DISCUSSION PAPER SERIES

IZA DP No. 7017

One Man's Blessing, Another Woman's Curse? Family Factors and the Gender-Earnings Gap of Doctors

Stefanie Schurer
Daniel Kuehnle
Anthony Scott
Terence Chai Cheng

November 2012

Forschungsinstitut
zur Zukunft der Arbeit
Institute for the Study
of Labor

One Man's Blessing, Another Woman's Curse? Family Factors and the Gender-Earnings Gap of Doctors

Stefanie Schurer
Victoria University of Wellington and IZA

Daniel Kuehnle
University of Erlangen-Nuremberg

Anthony Scott
MIAESR, University of Melbourne

Terence Chai Cheng
MIAESR, University of Melbourne

Discussion Paper No. 7017
November 2012

IZA

P.O. Box 7240
53072 Bonn
Germany

Phone: +49-228-3894-0
Fax: +49-228-3894-180
E-mail: iza@iza.org

IZA Discussion Paper No. 7017
November 2012

ABSTRACT

One Man's Blessing, Another Woman's Curse? Family Factors and the Gender-Earnings Gap of Doctors *

Using data from a new longitudinal survey of doctors from Australia, the authors test whether observed large gender-pay gaps among general practitioners (GPs) are the result of women's larger willingness to interrupt their careers. On average, female GPs earn A$83,000 or 54% less than male GPs. The difference between men and women with children is A$105,000, and A$45,000 for men and women without children. Of this gap, 66-75% is explained by differences in observable characteristics such as hours worked. The family gap emerges also within the sexes. Female GPs with children experience an earnings penalty of A$15,000-A$25,000 in comparison to women without children; almost 100% of this difference is due to observable characteristics such as hours worked and career interruptions. Male GPs with children experience a family premium of A$35,000 in comparison to men without children, indicating the presence of a breadwinner effect that exacerbates the gender-earnings gap.

JEL Classification: J24

Keywords: gender-earnings gap, family-earnings gap, labour force attachment, decomposition methods, family physicians, MABEL

Corresponding author:

Stefanie Schurer
Victoria University of Wellington
School of Economics and Finance
Wellington 6041
New Zealand
E-mail: stefanie.schurer@vuw.ac.nz

* The authors are grateful for helpful comments from Deborah Cobb-Clark, Hugh Gravelle, and participants of the seminar series at Victoria University of Wellington, University of Melbourne, University of Otago and Australian National University. This research used data from the MABEL longitudinal survey of doctors conducted by the University of Melbourne and Monash University. MABEL is funded by the National Health and Medical Research Council and the Department of Health and Ageing.

1 Introduction

Women represent an increasingly large share of medical graduates and the physician workforce. In the US in 2010, 48% of all graduates in medicine were women compared to less than 7% in 1965 (Leadley and Sloane, 2011). In the UK in 2010, 56% of all admissions into medical school were women. Today, 42% of all registered doctors are women, and they are predicted to make up 55% of the workforce at some point between 2017 and 2022 (Elston, 2009). In Australia, over 60% of medical graduates and 35.7% of practicing doctors are women (AIHW, 2011).

Despite the feminisation of the medical workforce, significant wage differentials between men and women are surprisingly common within this highly-skilled occupation. The gender-wage gap for physicians in the US, even allowing for differences in training or specialisation, has been estimated to be up to 22% (Kehrer, 1976; Langwell, 1982; Ohsfeldt and Culler, 1986; Shih and Konrad, 2007; Weeks et al., 2009; Sasso et al., 2011; Jagsi et al., 2012).[1] Wide gaps of 15%, 24%, and 30% have also been reported in Austria (Theurl and Winner, 2011), Australia (Cheng et al., 2011), and England (Gravelle et al., 2011), respectively.

As with the general literature on gender-wage gaps, little consensus prevails on what explains these differences. In occupations with a higher share of women, opportunities for discrimination against women, a common explanation for the gender-wage gap since the seminal work of Oaxaca (1973) and Blinder (1973), are less likely. In addition, family doctors are commonly self-employed, which may rule out discrimination by employers against female doctors.

We hypothesise that gender-earning gaps are the result of the division of labour between men and women to manage family responsibilities and its implied differences in labour supply. The importance of family factors in determining work-hours, job commitment, and continuity of employment has received little attention in the medical labour supply literature. The exception is Sasser (2005) who finds that the presence of children accounts for 39% of the male-female earnings gap and a child is associated with almost

[1] Baker (1996) is the only study which finds no differences in wages between male and female general practitioners.

20% lower annual earnings among female GPs in the US.[2] The mechanisms through which family obligations work is that women may invest less in their human capital or employers may offer fewer training opportunities to women in anticipation of the child-rearing responsibilities. Women with children may reduce their effort per hour and/or hours worked by taking on traditional gender roles in the household (Becker, 1985).

If women with children generally work less hours and are less productive, this will not only lead to an earnings gap between men and women, but also between women with and women without children. Evidence for a family gap among women has been found in the general economics literature (Waldfogel, 1997, 1998; Bertrand and Hallock, 2001; Bertrand et al., 2010; Viitanen, 2012). The first child is associated with a wage penalty of up to 33% that may persist for 30 years (e.g. Viitanen, 2012, for the UK). It has also been demonstrated that the size of the family gap is particularly high for college-educated women who have more human capital to lose than less skilled women (Anderson et al., 2002; Miller, 2011). A good example of the career impact of children has been demonstrated for female lawyers (e.g. Noonan et al., 2005) and MBA graduates (e.g. Bertrand et al., 2010). Bertrand et al. (2010) show that after 15 years following the MBA, women with children have an eight-months deficit in actual post-MBA experience and work 24% fewer weekly hours than female MBAs without children.

Moreover, it is likely that the presence of children in the household may also affect the work behaviour of men. Having children will increase the family's demand for goods and services, and in the face of a likely reduction in their partner's working hours due to raising children, men with children may work longer hours and provide higher effort per hour compared to men without children (Hundley, 2000; Lundberg and Rose, 2000; Glauber, 2008; Bertrand et al., 2010).[3] If family obligations and their subsequent labour-supply effects are the main reason for gender differences in pay, then the gender-earnings gap should be largest between men and women with children, and negligible between men

[2]Sasser (2005) finds no statistically significant gender-gap for hourly earnings when controlling for human capital and productivity, suggesting that differences in work-hours fully explain the earnings gap.

[3]Evidence exists also on the male wage premium of marriage (Korenman and Neumark, 1991; Loh, 1996; Jacobsen and Rayack, 1996).

and women without.

Identifying the reasons for gender-pay gaps for doctors is difficult, because hardly any data are available on the earnings and family background of this specialised occupational group. We can solve this problem by using data from a new, and unique, longitudinal survey of Australian doctors "Medicine in Australia: Balancing Employment and Life (MABEL)" which does not only provide detailed background information on the GPs' private and work life, but a large enough sample to study the behaviour of various sub-groups. To test whether it is family responsibilities that explain gender-earning gaps, we decompose the differences in mean earnings in the tradition of Oaxaca and Ransom (1994) across and within the sexes by family status and age cohorts.

