# RELATIVE PRICES OF MEDICAL PRACTITIONER SERVICES UNDER MEDICARE: A SPATIAL AND TEMPORAL ANALYSIS[1]

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**ABSTRACT** Australia's health care financing arrangements under Medicare involve the Commonwealth subsidisation of private fee-for-service (FFS) medical services produced both in- and out-of-hospital. The Medicare institution, including these subsidy arrangements, operates in a spatially uniform manner. From time-to-time, since the introduction of Medicare on 1 February 1984, *ad hoc* reviews of the Medicare subsidy arrangements have been undertaken. This empirical study presents the first examination of the price relativities of various specialist and general practitioner services that have arisen under Medicare over time, and across space. The empirical work involves estimating and testing time-series relative price equations for ten groups of medical practitioner services, for each state and territory in Australia, on quarterly Health Insurance Commission (HIC) data. Seventy-two equations are estimated in total, on 49 quarterly observations from September, 1984 to September 1996. The important conclusions of the work are that price outcomes under Medicare are characterised by spatial non-uniformity, despite the uniformity of the subsidy mechanism. A related conclusion is that institutional reforms to the subsidy arrangements of Medicare may, in some cases, prove to be blunt instruments if prices and their relativities are the relevant policy targets. The results inform a presently uninformed medico-legal debate about price relativities in the health sector under Medicare and serve to caution the applications of institutional change as a tool for effecting relative price change.

## 1. INTRODUCTION

Australia's health care financing arrangements, commonly referred to as "Medicare", operate in a uniform manner across space. Notwithstanding, it is known that the economic outcomes (e.g. prices, quantities, practitioner incomes) of Medicare are characterised by spatial non-uniformity (Connelly and Doessel,

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1995). Indeed the recognition of such differences has been the focus of budgetary initiatives by the Commonwealth Government, which are designed to redress some dimensions of systematic spatial inequality under Medicare. See, for example, Commonwealth of Australia (1992).

In addition to an interest in spatial relativities, the temporal movements in the prices of medical services, especially the price relativities of the various categories of medical services, have been of interest in recent years. Medical fees and Medicare rebates, as specified in the *Medicare Benefits Schedule* (Commonwealth of Australia, 1999), were referred to at the time of the introduction of a vocational register for general practitioners (GPs), and were subject to recommendations by the Senate Select Committee (Senate Select Committee on Health Legislation and Health Insurance, 1989). A review of relative prices was also mentioned in the document issued by the General Practice Consultative Committee (General Practice Consultative Committee, 1992), and funding for a preliminary "relative value study of Medicare Schedule fees" was announced in the 1992-93 Commonwealth Budget (Commonwealth of Australia, 1992, pp.37-8). More recently, the Commonwealth Government and the Australian Medical Association (AMA) reached a common position to review/reform the prices of medical services specified in the *Medicare Benefits Schedule Book* (Commonwealth Department of Human Services and Health and the Australian Medical Association, 1994).

Despite the considerable interest amongst policy-makers in the movement of the prices for medical services over time, the literature on this issue is very small. Only two detailed studies on the temporal movement of the prices of medical services have been undertaken since the introduction of Medicare, *viz.* the studies by Butler (1996) and Doessel (1999). The former study was concerned with a descriptive overview of the "prices, quantities and total expenditures on non-specialist services" since the introduction of Medicare (Butler, 1996, p.166), whereas the latter was concerned with estimating a price adjustment model on various specialist and non-specialist medical practitioner industries. Neither of these papers was, however, concerned with relative prices or directly with spatial variations in the prices of medical practitioner services.

The work presented in this paper is fundamentally different to that produced by Butler (1996) and Doessel (1999) both in the question it seeks to answer, and the methodological approach employed. First, the paper is not concerned with quantities and expenditures on non-specialist services, but with the relative prices of specialist and GP services. Second, this paper is not concerned with the estimation of price adjustment, or any other "structural" economic model. Rather, this paper is concerned exclusively with the quantitative analysis of temporal and spatial variations of GP prices under Medicare via the application of stochastic time-trend or "growth" models (the methodology of which is discussed in Section 3) on relative prices. The application of stochastic time-series models is undertaken here to provide insights into (i) the (relative) price outcomes that arise under the Medicare financing institution; (ii) the changes, if any, that have occurred to these relative prices over time, since the introduction of Medicare;

(iii) the spatial differences, if any, in relative prices that arise under the (spatially-uniform) Medicare financing scheme; and (iv) the impact, if any, on relative prices of changes or "revisions" to fundamental elements of the financing mechanism. This paper presents results that suggest that this uniform health care financing scheme does not produce uniformity in relation to the price relativities of various medical practitioner services across space, or over time.

A broader rationale for undertaking and publishing the results of the research presented here is to inform a medico-political debate about price relativities that, at present, occurs in a data vacuum. Since, for policy-makers, a stated objective is to redress various spatial inequalities that (are thought, or assumed, to) exist under Medicare (Commonwealth of Australia, 1992), the empirical evidence presented here may be useful to inform further amendments to the *Schedule*. Furthermore, if prices and their relativities are considered policy "targets" by the Commonwealth, an understanding of the historical impacts of a critical "instrument", *viz.* modifications to the *Schedule* (and hence the subsidy arrangements) should also inform policy. The empirical results presented here suggest that such revisions to the Schedule may be blunt policy instruments in some cases.

The structure of the paper is as follows: Section 2 presents a brief policy background; Section 3 presents an overview of the research methodology employed; Section 4 reports the empirical results; Section 5 provides a discussion of the results; and Section 6 presents the conclusions.

## 2. POLICY BACKGROUND

The Medicare financing arrangements, which provide *inter alia* for Commonwealth subsidies of private, fee-for-service (FFS) medical services, were introduced on 1 February, 1984. The arrangements that relate to private FFS medical services are somewhat complex in nature, but essentially provide for Commonwealth subsidisation, via the Health Insurance Commission (HIC), of more than 2000 services listed in a document called the *Medicare Benefits Schedule* (Commonwealth of Australia, 1999). For out-of-hospital services provided on a private FFS basis, the Medicare "benefit" (or subsidy) is generally determined as 0.85 times the fee, called the "Schedule Fee", that appears in the *Medicare Benefits Schedule*. Here, the term "generally" is used because the out-of-hospital Medicare arrangements are also subject to a so-called "maximum gap" provision under which a maximum difference between the Schedule Fee and the subsidy applies. The effect of the maximum gap provision is to result in subsidies for Items with high Schedule Fees that are calculated, not as a constant proportion of the Schedule Fee, but as the Schedule Fee minus a fixed sum, $\$X$.[2] For in-hospital services, however, the subsidy is simply calculated as 0.75 times the "Schedule Fee" (i.e., the maximum gap provision does not apply). For a more

[2] Since 1 November 1999 this gap has been set at $50.90 (Commonwealth Department of Health and Aged Care, 2000) and hence applies to all Items provided out-of-hospital with Schedule Fees greater than $339.33 (since 0.15 times $339.33) = $50.90).

comprehensive discussion of these financing arrangements, including the so-called "gap safety net arrangements", see Connelly and Doessel (1995). See also Commonwealth Department of Health and Aged Care (2000).

