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DISCUSSION PAPER NO. 103

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This paper surveys the development of the Australian service sector since 1900. While the share of services in employment and output has grown, this growth has not be shared uniformly by all the service industries. With the exception of education and health, the share of consumer services in employment and output have remained constant or declined. Growth in the service sector has been brought about by the demand for intermediate services. This historical record, which is at variance with the Fisher/Clark paradigm of the service economy, is explained by interaction of changes in relative prices and specialization in production. The explanation is illuminated by an examination of the development of three service industries. Through international comparisons it is also shown that the development of the service sector in Australia is quite similar to that in other industrialized nations.
THE SERVICE SECTOR

Our typical view of work involves manual work in the factory or on the farm. Yet in 1961 nearly two out of every three Australian workers were not engaged in the factory or on the farm but in the production of services. At the same time services accounted for nearly 60 per cent of the total output of economy (GDP). In terms of their relative shares of employment and output, the agricultural and the manufacturing sectors are the bit players in the modern Australian economy. Services have the leading role.¹

The precise composition of the service sector will concern us later. For the present it will suffice to indicate broadly the scope of economic activity which is regarded as services. Typical services include transport, communication (telephones, postal services, etc.), the distribution of goods (wholesale and retail trade), banking, insurance, government, health, education, recreation, entertainment and personal services such as hairdressing.
The prominence of the service sector in the modern Australian economy raises a number of questions which are considered in this Chapter. Has the relative importance of the service sector increased over time, and if so, what accounts for this development? How has the evolution of the service sector influenced the overall development of the Australian economy? How does the history of the service sector in Australia compare with that in other similar economies? And finally, has the composition of the service sector changed in the course of the twentieth century? ²

Because of the number and diversity of industries which are included within the service sector it is impossible within the scope of this Chapter to deal with each in detail. Furthermore a separate discussion of each industry would not help us answer the questions just posed. We need an organising framework. The most conventional framework for analysing the service sector is known as the Fisher-Clark hypothesis. In the next section this framework is outlined. In the following sections we will employ this theory to examine the development of the service sector. Superficially Australian economic development appears to conform well to the hypothesis. However, as decreasing levels of aggregation in the statistical evidence are examined there emerges a considerably more complicated picture. This view is reinforced by considering in more depth some particular service industries. In the final Section of the paper this leads to a reassessment of the appropriateness of the Fisher-Clark hypothesis to the Australian historical experience and the posing of a more
complicated explanation of the role of services in economic development and structural change.

8.1 ECONOMIC DEVELOPMENT AND STRUCTURAL CHANGE: THE SERVICE ECONOMY

It has long been conventional wisdom that economic progress in the long run is associated with the gradual transformation of the economy from agriculture to manufacturing and then to services. Underdeveloped economies are primarily agricultural. Initially economic development proceeds by transferring resources from the agricultural to the manufacturing sector. After a period of industrialization, there follows a further transfer of resources from manufacturing to services so that, in a mature economy, most of the workforce will be engaged in the production of services.

The idea that development was necessarily accompanied by changes in the industrial structure is usually attributed Fisher (1935) and Clark (1940). Both were concerned with elaborating the conditions of economic progress. They concluded that structural change (which included a relative growth in the service sector) was a necessary concomitant of economic progress. Fisher emphasized the demand for services, arguing that services were luxuries — that is, services had a relatively high income elasticity. Therefore as incomes rose, the proportion of services in final expenditure would also rise necessitating a relative increase in service employment. Clark, on the
other hand, emphasised the supply side. He argued that the rate of productivity growth was usually lower in services compared to agriculture and manufacturing. Even if there was no change in output shares, the differential productivity growth rates in goods and services would require that an increasing proportion of the workforce be employed in the production of services. The high income elasticity of demand for services would magnify this effect.

The empirical implication of the Fisher-Clark hypothesis is the expectation that a strong correlation will be observed between per capita income and the share of output and employment in service industries. This should be evident both within the same country over time and by looking across different countries at the same point of time. This correlation was indeed documented by Clark and subsequently by Kuznets (1966) and other writers.

Australia has frequently been noted as an exception to the rule (see for example Kuznets (1966:97, 111). This view that Australia is atypical was strongly reinforced by Dowie (1970). Comparing Australia with the United States he concluded: "As far as services are concerned, the Australian story is thus far from the dramatic one ... (found) in the United States. Indeed, the series go a long way towards reinforcing the suggestion, most implicit in Kuznets's work, of an atypicality in the Australian experience." (Dowie 1970:222) We now examine the development of the service sector in Australia to see whether this conclusion is justified.
8.2 THE SERVICE SECTOR IN THE AUSTRALIAN ECONOMY

The definition of the service sector

One of the difficulties of charting the development of services through time is that different authors adopt different definitions of the service sector and some authors even change their definitions from time to time. This reflects a lack of precision and agreement as to the essential characteristics of a service and the distinction between services and goods.  

For empirical purposes the following sectoral aggregation has been adopted:

<table>
<thead>
<tr>
<th>Primary</th>
<th>Industry</th>
<th>Services</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture, etc.</td>
<td>Manufacturing</td>
<td>Trade</td>
</tr>
<tr>
<td>Mining</td>
<td>Electricity, gas &amp; water</td>
<td>Transport and communication</td>
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<td>Construction</td>
<td>Finance and business services</td>
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<tr>
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<td></td>
<td>Public administration &amp; defence</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Community services</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Entertainment &amp; personal services</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Ownership of dwellings</td>
</tr>
</tbody>
</table>

In comparing the data presented here with other sources, it should be borne in mind that other writers have adopted different sectoral divisions. For example Fuchs (1968) includes transport and communications in the industry sector. In his treatment of the Australian service sector, Dowie (1970) treats electricity, gas and water and construction as forming part of the services sector.  


The share of services in employment and output

A superficial examination of the historical evidence suggests that the Australian economy has developed as suggested by the Fisher-Clark hypothesis. Table 8.1 shows that over the course of this century the percentage of employees engaged in producing services has increased from around 40 per cent in 1900/01 to more than 60 per cent in 1980/81. Over the same time period the share of primary employment (agriculture and mining) has fallen from 32 per cent to 6 per cent. On the other hand the percentage of employees engaged in industry is today approximately the same as it was at the beginning of the century. That is not to say that the share of industrial employment has remained constant. During the first half of the century the share of industrial employment rose from 26 per cent in 1901 to around 39 per cent in the 1950s. This growth in the relative share of manufacturing has been reversed in the last 20 years (see Chapter 7).

