

Unit 4 *Inflation Indices*

Introduction

Learning objectives

Here we extend the method of finding mean values by using suitable weightings for different categories. After studying this unit you should

- be able to determine the weighted average of data, given the individual weightings
- understand the concept of index numbers and be able to calculate them
- understand the concepts of the Retail Price Index (RPI) and Consumer Price Index (CPI) and how they are calculated.

Notes

All the work in this unit is based on the concept of weighted means. Both the Retail Price Index (RPI) and Consumer Price Index (CPI) are measures of inflation but the RPI includes mortgage payments and council tax whereas the CPI does not. There is also a difference in the way they are calculated, with the RPI based on weighted arithmetic means whilst the CPI is based on geometric means, a topic not covered here.

Key points

- Weighted means are the same as normal means when all the weights are equal
- Index numbers are used to compare price increases over a period of time and based on using 100 as the price at a specified time.

Facts to remember

- The weighted mean of $x_1, x_2, \dots, x_n$ with weights $w_1, w_2, \dots, w_n$ is given by

$$\frac{w_1 x_1 + w_2 x_2 + \dots + w_n x_n}{(w_1 + w_2 + \dots + w_n)}$$

Glossary of terms

- *Weighted average*: based on weighting data in a specified way
- *Index numbers*: based on the price relative, that is, the value of a commodity after a specified time period based on value 100 at the start time
- *Retail Price Index*: a weighted average of many commodities that reflects the cost of living for an average family.