It is important to point out that, while the Commonwealth subsidies or "Medicare Benefits" act as floor prices (Butler, 1994) for services provided under the FFS Medicare arrangements, medical practitioners in Australia are not generally subject to price ceilings. Medical practitioners in Australia may charge as high a price as the market will bear, and the difference between this "gross" price (received by the medical practitioner) and the subsidy or "Medicare Benefit" (paid by the Commonwealth) determines the "net" price to the consumer. It is worth emphasis that the Medicare Benefit that is paid for any given service is not determined according to the market or "gross" price, but exclusively according to the fees set down in the *Schedule*.

The fees set down in the (now) *Medicare Benefits Schedule* have their origins in the Gorton Government's health insurance changes of the late 1960s and early 1970s. One of the key features of these changes was the emergence of the concept of "the most common fee" from the so-called "Nimmo Report" (Committee of Enquiry into Health Insurance, 1969). Since that time, *ad hoc* reforms and/or changes have been made to the *Schedule* as a result of changes and developments in medical practice over time. In addition to new medical services being added to the *Schedule*, adjustments to existing items/codes have also been made. The administrative mechanism for making these changes has been that of appointing consultative committees, e.g. the Medicare Benefits Consultative Committee, the Pathology Services Table Committee, etc. which have included representatives of the Commonwealth and also the medical profession.

However, in 1994 an agreement was reached by the Commonwealth Government and the AMA which proposed a review, that is not *ad hoc* in nature, of the relative prices of the *Schedule*. The review that was agreed to constitutes a "more fundamental reassessment" of the Schedule Fee relativities, and includes the following:

(i) a process to objectively assess (*sic*) the relativities between the various procedural areas,
(ii) a process to assess the structure and relativities of consultation items,
(iii) a process for comparing the relativities between procedural and consultation items, and
(iv) an ongoing, fair review and update process (Commonwealth Department of Human Services and Health and the Australian Medical Association, 1994, pp. 4-5).

It is clear from this statement that the objective of this review is to consider the relativities of fees for various groups of services, rather than to examine each group of medical services in isolation.

One methodology for the consideration of such relativities comes from the literature associated with the work of Hsiao and his associates at the Harvard University School of Public Health (Hsiao, Braun, Dunn *et al,* 1988, Hsiao,

Yutema, Braun *et al,* 1988, Dunn, Hsiao, Ketcham *et al,* 1988, Braun, Yutema, Dunn *et al,* 1988, Kelly, Hsiao, Braun *et al,* 1988, and Becker, Dunn and Hsiao, 1988). The methodology employed for the "relative value studies" undertaken by Hsiao and his associates may be described as involving the construction of a resource-based relative value scale, which is used to determine fees for medical services. Thus, the basis for fee determination is the cost of resources used in the production of the medical services of interest. Since the main resource used in producing these services is the time of the medical practitioners, the relative prices are largely based on those times, adjusted for certain factors. This conception of determining medical service prices was first suggested by Hsiao and Stasson (1979). Another less ambitious study is that by Mitchell and others from the Center of Health Economics Research (Cromwell, Mitchell, Rosenbach *et al,* 1989, and Mitchell, Cromwell, Rosenbach and Stasson, 1991). For various critiques of the "relative value" literature see the papers in Frech (1991).

This paper is not concerned with a "relative value" analysis of Schedule Fee relativities or with an application of the relative value methodology to consider the gross prices produced under Medicare.

This paper is concerned with the relative price outcomes produced under the subsidy arrangements embodied in the *Medicare Benefits Schedule*, and with the quantification of time-trends and of institutional and seasonal shocks. The methodology invoked here entails an application and tests of stochastic time-series models on the relative prices of GP and other categories of medical practitioner services. An important focus of this study is on spatial variation and, for this reason, the models are estimated on data that are disaggregated at the level of the Australian state and territory.

Attention is now directed to a discussion of the data sources employed here and then an exposition of the specific quantitative methods employed to conduct the empirical work.

## 3. DATA

The study employs time-series HIC data, provided electronically by the Commonwealth Department of Health and Family Services (1997). The data are quarterly, and the unit of observation is the Australian state/territory. The series begins with the September Quarter, 1984, i.e. 1984(3), and ends with the September Quarter, 1996, i.e. 1996(3). Thus, there are 49 time-series observations in total. The data are disaggregated, by broad category of medical service, into the following ten groups:

(i) services of a GP nature;
(ii) services provided by anaesthetists;
(iii) services associated with assistance in operations;
(iv) diagnostic imaging services;
(v) obstetric services;
(vi) operations;
(vii) optometry services;
(viii) specialist services;

(ix) pathology services; and
(x) other services.

For a detailed description of the Parts, Groups and Items that comprise each of these categories of service, see Appendix 1. Also see Commonwealth of Australia (1999).

All price data employed in this study have been converted from current prices to constant 1989-90 prices by applying a relevant deflator, *viz.* the Consumer Price Index (Australian Bureau of Statistics, various).

## 4. METHODS

### 4.1 Relative Prices

To study the relative gross prices of GP and other non-GP services under Medicare this paper employs stochastic time-series models to examine the movements of relative prices over time and across space. Relative prices are defined, for the purposes of this paper, as follows:

$$RP_{(i)(j)t} = P_{(i)(j)t}/P_{GP(j)t} \quad (1)$$

where $RP_{(i)(j)t}$ is the relative price of the *i*th category of medical services, in the *j*th region, in period *t*;

$P_{(i)(j)t}$ is the mean gross price of the *i*th category of medical services in the *j*th region , in period *t*; and

$P_{GP(j)t}$ is the mean gross price of GP services in the *j*th region, in period *t*.

In these descriptions, and elsewhere in this paper, the term "gross price" takes the meaning given to it in Section 2, i.e. it is the market price received by the medical practitioner and comprises the Medicare benefit (subsidy) and consumer co-payments (or "net" prices), if any.[3]

It is important to emphasise that, since the focus of this paper is on the relative prices of the *i*th category of (non-GP) services to the prices of GP services, the relative price denominator is always the price of GP services, $P_{GP(j)t}$, regardless of which category of medical service constitutes the price numerator. Thus, the relative price ratios calculated here are interpreted as follows: if the calculated relative price ratio for say, anaesthetic services and GP services, were 4.5 in period 1, this indicates that the average gross price per anaesthetic service was 4.5 times the average gross price per GP service in that period. Temporal changes in the ratio then provide evidence of changes in the price relativities. For example, if the ratio were 4.5 in period 1, and 4.6 in period 2, this would indicate

[3] Zero net prices arise under the Medicare financing arrangements when the medical practitioner accepts the Medicare Benefit, or subsidy, as full payment for a service. This is the outcome of "bulk-" or "direct-billing".