Considering the changing composition of output, services accounted for 51 per cent of GDP (in current prices) in 1900/01 whereas in 1980/81 this stood at 57 per cent. The relative growth of services in output been much less pronounced than the changes in the share of service employment. Furthermore the changes in the relative shares in aggregate output of the other two sectors (primary and industry) have been more dramatic than the changes in the share of services.
### TABLE B.1

<table>
<thead>
<tr>
<th></th>
<th>Employment</th>
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<td>YEARS</td>
<td>PRIMARY</td>
<td>INDUSTRY</td>
<td>SERVICES</td>
</tr>
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<td></td>
<td>1980-84</td>
<td>29</td>
<td>25</td>
<td>36</td>
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<tr>
<td></td>
<td>1920-29</td>
<td>36</td>
<td>27</td>
<td>37</td>
</tr>
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<td></td>
<td>1947</td>
<td>27</td>
<td>38</td>
<td>45</td>
</tr>
</tbody>
</table>

**ARGENTINA**

|                |           | PRIMARY | INDUSTRY | SERVICES |
|                | YEARS      | 1980    | 17      | 32        | 1980    | 11      | 36      | 53        |

**AUSTRALIA**

|                | YEARS      | PRIMARY | INDUSTRY | SERVICES |
|                | 1980       | 26      | 19      | 51        | 1980    | 25      | 23      | 55        |
|                | 1920       | 30      | 45      | 54        | 1920    | 33      | 31      | 54        |
|                | 1947       | 30      | 45      | 54        | 1947    | 30      | 54      | 54        |
|                | 1980       | 28      | 66      | 54        | 1980    | 12      | 38      | 57        |

**CANADA**

|                | YEARS      | PRIMARY | INDUSTRY | SERVICES |
|                | 1980       | 23      | 36      | 51        | 1980    | 33      | 35      | 55        |
|                | 1920       | 10      | 26      | 56        | 1920    | 14      | 44      | 54        |
|                | 1947       | 22      | 35      | 44        | 1947    | 17      | 56      | 47        |
|                | 1980       | 7       | 27      | 66        | 1980    | 11      | 31      | 59        |

**UNITED KINGDOM**

|                | YEARS      | PRIMARY | INDUSTRY | SERVICES |
|                | 1980       | 15      | 42      | 48        | 1980    | 13      | 33      | 35        |
|                | 1920       | 13      | 44      | 44        | 1920    | 10      | 37      | 56        |
|                | 1947       | 6       | 46      | 46        | 1947    | 9       | 42      | 49        |
|                | 1980       | 4       | 37      | 59        | 1980    | 7       | 33      | 66        |

**UNITED STATES**

|                | YEARS      | PRIMARY | INDUSTRY | SERVICES |
|                | 1899-1904  | 21      | 23      | 56        | 1899-1904 | 21      | 23      | 56        |
|                | 1920-1927  | 24      | 35      | 15        | 1920-1927 | 11      | 26      | 62        |
|                | 1950-1959  | 14      | 31      | 15        | 1950-1959 | 16      | 36      | 54        |
|                | 1980-1989  | 5       | 28      | 64        | 1980-1989 | 6       | 38      | 64        |

**SOURCES:** Calculated from Tables B.2, B.3
From the perspective of the early 1980s, any conclusion that "Australia is different" appears quite unjustified. Table 9.1 compares sectoral shares in employment for Australia and four other countries: Argentina, Canada, United Kingdom and United States. On this evidence Australia certainly does not stand out as being atypical, especially as regards the share of the service sector. At the beginning of the period, the share of services in employment in Australia is slightly higher than that in Canada and the United States and slightly less than that of the United Kingdom. By the end of the period, these rankings are reversed. However the differences between nations at a point in time are far less than the changes over time. Nor does Australia stand out in terms of the other two sectors. All four nations experienced a substantial decline in the share of agricultural employment which was accompanied by a rise and then subsequently a fall in the share of manufacturing. This is less pronounced in the case of the United Kingdom, but the experience of Canada and the United States is remarkably similar to that of Australia. With respect to sectoral shares of output Australia again is quite typical. It has a slightly smaller service sector than Canada, the United Kingdom and the United States, but a service sector which has experienced approximately the same increase over the last 80 years as in the other three countries.

The composition of the service sector

The relative growth of service sector employment has not been shared
equally by the various service industries (Table 8.2 - Australia). The "growth" industries in the service sector have been finance and property and public administration and defence, accompanied to a lesser extent by wholesale and retail trade. The share of employment engaged in finance and property in 1980/81 is 6 times what it was in 1910/11, most of the growth having occurred during the last 20 years. Wholesale and retail trade grew steadily over the last 70 years from 12 per cent in 1910/11 to 18 per cent in 1980/81. Indeed the distribution of goods now accounts for as much employment as does their manufacture. Growth in public administration and defence has not been steady. The greatest expansion occurred during and after the second world war. However, while the defence component was largely reversed after the war, public administration remained at its wartime level for many years. It declined somewhat in the late 1950s and early 1960s but has grown again in recent years.

The share of employment involved in transport and communication has remained essentially constant over the last 80 years at around 8 per cent of total employment. The remaining category "other services" employs approximately the same share of the workforce today (22 per cent) as it did in 1901 (19 per cent) although its share had fallen as low as 14 per cent in the period after world war two. Moreover the composition of "other services" employment is quite different today from what it was eighty years ago. At the beginning of the century domestic service was prominent in employment whereas today the number employed as domestic servants is negligible. On the other hand health
### TABLE 8.2

Shares of employment by industry

<table>
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<tr>
<th>Year</th>
<th>Agriculture</th>
<th>Mining and quarrying</th>
<th>Manufacturing</th>
<th>Electricity, gas and water</th>
<th>Construction</th>
<th>Building and civil engineering</th>
<th>Transport and communications</th>
<th>Wholesale and retail trade</th>
<th>Finance and property</th>
<th>Public administration</th>
<th>Other services</th>
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<tr>
<td>1960/61</td>
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<td>16.2</td>
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</table>

**NOTES:**
1. Shares specified separately. Electricity, gas and water and Building and Civil Engineering are included under manufacturing. (For Australia in 1960 Manufacturing also includes Mining and quarrying).
2. Other services includes all services not otherwise specified.

