

# Regional Prices Index 2007

## METHODOLOGY



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and Regional Development  
Government of Western Australia

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# Methodology

### 1 SURVEYED REGIONS AND TOWNS

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

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

The same basket of goods and services were priced in three 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 was not similarly represented in the regions. The suburbs chosen were:

Perth:	<b>Midland, Bullcreek and Booragoon.</b>
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## 2 THE BASKET OF GOODS AND SERVICES

The basket of goods and services of this project was based on the Australian Bureau of Statistics (ABS) 15<sup>th</sup> Series Consumer Price Index (CPI). The eight broad commodity groups incorporated in the basket included:

- Food
- Clothing
- Housing
- Household Equipment and Operation
- Transportation
- Cigarettes, Tobacco and Alcoholic Drinks
- Health and Personal Care
- Recreation and Education

These broad groups were divided into sub-groups. For example the food group was divided into dairy, cereal, drinks, snacks and confectionery, meats and seafood, other foods, fresh fruits and vegetables, meals out and take away food. Expenditure items (e.g. milk, DVD hire, house rentals, etc.) were priced for each of the sub-groups of commodities and services. 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.

## 3 DATA COLLECTION

Three data collection methods were used in pricing the basket of goods. The first method involved collecting the prices through personal visits. Nine data categories (e.g. groceries, clothing, toiletries & personal care items etc.) were identified as being suitable for this method.

The second method incorporated the use of the telephone. Thirteen data categories were identified as being suitable for telephone collection (e.g. petrol, bottled gas, education etc.).

## Regional Prices Index 2007

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Certain goods with a uniform price across the State (e.g. postage charges, electricity rates 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.

Where possible, prices were obtained from two 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 two prices.

### 4 CALCULATION OF INDEX NUMBERS AND DATA SETS

#### 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 two 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 15th 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.

#### 4.2 REGIONAL PRICE INDICES (RPIs)

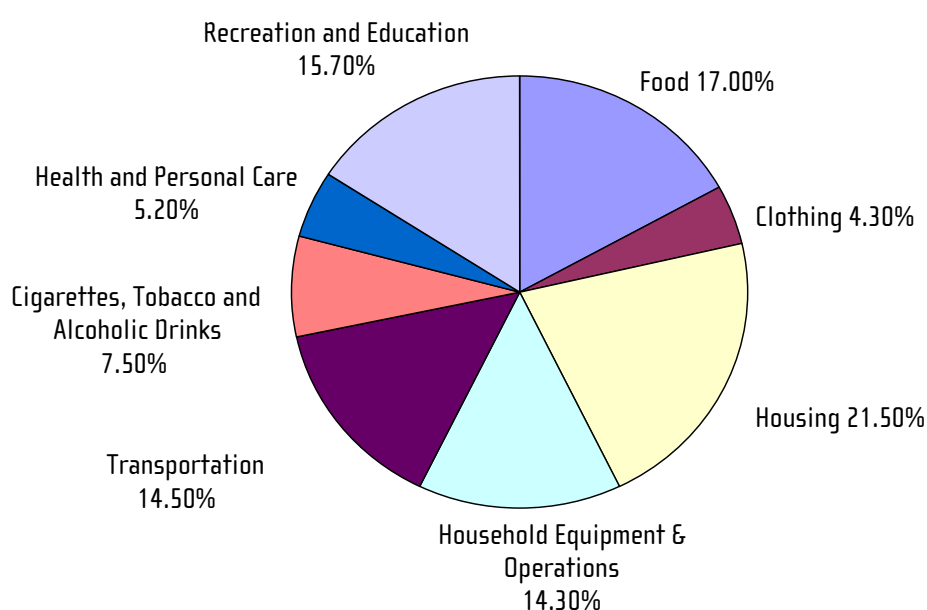
The town indices were then weighted and used to generate a Regional Prices Index number. The weight of each town was based on the relativity of that town's population to the regional population. Calculation of the RPI in this way ensured that a small town, which may have dearer prices than a larger town 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.

### 4.3 CALCULATION OF LOCATION

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 was 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.

### 5 COMMODITY GROUP WEIGHTS



**Figure 1:** Commodity Group Weights

The weights assigned to the various commodity groups reflected the expenditure patterns of Perth consumers and was based on the household expenditure pattern used for the 15th Series CPI. Figure 1 illustrates that food, housing, household equipment and operation (mortgage interest rates, rent, electricity, etc.), recreation and education and transportation (fuel, motor vehicle price, etc.) all have relatively high weights. Weights were used to give greater emphasis to the more common/essential purchases within groups. For example milk had a higher weight than cheese or butter as it was 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

## Regional Prices Index 2007

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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 105.9 for food (5.9% more expensive than Perth), which has a weight of 17.0%, will have a greater impact on the overall price index than a price index number of 111.9 for clothing (11.9% more expensive than Perth), which has a weight of 4.3%.

Group	Index Number	Weight	Contribution
Food	105.9	17.0%	=18.0
Clothing	111.9	4.3%	= 4.8

### 6 GENERAL METHODOLOGICAL ISSUES

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

#### 6.1 PRICING DIFFERENT QUANTITIES

There were 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 (i.e. a 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 was used only as a last resort as it creates an extreme price adjustment.

#### 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 commodity groups, as the variety of goods carried in a town for these groups was often limited.

### 6.3 PRICE IN THE NEAREST TOWN

If neither a prescribed item nor an acceptable substitute was 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.

### 6.4 DOLLAR VALUE OF PRICED COMMODITY GROUPS

When examining the price differences between towns and regions for the various commodity groups, it was 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 meat and seafood, was different to a 20% difference on a commodity group with a value of a few hundred dollars (e.g. housing).

### 6.5 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 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 have used a particularly expensive/good cut of meat for a meal (steak and chips) and therefore charged more for this item. Similarly for hairdressing services, depending on the location of the shop and the quality of the service the rate varied.

These quality differences were not reflected in the descriptions of the item priced. It was 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 remained consistent.

## 7 SPECIFIC COMMODITY GROUP ISSUES

The Regional Prices Index was broad in its range of items covered, although not as extensive as the CPI. All eight broad categories of goods and services were represented and provided 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:

### 7.1 FOOD

The greatest weight (29.5%) in the food group was meals out and take-away foods. Quality compatibility was 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 were 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 had a relatively small weight and therefore a limited influence on the overall index.

### 7.2 CLOTHING

Within the clothing category it was difficult to match brands and quality across the State. Clothing was reduced to a range of 19 items of common wear (mostly underwear). Overall the impact of clothes prices on the index numbers for each town and the region is relatively small with a collective weight of 4.3%.

### 7.3 HOUSING

Housing had the greatest weight among the eight commodity group which was 21.5% and eventually it had the greatest impact on the index number. Private rents, local government rates and charges, mortgage interest rates and house repair and maintenance charges represent the housing group.

### 7.4 HOUSEHOLD EQUIPMENT AND OPERATION

This category included household cleaning agents, household supplies, pet food, electricity and gas, veterinary services, postal services, telephone services, and consumer credit charges.

### 7.5 HEALTH AND PERSONAL CARE

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

### 7.6 RECREATION AND EDUCATION

Books, newspapers and magazines, compact discs and DVDs, DVD hire and education fees for government high and primary school represent this group. DVD hire was the sole item of the recreational services sub-group because of collection difficulties in finding other comparable items across towns and regions.