2 The institutional framework of remuneration of GPs in Australia

The institutions governing remuneration of Australian GPs provide an interesting contrast to the US. GPs in Australia are able to charge patients what the market will bear through the fee-for-service system, and so can influence earnings through changes in both price and volume. The prices charged by US physicians, however, are more likely to be regulated by the fee-schedule of the private or public insurer. GPs in Australia can choose to practise in any location, unless they are from overseas when they are required to practise in areas of workforce shortage.(for an overview see Duckett, 2007) Patients can visit any GP of their choice, which implies that an entrepreneurial GP who seeks to increase his or her patient stock will have to build up a good reputation to attract more patients.

The government provides fixed subsidies for four basic types of consultation which increase according to their length and complexity, from Level A to Level D. Subsidies (currently around A$35 for a level B consultation) are provided through the national tax-financed insurance scheme, Medicare. GPs can either accept the subsidised fee, and therefore 'bulk-bill' patients, or they can charge a fee above the Medicare's subsidy. In the former case, no costs are incurred for the patient, as Medicare directly reimburses the GP. In the latter case, the patient needs to cover out-of-pocket the difference between the fee charged and the subsidy paid. Currently, around 81.7% of all GP services are bulk-billed,

varying between 49% (Australian Capital Territory) and 86% (New South Wales).[4]

The GP has discretion to bulk-bill any patient. However, to make access to services more equitable, since 2005 GPs have received an additional A$5-A$8.75 (in 2010) from the government if bulk-billing children under 16, concession card holders, or patients in designated metropolitan or rural areas or in Tasmania. The government also provides additional grants and payments to practices through the Practice Incentives Program, which includes incentive payments for managing diabetes and asthma, providing cervical screening, and being located in a rural area.[5] GPs who practise in designated areas of workforce shortage, mainly remote and rural areas, are also eligible for an additional range of grants and incentive payments. The government also periodically provides capital infrastructure grants, and has introduced a grant scheme to fund practice nurses.

Seventy six per cent of GPs are not practice owners. These GPs work for GP principals and other types of practice owner, and can be paid using a range of methods including salary, a fixed payment per session, or an agreed percentage of billings (Kron, 2012). These GPs have less discretion to control their earnings than practice owners.

3 Data

3.1 Sample definition

We use data on qualified GPs from both wave 1 and 2 (2008, 2009) of the "Medicine in Australia: Balancing Employment and Life" (MABEL) panel survey of Australian doctors. In 2008, a total of 54,570 doctors (which is the population of all doctors in Australia) across four broad doctor groups were invited to participate. 10,498 doctors form the baseline cohort in the first wave, which includes 3,906 GPs (with 226 GP registrars), 4,597 specialists, 1,072 specialists-in-training and 924 hospital non-specialists. The cohort was found to be representative of the overall doctor population with respect to age, gender, geographic location and hours worked (Joyce et al., 2010). In 2009, a follow-up survey of

[4]See press release by the Minister of Health for the latest figures `http://www.health.gov.au/internet/ministers/publishing.nsf/Content/mr-yr12-tp-tp048.htm`, accessed on 9 October 2012.

[5]`http://www.medicareaustralia.gov.au/provider/incentives/pip/index.jsp`, accessed on 12 October 2012

the initial cohort of doctors, in addition to a top-up sample of new doctors, was conducted. Of the GPs in the baseline cohort, 3,063 doctors returned a second survey while 843 doctors did not respond. Among those who responded, 2,952 remained in clinical practice in 2009.

The sample is restricted to individuals who report working hours between four and 100 hours a week. We trimmed the top and bottom part of the earnings distribution by removing the highest and lowest 1% of income earners. Observations were also excluded if a GP reported working less than half of the year and if the reported number of working hours across different questions in the survey was inconsistent with the total number of hours worked. Our estimation sample includes 1,935 male GPs and 1,683 female GPs for whom data are available on all covariates used in the analysis. Out of these 3,618 GPs, 41.4% stem from wave 1, 22.1% from wave 2, and 37.4% are present in both waves.

3.2 Variable definitions

We measure remuneration as annual real gross earnings expressed in 2009 A$. We focus on annual earnings as opposed to hourly wages as earnings may not be proportional to the number of hours worked. Bashaw and Heywood (2001) and Gravelle et al. (2011) suggested, and found evidence, that the gender wage gap may be underestimated when looking at hourly wages, because hourly wages decrease with the total hours worked per week. Women generally work less hours per week and thus their hourly wages should be relatively high in comparison to those of men. As can be seen in Figure A.1 in the Appendix, we find similar evidence in our data. Hourly wages are decreasing in hours worked, especially so for men. The exact question taken from the questionnaire is: "What are your (approximate) TOTAL personal earnings from ALL of the work you do as a doctor? (If possible, base this on your last personal income tax return or payslip) Please write in ONE COLUMN where you have the most accurate information and can best remember."

Explanatory variables are based on those used by Cheng et al. (2011) using the same data source (see Table 1).

[Insert Table 1 here]

Since we use gross annual earnings as the main dependent variable, we also include the logarithm of hours worked as an explanatory variable to allow for the decreasing marginal return of labour supply. This specification introduces the potential of endogeneity, since hours are a function of wages (Gravelle et al., 2011). We test explicitly for endogeneity and re-estimate our preferred model with a 2SLS approach. The instrumental variable used in the first stage is the 'age of the youngest dependent child'. Alternative instrumental variables such as 'having a partner who works part-time' or 'having a dependent child under the age of 5' are applied in a robustness check. To be a valid instrument, the presence of a young child must be strongly correlated with hours worked, and must have no independent effect on earnings beyond its effect on labour supply. These assumptions appear to be standard in the literature on female labour supply decisions (see Gravelle et al., 2011, for a discussion).

We measure labour force attachment with weeks of holiday taken in the past year, actual years of experience, actual years of experience squared, and whether the GP took more than one year off since graduation (=1 if yes). Actual work experience is defined as the number of years since graduation from medical school less time spent out of clinical practice.

Though GPs obtain similar training that qualifies them for registration, some of them continue their postgraduate education. To capture these differences in human capital, we include the number of postgraduate qualifications, and whether the GP is a fellow of a college.

An alternative explanation for the gender-earnings gap among GPs is that men and women differ in their work-place productivity. These well-documented differences in practice style have an impact on the quality and quantity of consultations a GP provides per week (Bensing et al., 1993). Female GPs tend to have longer consultations, and thus treat fewer patients per hour than men (Langwell, 1982; Britt et al., 2005), take more time per patient to explain medical terminology (Martin et al., 1998), or are more likely to engage in 'patient-centred' communication styles (Roter and Hall, 2002, 2004). Patients of doc-

tors who were rated to have good interpersonal skills expressed higher satisfaction with their doctors' service and complied better with treatment recommendations, and this may increase demand and earnings for such doctors (Sandhu et al., 2009; Saultz and Lochner, 2005).

We measure productivity and practice styles by consultation length (minutes spent per patient) and the proportion of patients bulk-billed, respectively. The proportion of patients bulk-billed may capture either the GP's preferences for volume of patients (Doessel, 1990) or for equity. Market demand factors are measured by the fee charged for a standard consultation and the length of wait for an appointment with the doctor (number of days). These market demand factors could potentially proxy patient discrimination against female doctors, although empirical evidence suggests that female doctors experience positive discrimination by female patients are not discriminated against by patients (E.g. Godegar, 2012; Reyes, 2008).

We further control for the location in which the GP practises to capture access to care. Location is measured by the Australian Standard Geographic Classification of Rurality that distinguishes four categories: major city, outer regional, inner regional, remote. To control for population needs, we use socio-economic status classifications based on the Socio-Economic Index For Areas (SEIFA) measured in the postcode in which the GP practises and the density of GPs in this area.

