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on
economic statistics

PRIVATE CONSUMPTION EXPENDITURE
– CONCEPTS AND TRENDS

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PRIVATE CONSUMPTION EXPENDITURE

- CONCEPTS AND TRENDS

INTRODUCTION

1 In the Singapore economy, households undertake numerous transactions in the market place daily. Most of these transactions are captured in the Singapore System of National Accounts as private consumption expenditure (PCE).

2 The aim of this paper is to explain the concept of PCE, the main sources of data used in its compilation and the method of compilation. The paper also provides a broad overview of major trends between 1985 and 1996.

BRIEF HISTORICAL BACKGROUND

3 The first official estimates of PCE were compiled in 1961 by the Department of Statistics (DOS) for the years 1956 to 1960 as part of the attempt to estimate domestic consumption and gross fixed capital formation. The series was subsequently compiled annually from 1961 onwards.

CONCEPTUAL FRAMEWORK

4 PCE refers to the final purchases of goods and services by households. It includes the expenditure of Singapore residents abroad such as tourist expenditure but excludes the expenditure of non-residents in Singapore.

5 For the compilation of PCE, residents are defined as all persons living in Singapore for more than one year. This definition conforms to the definition in the United Nations' System of National Accounts (SNA). Residents include Singapore citizens, permanent residents and foreign workers. It also includes our diplomatic and military personnel working

abroad since our diplomatic missions and military bases overseas constitute part of the economic territory of Singapore. Non-residents, on the other hand, include tourists, foreign military and diplomatic personnel working in Singapore.

6 PCE is not restricted to spending on goods and services by households alone. It also includes the consumption expenditure incurred by non-profit institutions serving households (NPISHs). Examples of such institutions are religious organisations, trade unions and clan associations. Unlike households who are treated in the national accounts as the final buyers of goods and services and thus consume commodities for the benefits they provide, NPISHs are not uniquely final buyers or intermediate buyers whose purchases of goods and services are used in the production of other commodities. Thus, NPISHs are not only consumers, but also producers of goods and services. The sales of commodities produced by NPISHs are already counted in GDP as expenditure by other final buyers. The consumption expenditure incurred by NPISHs is thus computed as the sum of compensation of employees and expenditure on goods and services for current operations less sales of goods and services to avoid double-counting.

7 Not all household purchases are considered as part of PCE. Household purchases of new houses are not included in PCE. Instead, they are treated as gross fixed capital formation (investment) since dwellings are considered as goods used by their owners to produce housing services. Similarly, the expenditure incurred by households in association with major improvements to their dwellings, such as renovations and enlargements, is treated as capital expenditure.

8 On the other hand, some types of expenditure incurred by households do not even occur as actual transactions in the economy. This applies, for example, in the case of owner-occupied dwellings, where the owners as “occupiers” are deemed to pay to themselves in their capacity as “landlords”, ie they are viewed as renting their houses or flats to themselves. These payments are included in PCE as imputed rental of

owner-occupied dwellings. This treatment ensures that key aggregates such as GDP do not vary with changes in home ownership.

CLASSIFICATION

9 PCE is classified into the following main groups:

- Food and Beverages
- Clothing and Footwear
- Rent and Utilities
- Furniture and Household Equipment
- Medical Services
- Transport and Communications
- Recreation and Education
- Other Goods and Services
- Add: Residents' Expenditure Abroad
- Less: Non-residents' Expenditure Locally

10 This classification provides information on the purpose for which the goods and services are purchased. Each main group is broken down into sub-groups so as to provide more information on the distribution of expenditure within each main group. An example is shown below for the case of Furniture and Household Equipment:

- Furniture and Household Equipment
 - Furniture, fixtures, floor coverings and repairs
 - Household textiles, other furnishings and repairs
 - Major household appliances, including fittings and repairs
 - Glassware, tableware and household utensils, including repairs
 - Non-durable household goods
 - Household services

MAIN SOURCES OF DATA

11 As PCE covers a diverse range of goods and services, extensive and diverse data sources are required for its compilation. The main sources are:

- External trade statistics
- Census of Industrial Production
- Income and expenditure accounts of various statutory boards
- Government financial statements
- Censuses and surveys of the Services sectors
- Balance of payments statistics

METHOD OF COMPILATION

12 In practice, PCE is estimated by first compiling estimates of consumption expenditure on goods and services in the domestic market (ie within Singapore), and then adding the expenditure of residents abroad and deducting the expenditure of non-residents in the domestic market.

