Do doctors charge high income patients more?

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Abstract

When doctors are unconstrained in setting fees, they charge higher fees to high income patients. For a standard GP consultation, the average fee gap 25% of a minimum price. Competition closes this gap, but not local area income.

Keywords: doctor fee, competition

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Introduction

If doctors are free to set their own fees, do they charge higher fees to high income patients? While doctors are consistently ranked as one of the most ethical and honest professions[2] studies have shown that, like other economic agents, doctors respond to financial incentives. For example, Croxson and Perkins (2001) and Dusheiko et al (2006) identify gaming behaviour by general practitioners (GPs) in the UK using natural experiments created by policy changes that altered the financial incentives for making non-emergency referrals to hospitals. Using variations in payment schemes, Gruber and Owings (1996) and Dumont et al. (2008) find that doctors paid on a fee-for-service basis perform more medical services than those paid under salary or a mix of payment methods. Lester et al. (2010) find that doctors reduce the volume of medical services following the removal of an incentive payment scheme. Using variation in wages, Saether (2005) finds that doctors allocate more hours to alternative activities that generate higher pay. When perfect price discrimination is possible, economic theory predicts that profit-maximising agents will set price equal to each patient's willingness-to-pay, thereby extracting the entire consumer surplus. In this study, I exploit a unique linkage between a large population survey and administrative medical service records to investigate variation in fees by patient income at the *individual* doctor level. The dataset, from the Australian 45 and Up Study, is the largest follow-up health study conducted in the southern hemisphere providing variation in the income levels of patients for individual doctors.

In common with many European countries, Canada and New Zealand, Australia has a universal, tax-financed public health insurance system, Medicare. However, unlike other countries, Australia's market for out-of-hospital services has unregulated fees, providing an ideal environment to study doctors' fee setting behaviour. Medicare provides fixed subsidies which are published annually in the Medicare Benefits Schedule (MBS). These subsidies are defined by a 'schedule fee' for each type of service. In addition, there is a rebate which sets the proportion of the 'schedule fee' that is paid by the government. For example, in 2009, the schedule fee for a standard consultation (i.e. less than 20 minutes) with a GP in a consultation room was $34.30 and the rebate was 100%. The rebated amount sets a floor price for a given service but there are no controls over the maximum fees that health practitioners can charge to their patients. The doctor may set the fee equal to the rebated amount in which case the patient makes no payment ('bulk-billing'). On the other hand, if the doctor sets a fee higher than the rebate, the patient pays the difference between the fee charged and the rebated amount as an out-of-pocket cost. In the data used here, over 80% of GP consultations are bulk-billed. Out-of-hospital service fees are GPs' primary income (Cheng et al., 2010). Private health insurance does not cover out-of-hospital services.

Data and Method

The data is drawn from the 45 and Up Study, which is a survey of over 267,000 non-institutionalised individuals in the state of New South Wales aged 45 and over (about 10% of the 45+ New South Wales population, surveyed once between 2006 and 2009. In 2009, New South Wales had a

population of approximately 7 million with 39% aged over 45. The survey is linked longitudinally by the Sax Institute to comprehensive MBS data from the Department of Human Services.[3]

Because the survey is collected only once, for each survey respondent, I use medical services for the 12 months before and after the date of the survey to minimise error due to changes in income or residential location. To define a homogenous service, I focus on a standard consultation with a GP in a consultation room outside hospital. There were over 2.3 million of these consultations rendered to the sample respondents within this period. The MBS data contains the actual fee charged as well as a confidentialised provider ID, which allows identification of an individual GP's patient pool. Fees are normalised to A$2009.

As the primary interest of this paper is fee setting, only the initial consultation with a patient is included in the analysis. Subsequent consultations with the same doctor provide no extra information on fee setting since they are very likely to be charged a similar fee.[4] Figure 1 shows the gap between fees charged to high income patients, whose income lies in the top 25% of the income distribution, and low income patients in the bottom 25% of the income distribution by over 7,500 GPs, sorted by the size of the fee gap.[5] About 60% of GPs charge higher average fees to their high income patients. The median GP charges high income patients $5 more, which is 15% of the floor price. The fee gap is "truly" zero (the vertical portion in Figure 1) for GPs who always set fee equal to the floor price (100% bulk-billing GPs). Excluding these GPs, 50% charged $10 or more to high income patients, and 5% charged at least $20 (60% of the floor price) more.