In addition to standard measures of productivity, we control for GPs' personality traits. Personality is associated with interpersonal skills and one particular trait, conscientiousness, has been shown to be consistently related to job performance across all occupations (e.g. Barrick et al., 2001, for a meta-analysis). As personality differs substantially by gender (see Stake and Eisele, 2010, for an overview), differences may explain parts of the gender-earnings gap. To measure personality traits, we employ the widely used Big-Five factor model which comprises five dimensions: extraversion, agreeableness, conscientiousness, neuroticism, and openness to experience (John and Srivastava, 2001). Each trait is scored from 1 to 7, with a high score indicating that the personality trait describes the individual very well. The five scales are composed by taking the average

over three items per dimensions (see Table A.1 in the Appendix) where (R) indicates the reverse score.[6]

Extraversion refers to individual differences in sociability, gregariousness, level of activity, and the experience of positive affect. Agreeableness refers to individual differences in altruistic behaviour, trust, warmth, and kindness. Conscientiousness refers to individual differences in self-control, task-orientation, and rule-abiding. Neuroticism refers to individual differences in the susceptibility to distress and the experience of negative emotions such as anxiety, anger, and depression. Openness to Experience refers to individual differences in the propensity for originality, creativity, and the acceptance of new ideas. The same 15-item version of the well-validated Big-Five inventory is used in other longitudinal studies. Cobb-Clark and Schurer (2012) have shown for a similar instrument that the Big-Five measure is reasonably stable over time and small changes in these traits cannot be meaningfully explained by employment related life-events. We therefore assume that in our setting these traits are exogenous.

Further, we control for whether the GP is self-employed. Hundley (2000) shows that gender-earnings differentials are higher for the self-employed than for other occupations because men and women enter self-employment for different reasons: men because they seek to make money and women because they want a more flexible job to accommodate household duties. Self-employed GPs are likely to have higher earnings since a portion of their earnings reflect returns to managerial responsibilities and risks taken. We define self-employment as being either a principal or an associate of a GP's medical practice.

To allow for the impact of economies of scale and scope, we control both for the number of full-time and part-time doctors in the practice. Finally, we control for the gender-mix of the practice by including a variable that indicates whether the respondent works in a mixed or a single sex practice. If discrimination against women is mainly driven by male employers restricting the earnings and promotion opportunities of female doctors, then it can only occur in mixed-gender practices (Gravelle et al., 2011).[7]

[6] In our sample Cronbach's α s are for conscientiousness 0.56, openness to experience 0.63, agreeableness 0.50, extraversion 0.73, and neuroticism 0.80. These are similar or higher to what was found in the BHPS and GSOEP (Heineck and Anger, 2010).

[7] This argument does not hold if discrimination by male employers materialises by locking out female

4 Estimation strategy

We start out by estimating a model of annual gross earnings and decompose the gender-earnings gap for the full sample that pools all age-groups. A crucial extension to this baseline analysis is to adjust for the potential endogeneity in hours worked. Further, we will present the decomposition results for the gender-wage gap to be able to gauge the extent to which observable characteristics that matter for the gender-earnings gap are also influencing the gender-gap in hourly wages. In a second step, we then conduct the earnings decomposition separately for four narrowly defined comparison groups: (1) men and women without children; (2) men and women with children; (3) women with and without children; and (4) men with and without children. For each comparison, we separate the sample into younger (ages < 40) and older (ages $40+$) groups which allows us to test whether gender-differentials in earnings differ by cohorts or over the life cycle. Once the earnings gap is calculated, one can assess the contribution of differences in observable characteristics (from here onwards referred to as "explained contribution") and differences in the effects of these characteristics (from here onwards referred to as "unexplained contribution").

To decompose these differences, we follow Oaxaca and Ransom (1994) by letting $\bar{X}^1 - \bar{X}^2$ be the differences in observable characteristics between group 1 and group 2, and $\hat{\beta}^1 - \hat{\beta}^*$ and $\hat{\beta}^* - \hat{\beta}^2$ be the differences in returns to these characteristics. Thus, the contribution to the difference in average, logarithmatised earnings for group 1 ($\ln \bar{Y}^1$) and group 2 ($\ln \bar{Y}^2$) is:

$$\ln \bar{Y}^1 - \ln \bar{Y}^2 = \overbrace{(\bar{X}^1 - \bar{X}^2)'\hat{\beta}^*}^{\text{Explained contribution}} + \overbrace{[\bar{X}'^1(\hat{\beta}^1 - \hat{\beta}^*) + \bar{X}'^2(\hat{\beta}^* - \hat{\beta}^2)]}^{\text{Unexplained contribution}}, \quad (1)$$

$$\hat{\beta}^* = \Omega\hat{\beta}^1 + (I - \Omega)\hat{\beta}^2. \quad (2)$$

In equation (1), the explained contribution refers to the differences in observed char-

doctors from high earnings practices.

acteristics, whereas the unexplained contribution refers to differences in returns to these characteristics and differences in the constant. The unexplained contribution is sometimes referred to in the literature as 'discrimination', as it contains all factors that are not productivity-related. This argument assumes that all productivity-related factors are observable, which often is not the case. It is more likely that the unexplained part captures unobserved heterogeneity (see Fortin et al., 2011, for a discussion).

One crucial question is which values to choose for $\hat{\beta}^*$, which represents the counterfactual group. Possible candidates are the coefficient vector of group 1 ($\Omega = 1$), of group 2 ($\Omega = 0$), or of a mixed group ($\Omega = (X_1'X_1)/(X_1'X_1 + X_2'X_2)$). The latter denotes the proportion of the squared variation of group 1 characteristics in the total variation of observable characteristics across both groups. In more simple terms, this means that one can estimate all coefficients of interest from a regression that pools both groups, under the assumption that there is no discrimination against any group in the sample (Oaxaca and Ransom, 1994).

In our analysis, we employ the coefficients obtained from a pooled regression for $\hat{\beta}^*$, which assumes that there is no discrimination in the labour market of doctors. The same counter-factual has been applied in e.g. Gittleman and Wolff (2004), Albrecht et al. (2003), and Boden and Galizzi (2003). Using the coefficients of the group with higher earnings would require to make the assumption that the lower earnings group is negatively discriminated against. Using the coefficients of the lower earnings group would require the assumption that the higher paid group is positively favoured in the labour market. Neither of the latter two assumptions appear to be compelling in our context. Since we compare, among others, men (or women) with and without children, we cannot a priori assume that one group or the other is discriminated against on the basis of having a child.[8] To avoid potential biases in the estimated coefficients of β^*, that could lead to an over-statement of the explained differences in earnings, we include a group dummy in the pooled regression (see Elder et al., 2010). Further, to make the decomposition results invariant to the choice of the omitted base category of the dummy variable indicators, we

[8]It should be noted that using the lower-income-group coefficients usually makes the explained part of the decomposition smaller (e.g. Bertrand and Hallock, 2001). This is also true in our empirical setting.

apply the deviation contrast transform (Gardeazabal and Ugidos, 2004; Yun, 2005a,b). Since we pool two waves of data in the analysis, we apply clustered standard errors in all estimation models.

