

## METHODOLOGY

### 6.1 SURVEYED REGIONS AND TOWNS

Prices were obtained for a common basket of goods in 21 towns, representing all nine non-metropolitan regional areas. The towns were as follows:

Kimberley:	<b>Broome, Kununurra and Derby</b>
Pilbara:	<b>Karratha and Port Hedland</b>
Gascoyne:	<b>Carnarvon and Exmouth</b>
Mid West:	<b>Geraldton-Greenough, Dongara and Meekatharra</b>
Goldfields-Esperance:	<b>Kalgoorlie-Boulder, Esperance and Laverton</b>
Wheatbelt	<b>Northam and Narrogin</b>
Peel:	<b>Byford and Mandurah</b>
South West:	<b>Bunbury and Busselton</b>
Great Southern:	<b>Albany and Katanning</b>

The same basket of goods was priced in six suburbs in the Perth Metropolitan Area. These suburbs were selected to represent a cross section of the population of Perth that could best be compared to regional Western Australia. Consideration was given to variables such as socio-economic status. The selection excluded the extremely high and low-income suburbs, which are not similarly represented in the regions. The suburbs chosen were:

Perth:	<b>Girrawheen, Mirrabooka, Midland, Spearwood, Bullcreek and Booragoon.</b>
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### 6.2 THE BASKET OF GOODS

The basket of goods used by the ABS for the 12th Series CPI provided a basis for this project. The eight broad commodity groups incorporated in the basket include:

- Food
- Clothing
- Housing
- Household Equipment and Operation
- Transportation
- Tobacco and Alcohol
- Health and Personal Care
- Recreation and Education

These broad groups were divided into sub-groups. For example the food group was divided into dairy, cereals, soft drinks, ice cream and confectionery, meats and seafood, other foods, fruits and vegetables, processed fruits and vegetables, and meals out and take away food. Expenditure items (eg milk, video hire, house rentals etc) for each of the sub-groups are the commodities and services actually priced. Product information from distributors and companies, input from the Regional Development Commissions and knowledge of the regional and metropolitan markets facilitated the selection of expenditure items for use in the basket of goods. A detailed list of the items priced in this project is provided in Appendix 2.

## **6.3 DATA COLLECTION**

Three data collection methods were used in pricing the basket of goods. The first method involved collecting price information through personal visits. Thirty data categories (eg. groceries, clothing, auto parts, etc.) were identified as being suitable for this method.

The second method incorporated the use of the telephone and seven data categories (eleven in country towns) were identified as being suitable for telephone collection (eg. petrol, bottled gas, education etc.).

Certain goods with a uniform price across the State (eg. postage charges, electricity charges, and mortgage interest rates) were also included in the basket of goods, as they are important regular expenditure items. Prices for these items were inserted directly into the spreadsheets. Telephone contact in years two and three was incorporated to establish if values had changed from year to year.

Where possible, prices were obtained from three retailers/service providers in every town for each item in the basket of goods. A geometric mean was then calculated as a representative price for each item. In some instances where the local market was small it was not possible to obtain three prices.

## **6.4 CALCULATION OF INDEX NUMBERS AND DATA SETS**

### **6.4.1 TOWN PRICE INDICES**

The calculation of town price indices required the calculation of price indices for each of the eight commodity groups surveyed. Prices were collected for the expenditure items, from three vendors where possible, and were averaged and then aggregated into commodity groups. Prices were then weighted according to the relative proportion of household income spent on the commodity group. These commodity group (weighted) indices were summed to produce a town index number.

Weights were based on the household expenditure patterns for Perth as used in determining the 12th Series CPI. As actual regional expenditure patterns were not and could not be used, the price indices should only be interpreted as indicative of the cost of living in regional Western Australia.

### **6.4.2 REGIONAL PRICE INDICES (RPI's)**

The town indices were then weighted and used to generate a Regional Prices Index number. The weight of each town was based on the relativity of that town's population to the regional population. Calculation of the RPI in this way ensured that a small town, which may have dearer prices than a larger town in the region, did not disproportionately influence the RPI for the whole region.

All indices were expressed relative to Perth, which had a price index of 100.0. Indices higher than 100.0 indicate the region was more expensive than Perth and indices less than 100.0 indicate the region was less expensive than Perth. These indices were expressed as percentages to simplify the presentation of the results.

### 6.4.3 CALCULATION OF LOCATION OR ANNUAL COMPARISONS

Where the index numbers compare either a town or a region to Perth the data set is called the **Location Comparison or Spatial Index**. The creation of Location Comparison data is only possible if a common basket of goods and services is used. The common basket also allows towns and regions to be compared to each other.