13 The commodity flow approach is used extensively to compile estimates of consumption expenditure on goods and services in the domestic market.

14 Under the commodity flow approach, the supply of goods and services from domestic production and retained imports of goods is examined to identify those items that are used for household consumption. An estimate is then made of the proportion of the total supply of these goods and services that is used by households since not all of these goods and services are solely purchased by them. For example, in estimating butter consumption by individuals, the proportion of butter used as an input in the production of, say, cakes by bakeries is excluded. The domestic supply of goods and services, if valued at producers' prices, is then adjusted to their market values by adding a

mark-up comprising transport costs, distributors' margins and taxes on production. This also applies in the case of retained imports if they are valued at c.i.f. prices.

15 An illustration of the commodity flow approach can be shown for the case of butter. To estimate expenditure on butter in the domestic market, data on retained imports and retained local production of butter are first obtained from external trade statistics and the Census of Industrial Production. The proportion of butter used in intermediate inputs is then removed. The resultant estimates of retained imports and retained local production are then marked up by transport costs, distributors' margins and taxes on production to arrive at the market value of butter. This process is shown in Figure 1 for the case of imported butter.¹

FIGURE 1 - EXAMPLE OF COMMODITY FLOW APPROACH TO ESTIMATE PCE ON BUTTER

Retained Import of butter at c.i.f. price	= \$10.0 m
Percentage allocated to PCE	= 60%
Percentage allocated to intermediate consumption	= 40%
Value allocated to PCE	= Percentage allocated to PCE * Retained import of butter = 0.60 * 10.0 = \$6.0 m
Percentage mark-up	= 40%
Value of Mark-up	= Percentage mark-up * Value allocated to PCE = 0.40 * 6.0 = \$2.4 m
Market price of butter	= Value allocated to PCE + Value of Mark-up = 6.0+2.4 = \$8.4 m

¹

In this paper, the numbers used in the examples to explain the method of compiling PCE are for illustrative purpose only. They may not be reflective of the true numbers.

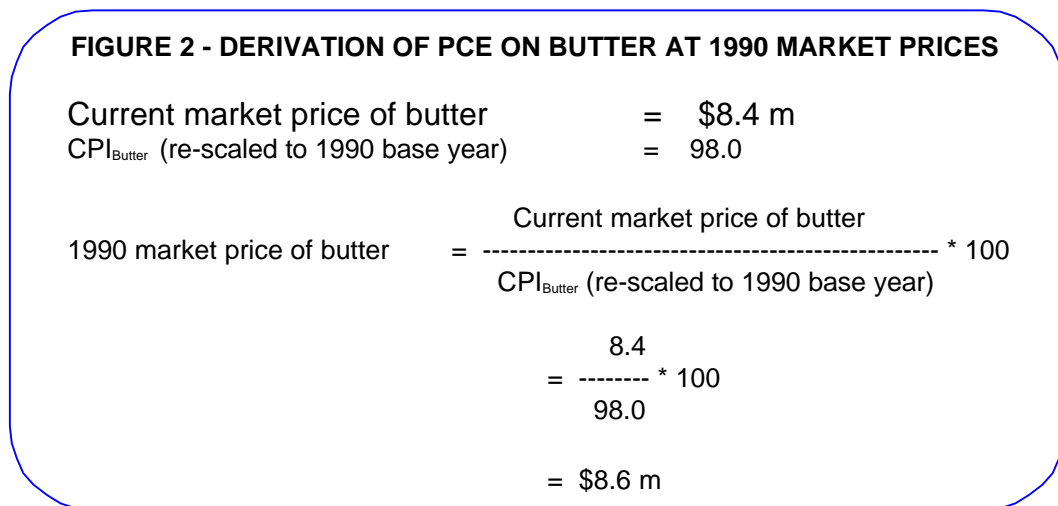
16 The commodity flow approach is used to estimate consumption expenditure in the domestic market for a relatively large number of goods and services. Presently, around 1,200 imported and 500 locally-produced commodity items are used in the estimation of PCE on goods. For expenditure on services, the relevant data are obtained from the various Annual Economic Surveys conducted by DOS. This covers around 10,000 establishments in the services sectors such as transport and communications; financial and insurance; real estate and business services; and community, social and personal services. Additional data on the financial and insurance sector are obtained from surveys conducted by the Monetary Authority of Singapore (MAS). Moreover, government administrative records such as government financial statements and the income and expenditure accounts of statutory boards are used to estimate expenditure on goods and services purchased from these institutions. These include parking fees and medical charges.