**SOURCES:**
- Argentina: 1988/89, Neo-Alejandro de la Barra, Chapter 1, Table 5
- 1997 Survey (1998), Table 42
- 1995/96–2003, Year Book of Labour Statistics, Table 2
- Australia: 1996: Palbargh (1998), Table A2
- 1997: Henderson (1998), Table A4
- 1998 ABF, Australian Bureau of Statistics
- Canada: 1997: Palbargh (1998), Table A2
- 1995/96: ABF, Year Book of Labour Statistics, annual issues, Tables 2 and 28
- United Kingdom: 1996: Dean & Cole (1997), Table 31
- 1960/61: ILD, Year Book of Labour Statistics, annual issues, Tables 2 and 30
- 1989/90: ILD, Year Book of Labour Statistics, annual issues, Tables 2 and 28
and education are much more prominent employers than they were at the turn of the century. We will examine the composition of the category "other services" in more detail in the next section.

Turning now to output shares (Table 8.3) the picture is somewhat different. With one exception (finance and property), the share of the service industries in GDP in 1988 is little different to the corresponding shares in 1980. However the only industry which can genuinely claim a relatively constant proportion of output is transport and communication, although with the exception of the thirties and of course the war years, the proportion of output devoted to public administration and defence has varied only between 3 and 4 per cent. In wholesale and retail trade and "other services" there has been considerable intertemporal variation. The percentage of output involved in distribution reached 21.3 per cent in 1955/61 and had fallen to 12.8 per cent by 1980/81. The variation in the output of other services reflects changes in composition of this industry which were mentioned above. Changes in the output share of finance and property are dominated in the early years by changes in the share of imputed income to owner occupied dwellings. These presumably reflect changes in the quantity and the quality of the housing stock. Only in recent years has the output of the industry finance and property excluding the rent to owner-occupied dwellings become a significant proportion of the economy. By 1980/81 it represented 10 per cent of total GDP compared to 2.4 per cent in 1960. However these figures must be treated with caution. The output of the financial sector is in part
### Table 8.3

<table>
<thead>
<tr>
<th>Year</th>
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<th>Construction</th>
<th>Electric and Gas</th>
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**Notes:**
1. Unless specified separately, electricity, gas and water is included under manufacturing.
2. Finance and property includes the capital cost for new-completed dwellings.
3. Other services includes all services not otherwise specified.

**Sources:**
- Argentina: 1984/85: Eliz-Majlender J, 1, Chapter 3, Table 6
- 1980s: UN, National Accounts Statistics, Vol 1, Part 1, various years
- Australia: 1984/85: Australian National Accounts, National Income and Expenditure 1971/72 (7/1 Appendix C, Table C)
- 1980/81: ABS, Gross Product by Industry, 1992-93 (ABS, Table 218.0 Unpublished data for 1979 provided by ABS)
- Canada: 1970-80: Statistics Canada, Table 6
- United States: 1965/70: Historical Statistics of the US, 1965/70
imputed and a portion of this rise may be due to a change in the treatment of the financial sector in the national accounts.

In comparing the industrial structure of the Australian economy (and especially the service sector) with that of comparable countries (Tables 8.2 and 8.3), the similarities are again more striking than the differences. For the industries for which separate figures are available, there are few differences between countries in either the level or the pattern of intertemporal variation. In no way can a convincing case be made that the economic structure of Australia is historically atypical.

There is one exception to this conclusion, namely the share of output devoted to transport and communication in the prewar period. At the beginning of the period the share of output originating in transport and communication in Australia is only half that of Canada and two thirds that of the United Kingdom and the United States. This appears counterintuitive given Australia's large size and low population density. It also conflicts with the view that Australia overinvested in transport facilities (especially railways) in the early years (Butlin, Barnard and Pinous (1982): Chapter 10). That the output share of transport services in Australia was substantially less than those of Canada, the United Kingdom and the United States while the employment shares were comparable implies that transport and communication was markedly less productive in Australia in the early part of this century relative to comparable countries. The reasons for
this are unclear. A possible explanation is that Australia had substantially different transport requirements than for example Canada because of its high degree of urbanization. Another possibility is that the output share of transport is systematically understated in the data used. It is a question which warrants further investigation.

Productivity

Accurate measures of productivity require accurate measures of both input and output. In the case of many service industries (for example health, education and public administration) the usual difficulties of measuring inputs (particularly capital) are compounded by the lack of an independent measure of output. In such cases it is customary to value the output of the industry as the sum of the value of the inputs. This measurement convention rules out any possibility of productivity growth. Therefore the productivity of the service sector is biased downwards in comparison with manufacturing and agriculture. Furthermore I will here follow a common practice and be satisfied with a partial measure of productivity, total output per employee or labour productivity. Since the service sector is on average less capital intensive than manufacturing, this measure is further biased in favour of manufacturing. The bias is increased to the extent that working hours are shorter in the service sector and part-time employment is more prevalent.
| Table 8.4 |

Real Output, Employment and Productivity Growth Rates  
1979/80 to 1983/84 and 1984/85 to 1986/87 |

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<th>Agriculture</th>
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<th>Electricity</th>
<th>Construction</th>
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<td>482.7</td>
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**Source:** 
With these provisos in mind, Table 8.4 shows output, employment and output per employee in 1980 and their growth rates over the decade 1970/71 to 1980/81 for ten industries. The table also shows earlier figures for the period 1949/51 to 1959/61 reported by Dowie (1966). Table 8.4 supports the view that the service industries have a lower rate of productivity growth than agriculture and manufacturing. However the growth rate of productivity should be carefully distinguished from its level. In 1980/81 finance and property produced 30 per cent more output per worker than manufacturing; on the other hand the value of output per worker in wholesale and retail trade, community services and entertainment was little more than 60 per cent of that of manufacturing.

Once again transport and communication emerges as having an atypical experience. This is explained when we recall that the 1970s was the decade of massive energy price rises which were reflected in the price of transport services. Thus the value in current prices of the output of transport service rose relative to the value of other goods and services. This highlights one of the limitations of relying on current price time series. They make it impossible to distinguish between price and quantity changes. As long as prices in all industries rise at the same rate, changes in relative shares will reflect changes in relative quantities. However, if relative prices change, some of the changes in relative shares will be due to price changes rather than quantity changes. For reasons on which we will elaborate later, the price of services has risen relative to that of
goods. This implies that the change in relative shares of output at current prices will overstate shifts from goods to services.