5 Descriptive results on the gender wage gap

5.1 Summary statistics by family status

The overall gender-earnings gap in the raw data is A$92,642, but this average varies substantially depending on the life cycle or family status of the group comparison. For instance, the earnings gap is only A$44,443 between younger men and women or A$55,627 between older men and women GPs who have no children. In stark contrast, the gender-earnings gap is much larger for both younger and older GPs who have children. For instance, among younger GPs the gap is as large as A$104,244, and A$109,705 among older GPs (See Table 2). The 'family gap' (see Table 3) in earnings is also evident for women (or men) with children. The average family penalty for both younger and older women is about A$18,000. For men, however, there appears to be an earnings premium for family. Both younger and older men with children earn about A$40,000 more than their colleagues without children.

The life cycle profile for earnings by family status for each sex group is depicted in Figure 1, which allows for non-linearities in the age effect (kernel regression plot). Women with children have substantially lower earnings up until age 45 (largest difference). At the age of 35, the earnings penalty of children is about 14.8% (A$115,000 versus A$135,000). At age 45 it is equivalent to a gap of 25.7% (A$130,000 versus A$175,000). From thereafter the earnings profiles converge.[9] For men, the income differences by family status are larger at younger ages. At age 35, the family premium peaks at 27.3% (A$220,000 versus A$160,000).[10]

[9]The increasing gap for women (see Figure 1(b)) is statistically significant as the confidence intervals, which are not shown, never overlap up until age 45.

[10]The earnings differences for men with and without children are less pronounced in older age. The confidence intervals, which are not shown, are partially overlapping.

[Insert Figure 1 here]

These raw statistics reveal just how much heterogeneity there is in the gender-earnings gap depending on the counterfactual. For a better understanding of what factors may explain the gender-earnings or family gap, we present in Table 2 the differences in observed characteristics between (younger and older) men and women with and without children. The p-values refer to the z-test statistic of the null hypothesis of equality of means between the two groups considered. Young female GPs work on average ten hours less than young male GPs, see 56 patients less per week, spend about 37 seconds more per patient, and bulk-bill about 11 percentage points fewer of their patients than men. At this young age, female GPs have interrupted their careers by 11.4 months since graduation while male GPs interrupted their careers by less than eight months. Female GPs are almost twice as likely to have interrupted their career by more than one year than male GPs. These differences are statistically significant at the 5% level or better. Women tend to describe themselves as more neurotic (p-value < 0.01) and more conscientious (p-value < 0.05) than men.

Similar patterns occur for the older GPs without children, except for a 20 percentage-points difference in self-employment rates between men and women. Women are generally less strongly attached to the labour market than men, which may be one of the reasons why they treat fewer patients per week, but they also have a higher level of postgraduate training and charge higher standard fees (A$52.55 versus A$49.95, p-value 0.02).

The lower panel of Table 2 illustrates that the weaker labour force attachment of female GPs is even more pronounced for women with children. Among younger GPs, women work 18 hours less than their male counterparts, see 58 patients less per week (combined hospital and private room), have taken 3.5 weeks more of leave or holiday, and have interrupted their careers by 10 more months since graduation than their male colleagues. 45% of female GPs have taken off at least one year since graduation, while only 9% of male GPs have done so. These differences are all significant at the 1% level. It needs to be stressed that male and female GPs with children do not differ in their postgraduate qualification or whether they are a fellow of a college, but they differ marginally in their

rates of self-employment (33% versus 19%, p-value 0.06). Differences in labour supply and labour market attachment continue to grow for the older cohort of GPs. Female GPs with children have accumulated an average of over 24 months of career interruptions (versus 11 months among men), and 50% of them report to have interrupted their career by at least one year (versus 13% among men). Throughout, female GPs charge slightly higher standard fees and bulk-bill a smaller proportion of their patients, which means that they have higher income from their patients. Last, at any age, male and female GPs with children differ markedly in their personality: women tend to be more extraverted (p-value < 0.01), slightly more neurotic (p-value 0.09) and conscientious (p-value 0.01).

[Insert Table 2 here]

Table 3 reports the relevant characteristics for women (or men) with versus without children. It is straightforward to understand why women with children in younger ages earn less than women without children: they work almost 3.5 weeks less per year and 10 hours less per week than women without children; they have about one-third fewer post-graduate qualifications; they see almost 15 patients less per week in their private consulting rooms; they take about 3 more weeks of leave or holiday per year, and they have had longer career interruptions (6 months since graduation). For these comparisons the differences in means are statistically significant at the 1% level.

However, there are no obvious differences in productivity, practice styles or market factor constraints. At later stages of the life cycle many of the differences in labour supply disappear, while differences in earnings persist. The difference in work-hours has fallen from 10 hours to 4.5 hours per week relative to older female GPs who never had any children. Surprisingly, both groups have interrupted their careers on average by about 2 years since graduation, suggesting that women interrupt their careers also for reasons unrelated to child-rearing responsibilities.

[Insert Table 3 here]

For younger men, there seem to be fewer differences in characteristics that could help explain the family-earnings gap. Even though younger male GPs without children earn significantly less than men with children, as seen in Figure 1(a), they do not differ in their labour supply and practice styles. The only notable differences are that men with children are more likely to be self-employed by about 14 percentage points (p-value 0.04). It appears that the breadwinner effect manifests itself through GPs not working harder, but gaining higher returns from their work through self-employment. For older male GPs, more notable differences in labour supply and practice style are observed. For instance, GPs without children work six hours less and see almost 15 fewer patients per week, charge about A$2.80 less per standard consultation, bulk-bill 6.5 percentage points more of their patients (p-value 0.02), and are less likely to be self-employed by about 6 percentage points (p-value 0.06).

6 Estimation results

6.1 Determinants of earnings

So far, we have shown in our descriptive analysis that the gender-earnings gap depends on family status and the life cycle, and that a family premium exists for men, and a family penalty for women. We have also shown that women tend to work less hours and interrupt their careers more often than men, independent of whether they have children or not. In the following sections, we show that these general conclusions hold even when controlling for a wide variety of factors.

We start out with estimating and discussing the results from an earnings model in which we pool all age and household composition groups. The dependent variable is the logarithm of gross annual earnings and the model includes all covariates described in the data section. Full estimation results are presented in column (1) of Tables A.2 and A.3 for women and men, respectively. Overall, the models explain 32% of the variation in earnings for men and 53% of the variation in earnings for women. Note that the larger explained variation in earnings for women may stem from the fact that this group of

women is a highly self-selected and potentially homogeneous group (high IQ, high level of education, professional with a large degree of altruism).

6.2 Gender-earnings gap for pooled sample

How large is the gender-earnings gap, and which factors explain the gap for this pooled sample? Table 4 reports the decomposition results using the Oaxaca-Ransom method as outlined in equations (1) and (2). In this pooled model, the log difference in earnings is 0.542 or 71.9%, which is A$83,517. About two-thirds of this difference is due to differences in observable characteristics (explained contribution), whereas one-third is due to differences in the rewards of these characteristics (unexplained contribution).

The majority of the observed differences in earnings between men and women are due to differences in hours worked which make up 53% of the total raw difference in earnings. If women worked the same number of hours as men, their earnings would be 0.292 log points, or 34%, larger (z-stat=18.7). The second largest contributing factor to explaining the gender-earnings gap is whether the individual is self-employed in the magnitude of about 8% of the total difference. If women were similarly entrepreneurial as men, they would earn 0.044 log points, or 4.5%, more (z-stat=7.6). Practice size also matters, as do population needs to a lesser extent. All other differences in observed characteristics make up less than 0.01 of the log difference in earnings and most of them are not statistically significant at conventional levels.