17 The above-mentioned data are used to estimate total consumption expenditure in the domestic market. Estimates of PCE are then obtained by adding estimates of expenditure of residents abroad to and deducting estimates of expenditure of non-residents in Singapore from total consumption expenditure in the domestic market. Such estimates are obtained from balance of payments statistics.

CONSTANT VS CURRENT MARKET PRICES ESTIMATES

18 PCE may be expressed in current and constant market prices. Current market prices are those prevailing during each accounting period. For example, in Figure 1, the estimate of consumption expenditure on imported butter is measured at current market prices. However, comparisons of PCE at current market prices from one period to the next are not particularly meaningful as the changes can result from the joint effect of a change in the quantities of goods and services consumed and of a change in the prices at which they are purchased. Hence, to facilitate the analysis of period-to-period changes, the effects of price changes are removed by expressing PCE for all years at the average prices of a reference year, known as the base year. This is carried out by

deflating the current market values of PCE, at as detailed a level as possible, by the relevant sub-indexes of the Consumer Price Index (CPI) or implicit GDP deflator. The PCE series thus derived is said to be expressed in constant market prices or real terms. Currently, constant price PCE estimates are expressed in 1990 market prices. An example of deriving constant price PCE is shown in Figure 2.



MAJOR TRENDS

19 The previous sections explained the conceptual framework of PCE. This section provides a broad overview of the major trends in consumer spending between 1985 and 1996.²

20 PCE recorded an increase of 4.4 per cent in 1986. Since then, consumer expenditure has experienced annual increases of above 5 per cent, resulting in compound average annual growth of 7.8 per cent between 1985 and 1996 (Charts 1 and 2). This increase was accompanied by varying growth rates for the major PCE components. Analysis of the various components of PCE reveals some interesting trends.

