



Attachment

**Producer Price Indexes
for Postal and Courier
Services within Australia**

**20th Voorburg Group
Helsinki, Finland
26-30 September 2005**

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PPI PRINCIPAL PAPER SESSION, 26 SEPTEMBER 2005

1. INTRODUCTION

The Australian Bureau of Statistics (ABS) is currently developing a postal and courier services price index as part of its suite of producer price indexes. The scope of the proposed index will be the Australian and New Zealand Standard Industrial Classification (ANZSIC) 1993 Classes 7111 'Postal Services' and 7112 'Courier Services'. This paper outlines the development work undertaken to date and discusses the challenges and difficulties that have arisen since the development began.

2. BACKGROUND

2.1 Scope

The two ANZSIC Classes selected are distinguished as follows:

- ANZSIC Class 7111 'Postal Services' consists of units mainly engaged in picking up, transport, and delivery (domestic or international) of addressed or unaddressed mail, packages and parcels.
- ANZSIC Class 7112 'Courier Services' consists of units mainly engaged in the express door-to-door pick up, transport, and delivery of letters and mail-type articles, usually packages and small parcels.

It should be noted that other ordinary private sector parcel delivery services are included in the appropriate classes in ANZSIC Division I Transport and Storage, which are not in scope of this index.

The scope of the index is based on ANZSIC 711 Group 'Postal and Courier Services', which corresponds to ISIC Rev 3 6411 'National Post Activities' and 6412 'Courier activities other than national post activities'. It also corresponds to CPC V1.1 Division 68 'Postal and Courier Services', Group 681 'Postal and Courier Services', and Classes 6811 'Postal Services' and 6812 'Courier Services'.

2.2 Output

The producer price indexes for both postal and courier services are compiled on a quarterly basis, available within four weeks of the end of the reference period. Both the postal services price index and the courier services price index will be used as deflators in the preparation of the Australian National Accounts. However, within the Australian economy postal services are dominated by one producer, and due to resulting confidentiality concerns (see 2.4 below) the two separate price indexes (postal services, and courier services) will only be published in an aggregate form, corresponding to the three digit ANZSIC group of 711 "Postal and courier services".

2.3 Dissemination

This index is currently still in the latter stages of development and there are a variety of mechanisms available to disseminate this price index to other users. The most likely scenario is that this aggregate price index will be presented as a time series table available on the Internet as part of the quarterly publication *Producer Price Indexes, Australia* (ABS catalogue no. 6427.0). These price indexes will also be included in the revision to the stage of production producer price indexes (SOP) due to be undertaken in the 2006-07 financial year.

The postal and courier services price index has thus far been compiled over five quarters from June 2004 to June 2005 inclusive.

2.4 Industry Overview

In Australia, the postal services (ANZSIC 7111) market is dominated by one player that accounts for over 90% of industry turnover. This one player has almost monopoly power in domestic mail services where it receives considerable legislative protection under the *Australian Postal Corporation Act (1989)*. The international mail market is open to competition, but whilst there are several smaller players the main market player in the domestic market is also dominant in the international market.

The market for courier services (ANZSIC 7112) is in direct contrast to the market for postal services. The market for courier services in Australia is highly competitive and diversified and currently operates free from both legislative control and market regulation. This industry can generally be divided into three segments, depending on the geographical distance the item is to be carried: local, interstate, and international courier services. The current structure of the industry within Australia sees local, interstate, and international courier services tend to be offered primarily by local, national and multinational firms respectively, or in some cases specialised divisions of larger companies. Competition is quite strong within all markets.

Interstate and international courier services have been defined based on geographic boundaries although the descriptor 'local' tends to be more subjective. 'Local' courier services are generally taken to mean a service where an article is picked up and delivered within a short period (usually thirty minutes to two hours) in a set metropolitan or local area. Australia, with a population of 20.2 million (December 2004) has twelve cities with populations over 200,000 people, including seven of Australia's state and territory capitals. After these large cities the Australian population is physically widely dispersed with most areas either not being serviced by couriers at all or being serviced by only a small number of providers which meet the definition of 'local'. In order to select a representative sample of local courier providers the ABS has selected providers in the four largest capital cities (Sydney, Melbourne, Brisbane and Perth) as these four cities account for 55% of the Australian population and are the major business centres.