[Insert Figure 1]

However, this observed fee gap may be a consequence of higher income patients going to higher quality doctors, who charge higher fees. Hence, it must be shown that such a fee gap exists, conditional on doctors' quality. Quality is not observed, however the literature (e.g., Dusheiko et al., 2011) has used a doctor's participation chronic disease management programs as an indicator for quality primary care. This is also consistent with the hospital performance literature (e.g., Geweke, 2003) in which high quality hospitals are often observed to have poor performance, like higher mortality rate, because they tend to attract sicker/more complex patients. Following this idea, I define high quality GPs as those who place their chronically ill patients (e.g., those with diabetes, high blood pressure or stroke) on management plans. Under this definition, about 68% of GPs are classified high quality.

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[3] The MBS data linkage is performed by the Sax Institute (for details see http://www.saxinstitute.org.au/). The linked, de-identified data is accessed with ethics approval.

[4] 90% were charged the same price. Of the 10% of services with fee variation with the same doctor, the average standard deviation is $9.

[5] Income in the survey is recorded in bands: 8 income bands plus missing category. I approximate low income individuals by those with annual income of less than $30,000 (the bottom 4 bands comprising 30% of those with known income) and high income individuals by those with annual income more than $70,000 (the top band comprising 25% of those with known income). Although not reported, the fee distribution of mid income patients lies between that of the high income and low income patients. Official statistics report that there are 7,528 GPs in New South Wales in 2009/10. We have a comparable number of GPs (6,968) in the sample for this period but note that GPs in our sample may include those visited by respondents in other Australian states (Primary Health Care Research and Information Service, available http://www.phcris.org.au/).

Results

Panel A of Table 1 summarises the average fees and fee gaps for high and low income patients, overall and by doctor quality. As expected, doctors charge higher fees to high income patients, but contrary to the hypothesis that fee is an indicator of quality, high quality doctors charge lower average fees than low quality doctors. The differences in average fee gaps however are small in size and not statistically significant. On average, there is a fee gap of about $6 for all GPs and $9-$10 excluding the 100% bulk-billing GPs. The latter is about 25% of the floor price, which may be regarded as large, for a basic consultation by the same GP.

[Table 1 here]

Next, I investigate whether the fee gap closes with competition. Economic theory predicts that in a competitive market, price should converge to the minimum level, which in this case is the floor price. I use GP density (the number of GPs per thousand population) to measure local area competition. Figure 2 plots the GPs' fee distribution by decile of local area GP density. The role of competition on GPs' fee-setting ability is remarkable: it significantly lowers GPs' ability to charge high fees. In high competition areas (deciles 8-10), fees are lower, and they are much more condensed; 75% of fees are basically the floor price. Comparison between panel A and B, which excludes the 100% bulk-billing GPs, we can infer that the fee convergence is driven by GPs choosing to bulk-bill all of their patients, rather than a reduction in fees to high income patients. Bulk-billing may generate extra demand and the fee levels of those GPs who can still attract out-of-pocket payers, are not affected by local area competition.

[Figure 2 here]

In Panel B of Table 1, I group the GP density deciles into low, mid and high competition areas to show the consequential diminishing gap in fees for high and low income patients as competition increases. The average fee gap in high competition areas is only $3.50, but it is more than double that in low competition areas. There is no difference in fee gap by level of local competition among GPs who selectively bulk-bill their patients, but 70% of GPs in high competition areas adopted 100% bulk-billing.

Figure 3 investigates local area income as another potential reason for fee convergence. The idea here is that local area income level may be informative of patient income and accordingly is used by GPs to set uniform fee. If so, we would expect fee distribution to be more condensed in low and high income areas than in middle income areas, where the income signal may be noisier. Apart from the lowest income decile, where fees are concentrated around the floor price, fees do not appear to exhibit any convergence in either tail of the local area income distribution. In fact, fees are more dispersed in the highest income area. This observation suggests that doctors do not use area level income to gauge the ability-to-pay of their patients.

[Figure 3 here]

Consistently, Panel C of Table 1 shows that the average fee gap is smaller in low income areas but the difference is economically negligible (by cents).

