for overall road construction activity, the ABS implicit price deflator for private sector fixed capital expenditure on non-dwelling construction and the ABS Consumer Price Index (CPI), which measures changes in the retail price of a 'basket' of goods and services which are considered representative of metropolitan household spending habits. The major reason for the faster growth in road construction prices over the past decade, as illustrated in Figure 3.2, has been the impact of rapid increases in fuel and bitumen prices. Another important factor is the relatively labour intensive nature of the road construction industry.



- a. ABS implicit price deflator for gross fixed capital expenditure on non-dwelling construction in the private sector.
- b. ABS *Consumer Price Index* (Cat. No. 6401.0).

Figures 3.2 Comparison of BTE Input-Price Index (overall activity) with other general indexes

CHAPTER 4 CONCLUDING REMARKS

The rate of growth of the BTE Input-Price Index for overall road construction activity was 7.4 per cent in 1985-86. This increase is slightly more than that registered in the previous year and reverses the downward trend evident since 1979-80. The large rises of 15.9 per cent and 15.5 per cent registered in 1979-80 and 1980-81 occurred principally because of substantial rises in fuel and bitumen prices. The 1985-86 values for the component indexes of salaried labour, other labour and fuel all showed a continued decline in their rate of increase. Bitumen and 'plant acquisition and replacement' recorded the largest rises in 1985-86 (16.2 and 16.1 per cent respectively).

Increases in the BTE Road Construction Price Index for overall activity over the last five years of 7.4 per cent (1985-86), 5.9 per cent (1984-85), 6.3 per cent (1983-84), 12.6 per cent (1982-83) and 12.8 per cent (1981-82) can be compared with corresponding increases in other price indexes for these five years:

- . in the CPI of 8.4 per cent, 4.3 per cent, 6.9 per cent, 11.5 per cent and 10.4 per cent; and
- . in the implicit price deflator for private sector fixed capital expenditure on non-dwelling construction of 11.7 per cent, 7.1 per cent, 5.1 per cent, 13.5 per cent and 12.9 per cent.

Road construction prices have tended to rise more rapidly than the CPI over the past decade. However, the BTE overall activity index and the ABS implicit price deflator for gross fixed capital expenditure on non-dwelling construction in the private sector have moved closer together in recent years.

Finally, it should be remembered that the BTE Road Construction Price Indexes are based on input, and not output, prices. Therefore they do not reflect productivity gains.

REFERENCES

Abbreviations

| | |
|------|--|
| ABS | Australian Bureau of Statistics |
| AGPS | Australian Government Publishing Service |
| BTE | Federal Bureau of Transport Economics |
| PPPA | Petroleum Products Pricing Authority |

ABS (1982), *Price Indexes of Articles Produced by Manufacturing Industry, Australia, June*, (Cat. No. 6412.0), Canberra.

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___ (1986c), *Consumer Price Index, June Quarter 1986* (Cat. No. 6401.0), and earlier issues Canberra.

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Information Paper 19

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PPPA (1983), *Maximum Justified Prices, 31 December, and for previous years*, Melbourne.

ABBREVIATIONS

| | |
|------|---|
| ABS | Australian Bureau of Statistics |
| AGPS | Australian Government Publishing Service |
| ASIC | Australian Standard Industrial Classification |
| BTE | Bureau of Transport Economics |
| CBR | Commonwealth Bureau of Roads |
| CPI | Consumer Price Index |
| DMR | Department of Main Roads (NSW, Tas) |
| HD | Highways Department (SA) |
| LGA | Local Government Authority |
| MRD | Main Roads Department (Qld, WA) |
| PPPA | Petroleum Products Pricing Authority |
| RCA | Road Construction Authority (Vic) |
| SRA | State Road Authority |