Also reported in Table 4 are the decomposition results of hourly wages between male and female GPs. The overall difference in hourly wages is much smaller, with a log points difference of 0.162, or 17.6%. Less than 30% of this difference is explained by differences in observable characteristics. The major difference in hourly wages between men and women is due to differences in self-employment (about 20%). Men also tend to work in larger practices, and this difference makes up 7.6% of the overall wage gap. Population needs also contribute to the gap (5.7%), as does labour force attachment (2.2%). All other observable factors explain less than 2% of the gender-wage gap.

[Insert Table 4 here]

6.3 Are work-hours endogenous?

The decomposition results presented so far are based on the assumption that hours of work are exogenous. However, earnings and hours of work are likely to be jointly determined. One explanation for this joint determination is that hours of work are a function of potential earnings that proxy an individual's productivity and/or willingness to engage in the labour market. Another explanation is that, given self-employment and flexibility of hours in general practice, GPs decide on how many hours to work and what prices to charge at the same time. Another explanation could be the omission of other factors such as ability that determine both earnings and hours worked.[11]

Potential endogeneity is addressed by re-estimating the preferred model with a 2SLS approach, in which hours of work are instrumented with 'age of the youngest child'.[12] The instrumental variable is a strong predictor of hours worked for both men and women (F-test statistics are 76.3 for women and 36 for men). Our conclusions about the determinants of the gender-earnings gap do not change in the 2SLS model (see Table 4). Similar to the OLS model, two-thirds of the difference in earnings is explained by differences in observable characteristics. Differences in hours worked between men and women still explain almost 50% of the gender-earnings gap. Differences in self-employment, practice size, and labour force attachment constitute the remaining most important factors that sum to explain about 14.5% of the differences in earnings.

It needs to be further stressed that endogeneity in hours worked may not be a statistical problem either. A Hausman-Wu test statistic for a test of exogeneity of hours worked is not rejected for men (p-value 0.098) and women (p-value 0.048) at the 1% level. These

[11] The omission of ability as a third confounder may be less compelling given our homogeneous sample of equally trained doctors and having controlled for personality traits as an omnibus measure for ability and preferences (see Almlund et al., 2011).

[12] We also included a dummy variable for whether the information on the youngest child is missing from the data. There are 1,169 observations for whom the information on age of the youngest child is missing.

results are almost identical when using alternative single and multiple instruments.[13] This conclusion, in conjunction with the similarity of our decomposition results between OLS and 2SLS, suggest that any further analysis can be conducted with OLS.

6.4 Gender-earnings gap by age-groups and family status

So far, we have shown that the gender-earnings gap of around A$85,000 is predominately determined by differences in observable characteristics such as hours worked. In what follows, we ask whether the differences in earnings between men and women vary substantially by family status. Table 5 presents the decomposition results for both younger (top panel) and older age-groups (bottom panel). Female doctors without children are compared to male doctors without children (Model I), and female doctors with children are compared to male doctors with children (Model II).

We hypothesised that if family factors fully explained the gender-earnings gap, then there should be no difference in earnings between men and women without children. Model I in Table 5 reports the estimation results that test this hypothesis, but we find little evidence in favour of it. First, younger women without children earn 0.317 log points, or 37%, less than younger men without children, which is equivalent to A$45,285. Even though almost three-quarters of the earnings difference is due to differences in observable characteristics, one-quarter still remains unexplained. Differences in hours worked explain 44% of the gender-earnings gap. If women without children worked the same number of hours as men without children, they would earn 15% (0.138 log points) more. Differences in labour force attachment (e.g. holiday or leave taken) make up another 8% of the total

[13] Almost identical decomposition results are obtained when using alternative instrumental variables such as a combination of "the age of the youngest child" and "the partner works part-time", or "having a child under the age of 5". The F-test statistic for having a child under the age of 5 is 82 for women and 26 for men. The p-value of a Hausman-Wu test statistic of the hypothesis that hours worked is not endogenous in this IV setting is 0.12 and 0.41 for men and 0.11 and 0.02 for women. The F-test statistic for combination of "the age of the youngest child" and "the partner works part-time" is 66 for women and 24 for men. The p-value for the Sargan test for an over-identified system is 0.10 for women and 0.03 for men when using the two instrumental variables. Since we cannot reject the hypothesis that our instruments may be somehow correlated with the error term in the earnings equation for men, we prefer to use only one instrument. We do so following Bound et al. (1995) to avoid weak instrument bias when using multiple instruments and when there is a small correlation between the instruments and the error term of the earnings equation. These results are provided upon request.

difference in earnings. If women without children interrupted their careers less often as male GPs do, they would have 2.5% (0.025 log points) higher earnings. Since these are the women who do not have children, it is obvious that their career interruptions are due to reasons other than child-rearing activities. This would suggest that women interrupt their careers for a range of reasons, which we cannot identify with our data. We depart here from Sasser (2005) who finds that men and women physicians without children in the US have similar levels of earnings, by concluding that children are not the only driving force for the gender-earnings gap.

[Insert Table 5 here]

Though the absolute size of the earnings gap is similar for GPs above age 40 (the bottom panel for Model I), only 50% of the gap is accounted for by observable characteristics. Differences in working hours explain only 37% of the gap, while differences in entrepreneurship explain now a larger proportion (7.2% of the gap) compared to the younger age group. Practice size contributes 7.2% to the difference in earnings. Differences in labour force attachment appear to contribute little to the gender-earnings gap for the older age group.

Large differences in earnings are observed when comparing men and women with children (Model II), which are the most common groups in our sample. The gender-earnings gap is 108% (0.73 log points) for the younger age-group, which translates into a difference in gross annual earnings of A$105,091. For this group-comparison, four-fifths of the gap is explained by differences in observable characteristics, mainly due to differences in hours worked (71% of the total difference). If women with children worked the same number of hours as men with children, then they would earn 68.3% (0.521 log points) more than they currently do. Differences in entrepreneurship contribute 2.7%, while differences in personality traits contribute 4.6% to the gap. If women had the same personality traits as men they would earn 3.5% (0.034 log points) more. This is an interesting result because in the pooled sample we could not identify such an effect of personality, and it

was also not found in Cobb-Clark and Tan (2011), who estimated the determinants of the gender-wage gap across all occupations for a nationally-representative Australian sample.

The size of the gender-earnings gap for older age groups remains close to that of the younger age group (0.65 log points or 92%), but a slightly smaller portion of this difference, 69% versus 79%, are explained by observable characteristics. Hours worked contribute less, but still 54% to the overall gap, while entrepreneurship contribute more to the earnings differences by 8.2% compared to the the younger age group. Similar to the comparison between men and women without children, the contribution of differences in entrepreneurship to the overall gap is larger for the older age group (8%). If women were equally entrepreneurial as men, they would earn 5.6% (0.054 log points) more. One explanation for this phenomenon is that doctors at younger ages are less likely to be self-employed, possibly due to credit constraints to finance a practice. Ambitious doctors accumulate more income at younger ages by working longer hours and treating more patients. Having accumulated savings, GPs at older ages are more likely to afford a practice of their own. Last, male GPs with or without children also tend to work in larger practices, which bring in larger profits, than women. Such differences make up another 3.5-7.3% of the overall gap.