**Annual Comparison or Temporal Index** was calculated following the completion of the second and third prices collections. The Annual Comparison identifies the percentage change that occurred in commodity prices between two consecutive years. Thus it captures the price changes that occurred between 1998 (first price collection) and 1999 (second price collection), and 1999 and 2000 (third price collection) for each commodity priced.

## 6.5 COMMODITY GROUP WEIGHTS

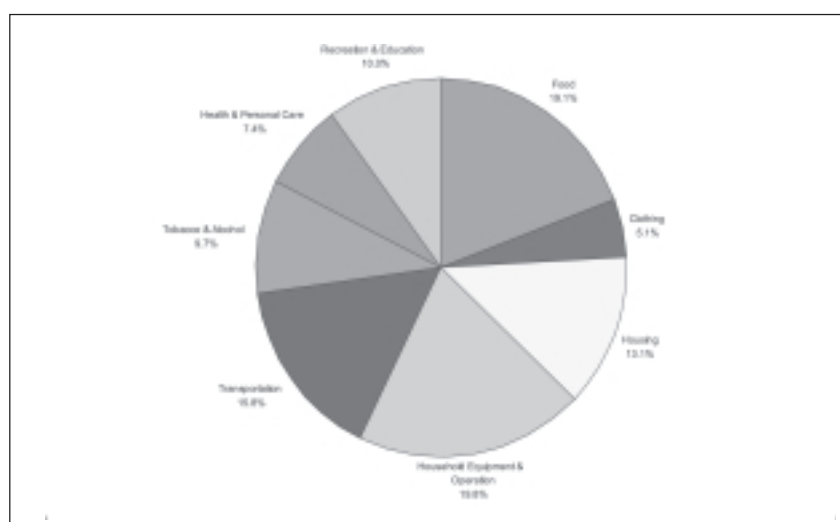


Figure 1: Commodity Group Weights

The weights assigned to the various commodity groups reflect the expenditure patterns of Perth consumers and are based on the household expenditure pattern used for the 12th Series Consumer Price Index (CPI). Figure 1 illustrates that food, household equipment and operation (mortgage interest rates, rent, electricity etc.), and transportation (fuel, auto parts etc.) all have relatively high weights. Weights are used to give greater emphasis to the more common/essential purchases within groups. For example milk has a higher weight than cheese or butter as it is considered to be a more essential/common purchase.

These weights must be considered when interpreting the impact of the various commodity groups on the regional and town price indices. A commodity group with a relatively greater weight, such as food, household equipment and operation, or transportation will have a greater impact on the regional and town price indices than a commodity group with a smaller weight. For example, a price index number of 103.1 for food (3.1% more expensive than Perth), which has a weight of 19.1%, will have a greater impact on the overall price index than a price index number of 135.2 for clothing (35.2% more expensive than Perth), which has a weight of 5.1%.

Group	Index Number	Weight	Contribution
Food	103.1	19.1%	=19.7
Clothing	135.2	5.1%	= 6.9

A full list of the item, sub-group and commodity group weights are listed in Appendix 3.

## **6.6 GENERAL METHODOLOGICAL ISSUES**

Given the unique nature of this project, there are a number of general methodological issues that need to be acknowledged when reviewing and interpreting the results.

### **6.6.1 PRICING DIFFERENT QUANTITIES**

There are three techniques that were adopted to address the issue of finding the right matching item to price when the right brand was located, but the designated size was not available (ie 500 gram packet of biscuits was available not the desired 250 gram packet). Firstly, the proprietor would be consulted to ascertain if they would normally carry the item and what the retail price would be. Alternatively, the item found in the region could be priced in Perth along with the desired item and the price difference applied to the regional item (assumes the same price relationship). Finally, the items price could be netted up or down in relation to the different size. If 250 grams was sought and 500 grams was available then the price would be halved. The netting technique is a last resort as it creates an extreme price adjustment.

### **6.6.2 PRICING OF SUBSTITUTE ITEMS**

When a prescribed item was not available in a town, a substitute item, comparable in terms of functionality and quality, was priced where possible. The pricing of substitutes was most common in the clothing and furniture commodity groups, as the variety of goods carried in a town for these groups was often limited.

### **6.6.3 PRICE IN THE NEAREST TOWN**

If neither a prescribed item nor an acceptable substitute were available in a town, the average price of the item in the nearest town (or towns) was used as a substitute. This is aimed at retaining a regional relevance to the pricing.

### **6.6.4 PRICING OF EXTRA ITEMS IN PERTH**

In the appliance category, it was particularly difficult to find brands and models that were available in every town. To address this issue, prices were collected for the brands and models that were available in each town. The same brands and models were then priced in Perth to allow the calculation of price relatives (the pattern of difference between prices in Perth and the regional town). This resulted in over 30 different brands and models being priced in Perth in order to accommodate the variety of appliances available across the State.