I have not taken any account of differences in capital inputs, working hours, and full and part time work, all of which might be expected to bias the productivity measure of the services sector downwards. With these reservations in mind, this evidence does tend to support the conventional wisdom that service industries on the whole produce a lower output per worker and have increased their productivity at a lower rate than manufacturing or agriculture.7

Industrial structure and Australia's growth performance

It is well known that large productivity gains can be achieved from the transfer of underemployed labour from the agricultural sector to industry and to services. This is one of the fundamental wisdoms of development economics. In part these are accounting rather than real gains obtained by increasing the proportion of economic activity which is covered by the market and hence included in national income statistics. Nevertheless the flight from the farm to the factory (and the financial institution) will be accompanied by an increase in recorded output and reflected in growth statistics.

Australia in common with Canada, the United Kingdom and the United States exploited these gains early and so by the beginning of our period of study had relatively mature industrial structures. Therefore
their subsequent growth performance appears disappointing when compared with the newly industrializing countries. For example in 1950, Japan still had 50 per cent of its workforce employed in agriculture compared with 15 per cent in Australia. Today agricultural employment in Japan has declined to 10.7 per cent compared to Australia's 7.9 per cent. It is little wonder therefore that Australia's growth rate compares unfavourably with Japan over this period. Australia matured early.

8.3 SELECTED SERVICE INDUSTRIES

We now go down one further level of aggregation and look at certain service industries which provide some historical colour to this Chapter and which illustrate its themes. Particular attention is given to transport as provides a good illustration of the many of the points which I wish to establish. Some other service industries are discussed elsewhere in the book.
Transport services

During the period of this study there have been startling developments in the modes of transport which flow from important technological developments around the turn of the century such as the internal combustion engine and powered flight. Also transport services have been central to the development of the Australian economy over the last 80 years.

Since most Australians live in cities, it is appropriate to consider first urban passenger travel which predominantly involves the journey to work. In a recent book, Ian Manning (1984:1) documents that: "In . . . [the last] hundred years, in Australia as in other wealthy countries, the normal means of getting about in cities changed twice, first from walking to trams, trains and buses, and then from public transport to the motor car."

Urban public transport in Australia began in the 1850s with the first suburban railways, followed by the introduction of horse buses and trams in the 1860s. Mechanically powered trams were introduced in the 1880s. Prior to this the only means of transport available to the non-affluent was walking. The introduction of buses, trams and trains did not immediately alter the mode of transport of the working class since, although a significant increase in the potential speed of urban travel was obtained, fares were comparatively high. Only when the electrification of the trams led to a considerable reduction in
fared was there a dramatic increase in patronage. The trams then replaced walking as the most popular mode of transport for medium length urban journeys. This suggests that it was not rising incomes but falling prices that provided the major impetus to the growth of public transport.

Although the private motor car first appeared before the first world war, expense limited ownership to the wealthy. Car ownership grew gradually during the 1920s, but this trend was interrupted by the depression and then by the second world war. "Though the motor car was brought to a reasonable level of technical reliability seventy or eighty years ago, and though it was first mass-manufactured six decades ago, mass motorization dates only from the end of the second world war." (Manning 1984: 30). The arrival of mass private motoring signalled the decline of public transport.

The rise and fall of urban public transport is illustrated in Figure 8.1 which shows total passengers carried in Sydney for the period 1881 to 1978. The supremacy of the trams from 1910 to 1947 is clearly evident, as is their rapid decline in the postwar period. Though some tram passengers transferred to buses after the war, most found other means of transport, that is the private car. Train travel had experienced a slower growth than trams and has not suffered the same loss of passengers. The hump of Figure 8.1 becomes more remarkable when it is recalled that the decline of public transport passengers during the postwar period occurred in the face of a rapidly
Figure 1

Public Transport Passengers Carried, Sydney, 1881-1978

expanding population and workforce in Sydney.

Turning to the transport of freight, a reasonable claim can be made that it was not federation but changes in the technology of freight transport which brought about the integration of the Australian economy. Prior to 1939 interstate trade was severely inhibited by the system of land transport to the extent that Rimmer (1977: 171) claims: "Individual states functioned to some extent as self-sufficient regional islands." Rail transport was constrained by the nonuniformity of gauges and road transport frustrated by inadequate vehicles and railway protection taxes. The dominant mode of interstate freight transport was coastal shipping which was inefficient and costly.

The postwar boom in the production and use of motor vehicles affected freight in the same way as it affected urban passenger travel. Despite the protective taxes and regulations favouring rail, road transport flourished in the postwar boom. Its success was aided by the deterioration in the rail system during the war, and by the proliferation of owner drivers induced into the industry by the availability of war surplus trucks and war service gratuities to spend on them. Road transport quickly replaced rail as the dominant mode of intrastate freight transport and challenged rail and coastal shipping for interstate trade. The railways and coastal shipping retained a substantial share in the movement of bulk cargoes such as iron ore and coal. A recent development has been the growth of private railways associated with mineral exploitation - private rail now nearly matches
public rail in terms of tonne-kilometres of freight carried. Of course shipping retains its dominant role in trade between Tasmania and the mainland.

The development of Australian transport services during the postwar period was considerably affected by the growth of a new type of transport service - freight forwarding. The freight forwarder "assumes responsibility for the movement of goods from door-to-door as part of a total package of transport services" (Rimmer 1977: 168). The freight forwarder chooses the most economical mode of transport and arranges for any intermediate transport and handling thus exploiting the benefits of economies of scale and specialization. The development of freight forwarding helped stem the flow of traffic from the railways and from coastal shipping by offsetting some of the advantages of road transport.