6.5 Family-earnings gap

So far, we were able to show that the gender-earnings gap is strongly determined by differences in working hours for all age-groups, especially so for GPs with children. In the following we establish evidence for a family-earnings gap within sex-groups by comparing female doctors with children to female doctors without children (Model III, Table 6) and male doctors with children to male doctors without children (Model IV, Table 6).

Younger women without children earn 25% (0.226 log points), or A$24,543, more than women with children, and four-fifths of this difference can be explained by differences in observable characteristics.[14] The major contributor to the earnings gap is differences in

[14]Note, 129% of the earnings gap are due to observable characteristics, whereas -29% are due to unobservable characteristics, adding up to 100%. The negative percentage figure states that if women with children had the same returns as women without children, they would earn 29% less. In absolute

work hours. If women without children worked the same number of hours as women with children, they would earn 39% (0.33 log points) more. In contrast, if women with children had the same qualifications as women without children, they would earn 4.8% less.

[Insert Table 6 here]

Surprisingly, family-earnings differences do not widen over the life cycle for women with children compared to women without children. The gap between women with and without children narrows from 25% to 12.6%. Moreover, this gap is explained almost entirely by differences in observable characteristics (97%), especially so by hours worked (92%). According to Sasser (2005), the earnings gap needs some time to materialise over the years. If women interrupt their careers at earlier stages, they will feel the earnings penalty later on, as they accumulate less work experience. Yet, we cannot find evidence for this argument in our data. However, we must concede that we are comparing cohorts, and do not observe the same individuals ageing over time. To be able to interpret our older age analysis as life-cycle differences we need to assume that the two cohorts are no different in relevant observable and unobservable characteristics. It may well be that older female GPs resemble pioneers with extreme levels of motivation and persistence, because for them it may have been more difficult to enter medical schools due to prevailing traditional gender-role attitudes.

Last, Model IV of Table 6 displays the decomposition of the earnings differences between men with and without children. We find evidence in favour of a breadwinner effect of children. For instance, younger male GPs without children earn 21.4% (0.194 log points) less than GPs with children, which amounts to A$35,691. Less than 20% of this earnings gap can be explained by differences in observable characteristics. Differences in self-employment, qualifications, market conditions, and labour force attachment contribute to the family-earnings gap, but they contribute little to the overall gap in magnitude or statistical significance (except for the contribution of market conditions).

numbers, the total of 129% + 29% is 158% and thus 129% makes up four-fifth of this total.

A different pattern evolves for older male GPs, although the earnings penalty for no children is similar with 26%. For the older cohort, almost four-fifths of the earnings gap is explained by differences in observable characteristics, and 61% of the gap is explained by differences in work hours alone. If male GPs without children worked the same amount of hours as male GPs with children, they would earn 15.3% more. If they also interrupted less often their careers, they would earn 1.2% more. Male GPs with children appear to be more entrepreneurial and are located in areas with higher demand for their services.

7 Conclusion

This paper has explored the relationship between family factors and the widely observed gap in earnings between female and male GPs using a novel longitudinal survey that has been conducted in Australia since 2008. Our results confirm the importance of having children in explaining the gender-earnings gap. Family factors reflect largely the reduced hours worked by women with children, relative to women without children or to men with or without children.

Our evidence on the existence of a substantial family-earnings gap for Australian doctors is in line with the general evidence of a wage penalty for children (see Waldfogel, 1998, for an overview). Such wage penalties have also been found for highly skilled MBA graduates in the US (Bertrand et al., 2010) and lawyers (Noonan et al., 2005).

A novel finding of our study is that, even though family status is strongly linked with reduced hours of work and longer career interruptions, women without children still earn less than men without children. Our results contradict Sasser (2005) who finds that male and female doctors without children earn similar wages. In our data, female GPs without children tend to interrupt their careers and work fewer hours equally as often. The exact nature of these career breaks cannot be identified, but they may reflect a stronger preference for leisure activities such as time spent travelling or volunteering.

Further, we find ample evidence of a male breadwinner effect. Male GPs with children earn more than male GPs without children independent of the life cycle/cohort. The breadwinner effect states that men increase their labour supply and productivity as a

form of behavioural change to provide for their children. Alternatively, the breadwinner effect may be the result of selection into having families. Men who go on to have children later on in life are generally more productive than those who never have children, and that this productivity makes male doctors also more likely to have children. Our data does not allow us to separate out these two hypotheses, however, Petersen et al. (2011) does not find evidence that selection into having children is a factor in explaining earnings differences. If the family premium for male GPs is truly a breadwinner effect, then this behavioural change exacerbates the gender-earnings differential.

Last, the gender- and family-earnings gaps, if anything, narrow for those over 40 years of age. Whether or not these declining differentials are a life cycle or cohort effect cannot be judged from our data. It may well be that women who became GPs two to three decades ago were different to women who become GPs today. Though we show that the earning gaps narrow between our various group comparisons at different ages, this would need to be confirmed by longitudinal analysis of the same women over time, which will be possible once more waves of the MABEL data become available.

If the gender-pay gap is a result of the choice to start a family and take a career break, then the gap is likely to persist on aggregate and change over time slowly in line with changes in fertility. If this is the case, then medical workforce policy should be designed to manage the cost and productivity implications of these demographic changes in the working population rather than designing pay legislation or equal opportunity frameworks to reduce discrimination. This is particularly the case in medicine, where an ever increasing proportion of physicians are women. In professions with a large or increasing share of women, public policy would have to acknowledge the economic benefits of reducing the costs of career interruptions, such as more flexible training and working hours (e.g. Bertrand et al., 2010).

References

AIHW, 2011. Medical labour force 2009. Bulletin no. 89. Cat. no. AUS 138, AIHW, Canberra.

Albrecht, J., Bjorklund, A., Vroman, S., 2003. Is there a glass ceiling in Sweden? Journal of Labour Economics 21, 145–177.

Almlund, M., Lee Duckworth, A., Heckman, J.J., Kautz, T., 2011. Personality psychology and economics. In E.A. Hanushek, S. Machin, L. Woessmann (Eds.), Handbook of the Economics of Education, vol. 4. North-Holland, pp. 1–181.

Anderson, D.J., Binder, M., Krause, K., 2002. The motherhood wage penalty: Which mothers pay it and why? American Economic Review 92, 354–358.

Baker, L.C., 1996. Differences in earnings between male and female physicians. New England Journal of Medicine 331, 960–964.

Barrick, M.R., Mount, M.K., Judge, T., 2001. Personality and performance at the beginning of the new millennium: What do we know and where do we go next? International Journal of Selection and Assesment 9, 9–30.

Bashaw, D.J., Heywood, J.S., 2001. The gender earnings gap for US physicians: Has equality been achieved? Labour 15, 371–391.

Becker, G., 1985. Human capital, effort, and the sexual division of labor. Journal of Labour Economics 3, S33–S58.

Bensing, J.M., van den Brink-Muinen, A., de Bakker, D.H., 1993. Gender differences in practice style. A Dutch study of general practitioners. Medical Care 31, 219–229.

Bertrand, M., Goldin, C., Katz, L.F., 2010. Dynamics of the gender gap for young professionals in the financial and corporate sectors. American Economic Journal: Applied Economics 2, 228–255.

Bertrand, M., Hallock, K.F., 2001. The gender gap in top corporate jobs. Industrial and Labor Relations Review 55, 3–21.