Postal and courier services form part of the Communication Services Division of ANZSIC (Division J). In 2003-04 current prices, ANZSIC Division J accounted for 2.7% (\$21.9 b AUD) of Australian GDP (\$813.2b).

3. INDEX METHODOLOGY

3.1 Sampling

ABS price indexes are based on judgement samples, where the sample is selected on the basis of the knowledge and judgement of staff compiling the index. The alternative of using probability (or scientific) sampling would be far more difficult and expensive to use in the Australian context. In particular:

- factors other than sales volume are important when selecting items and respondents. These include availability of prices on an ongoing basis, degree of price dispersion and the pricing behaviour of respondents.
- judgement sampling is more practical in the day-to-day operations of price collection, where the basket of goods changes and respondents regularly need to be replaced.

Interviews with respondents, market reports, and industry associations all help to form the basis for the selection and ongoing maintenance of samples of respondents and items (specifications) for pricing. This information is essential in developing a comprehensive understanding of the market and making appropriate judgements in the sample selection process.

The effectiveness of this sample approach depends on the representativeness at each level of an index. A 'chain of representativeness' approach is adopted in which:

- key commodities are selected to adequately represent the price movements for all the commodities which come within the scope of the particular price index;

- respondents are selected to adequately represent all the suppliers/users of the selected commodities;
- specifications are selected from each respondent to adequately represent the whole product range within the selected commodity description; and
- transaction prices are obtained for each selected specification that best represent the price movements of all transactions for the selected specification.

The use of judgement sampling has implications for the selection of replacement specifications or respondents. Generally, specifications and respondents will be representing a category of specifications or respondents, not just themselves (e.g. a respondent may represent medium sized firms or a specification may represent a broader product grouping). Therefore, the selection of replacements takes into account these characteristics and, as far as possible, ensures that they are still covered by the new specification or respondent.

Judgmental sampling has particular applicability to courier services where there are a large number of respondents in a competitive market. The largest players in each of the elementary aggregate markets are selected along with judgmentally selected respondents to represent other size segments. For courier services, selection of providers was undertaken after discussions with industry associations, especially in the Australian states of New South Wales and Victoria that account for the majority of the activity for this industry.

For the postal services section of the index the monopoly player has been selected due to its size necessitating its inclusion. Due to the market dominance of the monopoly player it was decided that selecting the next several largest players would be representative of the entire market.

3.2 Structure

Each of the two four digit level indexes is further broken down into 3 elementary aggregates.

Postal services is broken down into the following elementary aggregates:

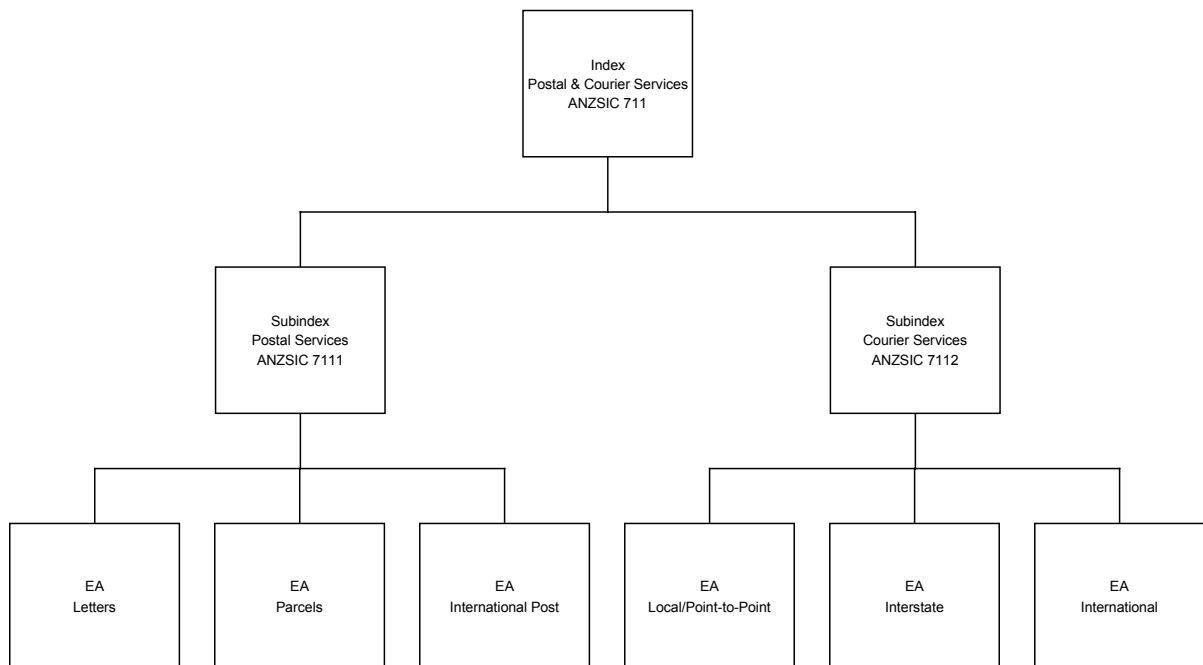
- Letters;
- Parcels; and
- International Mail.

