

Differences between the RPI and CPI Measures of Inflation

Introduction

Since the launch of the Consumer Prices Index (CPI) in 1996, there has been considerable interest in the reasons for the differences between the CPI and the Retail Prices Index (RPI) measures of inflation.

The recent 2010 budget report announced that the CPI will be used for the indexation of benefits, tax credits and public service pensions from April 2011 and the Government is also reviewing how the CPI can be used for the indexation of taxes and duties. These announcements have perhaps put the differences between the CPI and the RPI under greater scrutiny than ever before and it is with this in mind that the ONS intends to produce more detailed analyses of these differences for publication in the near future.

Conceptual Differences

The historical contexts of the RPI and the CPI are very different.

The RPI began life as a compensation index, developed as an aid to protect ordinary workers from price increases associated with the First World War. It was only much later, after a number of significant developments that it came to be used as the main domestic measure of inflation.

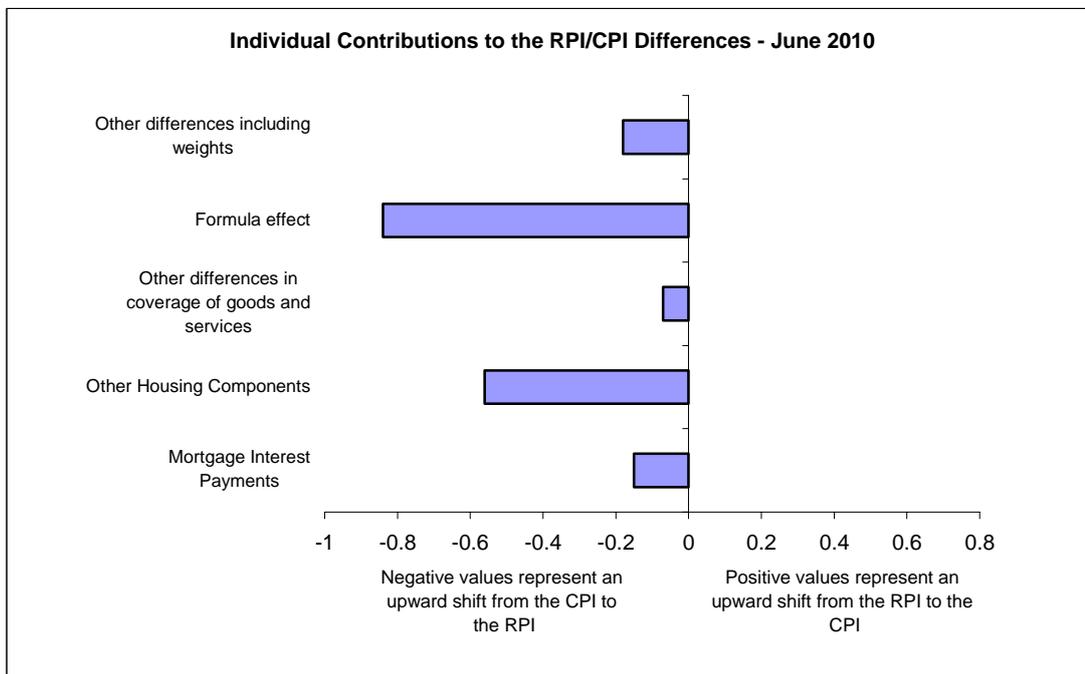
The CPI, which was launched in 1996, is an internationally comparable measure of inflation which employs methodologies and structures that follow international legislation and guidelines. The CPI is the government's inflation target, a target set at 2 per cent since December 2003, when the Chancellor of the Exchequer announced that in future monetary policy would be based on a 'new' measure of inflation - the CPI.

Methodological Differences

The basic approach to the measurement of inflation adopted by both the CPI and RPI is the same. Both track the changing cost of a fixed basket of goods and services over time and both are produced by combining together around 180,000 individual prices for over 650 representative items. Differences arise due to coverage, the population base of the indices and the way in which individual price quotes are combined at the first stage of aggregation. In summary:

	RPI	CPI
Coverage - the actual goods and services included in the indices.	<p>The RPI covers a range of costs excluded from the CPI, including:</p> <ul style="list-style-type: none"> • Mortgage interest payments (MIPs) • Council tax • House depreciation • Buildings insurance • House purchase costs, e.g. estate agent fees • TV licence • Road fund licence • Trades union subscriptions <p>The RPI includes a price index for cars which is based entirely on used car prices.</p>	<p>The CPI covers certain charges and fees excluded from the RPI, including:</p> <ul style="list-style-type: none"> • Stockbroker fees • University accommodation fees • Foreign student tuition fees • Unit trust fees <p>The index for the purchase of new cars in the CPI is quality adjusted and based on actual published prices for new cars.</p>
Population Base - the expenditure, as covered by the index and, the source for the expenditure data.	<p>The RPI is representative of the majority of private UK households, but excludes the highest earners and pensioner households dependent mainly on state benefits. It includes expenditure both within the UK and abroad by UK households.</p> <p>Expenditure data (or 'weights') used to represent this population are derived from a number of sources but mainly from ONS's Living Costs and Food Survey.</p>	<p>The CPI is representative of all private UK households, and also includes the expenditure of institutional households (nursing homes for example) and foreign visitors to the UK. Only expenditure within the UK is covered.</p> <p>Expenditure data (or 'weights') used to represent this population are derived from National Accounts data and can therefore differ in magnitude from the RPI weights for similar components.</p>
Index Construction Formulae (How the index is calculated)	<p>At the first stage of aggregation, the RPI is constructed using an arithmetic mean (AM).</p> <p>There are two different methods, applied to different items but, for example, the AM would be calculated as follows;</p> <p>if one price increased by 25% from the base period (which=100) and another decreased by 20% their new index values would be 125 and 80 respectively. The AM of these is;</p> $\frac{125+80}{2} = 102.5,$ <p>indicating an 'average' price increase of 2.5%.</p>	<p>At the same level, the CPI uses a geometric mean (GM) which, taking the values used in the adjacent example is calculated thus,</p> $\sqrt{125*80} = \sqrt{10000} = 100,$ <p>indicating that there has been no change in prices.</p> <p>An advantageous property of the geometric mean is that it can better reflect changes in consumer spending patterns relative to changes in the price of goods and services.</p>

The chart below shows the current main factors in the difference between the CPI and the RPI. Historically this has been presented as the CPI less the RPI therefore negative values on the chart represent an upward shift from the CPI to the RPI with positive values representing the opposite.



Summary

With the heightened interest in the issue of CPI and RPI differences, the ONS intends to further improve its reporting of these differences. This work will allow us to build on the current approach for communicating the differences between the CPI and the RPI. An article is planned for the end of 2010 that will detail this further work.

Further Reading

Consumer Price Indices Technical Manual 2010.

<http://www.statistics.gov.uk/statbase/product.asp?vlnk=2328>

Further Information

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