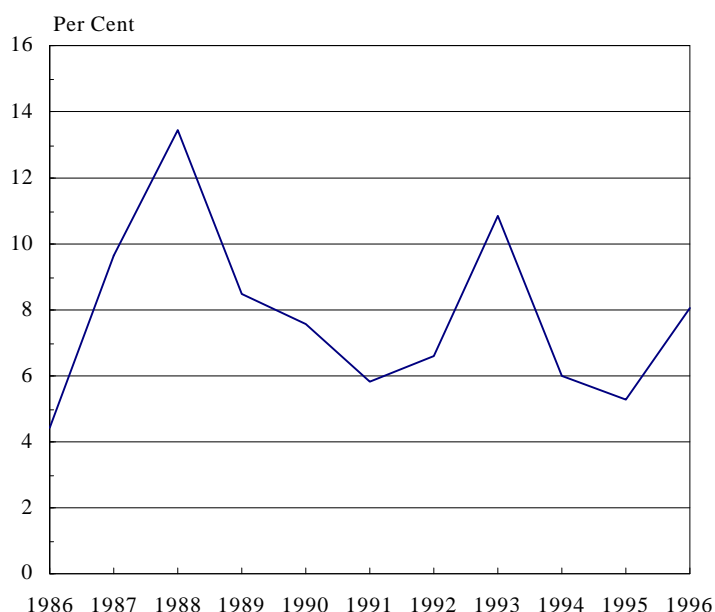
a. Food and Beverages

Between 1985 and 1996, expenditure on food and beverages

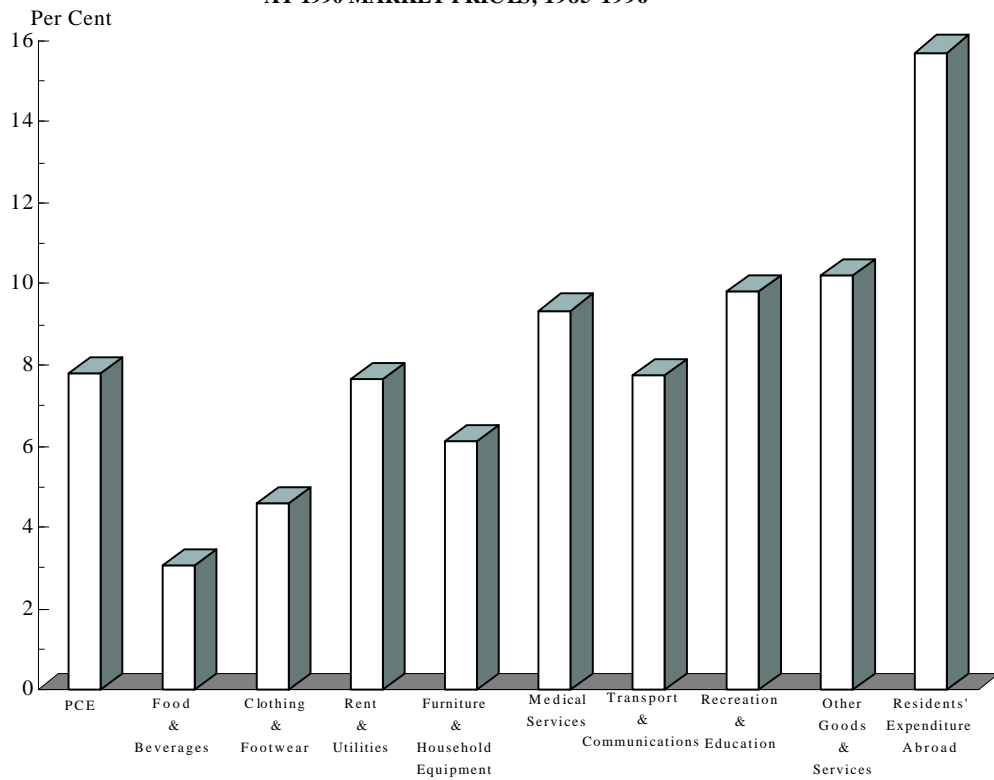
(including tobacco) recorded the smallest increase among the major PCE components (Chart 2). Within the component, food and non-alcoholic beverages saw moderate growth, while alcoholic beverages eked out paltry growth. On the other hand, the volume of consumption on tobacco actually declined (Chart 3). Consequently, food and beverages, which took up the largest portion of household consumption expenditure among the major PCE components in 1985, saw its share fall to 15.4 per cent by 1996 (Chart 4).

While the above trend was generally consistent with a more affluent population for the case of food and non-alcoholic beverages, other possible reasons exist for the lacklustre performance of alcoholic beverages and tobacco. These include the effects of higher “sin” taxes on these commodities, increasing health awareness about the harmful effects of these commodities, the various anti-smoking campaigns organised by the government as well as government policies in recent years prohibiting smoking in areas such as hospitals, supermarkets, bowling alleys as well as air-conditioned offices.