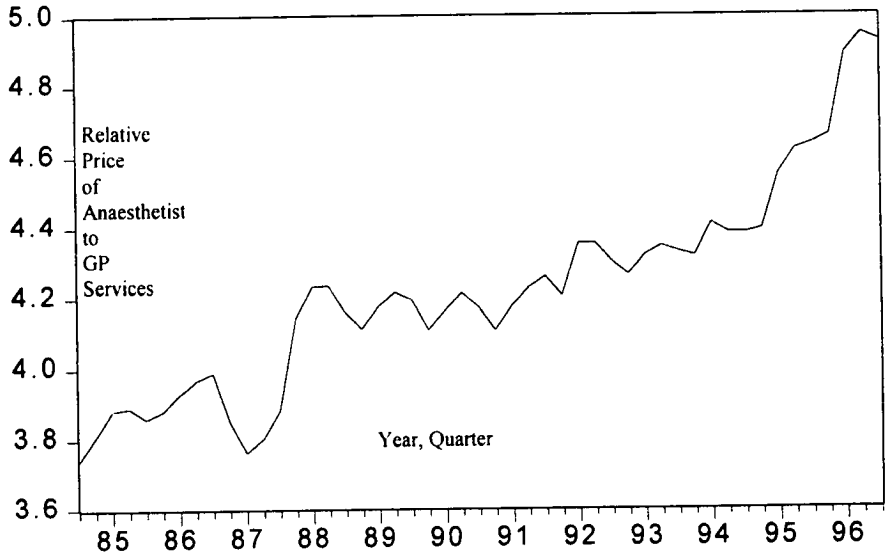


**Figure 1.** Relative Prices of Anaesthetist to General Practitioner Services, Australia, 1984 (3) to 1996 (3).

**Source:** Calculated from data supplied by the Commonwealth Department of Health and Family Services (1997), and Australian Bureau of Statistics (various).

the relative prices of anaesthetic services had generally risen. Conversely, a fall in that ratio through time would indicate that the prices of anaesthetic services, relative to the prices of GP services, had generally fallen.

In fact, the relative price of anaesthetist-to-GP services, for Australia, was approximately 3.7 in the September Quarter, 1984 and, by 1996(3), this ratio had grown to over 4.9. The movement of this relative price series over time is presented in Figure 1. Note that anaesthetists' services have been chosen somewhat arbitrarily here: as the following analyses show, this pattern of relative price growth does not characterise all the relative price series of interest in this study.

The following section describes the method used to quantify relative price changes, seasonality, and institutional shocks.

### 4.2 A Stochastic Time-Series Model

To determine if relative prices have risen or fallen in the period 1984(3) to 1996(3), the following linear, stochastic time-trend model is applied to the relative price data:

$$RP_{(i)(j)t} = \alpha_1 + \alpha_2 t + \alpha_k \mathbf{X}_k + \mu_t \qquad (2)$$

where $RP_{(i)(j)t}$ is the relative price of the $i$th category of medical services, in the $j$th geographical region

$t$ is time;

$\mathbf{X_k}$ is a vector of other variables that may affect the relative price ratio variable;

$u_t$ is a well-behaved error term; and

$\alpha_1$, $\alpha_2$, and $\alpha_k$, are parameters to be estimated.

The primary purpose of estimating time-series models like equation (2) is, in this context, to determine the magnitude of the slope coefficient, $\alpha_2$, for each relative price series. Note that equation (2) is a stochastic model of a time-series, i.e. it is based on the notion that the series to be modelled is generated by a stochastic (or random) process with a structure that can be described.

Time-series models such as this are entirely different in nature, and the purpose of their application is entirely different, to that of structural econometric models. Specifically, in time-series models such as (2), "description is given not in terms of a cause-and-effect relationship (as would be the case in a regression model) but in terms of how that randomness is embodied in the [stochastic] process [that generated the sample of observations studied]" (Pindyck and Rubinfeld, 1998, p.489). Contrast, for example, the (structural) price adjustment model estimated by Doessel (1999) on time-series data in which producer concentration, a demand index, an index of cost, and so on, were used to explain price adjustment speed in various medical practitioner industries.

The objective of the work conducted in this paper is not primarily one of explanation, but description. It is designed to answer questions about whether or not the relative prices of GP services have been characterised by temporal growth and to describe the impact of institutional changes and seasonality on those relative prices. For a further discussion of the properties of the *genre* of time-series models see, e.g. Gujarati (1995), Greene (1997) and Pindyck and Rubinfeld (1998).

For the purposes of this paper, the interpretation of the slope coefficients in time-series model (2) is as follows: if a slope coefficient is positive and statistically significant, then there is trend growth (or "an upward trend") in relative prices; if a slope coefficient is negative and statistically significant, there is a trend decay (or "a downward trend") in relative prices; whereas if a slope coefficient is either zero numerically, or statistically so, there is no trend, i.e. there is no (overall) change in relative prices over time.[4] Thus, the estimation and testing of equations such as (2) provides a simple means of answering the following questions: (i) "has the relative price of service *i* to GP services generally grown, decayed, or remained the same over time?"; and (ii) "is there a significant difference in the relative prices of non-GP and GP services provided in regions *i* and *j*?" Statistical tests on (i) the intercept; and (ii) the slope coefficients of equation (2) will provide the answers to those questions.

[4] This is not the same as arguing that a zero (or non-zero, but statistically insignificant) slope coefficient implies no temporal variation in price. A zero slope coefficient may still be expected to arise when there is some temporal variation in prices, but if a **trend** is present, the slope coefficient will not be zero.

### 4.3 Seasonal and Institutional Shocks

To derive accurate estimates of the relative price time trends from each equation, it is fundamentally important that the "$\mathbf{X}_k$" vector for each equation includes variables that will account for systematic (e.g. seasonal) and institutional shocks. Since the data series employed for this study are quarterly time-series, seasonality is an important consideration. For this reason, the seasonal dummy variables *JUNEDV*, *SEPTDV* and *DECDV* have been included in all relative price equations to model seasonal variations in relative prices.

In addition to the seasonal dummies, dummy variables have also been included in several equations to model institutional shocks. A number of important structural changes have been made to the (now) *Medicare Benefits Schedule Book* since the introduction of Medicare, including, *inter alia*, the introduction of the uniform schedule fee revision in 1986, the introduction of vocational registration of GPs in 1989, the introduction of patient-initiated consultation items for pathology services in 1992, and so on. For a discussion see, e.g. Deeble (1991) and Commonwealth Department of Health and Family Services (1998).

Attention is now directed to reporting the results of the 72 time-series equations estimated for this study.