Like private motoring, air travel was available prior to the second world war. But it wasn't until the postwar improvements in speed and comfort and reductions in costs that patronage was assured. From 1950 to 1975 air travel was the fastest growing mode of transport. Measured in passenger kilometres, domestic air travel grew steadily in excess of 8 percent per year while international air travel increased at 14 percent per year (Butlin, Harnard & Pincus 1982: 209). In Australia air transport is embroiled in even more extensive government regulation than land transport. The federal government has controlled competition in domestic air transport through the two
airline agreement and in international air transport through its ownership of Qantas. The effect of the two airline agreement in raising the price of air travel and reducing the quantity consumed is notorious (Kirby 1981). Less attention has been paid to the effect of airline regulation in suppressing the development of the air freight market in Australia. Air transport would seem well suited to Australia's vast distances and sparse population. However, until recently, the market was effectively confined to the two domestic airlines by regulation. Consequently the rate of growth of Australia's domestic airfreight activity over the period 1961 to 1976 was only a little over half that of the world average and less than half that of Canada. In the same period the world average freight rate fell whereas Australia's domestic average freight rate rose (Gawan-Taylor 1984: 32-35).

Declines in the relative costs of transport applied internationally as well as nationally, stimulating the international division of labour and the growth of world trade. This placed other pressures on domestic producers, pressures which were in part resisted by the tariff. A complicated story remains to be told detailing the effect of changes in costs and technology of transport on the location and structure of Australian industry and consequently on the patterns of population growth. Overall real freight costs have declined substantially and led to increases in the volume of freight. This has had ramifications for the location of industry and the structure of development. Better transport services have allowed better rationalisation of production thus realising economies of scale.
Domestic and personal services

While in 1981 the number of domestic servants was negligible, in 1911 7 percent of the workforce were engaged in domestic service (Table 8.5).

Females outnumbered males nearly 10 to 1. Writing of Australian urban life in the 1880s, Twopeny (1883: 49, emphasis added) reports:

Where mistresses are many and servants are few, it goes almost without saying that large establishments are out of the question. Given equal incomes, and the English mistress has twice as many servants as the Australian, and what is more, twice as competent ones. Even our friend Muttonwool only has six - coachman, boy, cook, housemaid, nurse, and parlourmaid.

Writing of Melbourne in the same period, Davison (1978: 202) records that:

...The income levels for domestic service in Melbourne were pitched rather higher than in London. A family on £200 was fortunate to employ a girl, that on £300-400 could barely afford a maid of all work. A large family on £500 might have a nurse as well, while a £600 establishment included a boy, a nurse and a general servant. At a princely £800-1300, a lady commanded two women and a man servant.

The upper income categories (£600 and over) would cover the professions (doctors, lawyers), bankers, managers and merchants; £300-400 would have included shopkeepers, and many self-employed tradesmen and senior office workers. Many more skilled workers could have expected £200 per year. On this basis we can conclude that the proportion of households employing at least one domestic servant would be quite large.
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<th>Welfare</th>
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</table>

Sources: BLS, Census Reports
Still there was unsatisfied demand. Davison (1978: 202) reports that "the servant shortage was a vexing and apparently interminable problem to middle-class matrons." This is partly because wages for domestic service were considerably higher than in England. Even at the going rate demand for domestic servants exceeded supply. It seems that factories offered more attractive employment. Two peny (1883: 57) complains: "Unfortunately, but a very small proportion of the daughters of the poorer colonial working-class will go into service. For some inexplicable reason, they turn up their noses at the high wages and comparatively light work offered, and prefer to undertake the veriest drudgery in factories for a miserable pittance." The "inexplicable reason" appears to be the independence and shorter hours offered by factory work coupled with the egalitarian spirit of the colony. The price required to compensate for the strictures of life as a domestic servant appears to have been too high for the colonial employer.

Though the percentage of the workforce engaged in domestic service has declined steadily at least since the beginning of the century, the most dramatic decline occurred during and immediately after the second world war. This was also the time of the widespread production and use of home appliances such as washing machines and vacuum cleaners which served as substitutes for domestic servants. Whether the new appliances priced domestic servants out of the market or whether appliances were mass produced to meet an excess demand for servants is an open question.
Another perspective on the decline of domestic service is given by Snooks (1983) who has estimated the value of total household production for the period 1891 to 1981. His estimates suggest that the percentage of total household services produced by domestic workers in private employment declined from 9.0 percent in 1901 to 0.3 percent in 1981. These data probably overestimate the decline in purchase of household services since they do not include services purchased externally, such as contract cleaning and gardening services (now included in personal services), child care and food prepared outside the home. It is likely that such purchased services have increased in importance in recent years. Unfortunately data to measure this change are not readily available.

The category personal services includes hairdressers, laundries, domestic cleaners, gardeners, photographers, funeral directors, and miscellaneous other activities. Employment in personal services has changed very little over the last 80 years and these activities have consistently occupied a very small fraction (approximately 1 percent) of the working population (Table 8.5).

Entertainment and recreation

Entertainment has also seen remarkable changes since 1900. In the latter part of the last century the only available forms of purchased entertainment were live entertainment - theatre, concerts, music halls.
and vaudeville. Motion pictures were first shown in Australia in 1896 and rapidly gained popularity. By 1920 there were 750 picture theatres in Australia and attendances exceeded 67 million annually (that is 12 per capita per year). Moreover during the next decade attendances almost doubled. The cinema enabled a substantial increase in the productivity of entertainment services: once produced, a movie could be shown to a wide audience at little additional cost. A similar productivity increase was achieved by the phonograph, although contemporary examples suggest that quality was poor.

The next major change in the provision of entertainment services was the introduction of broadcast radio. The first commercial radio station in Australia opened in Sydney in 1923. This enabled a very considerable rise in productivity since additional listeners could be serviced at no marginal cost. The introduction of radio broadcasts may have had some impact on the popularity of the cinema since the latter failed to maintain its previous rate of growth. In 1955, the year prior to the introduction of television, cinema attendances were only slightly greater than they had been in 1929 despite a 43 percent increase in the population and greater affluence.

A more severe challenge to public entertainment arrived with the introduction of television to Australia in 1956. The then current expectations of the complete demise of the movie theatre proved unfounded but audiences shrank and many movie theatres were closed. The style of motion picture and the form of presentation was changed,
the decor of the theatres updated. The nature of the service was changed somewhat. An interesting side effect was the disappearance of movie news from the programme. Visual news could be provided better by television.

Though television did not eclipse the movie theatre, recent developments seem likely to be a more serious threat. Home video recorders and laser disk players provide the consumer with the ability to provide similar entertainment at home. Further potential for individual provision of such services will arise from satellite broadcasting supplemented perhaps by cable and subscription television.