### **6.6.5 DOLLAR VALUE OF PRICED COMMODITY GROUPS**

When examining the price differences between towns and regions for the various commodity groups, it is important to keep in mind the value of the commodity group being examined. For example, a 20% difference between two towns on a commodity group with a value of only a few dollars, such as cereals, is different to a 20% difference on a commodity group with a value of a few hundred dollars (eg. electrical appliances).

### **6.6.6 BULK BUYING DISCOUNTS**

Some manufacturers have indicated that they offer bulk buying discounts to regional towns, particularly on appliances. It is not unusual for appliances in a regional town to be cheaper than in Perth.

### **6.6.7 NUMBER OF EXPENDITURE ITEMS WITHIN COMMODITY GROUPS**

In order to permit comparisons between towns and regions, the expenditure items included in the basket of goods had to be available in all of the towns surveyed. This requirement restricted the number of items that could be included in some commodity groups, such as recreational services. As a result, price differences for some categories were accentuated in terms of importance to the group indices due to the limited number of items that could be priced.

### **6.6.8 QUALITY OF EXPENDITURE ITEMS**

For some expenditure items, such as meat, fresh fruit and vegetables, meals out and takeaway food and hairdressing services, there were differences in quality that could not be controlled. For example, one restaurant may use a particularly expensive/good cut of meat for a meal (steak and chips) and therefore charge more for this item.

These quality differences are not reflected in the descriptions of the item priced. It is therefore not unreasonable to expect relatively large price variations in these commodity sub-groups when compared to other groups where the quality of the item priced remains consistent.

## **6.7 SPECIFIC COMMODITY GROUP ISSUES**

The Regional Prices Index is broad in its range of items covered, although not as extensive as the CPI. All eight broad categories of goods and services are represented and provide sufficient coverage to adequately reflect differences in the cost of goods and services between towns and regions in Western Australia.

However, there were a number of specific commodity group issues that should be considered when interpreting the results obtained for each of the towns and regions surveyed. These include:

### **6.7.1 FOOD**

The greatest weight (24%) in the food group is meals out and take-away foods. Quality compatibility has been an issue with steak and fish meals because of the variety of meat grades used and the type of venue serving these sit down meals. Every effort has been made to ensure that venues were mid-priced and that the steak was of a reasonable quality (was neither takeaway nor gourmet in standard). In addition, the greater weight given to take-away food (sandwiches etc) reduced the impact of any variance.

It was also not possible to guarantee the quality compatibility of fruit across the State. There are many varieties of bananas, apples and oranges of different grades. The Index sought to price premium or first grade fruit. However, it should be noted that the entire fruit and vegetable sub-group has a relatively small weight and therefore a limited influence on the over all index.

### **6.7.2 CLOTHING**

Within the clothing category it was difficult to match brands and quality across the State, particularly for women's clothes and jeans. Jeans were deleted from the collection as the quality in some locations differed greatly from others and the resulting problem could not be easily resolved. Clothing was reduced to a range of 24 items of common wear (mostly underwear). Over all the impact of clothes prices on the index numbers for each town and the region is relatively small with a collective weight of 5%.

### **6.7.3 HOUSING**

Brick and tile houses, Local Government rates and charges, rents, interest rates, maintenance materials and service charges represent the housing group. Weatherboard housing was priced, but eventually deleted from the collection because this type of housing was not available in all of the towns surveyed.

### **6.7.4 HOUSEHOLD EQUIPMENT AND OPERATION**

This category includes electricity and gas, electrical appliances, furniture, tools, cooking utensils, veterinary services, postal services, telephone services, and consumer credit charges. Consistency and quality issues reduced furniture items to the collection of queen size beds. Comparability issues also resulted in the expansion of appliances to approximately thirty different types in Perth so as to establish price relatives between the variety of different brand names and model types carried in the towns and regions. There has also been some pricing fluctuations because of the need to price the cheapest available item, in a couple of instances, as precise matches of goods were not possible (eg the cheapest non-stick frying pan or paint brush).

### **6.7.5 HEALTH AND PERSONAL CARE**

Health services (including hospital and medical services, optical and dental services), personal care products and hairdressing are in this group. Prices for hairdressing services varied substantially between towns and regions, as there is no standard pricing structure for these services.

### **6.7.6 RECREATION AND EDUCATION**

Newspapers and magazines, compact discs, videotapes, film and developing services, toys, balls (sport), video hire and education fees represent this group. Video hire was the sole item of the recreational services sub-group because of collection difficulties in finding other comparable items across towns and regions.