## 5. RESULTS

Tables 1-3 present the results of 24 of the 72 time-series equations estimated. The equations reported in these tables are equations on the relative price ratios for anaesthetists' services to GP services; obstetric services to GP services; and specialist services to GP services, for each state and territory. The results of these particular relative-price equations have been selected for presentation somewhat arbitrarily and, to conserve space, output of this nature for the remaining equations is not presented directly here.[5] Rather, summaries of important results of, and tests on, all 72 equations appear later in the paper.

It is worthwhile, at this point, to provide an overview of the results of estimating the relative price equations before proceeding to conduct the relevant coefficient tests. First, all 72 equations performed quite well in terms of adjusted-$R^2$ and passed the $F$-test at the one per cent level. Second, the price data on which these equations were estimated were all subject to various orders of serial correlation. Specifically, all of the relative price series are subject to an AR(1) process, several were also subject to an AR(4) process, and one was subject to an AR(2) process. Applications of the Breusch-Godfrey test indicated that autocorrelation was not a problem in any of the equations and ADF statistics on each of the equations indicated that the residuals were integrated of order zero. This provides some reassurance that the results are not subject to the problem of spurious regression.

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[5] The results for the remaining, unreported, equations are presented in Connelly and Doessel (2000).

**Table 1**. Linear Trend Equations of Time Trends of Relative Price ($S, 1989-90 Prices) Ratios of Anaesthetist Services to General Practitioner Services, States and Territories of Australia, September Quarter, 1984 to September Quarter, 1996

| | Intercept | Time | *JUNEDV* | *SEPTDV* | *DECDV* | AR(1) | AR(4) | $\bar{R}^2$ | *F* | B-G Serial Correlation *F* | Order of Integration of Residuals |
|---|---|---|---|---|---|---|---|---|---|---|---|
| NSW | 3.89* | 0.018* | 0.004 | -0.029 | -0.045** | 0.782* | - | 0.95 | 164.38* | 2.21 | I(0)* |
| | (35.30) | (5.45) | (0.19) | (-1.31) | (-2.35) | (8.48) | | | | | |
| Vic. | 3.79* | 0.017* | -0.020 | -0.044** | -0.084* | 1.039* | -0.185** | 0.92 | 91.14* | 1.25 | I(0)* |
| | (21.32) | (2.98) | (-1.24) | (-2.38) | (-5.21) | (12.42) | (-2.02) | | | | |
| Qld | 3.16 | 0.038 | 0.009 | -0.023 | -0.071* | 0.945* | - | 0.88 | 73.31* | 1.00 | I(0)* |
| | (1.51) | (0.94) | (0.39) | (-0.85) | (-3.02) | (11.94) | | | | | |
| SA | 3.68* | 0.015 | 0.069** | 0.016 | -0.030 | 1.009* | -0.198 | 0.89 | 52.95* | 2.08 | I(0)** |
| | (12.83) | (1.49) | (2.37) | (0.48) | (1.04) | (11.88) | (-1.54) | | | | |
| WA | 3.36* | 0.046* | 0.010 | -0.003 | -0.070* | 0.90* | - | 0.97 | 260.49* | 1.18 | I(0)* |
| | (4.97) | (2.59) | (0.40) | (-0.105) | (-2.92) | (8.91) | | | | | |
| Tas. | 3.54* | -0.02 | 0.007 | -0.041 | -0.111* | 1.07* | - | 0.95 | 198.50* | 0.39 | I(0)* |
| | (5.67) | (-0.37) | (0.20) | (-1.04) | (-3.30) | (16.28) | | | | | |
| ACT | 3.51* | 0.029* | -0.035 | -0.093* | -0.103* | 0.724* | - | 0.94 | 137.45* | 0.33 | I(0)* |
| | (27.87) | (7.12) | (-1.22) | (-2.78) | (-3.58) | (6.35) | | | | | |
| NT | 3.52* | 0.033* | 0.030* | -0.002 | -0.021 | 0.793* | - | 0.87 | 61.35* | 0.56 | I(0)* |
| | (12.04) | (3.57) | (3.57) | (-0.039) | (-0.44) | (7.54) | | | | | |

**Notes:** (i) AR(1) and AR(4) are the first-order and fourth-order coefficients of autocorrelation.
(ii) *JUNEDV*, *SEPTDV* and *DECDV* are quarterly intercept dummy variables (DV).
(iii) B-G Serial Correlation is an *F*-test of the hypothesis that the residuals of the regression are serially correlated.
(iv) I(0) indicates that the residuals are integrated of order zero. Asterisks attached to I(0) indicates that the Augmented Dickey-Fuller (ADF) test statistic is statistically significant at the one, five and ten per cent levels, respectively.
(v) One, two and three asterisks indicate statistical significance at the one, five and ten per cent levels, respectively.
(vi) Data in parentheses are *t*-statistics.

**Source:** Calculated from data supplied by the Commonwealth Department of Health and Family Services (1997) and the Australian Bureau of Statistics (various).

**Table 2.** Linear Trend Equations of Time Trends of Relative Price ($S, 1989-90 Prices) Ratios of Obstetric Services, States and Territories of Australia, September Quarter, 1984 to September Quarter, 1996

| | Intercept | Time | *JUNEDV* | *SEPTDV* | *DECDV* | AR(1) | $\bar{R}^2$ | *F* | B-G Serial Correlation *F* | Order of Integration of Residuals |
|---|---|---|---|---|---|---|---|---|---|---|
| NSW | 10.09<br>(0.57) | 0.34<br>(0.67) | 0.200<br>(1.75) | 0.266**<br>(2.00) | 0.288**<br>(2.51) | 1.036*<br>(20.37) | 0.90 | 81.59* | 0.69 | I(0)* |
| Vic. | 31.10<br>(0.21) | 0.608<br>(0.36) | 0.152<br>(1.49) | 0.172<br>(1.45) | 0.121<br>(1.18) | 1.018*<br>(21.92) | 0.94 | 152.63* | 2.09 | I(0)* |
| Qld | 24.00<br>(0.17) | 0.695<br>(0.36) | 0.400*<br>(2.60) | 0.670*<br>(3.78) | 0.305**<br>(1.99) | 1.022*<br>(16.68) | 0.86 | 57.94* | 0.67 | I(0)* |
| SA | 79.76<br>(0.09) | 0.95<br>(0.17) | 0.200<br>(1.62) | 0.350*<br>(2.45) | 0.139<br>(1.13) | 1.011*<br>(16.59) | 0.90 | 83.71* | 0.27 | I(0)* |
| WA | 6.68<br>(0.68) | 0.13<br>(0.44) | 0.300*<br>(4.27) | 0.411*<br>(5.05) | 0.334<br>(4.76) | 1.039*<br>(14.50) | 0.87 | 64.14* | 0.40 | I(0)* |
| Tas. | 21.55<br>(0.29) | -0.311<br>(-0.36) | -0.18<br>(-1.47) | 0.003<br>(0.021) | 0.183<br>(1.46) | 0.971*<br>(11.93) | 0.77 | 32.65** | 0.82 | I(0)* |
| ACT | 8.54*<br>(2.55) | -0.105<br>(-1.25) | -0.042<br>(-0.32) | -0.127<br>(-0.83) | -0.072<br>(-0.550) | 0.907<br>(11.56) | 0.80 | 38.17* | 2.07 | I(0)* |
| NT | 6.14*<br>(10.06) | -0.064*<br>(-3.29) | 0.30*<br>(2.25) | 0.276***<br>(1.79) | -0.134<br>(-1.00) | 0.716*<br>(6.36) | 0.74 | 27.64* | 2.31 | I(0)* |