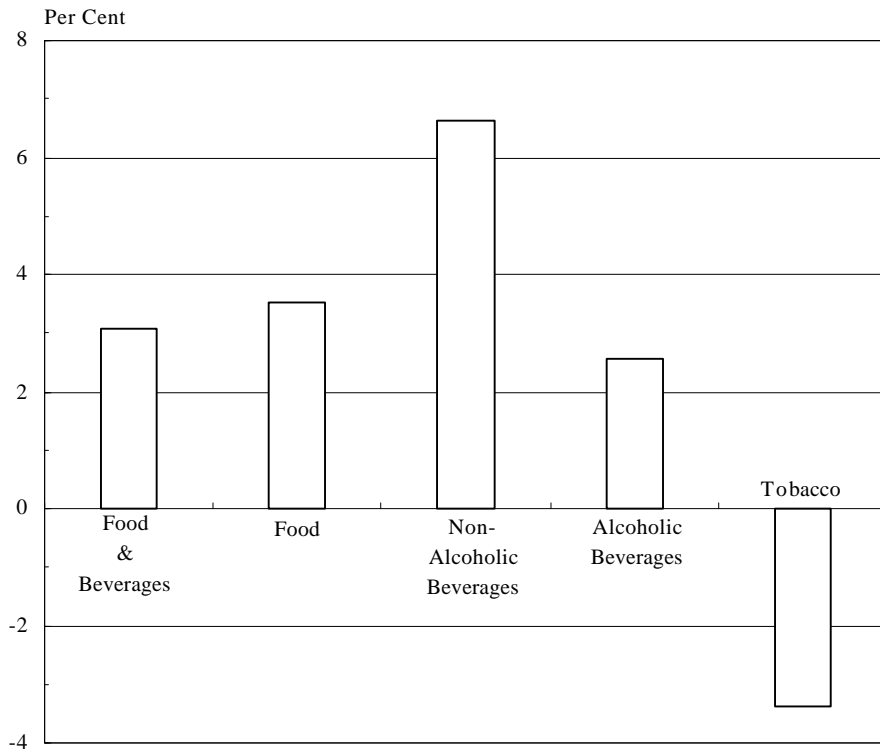
CHART 1 - ANNUAL CHANGES IN PCE AT 1990 MARKET PRICES



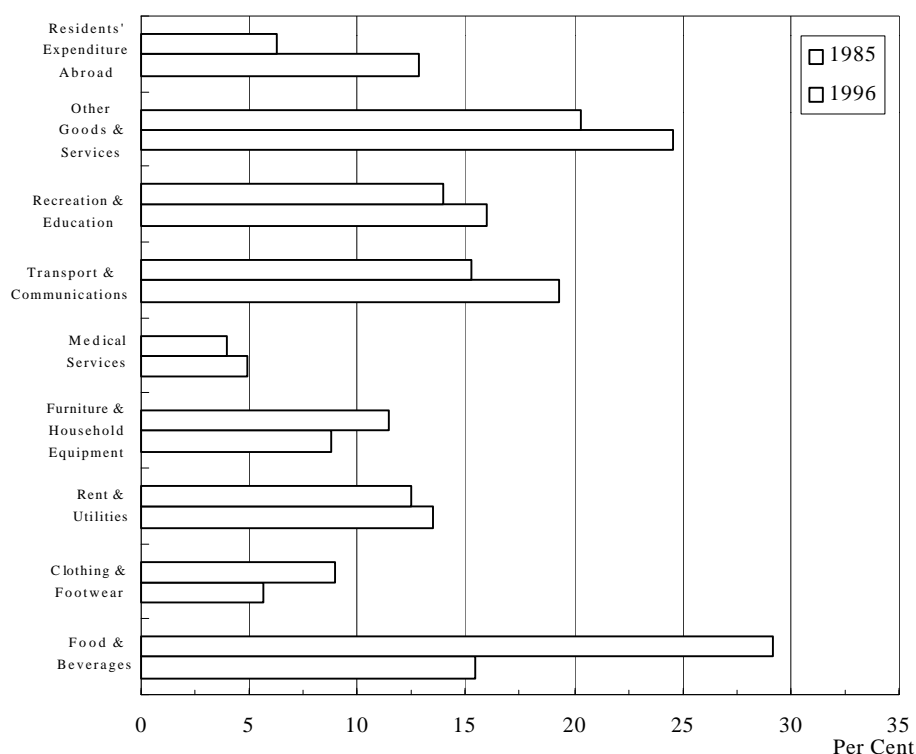
**CHART 2 - COMPOUND AVERAGE ANNUAL GROWTH IN PCE
AT 1990 MARKET PRICES, 1985-1996**