Courier services is broken down into:

- Local/Point-to-point;
- Interstate; and
- International.

Figure 1

STRUCTURE OF THE POSTAL AND COURIER SERVICES PPI



3.3 Micro level (within elementary aggregate) weights

Each elementary aggregate within the ABS Postal and Courier Service Index consists of samples of specifications for a select type of service (eg delivery of prepaid satchel) priced from a range of representative service providers.

One operator dominates the postal services price index, and as such, the market for postal services is almost entirely free from competition. These components of the price index use the Dutot or ratio of average prices for estimating micro-indexes at the elementary aggregate level.

As noted the courier services are open to more competition and as such the price index for courier services will employ the Jevons or geometric mean of price relatives for calculation of micro-index estimates. Specifications are self-weighting, with the aim of ensuring that the number of specifications from each provider is proportional to the revenue of the provider.

3.4 Upper level weighting

Above the elementary aggregate level the ABS postal and courier services price index uses Laspeyres type weighting, whereby index components are combined using revenue data. Revenue information for determining weights below the ANZSIC class (4 digit) level was obtained from extensive research into the activities of the major companies involved in delivering courier services. This area proved to be the most problematic in index development and is the area of greatest risk for the price index. Estimates of total revenue for courier activities were obtainable from direct interview of the largest operators within the industry. The issue of greatest concern is that the breakdown of the industry into different activities below this level (such as local versus interstate) has been undertaken using informed judgement of industry experts. In practice, it was found that the expert opinion used to break down the industry according to these levels of activity differed depending upon which expert source was used.

Upper level weighting reflects base period (September quarter 2002) revenues. Initial data were obtained from 1996-97 Input Output tables and price updated to 2001 using an implicit price deflator from the national accounts. Back data were obtained from providers and industry associations to price update these revenue estimates to September 2002.

The base period weighting structure of the index is shown in Table 1 below.

Table 1 Structure and base period weighting for Postal and Courier Services PPI, September 2002

| Structure | Weight |
|--|---------------|
| 711 Postal and Courier Services | 100 |
| Postal Services | 50.9 |
| Letters | 68.7 |
| Parcels | 17.0 |
| International Post | 14.3 |
| Courier Services | 49.1 |
| Local Courier Services | 35.2 |
| Interstate Courier Services | 51.1 |
| International Courier Services | 13.7 |

As at 2003-04 service industries comprise 46% of GDP, with ANZSIC division J (to which postal and courier services are classified) making up approximately 2.7% of the total. In dollar terms, ANZSIC division J represents around \$21 billion at 2003-04 current prices.

3.5 Pricing

Initial enrolment in to the ABS PPI survey is undertaken by conducting a personal interview. As well as explaining the nature and frequency of the survey, information is collected from the respondent that determines representative

specifications for the particular firm. The specifications priced each quarter are tailored to individual providers. After the initial contact data are collected on a quarterly basis via a mail based tailored survey form (mailout-mailback). Depending upon the nature of the particular business operations, prices can be collected for a particular point in time (eg, nearest working day to the 15th of the month), or as an average over a period (eg, prices for the month of June).