**Notes:** (i) AR(1) is first-the order coefficient of autocorrelation.
(ii) *JUNEDV*, *SEPTDV* and *DECDV* are quarterly intercept dummy variables (DV).
(iii) B-G Serial Correlation is an *F*-test of the hypothesis that the residuals of the regression are serially correlated.
(iv) I(0) indicates that the residuals are integrated of order zero. Asterisks attached to I(0) indicates that the Augmented Dickey-Fuller (ADF) test statistic is statistically significant at the one, five and ten per cent levels, respectively.
(v) One, two and three asterisks indicate statistical significance at the one, five and ten per cent levels, respectively.
(vi) Data in parentheses are *t*-statistics.

**Source:** Calculated from data supplied by the Commonwealth Department of Health and Family Services (1997) and the Australian Bureau of Statistics (various).

**Table 3**. Linear Trend Equations of Time Trends of Relative Price ($S, 1989-90 Prices) Ratios of Specialist Services, States and Territories of Australia, September Quarter, 1984 to September Quarter, 1996

| | Intercept | Time | *JUNEDV* | *SEPTDV* | *DECDV* | AR(1) | AR(2) | $\bar{R}^2$ | *F* | B-G Serial Correlation *F* | Order of Integration of Residuals |
|---|---|---|---|---|---|---|---|---|---|---|---|
| NSW | 2.66* | -0.004* | 0.001* | 0.006 | -0.011* | 0.840* | - | 0.92 | 111.32* | 0.52 | I(0)* |
| | (73.41) | (-3.58) | (2.75) | (1.31) | (-2.76) | (11.59) | | | | | |
| Vic. | 2.51* | -0.002** | -0.033* | 0.025* | 0.014* | 0.816* | - | 0.82 | 43.86* | 0.53 | I(0)* |
| | (81.57) | (-2.07) | (7.84) | (5.10) | (3.25) | (10.18) | | | | | |
| Qld | 2.63* | 0.002 | 0.017* | 0.017* | -0.003 | 0.881* | - | 0.91 | 93.29* | 0.62 | I(0)* |
| | (39.24) | (-1.15) | (3.49) | (3.06) | (-0.54) | (10.38) | | | | | |
| SA | 2.30** | 0.001 | 0.027* | 0.037* | 0.019* | 0.970* | - | 0.98 | 422.58* | 0.29 | I(0)* |
| | (1.74) | (-0.080) | (5.65) | (6.86) | (4.06) | (14.51) | - | | | | |
| WA | 2.59* | 0.003* | 0.016* | 0.023* | -0.004* | 0.806* | - | 0.87 | 62.65* | 0.67 | I(0)* |
| | (62.27) | (-2.58) | (2.50) | (3.12) | (-0.56) | (8.37) | | | | | |
| Tas. | 2.34* | -0.001 | 0.019* | 0.012** | -0.005 | 1.19* | -0.31** | 0.85 | 43.43* | 0.61 | I(0)* |
| | (38.43) | (-0.35) | (4.33) | (2.27) | (-1.27) | (7.86) | (-2.03) | | | | |
| ACT | 2.61* | 0.004* | 0.010*** | 0.005 | -0.012* | 0.62* | - | 0.92 | 114.38* | 0.66 | I(0)* |
| | (171.11) | (-8.92) | (1.87) | (0.77) | (-3.31) | (5.69) | | | | | |
| NT | 1.67 | 0.009 | -0.031** | -0.044* | -0.058* | 0.51* | 0.43* | 0.90 | 68.93* | 0.52 | I(0)* |
| | (1.01) | (0.37) | (-2.41) | (-4.21) | (-4.49) | (3.71) | (2.97) | | | | |

**Notes:** (i) AR(1) and AR(2) are the first-order and second-order coefficients of autocorrelation.
(ii) *JUNEDV*, *SEPTDV* and *DECDV* are quarterly intercept dummy variables (DV).
(iii) B-G Serial Correlation is an *F*-test of the hypothesis that the residuals of the regression are serially correlated.
(iv) I(0) indicates that the residuals are integrated of order zero. Asterisks attached to I(0) indicates that the Augmented Dickey-Fuller (ADF) test statistic is statistically significant at the one, five and ten per cent levels, respectively.
(v) One, two and three asterisks indicate statistical significance at the one, five and ten per cent levels, respectively.
(vi) Data in parentheses are *t*-statistics.

**Source:** Calculated from data supplied by the Commonwealth Department of Health and Family Services (1997) and the Australian Bureau of Statistics (various).

Some general statements may also be made about the seasonality of the relative prices of some broad categories of medical services to those of GP services. For example, the relative prices of anaesthetist, diagnostic imaging, specialist services, and operations, were subject to seasonality in every region of Australia. Conversely, none of the pathology relative price equations were subject to statistically significant seasonality. Such generalisations about seasonality cannot be made for the prices of other categories of medical services, i.e. seasonality was characteristic of these relative price ratios in some states and territories, but not in others.

Recall that, apart from the seasonal dummies, a number of institutional dummies were also invoked. Although plots of the relative price data suggested that the uniform schedule fee revision may have had a statistically detectable impact on the relative prices of "other" and GP services, the dummy variable employed to model that effect, *USFRDV*, only improved the specification of the relative price equation for "other" services in South Australia. In that state, the estimated coefficient on *USFRDV* was small, positive and statistically significant at the ten per cent level. There was apparently zero impact on the relative prices of "other" to GP services in regions other than South Australia.

Finally, the dummy variable invoked for the pathology relative price equations produced a negative and statistically significant coefficient in all states/territories. The negative parameter estimated on *PATHDV* accords with the general effect of the 1992 restructure of pathology Items, which was to decrease the mean gross price per pathology item billed under Medicare (although quantities billed increased so that expenditure on pathology remained almost static). For a detailed statement of the impact of those changes, see Commonwealth Department of Health and Family Services (1998).

Attention is now directed to a discussion of the time trend coefficients that have been estimated, and which are central to the purpose of this paper.

A preliminary inspection of the price ratio minima and maxima indicated that substantial temporal change was typical of most of the relative price series. The estimated time trends in Tables 1-3 confirm that assertion, and also indicate that spatial differences in relative price behaviour do exist.