A feature of Australian leisure activity is the prominence of outdoor pursuits such as fishing, swimming, surfing and sailing which are promoted by the climate and the proximity of the major cities to the sea. Land intensive sports such as tennis and golf which are primarily are the reserve of the rich in many countries attract mass participation in Australia. Such recreational activities do not require much service employment to support them.

Reflecting on the development of recreation and entertainment in Australia, it should not be surprising that employment in this industry has grown only moderately over the last 30 years although there is evidence for a significant increase in the most recent census. Another perspective on the changing nature of entertainment activity is provided by Table 8.6 which shows the composition of expenditure on
<table>
<thead>
<tr>
<th>Year</th>
<th>Admissions</th>
<th>Medical</th>
<th>Radio</th>
<th>Film</th>
<th>Books</th>
<th>Sporting</th>
<th>Miscellaneous</th>
<th>Newspapers</th>
</tr>
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<tbody>
<tr>
<td>1958/59</td>
<td>10.7</td>
<td>10.8</td>
<td>2.4</td>
<td>1.9</td>
<td>2.5</td>
<td>10.7</td>
<td>10.4</td>
<td>10.3</td>
</tr>
<tr>
<td>1959/60</td>
<td>21.6</td>
<td>7.9</td>
<td>3.2</td>
<td>3.9</td>
<td>3.5</td>
<td>3.9</td>
<td>10.2</td>
<td>10.2</td>
</tr>
<tr>
<td>1960/61</td>
<td>22.9</td>
<td>7.7</td>
<td>10.6</td>
<td>6.7</td>
<td>6.6</td>
<td>9.9</td>
<td>32.1</td>
<td>18.3</td>
</tr>
<tr>
<td>1961/62</td>
<td>12.4</td>
<td>4.1</td>
<td>7.3</td>
<td>10.1</td>
<td>5.7</td>
<td>2.5</td>
<td>20.4</td>
<td>9.8</td>
</tr>
<tr>
<td>1962/63</td>
<td>8.6</td>
<td>5.5</td>
<td>8.2</td>
<td>5.1</td>
<td>5.6</td>
<td>7.1</td>
<td>31.0</td>
<td>16.9</td>
</tr>
</tbody>
</table>

Source: Unpublished data provided by Bryan Haig.
recreation and entertainment for selected years over the period 1920/21 to 1966/67. The declining importance of movies and live entertainment is shown in the percentage of expenditure devoted to admissions which declines from about 40 percent in 1920/21 to less than 10 percent in 1966/67. The difference is accounted for by the purchase of leisure and entertainment goods such as televisions and boats.

Employment in restaurants, clubs and hotels has not shown any growth despite the recent boom in eating away from home and the proliferation of licensed clubs. Against this development must be set a decline in the number and patronage of hotels and taverns. It would seem that public drinking as a form of entertainment has in fact declined dramatically over the years. The nature of the services provided by restaurants, clubs and hotels has changed substantially even though their relative importance in the economy has not.

8.4
ECONOMIC GROWTH AND STRUCTURAL CHANGE: A REASSESSMENT

At first sight then the Fisher-Clark hypothesis appears to very well supported by the data. In Australia, as in comparable countries, a steadily increasing proportion of the workforce has been engaged in the production of services rather than goods. At the same time it is evident that productivity growth in the service sector has been slower than in the other two sectors. The net result has been only a small increase in the share of output originating in the service sector.
These facts have been interpreted by Fuchs (in the US) and Bowie (in Australia) as lending support to the Clark variant of the Fisher-Clark hypothesis - namely that the motivating force for the transformation comes from the productivity differentials, not from differences in income elasticity.

As we have investigated successive levels of disaggregation in the preceding sections, a less clear picture has emerged. Rather than advancing steadily on all fronts, the relative growth of the service sector has been far from uniform. The emergence of services as the dominant sector in the economy reflects diverse histories in the various service industries. Some services, of which domestic service is the most prominent example, have in fact declined. Many service industries, such as personal services, entertainment and recreation and miscellaneous community services have maintained a more or less constant share of employment throughout the period. Growth has been confined to health, welfare and finance and business services. It is these latter industries which have brought about the dominance of the service sector in the modern Australian economy.

What is remarkable about this picture is that it is precisely those services for which the Fisher-Clark hypothesis would have predicted the most dramatic growth which have remained static or in fact declined. Entertainment, personal services and domestic services are luxuries *par excellence*. They are also characterized by low productivity growth. According to Fisher and Clark, we could have
confidently expected a dramatic increase in their share of output and employment. The example of these industries suggests that the development of the service sector cannot be explained on the grounds of high income elasticity and low productivity growth alone.

At least two important factors are missing from the conventional explanation of the development of the service sector. These are the impact of relative price changes on the demand for final services and the impact of specialization on the demand for intermediate services. 12

Relative price effects - the household production unit

Fisher, Clark and other authors underestimated the potential effects of changes in relative prices. If productivity in the production of services grows less rapidly than the productivity in the production of goods, there will be a change in relative prices. The price of services will rise relative to the price of goods and the consumer, wealthier though he might be, will be encouraged to substitute goods for services in his consumption. For many services this price effect has dominated the income effect.

Services can either be purchased directly as final commodities in the market or produced by the consumer with goods purchased in the market. 13 Transport is a good example. Over the last one hundred years the modal choice of the provision of urban transport services has
changed twice. One hundred years ago urban transport was essentially a self-service. The ordinary urban Australian walked about the city. Fifty years later, urban transportation was largely a purchased service. For a fee the passenger was bodily conveyed nearer to his or her destination by means of the application of factors owned and controlled by others. Personal exertion and time were saved at some cost. Another 50 years on, urban transport is once again largely self-produced. The motorist combines personal labour with capital equipment (namely a car) to produce the transportation service.

The reasons for these changes are not hard to discern. Rising incomes and falling relative prices account for the growth in mass public transport in the first half of this century. The introduction of motorized transport in the latter half of last century offered an impressive advantage in speed over the next best alternative, walking. High fares limited its adoption for the journey to work. Falling relative prices and rising incomes led to steadily increasing patronage. The growth of mass public transport is a good example of the Fisher-Clark thesis. In those early days public transport was a luxury.

Similarly rising incomes and falling prices account for the exodus from public transport in favour of the motor car. From its introduction early this century, the relative price of the motor car has fallen steadily. According to Manning (1984) by the mid-1970s the purchase price of cars relative to wages had fallen to only 25 percent
of their immediate postwar price. Similarly the price of petrol fell to such an extent that by 1978 petrol prices as a percentage of wages were only 28 percent of what they were in 1958. On the other hand, public transport fares have kept pace with wages over the postwar period even with the assistance of subsidies. Operating costs have in fact risen relative to wages (Manning 1984: 17).

