

5. TD Securities – Melbourne Institute Monthly Inflation Gauge

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5.1 Introduction

The Consumer Price Index (CPI), a general measure of changes in the prices of consumer goods and services purchased by Australian households, is produced by the Australian Bureau of Statistics (ABS). It is an important economic indicator and CPI inflation is the target of monetary policy in Australia.

CPI figures are produced quarterly and are typically released four weeks after the end of the quarter. In 1997 the Reserve Bank of Australia, in its submission to the CPI Review Advisory Group, commented that a monthly CPI would be desirable, because 'greater frequency may help to identify changes in underlying inflation more quickly'. In June 2002, TD Securities in partnership with the Melbourne Institute started the monthly Inflation Gauge project. The aim was to produce a timely and accurate monthly measure of inflation in Australia.

The Inflation Gauge provides estimates of month to month price movements for a wide-ranging basket of goods and services using weights that replicate those used for the ABS CPI. Each month, the Inflation Gauge collects prices for around 1000 goods and services. The changes in these prices are weighted according to expenditure class to arrive at an estimate of inflation for that month. In keeping with the aim to provide timely information about price movements, the Inflation Gauge is released monthly before the RBA Board meeting. In September 2005, the Inflation Gauge was successfully revised to accord with the 15th series of the CPI. Further information about the Inflation Gauge, including latest reports and data, can be obtained at <http://melbourneinstitute.com/research/macro/tdsec.html>.

This article provides an overview of the Inflation Gauge: data collection, construction of monthly numbers and some issues with the Inflation Gauge. The article also evaluates the performance of the Inflation Gauge relative to the CPI in the past three and half years.

5.2 Collecting Prices for the Inflation Gauge

The monthly Inflation Gauge may be viewed as a scaled-down version of the quarterly CPI. In this respect, it is useful to begin with a brief overview of the CPI.¹

The 15th ABS CPI series was introduced in the September quarter 2005. It covers eight capital cities and has 11 groups, 33 subgroups, 90 expenditure classes and about 1,000 elementary aggregates. Elementary aggregates are the basic building blocks of the CPI. The expenditure class of bread, for example, may have elementary aggregates such as white sandwich, white high fibre, wholemeal or

multigrain. Each elementary aggregate contains several prices for a particular good or service. Every quarter about 100,000 price observations are collected for the CPI. Detailed information below the expenditure class level is not publicly available.

The strategy of the Inflation Gauge is to obtain prices for 260 elementary aggregates, which would serve as close representatives of the elementary aggregates in the CPI. Elementary aggregates defined for the Inflation Gauge are not identical to those defined for the CPI.

The Inflation Gauge dataset contains about 1,000 price lines. Usually a price line is the price for a particular good or service from a specific retailer or provider, such as a 2 litre bottle of milk from Coles supermarket or a standard consultation with a particular GP. Similar to the approach in the CPI, the Inflation Gauge only records out-of-pocket expenses for government-subsidised services, such as health care, child care and education.

Some price lines are aggregates of many prices. For example, the airfare from Sydney to Melbourne is the geometric average of many Melbourne to Sydney airfares collected in a month; while the weekly rent for a 2-bedroom property in Sydney is the median rent of 2-bedroom properties across Sydney.

The Inflation Gauge dataset covers all expenditure items in the CPI except for some administrative prices and subsidies. The Inflation Gauge includes some national prices, such as stamps, but price data are collected predominantly from Melbourne and Sydney.

The collection of prices places great reliance on the Internet and on computer technology. Many prices are collected from the web and newspapers. Examples include food, automotive fuel (petrol), project homes, new cars, books, DVDs, CDs, airfares and rents. In fact, airfares for major domestic and international routes are collected daily and the number of airfares collected each month, for example for the Melbourne to Sydney route, can be up to 750. On the other hand, rents for 1-, 2-, 3- and 4-bedroom properties are collected weekly. The number of rents collected each month is very large, up to about 15,000 for 2-bedroom properties in Sydney or Melbourne. The medians from the sample of rents serve as the measures of rent.