For example, the coefficients on time for the "assist at operations" equations for Western Australia, Tasmania the Australian Capital Territory were -0.11, -0.16, and +0.007 (each statistically significant), respectively, indicating that the prices of "assist at operations" services have fallen over time in Western Australia and Tasmania, but risen over time in the Australian Capital Territory. Statistically insignificant time parameters for "assist at operations" equations in the other regions of Australia were estimated, indicating that relative price ratios in those states/territories have remained relatively stable over time. Indeed, such spatial variations in the size or sign of the coefficient on time were the rule, rather than the exception, for the 72 equations estimated. The most (spatially) uniform trends were those estimated on the relative price equations for obstetric services where all but one estimated coefficients were (statistically) zero; and the relative price equations for "other" services, where all coefficients were positive

and significant at the one per cent level. However, even in the latter case, the magnitude of the estimated coefficient varied considerably, from +0.018 (Australian Capital Territory) to +0.058 (Northern Territory).

A clearer, and more complete picture of the temporal behaviour of relative prices is gained by referring to Table 4, which provides a summary of the slope coefficients of the 72 equations estimated. Since the time-series models reported here were estimated in levels, the coefficients on time in Tables 1-3 indicate the estimated absolute changes in the relative price ratios, per quarter, for anaesthetic to GP, obstetric to GP, and specialist to GP services, etc. Table 4 provides a summary of these data, plus data for the remaining equations that have been reported in Connelly and Doessel (2000). There are two ways to read Table 4: by considering the data in the rows one places emphasis on the categories of medical services and/or the medical practitioners who provide those services. For example, anaesthetic services in five states/territories have experienced relative price rises, and no relative price rise in three states. On the other hand, specialist services have experienced relative price falls (compared to GP services) in four states/territories, and no relative price changes in the four other states/territories. Alternatively, the data can be examined from the perspective of the columns, i.e. the states/territories. For example, New South Wales has experienced relative price rises for two categories (anaesthetic and "other" services), no relative price rises for four categories and relative price falls for three categories of medical services (operations, optometry and specialist services). The experience in Queensland, however, is different. Relative prices rose for one category ("other"), remained the same in seven categories, and fell in one category (pathology) of medical services.

Table 5 presents another way of summarising the estimated slope coefficients. This simple table records the number of positive, zero and negative slope coefficients calculated to measure relative price changes. It is clear that relative prices have remained constant in 36 cases (50 per cent), risen in 15 cases (20.8 per cent), and fallen in 21 cases (29.2 per cent). This table reinforces the "mixed" picture of relative price changes that has emerged in the discussion so far and in Tables 1-3, in particular.

To provide a more integrated view of the relative price outcomes that have arisen under Medicare, it is necessary to synthesise the results that have been produced so far. One method of doing so is to answer the general question "are the estimated relative price **equations** different to the special case:

$$P_{GP(i)} / P_{GP(i)} = \alpha_1 + \alpha_2 t + \alpha_k \mathbf{X}_k \qquad (3)$$

where the intercept and slope parameters are (by definition) unity, and zero respectively?" The provision of an answer to this question provides a convenient method of summarising the spatial and temporal differences.

**Table 4.** A Summary of Absolute Growth of Relative Prices of Medical Services per Quarter, Australian States/Territories, 1984(3) to 1996(3)

| | NSW | Vic. | Qld | SA | WA | Tas. | ACT | NT |
|---|---|---|---|---|---|---|---|---|
| Anaesthetic Services | +0.018 | +0.017 | 0 | 0 | +0.046 | 0 | +0.029 | +0.033 |
| "Assist at Operations" Services | 0 | 0 | 0 | 0 | -0.011 | 0 | +0.007 | -0.016 |
| Diagnostic Imaging Services | 0 | 0 | 0 | +0.009 | -0.006 | 0 | 0 | 0 |
| Obstetric Services | 0 | 0 | 0 | 0 | 0 | 0 | 0 | -0.064 |
| Operations | -0.024 | -0.015 | 0 | -0.013 | -0.019 | 0 | -0.025 | 0 |
| Optometry Services | -0.012 | 0 | 0 | 0 | 0 | 0 | -0.017 | -0.018 |
| "Other" Services | +0.022 | +0.022 | +0.025 | +0.022 | +0.022 | +0.024 | +0.018 | +0.058 |
| Pathology Services | 0 | -0.006 | -0.008 | -0.009 | -0.009 | -0.008 | 0 | 0 |
| Specialist Services | -0.004 | -0.002 | 0 | 0 | -0.003 | 0 | -0.004 | 0 |

**Source:** As for Table 1.

**Table 5.** Numbers and Percentages of Price Changes in Various Categories of Medical Services Relative to Prices of General Practitioner Services, Australian States/Territories, 1984(3) to 1996(3)

| | No. | % |
|---|---|---|
| Rise in Price Relative to the Price of GP Services | 15 | 20.8 |
| No Change in Price Relative to the Price of GP Services | 36 | 50.0 |
| Fall in Price Relative to the Price of GP Services | 21 | 29.2 |
| Total | 72 | 100.00 |

**Source:** As for Table 1.

Table 6 presents the intercept and slope parameters for 72 regression equations, estimated in the form of equation (2), accompanied by the appropriate test-statistic *viz.*, the Wald *F*- and student *t*-statistic, respectively. The last column of Table 6 indicates whether or not either, or both of the estimated intercept and slope parameters differs from the special case of a unit intercept and zero slope. The data in that column are interpreted as follows: a "Y" ("Yes") indicates that the estimated equation is statistically distinct from the special case, equation (3); and "N" ("No") indicates that the estimated equation is statistically indistinct from, or equivalent to, the special case, equation (3).

The "mixed" picture that arises in Table 6 is clarified somewhat by Table 7, where the data from Table 6 are summarised. From Table 7 it is evident that 52 of the total 72 relative price equations (72 per cent) are different to the special case, equation (3). Again, differences dominate uniformity in relation to relative prices. Further insight may be gained by considering the summary of intercept and slope differences in Table 7. The table reveals that 47 (65 per cent) of the equations have intercepts that are statistically different to unity, and that 37 (51 per cent) have slopes that are statistically different to zero. Furthermore, 34 (47 per cent) of the equations have intercept and slope parameters that are **both** different to the special case, equation (4). Thus, 65 per cent of the 52 equations that are different to the special case are distinct in relation to both the estimated intercept **and** slope. In the latter cases it may be said, by deduction, that the numerator price ($P_{(i)t}$) is not only statistically different to the denominator price ($P_{GPt}$) but has also behaved differently over time.

## 6. CONCLUSIONS

This empirical study has analysed a categorisation of medical services employed by the Department of Health and Aged Care (pathology, obstetrics, etc.) to examine the relative prices of broad categories of medical services to GP services, and to test for temporal variations in the behaviour of those relative prices. The focus of the analysis was on the following question: "have the prices of these various categories of medical services, relative to the prices of GP services, risen,stayed the same or fallen through time?" The analysis revealed that, of the 72 "relative price" equations estimated, relative prices rose in 15 cases (21 per cent), relative prices remained constant in 37 cases (47 per cent) and, in 21 cases (29 per cent), relative prices fell. Furthermore, the appropriate parameter tests on the estimated intercept and slope parameters indicated that the results obtained are statistically significant.