Concluding remarks

Hitherto, Australian studies of doctor fee setting behaviour have relied on cross-sectional or spatial variations (Jones and Savage, 2004a, 2004b). This study shows that individual health providers, when

they can, vary their fees according to patient income. Generally, GPs charge higher fees to higher income patients. GPs appear to have private information about their patients' income which is more accurate than area level income. One possible explanation is repeat or regular interactions with patients; on average, our sample has 6 GP visits in a year. Fee differential may be sustainable due to higher willingness-to-pay for medical services by high and low income patients; for instance, high income patients may derive higher net benefits from consuming health care so they are willing to pay higher fees (McGuire, 2000), and lower price sensitivity among high income patients.

Evidence of a fee gap by patient income provides further evidence on the pecuniary motives of health professionals. In the absence of price control, doctors rely on high income patient to generate higher revenue. As such, policies which regulate price, increase GP competition or introduce substitute services, particularly those that are attractive to high income patients, may be resisted by the profession.

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Table 1: Average fee for high and low income patients by doctor quality, local area competition and local area income

	All GPs				Excluding 100% bulk-billing GPs			
	High income	Low income	Fee gap	Number of GPs	High income	Low income	Fee gap	Number of GPs
A.								
All	$40.52	$34.34	$6.10	7,518	$45.48	$36.18	$9.28	4,936
High quality	$39.81	$33.69	$6.03	5,131	$44.32	$35.19	$9.13	3,389
Low quality	$42.04	$35.75	$6.24	2,387	$47.99	$38.37	$9.62	1,547
B.								
Low competition (GP density deciles 1-3)	$44.72	$34.94	$7.52 [a,c]	2,203	$45.48	$36.08	$9.39	1,814
Mid competition (GP density deciles 4-7)	$41.00	$34.67	$6.32 [c]	2,958	$46.31	$36.69	$9.62	2,135
High competition (GP density deciles 8-10)	$36.01	$32.58	$3.47 [a]	2,357	$44.72	$35.30	$9.42	987
C.								
Low income area (SAD Index deciles 8-10)	$40.10	$34.24	$5.82 [a,c]	1,117	$44.80	$35.98	$8.83 [b,c]	737
Mid income area (SAD Index deciles 4-7)	$40.24	$34.21	$5.94 [c]	3,601	$45.33	$36.10	$9.23	2,317
High income area (SAD Index deciles 1-3)	$41.03	$34.56	$6.41	2,800	$45.90	$36.36	$9.53	1,882

Note: to ensure that GPs share similar background, they have to have a formal GP accreditation. This excludes interns, GP trainees, sport physicians and non-vocationally recognised medical practitioners. Qualified GPs provide 87% of all standard consultations in the sample. Local income area is measured by Socio-economic Advantage and Disadvantage (SAD) Index attached to postal codes (Australian Bureau of Statistics http://www.abs.gov.au/websitedbs/D3310114.nsf/home/Seifa_entry_page). GP density is measured by GPs per thousand population in a Division of General Practice, which are administrative geographic areas for GPs in Australia.

[a] indicates 1% statistically different from 'All' average in the 'All GPs' sample. [b] is the corresponding test for the 'Excluding 100% bulk-billing GPs' sample. [c] indicates 1% statistically different from high income area average or high GP density area average.