Blinder, A., 1973. Wage discrimination: Reduced form and structural estimates. Journal of Human Resources 8, 436–455.

Boden, L., Galizzi, M., 2003. Income losses of women and men injured at work. Journal of Human Resources 38, 722–757.

Bound, J., Jaeger, D.A., Baker, R.M., 1995. Problems with instrumental variables estimation when the correlation between the instruments and the endogenous explanatory variable is weak. Journal of the American Statistical Association 90.

Britt, H., Valenti, L., Miller, G., 2005. Determinants of consultation length in Australian general practice. Medical Journal of Australia 183, 68–71.

Cheng, T., Scott, A., Kalb, G., Humphreys, J., Joyce, C., 2011. What factors influence the earnings of GPs and medical specialists in Australia? Evidence from the MABEL Survey. Health Economics doi: 10.1002/hec.1791.

Cobb-Clark, D.A., Schurer, S., 2012. The stability of Big-Five personality traits. Economics Letters 115, 11–15.

Cobb-Clark, D.A., Tan, M., 2011. Noncognitive skills, occupational attainment, and relative wages. Labour Economics 18, 1–13.

Doessel, D., 1990. Towards evaluation in general practice: A workshop on vocational registration. Department of Community Services and Health, Canberra.

Duckett, S., 2007. The Australian Health Care System. Oxford University Press, Oxford.

Elder, T.E., Goddeeris, J.H., Haider, S.J., 2010. Unexplained gaps and Oaxaca–Blinder decompositions. Labour Economics 17, 284–290.

Elston, M., 2009. Women and medicine: The future. Royal College of Physicians, London.

Fortin, N., Firpo, S., Lemieux, T., 2011. Decomposition methods. In O. Ashenfelter, D. Card (Eds.), Handbook of Labour Economics. North-Holland, pp. 1–102.

Gardeazabal, J., Ugidos, A., 2004. More on identification in detailed wage decompositions. The Review of Economics and Statistics 86, 1034–1036.

Gittleman, M., Wolff, E.N., 2004. Racial differences in patterns of wealth accumulation. The Journal of Human Resources 39, 193–227.

Glauber, R., 2008. Race and gender in families and at work. the fatherhood premium. Gender and Society 22, 8–30.

Godegar, G., 2012. Birds of a feather flock together. A study of doctor-patient matching. Journal of Health Economics 31, 296–305.

Gravelle, H., Hole, A., Santos, R., 2011. Measuring and testing for gender discrimination in physician pay: English family doctors. Journal of Health Economics 30, 660–674.

Heineck, G., Anger, S., 2010. The returns to cognitive abilities and personality traits in Germany. Labour Economics 17, 535–546.

Hundley, G., 2000. Male/female earnings differences in self-employment: The effects of marriage, children, and the household division of labor. Industrial and Labor Relations Review 54, 95–114.

Jacobsen, J.P., Rayack, W.L., 1996. Do men whose wives work really earn less? American Economic Review 86, 268–273.

Jagsi, R., Griffith, K.A., Stewart, A., Sambuco, D., DeCastro, R., Ubel, P.A., 2012. Gender differences in the salaries of physician researchers. Journal of the American Medical Association 307, 2410–2417.

John, O., Srivastava, S., 2001. The big-five trait taxonomy: History, measurement, and theoretical perspectives. In L. Pervin, O. John (Eds.), Handbook of Personality: Theory and Research. Guilford Press, New York, pp. 102–138.

Joyce, C., Scott, A., Jeon, S., Humphreys, J., Kalb, G., Witt, J., Leahy, A., 2010. The medicine in australia: Balancing employment and life (MABEL) longitudinal survey – protocol and baseline data for a prospective cohort study of Australian doctors' workforce participation. BMC Health Services Research 10, 50.

Kehrer, B.H., 1976. Factors affecting the incomes of men and women physicians: An exploratory analysis. Journal of Human Resources 11, 526–545.

Korenman, S., Neumark, D., 1991. Does marriage really make men more productive? Journal of Human Resources 26, 282–307.

Kron, J., 2012. Work-wise. the trend towards non-principals in general practice. Australian Doctor 6 July 2012, 40–42.

Langwell, K.M., 1982. Factors affecting the incomes of men and women physicians: Further explorations. Journal of Human Resources 17, 261–275.

Leadley, J., Sloane, R.A., 2011. Women in academic medicine statistics and medical school benchmarking, 2009-2010. Association of American Medical Colleges, Washington, DC.

Loh, E.S., 1996. Productivity differences and the marriage wage premium for white males. Journal of Human Resources 31, 566–589.

Lundberg, S., Rose, E., 2000. Parenthood and the earnings of married men and women. Labour Economics 7, 689–710.

Martin, S., Arnold, R., Parker, R., 1998. Physician gender and medical socialization. Journal of Health and Social Behavior 29, 333–343.

Miller, A., 2011. The effects of motherhood timing on career path. Journal of Population Economics 24, 1071–1100.

Noonan, M., Corcoran, M., Courant, P., 2005. Pay differences among the highly trained: Cohort differences in the sex gap in lawyers' earnings. Social Forces 84, 853–872.

Oaxaca, R., 1973. Male-female wage differentials in urban labor markets. International Economic Review 14, 693–709.

Oaxaca, R.L., Ransom, M.R., 1994. On discrimination and the decomposition of wage differentials. Journal of Econometrics 61, 5–21.

Ohsfeldt, R., Culler, S., 1986. Differences in income between male and female physicians. Journal of Health Economics 5, 335–346.

Petersen, T., Penner, A., Hogsnes, G., 2011. The male marital wage premium: Sorting versus differential pay. Industrial and Labor Relations Review 64, 283–304.

Reyes, J.W., 2008. Gender preference and equilibrium in the imperfectly competitive market for physician services. Eastern Economic Journal 34, 325–346.

Roter, D.L., Hall, J.A., 2002. Physician gender effects in medical communication: A meta-analytic review. Journal of the American Medical Association 288, 756–764.

Roter, D.L., Hall, J.A., 2004. Physician gender and patient-centered communication: A critical review of empirical research. Annual Review of Public Health 25, 497–519.

Sandhu, H., Adams, A., Singleton, L., Clark-Carter, D., Kidd, J., 2009. The impact of gender dyads on doctor-patient communication: A systematic review. Patient Education and Counseling 76, 348–355.

Sasser, A.C., 2005. Gender differences in physician pay. Journal of Human Resources 40, 477–504.

Sasso, A., Richards, M., Chou, C., Gerber, S., 2011. The $16,819 pay gap for newly trained physicians: The unexplained trend of men earning more than women. Health Affairs 30, 193–201.

Saultz, J.W., Lochner, J., 2005. Interpersonal continuity of care and care outcomes: A critical review. Annals of Family Medicine 3, 159–166.

Shih, Y.T., Konrad, T.R., 2007. Factors associated with the income distribution of full-time physicians: a quantile regression approach. Health Services Research 42, 1895–1925.

Stake, J.E., Eisele, H., 2010. Gender and personality. In J.C. Chrisler, D.R. McCreary (Eds.), Handbook of Gender Research in Psychology. Springer, New York, pp. 19–40.

Theurl, E., Winner, H., 2011. The male-female gap in physician earnings: Evidence from a public health insurance system. Health Economics 20, 1184–1200.