The types of pricing methods used within Courier and Postal Services are:

(a) *Specification pricing*: where clearly identified and representative products are selected along with conditions of sale;

(b) *Contract pricing*: where ongoing large contracts with a respondent's key clients are monitored (which in turn requires use of quality adjustment when respondents' change customers);

The specifications used are based on a detailed set of delivery conditions covering geography (source and destination), physical characteristics of the item being delivered, timeliness, any applicable discounts and type of service. ABS specifications also include where possible business client details as these impact on transaction price.

Examples of the types of pricing methods used by the ABS are shown in Table 2 below:

Table 2 Examples of specifications for the Postal and Courier PPI

| Specification | Contract |
|---|---|
| <ul style="list-style-type: none"> 20 grams, for delivery Melbourne to Brisbane, delivered within 2 working days, price per item | <ul style="list-style-type: none"> prepaid satchel for customer number #####, overnight, door-to-door: <ul style="list-style-type: none"> 1 kg price per satchel; 2kg price per satchel; 3 kg price per satchel. |
| Special Services | Account Customer |
| <ul style="list-style-type: none"> Seasonal card enclosed in a sealed envelope endorsed "card only", 110 mm x 175 mm (standard greeting card size), 20grams, for delivery from Sydney to Melbourne, delivered within 2 working days (only available in November and December), price per item. | <ul style="list-style-type: none"> price pick up and delivery of an envelope for a 12 km journey in Sydney, standard service, price per article. |

During investigations into the nature of the supply of the two services it was found that courier service providers indicated that negotiated discounts were the main driver of price dispersion between customers and a key contributor to price change. By contrast postal service providers indicated that negotiated discounts constituted a very small part of any price movement or price dispersion; discounts exist for conditions of payment and purchase of bulk services as with other industries but the lack of competition in the postal services industry has resulted in an almost complete absence of individually negotiated contracts for postal services.

These differences result in the explicit inclusion of negotiated discounts when specifying characteristics for courier services specifications.

The valuation basis for the transactions covered by the ABS postal and courier services price index is basic prices.

Investigations into the postal and courier services industries in Australia have indicated that nominal transaction prices are affected by changes that can be broadly categorised into four groups:

- Changes to the service provider's schedule of fees;

- Changes to the treatment of business clients (i.e. discounts) resulting from contract renegotiations;
- Changes to any surcharges or administration fees;
- Changes to the volume of services purchased by business clients, and/or changes to other quality aspects of the services provided.

This last term is an issue that must be addressed to ensure pricing to constant quality. Any change to the quality of the service provided will usually also impact on the price reported, however, such factors will be addressed via price specification descriptions (i.e. clearly defining the quality of the service to be priced each period).

4. CHALLENGES AND ISSUES FOR MAINTAINING CONSTANT QUALITY

4.1 Price reporting and charging practice - difficulty in capturing elements of price change

Price changes for postal and courier services arise because of changes to charging practices, whether it is variation in fees, discounts, surcharges or administrative fees. It is the aim of the method of specification pricing to capture sufficient information to capture not only the overall price movement but also how different charged components have changed.

In practice this proves problematic partly because of variation in business practices from respondent to respondent (or, for a given respondent, from customer to customer), but also because of the burden that this method of data capture places upon respondents to the survey. The net result of these factors is that some postal and courier activities are sometimes captured in terms of "total price".

Capture of "total price" is less burdensome on respondents but will not measure price changes to constant quality if customers change the quantity of service purchased and hence move to a different fee structure.

In order to correctly price these services to constant quality it is necessary to capture the price for the current period volume in the current period and what price that same *current period* volume would have (hypothetically) been charged for in the *previous period*. This is essentially the practice of "capturing a back price", although in this instance it is possible that several components of back data need to be captured to ensure that the price is correct (such as fees, administrative charges and discounts). Capture of discounts may prove to be particularly problematic since it would be a "hypothetical discount".

Note that as with all back-price methods, care needs to be taken to ensure that such a hypothetical service is a realistic service to price. This issue may arise when there are dramatic increases in volume (eg, a thousand fold), such that the service may not have been provided at any price in earlier periods.