Furthermore not only out-of-pocket costs are relevant. Public transport often involves considerable walking and waiting. The passenger walks (or drives) to the station (or bus stop), waits for the bus or train, and then walks from the bus stop (or station) to the ultimate destination. The motorist has no waiting time and can often drive much closer to his or her destination than the bus or train passenger. Although public transport (especially trains) may attain greater speeds in urban travel, it usually requires longer elapsed times. A study in Sydney in 1971 found that a car was three times faster than the fastest public mode (bus) for short journeys (1 to 2 kilometres). The car retained its advantage over public transport (train) even for journeys of 20 kilometres. (Manning 1984: 23)

Transport, both private and public, requires a substantial input of time on the part of the passenger. As wages rise, the opportunity cost of the elapsed time of the journey rises. We should therefore expect people to choose faster forms of transport as their incomes grow. Private motoring is cheaper in its use of time than public transport.14 Taking account of both the out-of-pocket costs and the
opportunity costs, it is not surprising that Australians took to the motor car in their millions.

Here we have the Fisher effect in reverse. Rising incomes have caused consumers to substitute the private motor car for public transport services. Consumption of transport services (as recorded in the national accounts) has been correspondingly reduced with a rise in the consumption of manufactured goods. There is a rise in the consumption of ancillary services such as service stations, motor mechanics and motoring organizations, but these do not entirely offset the transfer of employment from running trams and buses to the manufacture of motor cars. Private motoring becomes the luxury good, transport services the inferior good.

In Lancaster's (1965) theory of demand, goods are purchased to produce characteristics which are the objects of final consumption. He distinguishes two different substitution effects, the efficiency substitution effect and the private substitution effect. The first results from a change in relative prices making a different bundle of purchased inputs the most efficient (least costly) method of producing given characteristics. This also affects the relative price of the various characteristics and any consequent change in the optimum bundle of characteristics is the private substitution effect. Changes in relative prices, especially the relative reduction in the capital and running costs of private motoring, mean that private motoring is now a relatively cheaper means of producing a given transport service.
Further, since private motoring offers greater comfort and speed, there is in addition a private substitution effect - the purchase of relatively more comfort and speed in the form of private motoring.

Entertainment provides another example of the changing locus of production. Technological change and mass production have combined to lower the costs of the self production of entertainment services. By purchasing a home video recorder and hiring (or purchasing) a movie the household can provide itself with essentially the same service which can be purchased by attending a cinema. The service is not identical. The home produced movie lacks the ambience of the theatre, the feeling of going out and being part of a crowd. In compensation it offers greater comfort, convenience and requires no transport cost. The essential characteristic of the movie, that is images on a screen, is the same in both cases. The cost of producing that characteristic has swung heavily in favour of home production. This makes the attainment of the other characteristics of the cinema, ambience, etc. relatively more expensive. This substitution effect will reduce consumption of the public service. Table 8.6 gives some insight into the extent of these changes. The composition of expenditure on entertainment has moved away from direct purchases of service and towards the purchase of goods for the self-production of entertainment - televisions, radio, boats and sporting goods.

With two prominent exceptions (health and education) relative price effects have lead to a reduction in the percentage of services in
the consumers budget. What then has maintained the overall share of services in GDP? This is the subject of the next section.

Specialization and the demand for intermediate services

By no means all services are consumed by final consumers. A large proportion of the output of the service sector is used as inputs into production by other enterprises. Some services, such as wholesale trade and accounting services are almost entirely performed on behalf of other enterprises rather than final consumers. Many other service industries, such as insurance, banking, legal services and transport, produce for both other industries and for final consumers.

The reason that the share of services in output has remained steady or even increased is that the switch of final consumption demand from services to goods has been matched by a steadily increasing demand for business services. This has nothing to do with income elasticity or even relative productivity growth rates, it is simply a result of increasing specialization and division of labour.

Once again transport is a good example. At the turn of the century many farmers would use their own horse and cart to obtain supplies and transport output to the market or railway. Today the farmer is more likely to employ the services of a transport firm. We can speculate that this development has been brought about by an increase in the average distance over which the goods are carted and a
rise in the capital cost of the necessary equipment. The availability in the postwar years of much larger trucks means that the transport firm can exploit economies of scale in servicing many farms in the one journey.

In a similar manner manufacturing and construction firms have tended to substitute hired transport services for their own transport equipment. This is evidenced by the growth of freight forwarding mentioned previously. The freight forwarder specializes in the provision of routing, packaging and documenting services which would otherwise have been provided internally even if the firm purchased the actual cartage externally.

Similar examples abound. Security firms have displaced watchmen. Computing bureaux have replaced internal office staff. There has been in recent years a proliferation of accounting, distribution, consulting and advertising firms which thrive by offering specialized services to other businesses. In their absence these services would have to be provided internally. This is a comparatively recent development and is in large part responsible for any increase in the employment in the service sector in recent years. The impact of these changes can be seen in the dramatic increase in the share of employment in finance and property category in Table 8.5 and especially in the sub-category property and business services.\textsuperscript{15}

In addition a large proportion of education and health expenditure should properly be regarded as intermediate rather than final
services. As Glenn Withers has documented in Chapter 10, the growth in participation in education has been most marked in the tertiary sector. This development can be interpreted as the substitution by firms of formal education for on-the-job training and is another example of firms purchasing specialized services externally. Many would go further and argue that the primary function of schooling is to socialize the industrial workforce and therefore that virtually all education should be regarded as an intermediate service. Similarly health expenditure cannot be regarded in its entirety as a final service. Occupational accidents comprise a significant proportion of health expenditure. As is now becoming apparent, many diseases are occupationally related and the services devoted to treating them could reasonably be regarded as intermediate rather than final consumption. As with the expenditure, the employment involved in the production of health services must be regarded as being shared between intermediate and final services.