The most time-consuming collection task for the Inflation Gauge is to obtain price information by visiting shops or telephoning retailers and service providers. Examples of items with prices collected by this method include furniture, major appliances and health services.

In the process of collecting prices, changes in the quality of individual items are also monitored to ensure that the same good or service is compared each month. Individual item prices are also compared with prices collected in previous

¹ For a detailed explanation, see *Australian Consumer Price Index: Concepts, Sources and Methods 2005*, ABS Cat. No. 6461.0.

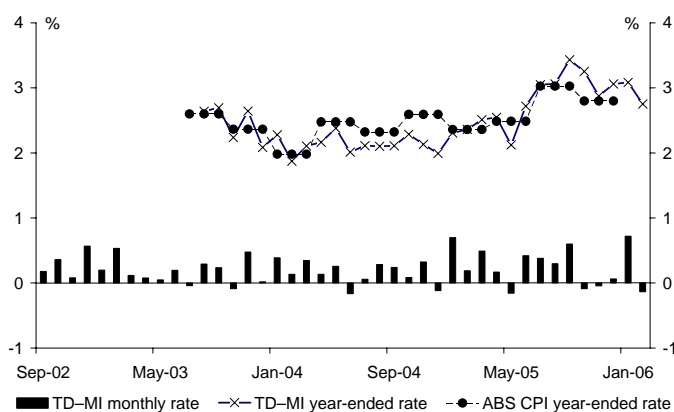
periods to check their accuracy and to verify large movements. All of the prices are collected in the first three weeks of the month and prices are collected at around the same time each month.

5.3 Calculating the Inflation Gauge

The construction of the Inflation Gauge follows the same procedures employed by the ABS in calculating the CPI. Price lines are used to estimate price movements for each elementary aggregate. Since the ABS releases the information only at the expenditure class level and above, there are two options to estimate price movements for elementary aggregates and expenditure classes for the Inflation Gauge. If weights can be identified from other sources, such as the Household Expenditure Survey, or if it is deemed that the geometric mean is not appropriate, the weighted average is applied to obtain the price movements. If no feasible weights are available, the geometric mean is used to estimate price movements for elementary aggregates and expenditure classes from price lines.

Once price movements for each expenditure class are estimated, they are aggregated to derive price movements for sub-groups, groups and all groups. Expenditure class weights and the weighting method employed by the CPI are used to aggregate price movements to the sub-group and group levels. The CPI weights used are national weights. The price movement for all groups is the monthly change in the Inflation Gauge. Other measures, such as the Inflation Gauge excluding volatile items (automotive fuel, fruit and vegetables defined by the ABS), and the trimmed mean, are also calculated. Monthly and yearly changes in the Inflation Gauge since its creation are plotted in Figure 5.1, along with year-ended changes in the CPI.

Figure 5.1. Inflation Gauge: monthly and yearly changes



5.4 The Inflation Gauge and the CPI

The Inflation Gauge has been designed to supplement information from the CPI. Consequently care has been taken to ensure that it matches the CPI in terms of data collection, quality adjustment and methodology. There are however some differences.

The first obvious difference between the CPI and the Inflation Gauge is the number of prices collected each quarter. While the CPI collects about 100,000 price

observations each quarter, the Inflation Gauge has information on about 1000 price lines each month. The Inflation Gauge collects more rents and possibly more airfares. For the Inflation Gauge the total number of price observations collected each quarter exceeds 120,000.

The definition of expenses for the Inflation Gauge is not always identical to that for the CPI. One of these differences relates to rent. What the Inflation Gauge collects is a big sample of ‘asking rents’ advertised on the Internet. Movements in the median rents of certain types of property are taken as changes in rent. The CPI measures actual lease rents from a matched sample each quarter.

Financial services were introduced into the CPI in September 2005. The ABS collects detailed account information from financial institutions to calculate actual interest rates and fee payments for each type of account.² The Inflation Gauge collects published information such as interest rates and fees from major financial institutions, but it follows the same procedures employed by the CPI to estimate price movements for financial services.