Figure 1: The cumulative distribution of average fee gap between high and low income patients
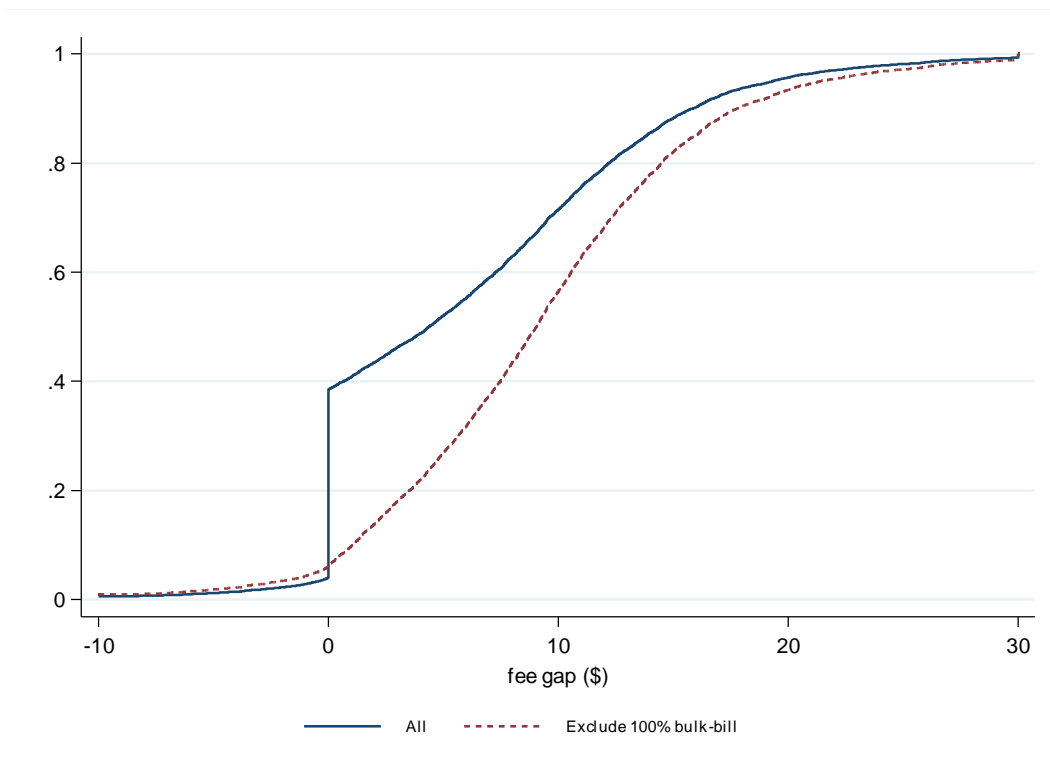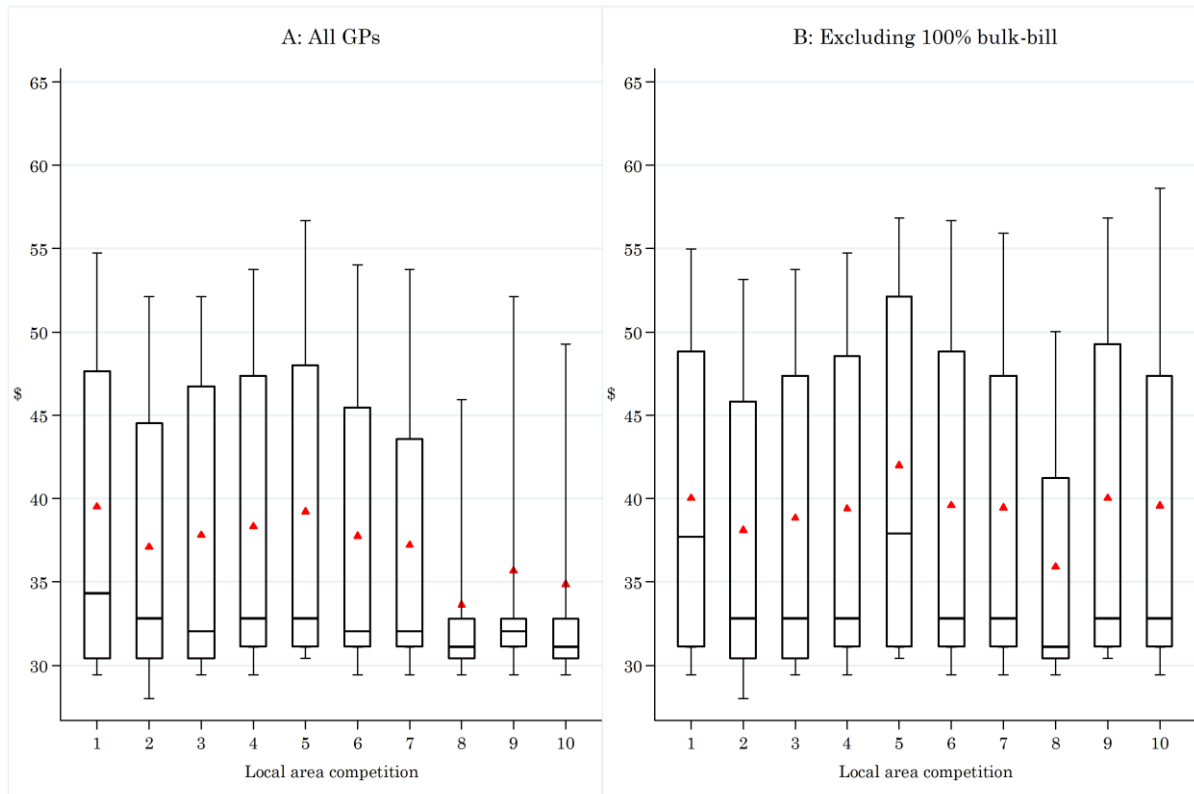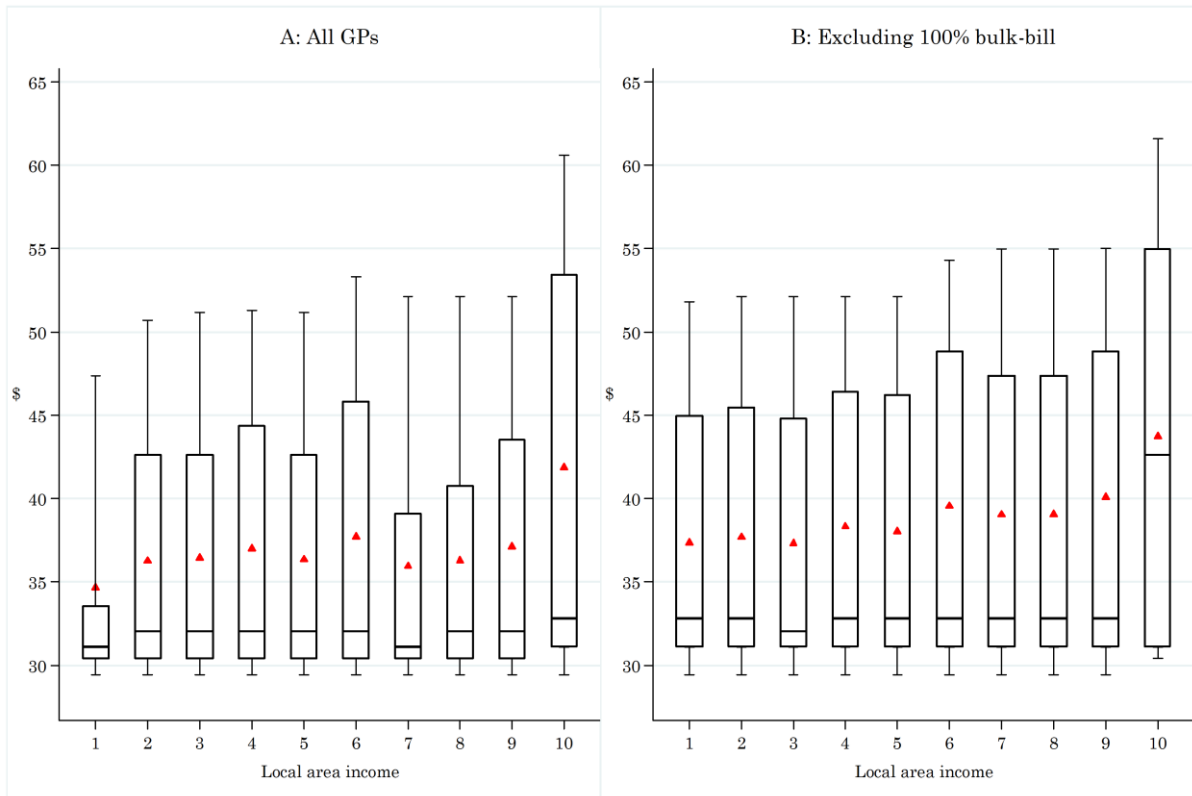
Figure 2: Fee distribution by local area competition

Note: the box represents 50% of fees between the 25th percentile and the 75th percentile fee, and the lines extending beyond the box represent 90% of fees between the 10th percentile and 90th percentile fees. The horizontal line inside the box indicates the median fee and the triangle marks the mean fee. Local area competition is defined by decile of GP to population ratio.

Figure 3: Fee distribution by local area income

Note: the box represents 50% of fees between the 25th percentile and the 75th percentile fee, and the lines extending beyond the box represent 90% of fees between the 10th percentile and 90th percentile fees. The horizontal line inside the box indicates the median fee and the triangle marks the mean fee. Local area income is defined by decile of Socio-economic Advantage and Disadvantage Index (Australian Bureau of Statistics).