This study demonstrates, empirically, that a general statement such as "the prices of GP services have fallen relative to the prices of all other medical services" is false. The "mixed" picture of rising, falling and predominantly constant relative prices indicates, once again, that the price outcomes of the markets for medical services (whether they be GP services or specialist services), specified in the *Medicare Benefits Schedule Book*, are not uniform geographically or through time. This outcome arises despite the operation of a

**Table 6** . Estimated Slope and Intercept Parameters of Relative Price ($P_{(i)t}/P_{GPt}$) Equations, Australian States and Territories, 1984(3) to1996(3).

| State/ Territory | Broad Category of Service | Intercept | Slope | Is the Specific Relative Price Equation Different to $P_{GP}/P_{GP}$ Relative Price Equation? |
|---|---|---|---|---|
| NSW | Anaesthetist Services | 3.89* [688.10] | 0.018* (5.45) | Y |
| | "Assist at Operations" | 5.90* [3423.83] | 0.003 (1.18) | Y |
| | Diagnostic Imaging | -1.25 [0.00] | 0.053 (0.28) | N |
| | Obstetric Services | 10.09 [0.610] | 0.34 (0.67) | N |
| | Operations | 6.11* [12321.92] | -0.024* (-12.94) | Y |
| | Optometry Services | 2.18* [363.59] | -0.012* (-6.20) | Y |
| | "Other" Services | 1.36* [15.80] | 0.022* (8.74) | Y |
| | Pathology Services | 1.26** [4.43] | -0.007 (-1.59) | Y |
| | Specialist Services | 2.66* [2096.27] | -0.004* (-3.58) | Y |
| Vic. | Anaesthetist Services | 3.79* [246.45] | 0.017* (2.98) | Y |
| | "Assist at Operations" | 5.49* [334.69] | 0.007 (0.98) | Y |
| | Diagnostic Imaging | -0.67 [0.01] | 0.053 (0.34) | N |
| | Obstetric Services | 31.10 [0.84] | 0.608 (0.36) | N |
| | Operations | 6.63* [5367.48] | -0.015* (-5.14) | Y |
| | Optometry Services | 1.98* [363.59] | -0.008 (-0.75) | Y |
| | "Other" Services | 1.39* [4.22] | 0.022** (4.54) | Y |
| | Pathology Services | 1.41** [4.40] | -0.006* (-1.84) | Y |
| | Specialist Services | 2.51* [2409.97] | -0.002** (-2.07) | Y |
| Qld | Anaesthetist Services | 3.16 [1.07] | 0.038 (0.94) | N |
| | "Assist at Operations" | 3.82 [0.12] | 0.047 (0.441) | N |

**Table 6** (contd). Estimated Slope and Intercept Parameters of Relative Price ($P_{(i)t}/P_{GPt}$) Equations, Australian States and Territories, 1984(3) to1996(3).

| State/ Territory | Broad Category of Service | Intercept | Slope | Is the Specific Relative - Price Equation Different to $P_{GP}/P_{GP}$ Relative Price Equation? |
|---|---|---|---|---|
| Qld (contd) | Diagnostic Imaging | 2.84 [0.00] | -0.010 (-1.20) | N |
| | Obstetric Services | 24.00 [0.03] | 0.695 (0.36) | N |
| | Operations | 5.59* [734.10] | 0.304* (8.09) | Y |
| | Optometry Services | 1.88* [4.00] | -0.006 (-0.41) | Y |
| | "Other" Services | 1.19 [1.56] | 0.025* (6.13) | Y |
| | Pathology Services | 1.41* [10.47] | -0.008*** (-1.82) | Y |
| | Specialist Services | 2.63* [591.52] | -0.001 (-0.080) | Y |
| SA | Anaesthetist Services | 3.68 [1.24] | 0.015 (1.49) | N |
| | "Assist at Operations" | 5.79* [213.37] | -0.009 (-0.88) | Y |
| | Diagnostic Imaging | 3.82* [2817.74] | 0.009* (5.08) | Y |
| | Obstetric Services | 79.76 [0.01] | 0.95 (0.17) | N |
| | Operations | 6.64* [2483.68] | -0.013* (-3.50) | Y |
| | Optometry Services | 2.22 [1.10] | -0.013 (-1.54) | N |
| | "Other" Services | 1.03 [0.79] | 0.022* (5.88) | Y |
| | Pathology Services | 1.33* [9.16] | -0.006*** (-1.84) | Y |
| | Specialist Services | 2.30 [0.96] | -0.001 (-0.35) | N |
| WA | Anaesthetist Services | 3.36* [12.17] | 0.046* (2.59) | Y |
| | "Assist at Operations" | 6.81* [213.37] | -0.011** (-2.35) | Y |
| | Diagnostic Imaging | 3.60* [557.01] | -0.006*** (-1.81) | Y |
| | Obstetric Services | 6.68 [0.57] | 0.13 (0.44) | N |
| | Operations | 6.24* [1419.22] | -0.019* (-3.74) | Y |

**Table 6** (contd). Estimated Slope and Intercept Parameters of Relative Price ($P_{(i)t}/P_{GPt}$) Equations, Australian States and Territories, 1984(3) to1996(3).

| State/ Territory | Broad Category of Service | Intercept | Slope | Is the Specific Relative - Price Equation Different to $P_{GP}/P_{GP}$ Relative Price Equation? |
|---|---|---|---|---|
| WA (contd) | Optometry Services | 1.43 [0.03] | 0.002 (0.06) | N |
| | "Other" Services | 1.55* [16.38] | 0.022* (5.88) | Y |
| | Pathology Services | 1.37* [9.93] | -0.009** (-2.26) | Y |
| | Specialist Services | 2.59* [1462.59] | 0.009 (0.37) | Y |
| Tas. | Anaesthetist Services | 3.54 [16.59]* | -0.02 (-0.37) | Y |
| | "Assist at Operations" | 5.98* [85.83] | -0.004 (-0.24) | Y |
| | Diagnostic Imaging | -22.02 [0.91] | -0.24 (-0.26) | N |
| | Obstetric Services | 21.55 (0.780 | -0.311 (-0.36) | N |
| | Operations | 5.48* [523.48] | -0.001 (-0.11) | Y |
| | Optometry Services | -0.60 [0.02] | 0.018 (0.23) | N |
| | "Other" Services | 0.97 [0.07] | 0.024* (7.86) | Y |
| | Pathology Services | -1.25*** [-3.84] | -0.008*** (-1.84) | Y |
| | Specialist Services | 2.34 [484.56]* | -0.001 (-0.080) | Y |
| ACT | Anaesthetist Services | 3.51* [396.79] | 0.029* (7.12) | Y |
| | "Assist at Operations" | 5.40* [5507.53] | 0.007* (4.17) | Y |
| | Diagnostic Imaging | 3.99* [2723.34] | -0.001 (-0.54) | Y |
| | Obstetric Services | 8.54** [5.07] | -0.105 (-1.25) | Y |
| | Operations | 6.65* [3037.38] | -0.025* (-5.96) | Y |
| | Optometry Services | 2.37* [24.59] | -0.017** (-2.39) | Y |
| | "Other" Services | 1.46* [9.23] | -0.018* (4.13) | Y |
| | Pathology Services | 1.43** [5.68] | -0.008 (-1.52) | Y |