**CHART 3 - COMPOUND AVERAGE ANNUAL GROWTH IN
PCE ON FOOD AND BEVERAGES AT 1990 MARKET PRICES,
1985-1996**



**CHART 4 - DISTRIBUTION OF MAJOR PCE COMPONENTS
AT CURRENT MARKET PRICES**



b. Transport and Communications

Expenditure on transport and communications rose at a compound average annual rate of 7.7 per cent between 1985 and 1996. This was the result of a surge in expenditure on personal transport equipment (which comprises mainly cars), which increased at a compound average annual rate of 12.3 per cent during the reference period (Chart 5). Buoyant economic growth in the past ten years has resulted in households acquiring a voracious appetite for cars as opposed to a relatively subdued appetite for food.

Reflecting the growth in volume, the share of transport and communications rose to take up the second largest proportion of PCE among the major PCE components in 1996 (Chart 4), with the share of personal transport equipment rising slightly more than five times during this period from 1.3 per cent to 6.6 per cent (Chart 6).

The surge in the share of personal transport equipment has also been due to the introduction of the Certificates of Entitlement (COEs) in May 1990 and the subsequent jump in their premiums.

Indeed, since the introduction of the vehicle quota system, the share of COE premiums in PCE on personal transport equipment has more than tripled from 9.3 per cent in 1990 to 32.5 per cent in 1996 (Chart 7).