In summary, the growth in employment and output has been in intermediate rather than in final services (with the exception of education and health). This can be attributed to a process of specialization and division of labour accompanying the maturation of the economy and spurred on by certain technological developments. Even education and health cannot be simply regarded as examples of the increasing demand for final services - a large part of their activity must be regarded as intermediate production.
8.5 CONCLUSION

Much of the conventional wisdom regarding economic development and structural change is founded on a myth. The Fisher-Clark hypothesis explains the relative expansion of the service sector in terms of the income elasticity of demand and growth rate of efficiency of supply of services. The natural phenomenon which they were concerned to explain, namely the relative expansion of the service sector, has persisted. However, with the benefit of further experience and a different perspective, we find that the explanation which they advanced is inadequate. Those services for which income elasticity might be expected to be highest and productivity growth lowest, such as personal services and entertainment, have remained static or declined. The growth in the service sector is rather attributed to demand for business services which is brought about by increasing specialization.

Similarly, hindsight allows us to dispose of a second myth regarding the Australian service sector. Contrary to a longstanding supposition, Australia's development does not differ significantly from that of comparable advanced countries such as Canada, the United Kingdom and the United States. Considering both the total relative size of the service sector and the composition of various industries within that sector, Australian experience during the twentieth century does not differ in any significant way from that of comparable countries. What is notable when comparing services historically across these countries is the similarities rather than the differences.
Footnotes

The author gratefully acknowledges the substantial help provided by Colleen Carter, Christopher Findlay, Bryan Haig, Allan Hall, Eva Klug, Ted Rymes and the editors Rodney Maddock and Ian McLean while absolving them of any blame for remaining errors.

1. The classical work on the service sector is Puchy (1968) which deals with the US economy. The basic reference for Australia is Dowie (1970) which is similar in spirit to Puchy. The volume edited by Tucker (1977) contains studies of a number of service industries. Other relevant material on the Australian service sector may be found in Dowie (1966) and Haig (1975). The author's interest in this topic was stimulated by reading Gershuny (1978).

2. Two important aspects of the development of the service sector in Australia have been slighted for lack of space. The first of these omissions, the role of Government regulation, has been well covered elsewhere - see for example Butlin, Barnard and Pincus (1982), especially Part 4, and the reference cited there. Regulation of the financial sector is dealt with in Chapter 9. The second omission is trade in services, the importance of which has only recently been appreciated in Australia (see for example Tucker, Seow and Sundberg 1983). Trade in services promises to become much more important as a result of technological
improvements in communication. This now an active area of research by many economists although little of this work is yet available in published form.

3. An extended discussion of the writings of Fisher and Clark on the growth of the service sector can be found in Dowie (1978). Perhaps the idea of the relationship between economic progress and structural change should be attributed to the colonial statisticians Coughlan (New South Wales) and Johnston (Tasmania) who, in 1891, persuaded their fellow statisticians to reorganize the classification of the workforce to reflect the industrial structure of the economy and proposed an industrial classification which is essentially used throughout the Western world today. As far as I am aware this was the first use of a modern industrial classification of the workforce which in turn made apparent the structural changes which accompany economic growth.

4. It would not be appropriate to dwell on this issue here. The interested reader is referred to discussions in Dowie (1978), Fuchs (1968), Greenfield (1966), Tucker (1977) and especially Hill (1977) whose definition underlies the classification adopted in this Chapter.

5. We should also recognize that the sectoral and industrial divisions of output and employment recorded in national income statistics do not reflect the true division of economic activity
in the economy because (among other reasons) a substantial amount of economic activity goes unrecorded. However there is no reason to suggest that the measured sectoral shares are biased in any particular direction. For an extended discussion of the hidden economy I refer the interested reader to Carter (1984) and the references cited there.

6. Finance and property includes banks and other financial institutions, insurance companies, real estate agents and developers, as well as architectural, legal, accounting and other business services. Prior to the census of 1971, business services were included in community services. Public administration includes all Federal, State and Local Government establishments mainly engaged in public administration and regulatory activities, as well as the judicial system and the defence forces. It excludes public enterprises (eg. Telecom) and health, education and welfare services.

7. The differential productivity between goods and service industries has been documented in many countries (Fuchs (1968)). In his comparative study of Australia, United Kingdom and United States, Dowis (1966) found that, although productivity growth rates were significantly higher in goods producing as compared to service industries in all three countries, the differential in Australia was considerably higher than in the other two countries.
8. Employment data for Japan were obtained from Year Book of Labour Statistics published by the International Labour Organisation.

9. Butlin (Chapter 9) deals with financial services, Withers (Chapter 10) discusses education in relation to labour market and Pincus (Chapter 11) deals with government and public administration.

10. Transport in Australia is one of the most intensely studied of the service industries. A short survey of the Australian transport system can be found in Forsyth (1982) and several relevant papers in Webb and McMaster (1975). Much of the material on urban transport is derived from Manning (1984). Davison (1978) describes the impact of public transport on the suburban development of Melbourne in 1880s. The evolution of the transport system in Australia is intimately associated with the story of government enterprise and regulation. This aspect is aptly covered in Chapter 10 of Butlin, Barnard and Pincus (1982). The development of freight forwarding and its impact on the transport system is the subject of Rimmer (1977). Stubbs (1983) surveys the Australian maritime industry. Conlon (1982a; 1982b) discusses the impact of transport costs on Australia's international trade and industrial structure. Domestic airline services and regulation are discussed by Hocking and Forsyth (1982). Findlay (1983) discusses Australian international aviation policy.

11. Figures for cinema attendances are taken from the article on the

12. The impact of changes in relative prices and specialization have been noted by other writers. Bauer and Yamey (1951) made similar observations in a perceptive critique of the Fisher/Clark hypothesis on both theoretical and empirical grounds. Changes in relative prices are emphasized in Baumol (1967) while Greenfield (1966) emphasizes specialization and the demand for producer services. See also Gershuny (1977, 1978). A pioneering attempt to estimate the interaction of demand and supply effects in the demand for services was made by Haig (1975).

13. For the underlying economic theory see Becker (1965) and Lancaster (1966).

14. Two provisos to this statement immediately arise. Firstly the advantage of private over public transport can be offset by the effects of congestion on public roads. Second part of the elapsed time on public transport can be used for some other task such as reading the newspaper.

15. Table 8.5 overstates this development since there was a change in classification between the censuses of 1966 and 1971. Business services such as accounting and legal services were transferred
from the other community services to the category property and business services. At the same time certain financial activities such as building societies and finance companies were transferred from property and business services to finance and investment (which previously was confined to the banking industry.)
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