**Table 6** (contd). Estimated Slope and Intercept Parameters of Relative Price ($P_{(i)t}/P_{GPt}$) Equations, Australian States and Territories, 1984(3) to1996(3).

| State/ Territory | Broad Category of Service | Intercept | Slope | Is the Specific Relative - Price Equation Different to $P_{G,P}/P_{G,P}$ Relative Price Equation? |
|---|---|---|---|---|
| ACT (contd) | Specialist Services | 2.61* [11163.34] | -0.004* (-8.92) | Y |
| | Anaesthetist Services | 3.52* [74.16] | 0.33* (3.57) | Y |
| | "Assist at Operations" | 5.86* [789.68] | -0.016* (-2.82) | Y |
| | Diagnostic Imaging | 0.37 [0.93] | 0.054 (0.57) | N |
| | Obstetric Services | 6.14 [0.26] | -0.064* (-3-29) | Y |
| NT | Operations | 5.94* [3866.12] | -0.018** (-2.40) | Y |
| | Optometry Services | 2.38* [21.73] | -0.018** (-2.40) | Y |
| | "Other" Services | 0.89 [0.63] | 0.0058* (13.25) | Y |
| | Pathology Services | 1.07 [0.31] | -0.005 (-1.18) | N |
| | Specialist Services | 1.67 [0.16] | 0.009 (0.37) | N |

**Notes:** (i) Data in "square" brackets are Wald *F*-statistics produced by co-efficient restriction tests on the estimated intercepts. Here, the null hypothesis is that the estimated intercept parameter is (statistically) equal to unity.

(ii) Data in parentheses are *t*-statistics.

(iii) "Y" (YES) in this table means that there is a statistically significant difference between the estimated intercept parameter and unity, and/or between the estimated slope parameter and zero.

(iv) "N" (NO) in this table means that there is no statistically significant difference between the estimated intercept parameter and unity, and/or between the estimated slope parameter and zero.

(v) One, two and three asterisks indicate statistical significance at the one, five and ten per cent levels, respectively.

(vi) The services referred to here are those defined in Appendix 1.

**Source:** As for Table 1.

**Table 7.** Numbers and Percentages of Relative Price ($P_{(i)t}/P_{GPt}$) Equations Different to ($P_{GPt}/P_{GPt}$) Relative Price Equation

| | No. | % |
|---|---|---|
| Intercept is Statistically Different to Unity | 47 | 65 |
| Slope is Statistically Different to Zero | 37 | 51 |
| Intercept is Statistically Different to Unity **and** Slope is Statistically Different to Zero | 34 | 47 |
| Equation is Statistically Different to $P_{GPt}/P_{GPt}$ Equation | 52 | 72 |

**Source:** As for Table 1.

nationally uniform health funding scheme.

The results estimated on the impact of revisions to the Medicare subsidy arrangements for pathology and for the Uniform Schedule Fee revision were mixed, in terms of the influence of institutional changes on relative prices. Perhaps surprisingly, the Uniform Schedule Fee revision was shown to have an impact on relative prices for only one group of services in one geographical region. This result provides a reminder that the subsidy provisions represent only one important component of the factors that determine gross prices in markets subject to the Medicare arrangements. As such, institutional reforms that involve marginal changes to subsidy provisions may be impotent tools if the target is price relativity adjustment.

This study has illuminated a part of the "black hole" in the Australian health literature on general practice by analysing some uncharted, but policy-relevant territory. The analyses have been conducted separately for each state and territory, enabling a finer analysis of price behaviour under Medicare than would be possible using national data. This study meets the demand for an objective assessment of price movements and price relativities for a range of medical services since the introduction of Medicare.

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## APPENDIX 1

I. The **GP** services referred to here relate to the following Item numbers in the *Medicare Benefits Schedule Book*: 1-84, 86, 87, 89-93, 95-98, 101, 160-173, 980, 996-998 and 17600.

II. The **anaesthetist services** referred to here relate to the following Parts, Groups and Item numbers in the *Medicare Benefits Schedule Book*: Parts 3 (excluding Items 82, 85, 101 and 102), 4 and 5; Groups T5 and T6 (excluding Items 17600 and 17603) and T7; and Items 9021 to 9060).

III. The **"assist at operations"** services referred to here relate to Part 9 and Group T9 of the *Medicare Benefits Schedule Book.*

IV. The **diagnostic imaging** services referred to here relate to the following Parts, Groups and Item numbers in the *Medicare Benefits Schedule Book*: ultrasound (Items 791, 793, 794, 910, 911, 913, 990-993, 995 and 999; and Group I1); computed tomography scanning (Part 7A; Items 2960-2971; and Group I2); radiology (Part 8; Items 9341-9344; and Group I3); magnetic resonance imaging (Items 2980 and 2981; and Group I4); nuclear medicine imaging (Items 8712, 8713, 8716, 8717, 8720, 8721, 8723, 8724, 8727-8840, 8851-8874; and Group I5); and Item 9066.

V. The **obstetric services** referred to here include Part 2, Group T4 and Item 9011 of the *Medicare Benefits Schedule Book.*

VI. The **operations** referred to here relate to the following Parts, Groups and Items listed in the *Medicare Benefits Schedule Book*: Part 10; Group T8; and Items 9401-9409, 9415-9435, 9440-9449, 9458 and 9476-9850.

VII. The **optometry** services referred to here relate to Items 180-186 and Group A10 of the *Medicare Benefits Schedule Book.*

VIII. The **specialist** services referred to here relate to the following Items listed in the *Medicare Benefits Schedule Book*: 85, 88, 94, 100, 102-159, 177, 189, 300-352, 851, 852, 886-893, 10801-10815 and 17603.

IX. The **pathology** services referred to here relate to Part 7 and Category 6 of the *Medicare Benefits Schedule book.*

X. The **"other"** services referred to here relate to the following Parts, Categories and Groups of the *Medicare Benefits Schedule Book*: miscellaneous (Part 6 excluding ultrasound); radiotherapy and nuclear medicine therapy, dentistry, cleft lip and palate procedures; Categories 2, 4 and 7; and Groups T1-T3.

**Source:** Commonwealth Department of Health and Family Services (1998).