CHART 5 - COMPOUND AVERAGE ANNUAL GROWTH IN PCE ON TRANSPORT AND COMMUNICATIONS AT 1990 MARKET PRICES, 1985 - 1996

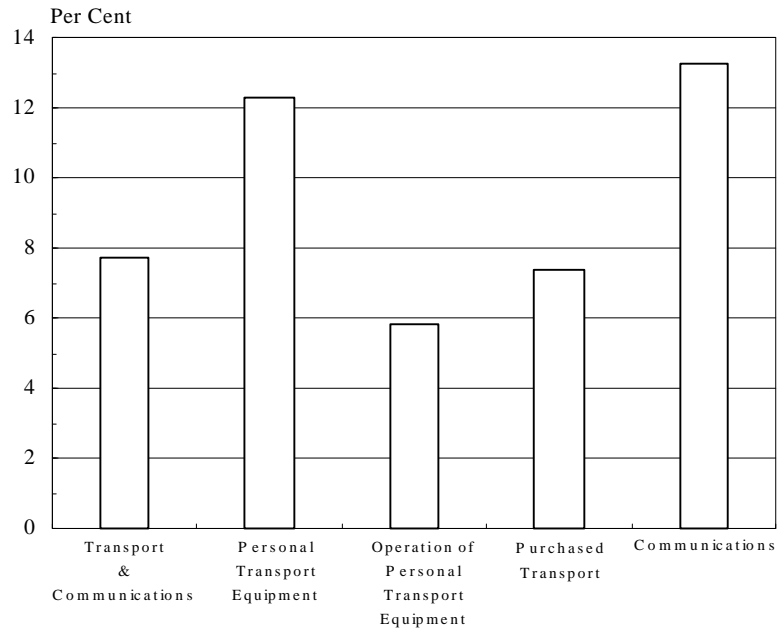
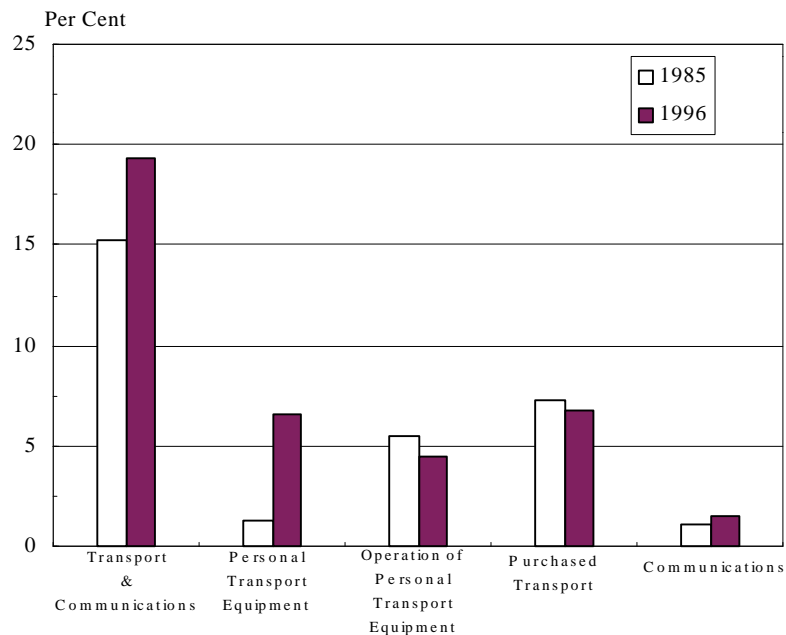
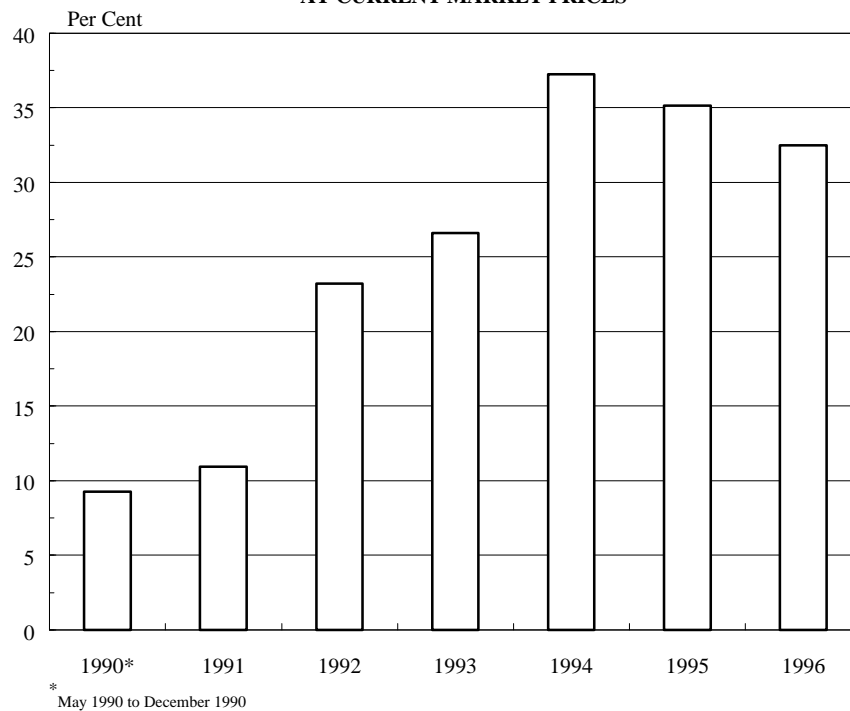