The coverage of the Inflation Gauge is less than that of the CPI. The data are drawn from the south-eastern part of Australia, which includes about three-quarters of the total population of the capital cities. This is unlikely to be a problem, because prices in different capital cities tend to move broadly together.

One important issue in compiling the Inflation Gauge is government subsidies. The CPI measures actual amounts paid to gain access to consumer goods and services. The Inflation Gauge accounts for many government subsidies, such as bulk billing, pharmaceutical co-payments and childcare subsidies. However due to a lack of publicly available information, the Inflation Gauge cannot take into account price changes due to the Safety Nets under the Pharmaceutical Benefits Scheme and Medicare. But this may not be a problem for the Inflation Gauge, as it is thereby insulated from the within-year timing effect caused by the take-up of the Safety Nets. In contrast, movements in the CPI will be affected by the behaviour over the course of a year. As more and more people qualify for the Safety Nets, and pay less to access medical services and prescriptions, the effective prices of medical services and prescriptions will fall, thereby creating a within-year timing effect of a seemingly large (but misleading) change in the prices of medical services and prescriptions.

A major issue for price indexes is quality adjustment. The same good or service should be compared over time. In reality, it is often difficult to do this. For books, CDs and DVDs the Inflation Gauge collects bundles of best-sellers and forms estimates of price movements for the bundles. An Hedonic price index for computers was introduced in the 15th CPI series. However a similar Hedonic quality adjustment for computers could not be implemented for the Inflation Gauge due to a lack of detailed information about prices and configurations of personal computers.

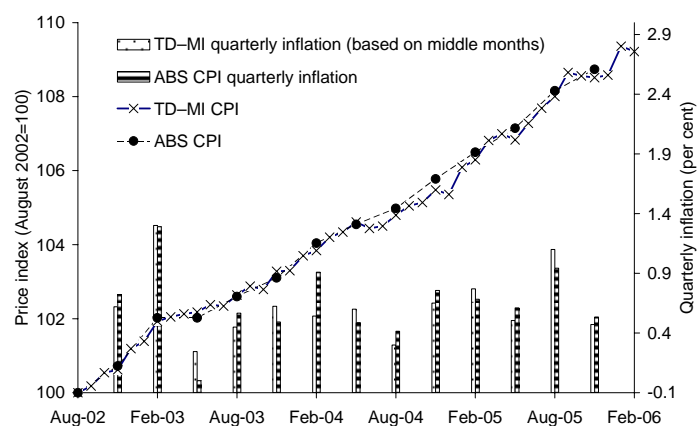
² See *Experimental Price Indexes for Financial Services*, ABS Cat. No. 6413.0 for details.

5.5 Performance of the Inflation Gauge

The main value of the Inflation Gauge is its timeliness. Because it is released monthly, the Inflation Gauge is able to produce estimates of quarterly inflation a few weeks ahead of the CPI. According to the information provided by the ABS, over 80 per cent of prices are collected in the first two months of each quarter. Consequently, quarterly changes in the Inflation Gauge in the middle month of the quarter may be used to estimate the likely change in the CPI for that quarter.

Figure 5.2 plots both the price indexes and the quarterly changes for the CPI and the Inflation Gauge at the middle months over the last three and half years. Overall, the Inflation Gauge tracks the CPI well for both the index and quarterly changes. There is an added advantage that these quarterly estimates are available about seven weeks ahead of the release of the official statistics.

Figure 5.2. Comparison between the Inflation Gauge and CPI



The percentage error of the Inflation Gauge at the index level averaged 0.1 with a standard deviation of 0.15. Over the past 13 quarters the absolute error in quarterly inflation between the Inflation Gauge and the CPI is about 0.13 percentage points on average. Moreover, except in one quarter (March 2004), the Inflation Gauge also correctly predicted the change in the direction of the CPI well before the reported change.

In summary, the Inflation Gauge is a supplement to, not a replacement for, the CPI. There are some important differences between the CPI and the Inflation Gauge. Over its short history of three and a half years, the monthly Inflation Gauge has tracked the CPI well. It has proven to be a useful, timely, key economic indicator for market participants and policy makers.