Further complications arise if service providers also change their "tier boundary" (eg, medium rate is for 20-30kg instead of 25-35kg). Care needs to be taken here that any back price then accounts for current period volumes in previous period prices and previous period tier structures.

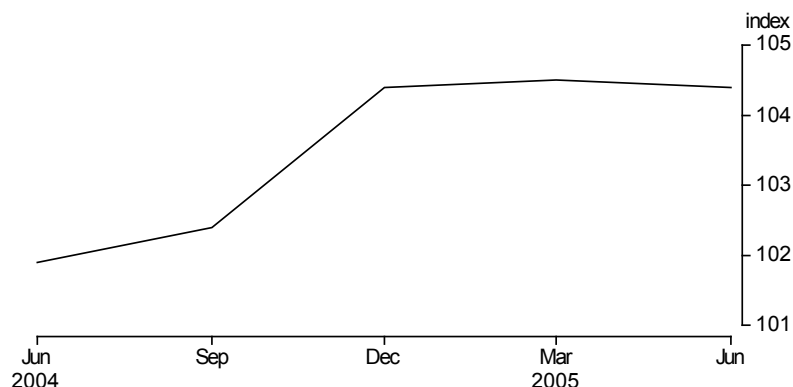
Several options exist for capture of the data necessary to correctly capture back prices when volume shifts have occurred. The traditional approach adopted by the ABS is to collect sufficient information as to trigger a query should such a volume shift occur, and to capture back data at this point.

Alternate approaches include capture and recording of fee structures and fee tiers, which are updated each collection period. Respondents would provide an indication each period, for each specification, as to what tier the service belongs, together with administrative fees and negotiated discounts. This would allow ABS staff to account for tier changes using the previous period scheduled fees rather than re-contacting the respondent. This mechanism assumes that negotiated discounts are customer based and not service based, and so may be limited in application.

5. RESULTS

To date the index has been compiled for five quarters (June 2004 - June 2005), the results of which can be seen below (only the 3 digit group is shown due to confidentiality issues at the 4 digit level):

Figure 2 POSTAL AND COURIER PRODUCER PRICE INDEX,
Base: September 2002 = 100



As mentioned earlier a major source of the revenue is postage of standard letters where there is one dominant market player and this is a regulated price with infrequent price changes, the index movements are largely influenced by changes to this rate. The domestic postal service in Australia is a monopoly for historical reasons, and although it has been recently incorporated, there are many logistical and set-up barriers to viable competition.

Competition in the courier services will keep movements in that part to a minimum. Major changes in operating margins for courier services are likely to be niche service specific and not across the board. This may change the relative importance over time of some courier services if the industry practice restructures to keep pace with changes in delivery method or technology. However many of these changes will result in quality changes and therefore quality adjustments which will therefore suppress positive movements in the index, as it is unlikely that there would be any commercial advantage in making changes to operating behaviour which had no impact on quality of service but increased prices.

6. ISSUES TO BE CONSIDERED

There are several possibilities for the medium term direction of the courier services industry that will impact how price indexes are developed in future years. Forefront amongst these is the ongoing issue of bundling. Of particular interest to courier services are industries such as freight forwarding and so-called "logistics" companies whose activities cover a wide variety of services. As these types of establishments become more common, the measurement of door-to-door services may become increasingly difficult when combined with "whole-of-customer" type approach being advocated by some providers.

There are also issues regarding the impact of technology. In the first instance is the impact of electronic data transmission. What will occur, for example, if legal documents are in future transmitted electronically as opposed to the current door-to-door delivery, what impact will this have on the definition and subsequent measurement of the courier services industry? The second technological impact is one of increased service for customers; real time tracking provides flexibility and security to not only the service provider but also to purchasers of services, and as this aspect evolves further will, perhaps, become a larger issue for pricing to constant quality.

The final impact of technology is improvements in mode of delivery (eg, motorcycle versus bicycle). Many providers indicate that this is an improvement in service delivered. Whilst there may certainly be efficiency gains when introducing such technologies, it is not clear that "guaranteed two hour delivery" type services change when these technologies are adopted. Remembering that quality is defined from the perspective of the consumer, it is important to ensure that when pricing such new modes of delivery to determine what, if any, change the final customer experiences.