CHART 6 - DISTRIBUTION OF PCE ON TRANSPORT AND COMMUNICATIONS AT CURRENT MARKET PRICES



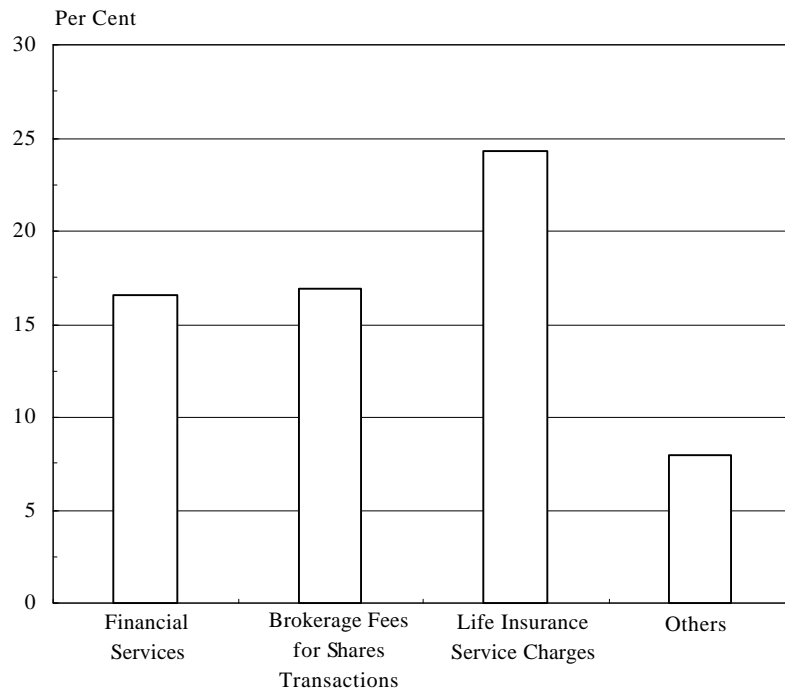
**CHART 7 - COE PREMIUMS PAID BY HOUSEHOLDS AS A PROPORTION OF
PCE ON PERSONAL TRANSPORT EQUIPMENT
AT CURRENT MARKET PRICES**



c. Financial Services

One of the fastest-growing areas of consumer expenditure in the last ten years had been financial services. Household expenditure on financial services rose at an annual compound rate of 16.6 per cent between 1985 and 1996. The largest contributors to this impressive growth were brokerage fees for share transactions and life insurance service charges, both of which expanded at solid double-digit rates (Chart 8).

**CHART 8 - COMPOUND AVERAGE ANNUAL GROWTH IN PCE
ON FINANCIAL SERVICES AT 1990 MARKET PRICES, 1985 - 1996**



The rosy growth experienced in life insurance service charges was not only due to the increasing level of insurance consciousness among the public as a result of rising educational levels and prosperity through the years but also the better-quality business and more innovative products provided by insurers. Furthermore, the introduction of various Central Provident Fund (CPF) schemes - such as the Approved Investment Scheme as well as Basic and Enhanced Investment Schemes - allowing members to use their CPF savings to purchase shares and life insurance policies, amongst other financial instruments, has also fuelled the growth of these two expenditure components. Moreover, government efforts in recent years in promoting a share-owning society, through initiatives such as the CPF Share-Ownership Top-Up Schemes, have progressively turned households' attention to the stock market. The robust performance of financial services in turned raised its share in PCE from 2.5 per cent in 1985 to 6 per cent last year.

d. Residents' Expenditure Abroad

An area of household expenditure that had outperformed all the major PCE components in the last decade was residents' expenditure abroad. Growth on an annual compound basis was 15.7 per cent between 1985 and 1996 (Chart 2). This resulted in residents' expenditure abroad accounting for 12.8 per cent of PCE in 1996, against 6.3 per cent in 1985 (Chart 4).

Rising consumer affluence and sophistication in the last ten years have contributed to the increased propensity of Singaporeans to travel abroad. Further, the rapid development of the retail sector in neighbouring countries such as Malaysia and Thailand, coupled with the appreciation of the Singapore Dollar against major currencies such as the US Dollar, Australian Dollar, Pound Sterling and Malaysian Ringgit, has lured Singaporeans to allocate more of their spending overseas.

CONCLUSION

21 PCE is an important component of the expenditure on GDP. The estimation of PCE requires the use of a diverse range of data sources. Efforts are constantly being undertaken to improve the estimation procedures as well as the data sources used to compile PCE.

22 Changes in the shares of the various components of PCE reflect the development and transformation of the Singapore economy. Due to growing affluence over the last ten years, households have spent more on cars as opposed to food. The steady appreciation of the Singapore dollar over the same period against major currencies such as the US Dollar has generally enabled households to expand their spending horizon beyond our shores. Government initiatives have also played a part in increasing the interest of households in the stock market as well as facilitating their purchase of more life insurance products. On the other hand, the growth in the consumption of products such as alcohol and tobacco has been anaemic due, in part, to growing awareness about their negative effects as well as the various anti-smoking campaigns and measures implemented by the government.

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