Viitanen, T., 2012. The motherhood wage gap in the UK over the life cycle. Review of the Economics of the Household DOI: 10.1007/s11150-012-9145-x.

Waldfogel, J., 1997. The effect of children on women's wages. American Sociological Review 62, 209–217.

Waldfogel, J., 1998. Understanding the "family gap" in pay for women with children. Journal of Economic Perspectives 12, 137–156.

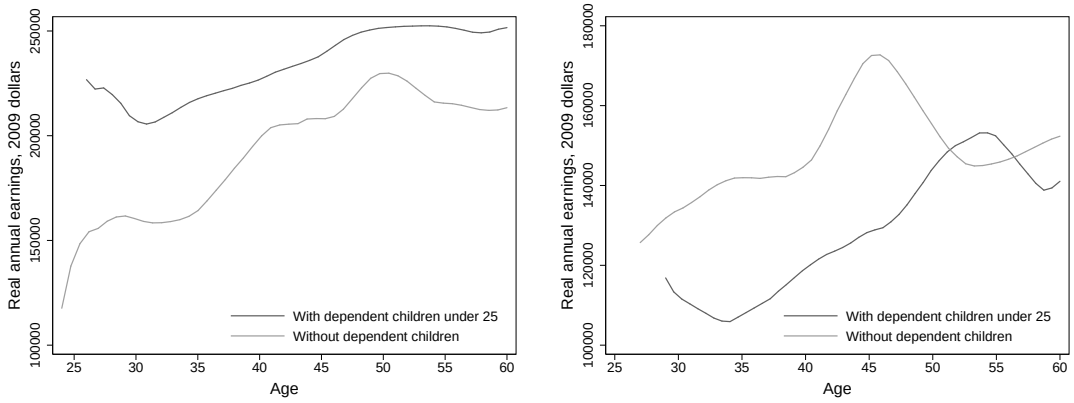
Weeks, W., Wallace, T., Wallace, A., 2009. How do race and sex affect the earnings of primary care physicians? Health Affairs 28, 557–566.

Yun, M.S., 2005a. Hypothesis tests when decomposing differences in the first moment. Journal of Economic and Social Measurement 30, 295–304.

Yun, M.S., 2005b. A simple solution to the identification problem in detailed wage decompositions. Economic Inquiry 43, 766–772.

Table 1: Variables used in subcategories of decomposition analysis

Working hours	Total hours worked (log)
Labour force attachment	Annual weeks worked
	Weeks holiday taken in the past year
	Actual years of experience
	Actual years of experience squared
	Dummy - if GP took more than one year off
Qualifications	Number of postgraduate qualifications
	Dummy - Fellowship of Colleges
Practice style	Minutes spent per patient
	Dummy - minutes spent per patient missing
	% of patients bulk-billed
Market conditions	Fee charged for standard consultation
	Length of wait for an appointment with doctor (days)
Location	Remoteness categories (Major city, inner regional, remote)
Population needs	GP density (Std.)
	SEIFA index (Std.)
Personality	Big Five personality traits
	Extraversion, Agreeableness, Openness to Experience,
	Neuroticism, Conscientiousness
Entrepreneurship	Dummy - self employed
Practice size	Number of full-time doctors in practice
	Number of part-time doctors in practice
Practice mix	Dummy - Mixed gender practice
Year 2009	Dummy - whether the observation is from year 2009



(a) Men (b) Women

Figure 1: Life cycle profile of earnings (kernel regression)

Table 2: The gender gap, by age-group and family status (summary statistics)

	Age 40 and under			Age over 40		
	Men	Women	p-value	Men	Women	p-value
No children						
Age: imputed	34.50	33.80	0.21	61.70	55.50	0.00
Real earnings in 2009 AUSD	177981	133538	0.00	207032	152405	0.00
Weeks worked per year	51.98	51.95	0.54	51.96	51.97	0.73
Total weekly hours	45.11	35.61	0.00	40.71	35.72	0.00
Hourly gross earnings	75.23	74.08	0.78	99.00	82.82	0.00
Fellowship of Colleges	0.73	0.75	0.83	0.42	0.51	0.04
Nr of postgraduate qualifications	0.50	0.91	0.01	0.49	0.67	0.01
Nr of patients seen in private rooms	136.56	90.54	0.00	120.83	93.96	0.00
Nr of patients seen in hospital/others	9.44	7.25	0.04	11.83	8.22	0.00
Fee for std consult	49.95	52.55	0.02	48.27	51.93	0.08
Pct Bulk-bill	66.10	55.54	0.03	68.23	56.56	0.01
Minutes per patient (imputed)	16.81	17.44	0.02	21.83	17.63	0.35
Length of wait for appt (days)	2.00	3.10	0.18	3.77	4.83	0.99
Self-employed	0.19	0.11	0.44	0.58	0.36	0.00
All male practice	0.10	0.00	-	0.28	0.00	-
All female practice	0.00	0.07	-	0.00	0.19	-
Weeks of parental/maternity leave taken	0.02	0.05	0.48	0.04	0.03	0.25
Total weeks of holidays and/or leave	3.99	4.33	0.22	5.03	4.83	0.45
Years not practiced since graduation	0.64	0.95	0.01	0.98	1.89	0.00
If GP took more than one year off	0.10	0.18	0.02	0.09	0.36	0.00
Openness to Experience	0.21	0.14	0.67	0.06	-0.10	0.01
Agreeableness	-0.17	0.05	0.19	-0.04	0.01	0.36
Conscientiousness	-0.30	0.05	0.04	-0.08	0.04	0.77
Extraversion	-0.34	0.02	0.11	-0.03	0.05	0.61
Neuroticism	-0.38	0.24	0.00	0.01	0.07	0.35
N	84	193		661	403	
Children						
Age: imputed	36.47	36.98	0.11	51.31	48.63	0.00
Real earnings in 2009 AUSD	219528	115251	0.00	244329	134624	0.00
Weeks worked per year	51.47	48.92	0.00	51.97	51.91	0.03
Total weekly hours	43.50	25.51	0.00	47.18	31.32	0.00
Hourly gross earnings	98.73	94.56	0.40	100.62	82.35	0.00
Fellowship of Colleges	0.82	0.88	0.15	0.56	0.61	0.06
Nr of postgraduate qualifications	0.60	0.58	0.88	0.60	0.61	0.84
Nr of patients seen in private rooms	124.71	74.60	0.00	136.43	83.45	0.00
Nr of patients seen in hospital/others	14.20	5.99	0.01	12.94	7.82	0.00
Fee for std consult	47.37	50.09	0.08	50.62	52.65	0.03
Pct Bulk-bill	67.20	57.76	0.02	63.54	55.63	0.00
Minutes per patient (imputed)	17.94	17.53	0.96	17.12	17.40	0.66
Length of wait for appt (days)	3.02	4.74	0.11	5.30	5.79	0.93
Self-employed	0.33	0.19	0.06	0.64	0.34	0.00
All male practice	0.18	0.00	-	0.21	0.00	-
All female practice	0.00	0.07	-	0.00	0.14	-
Weeks of parental/maternity leave taken	0.53	3.08	0.00	0.03	0.09	0.21
Total weeks of holidays and/or leave	4.35	6.81	0.00	4.52	4.88	0.52
Years not practiced since graduation	0.71	1.58	0.00	0.94	2.07	0.00
If GP took more than one year off	0.09	0.45	0.00	0.13	0.49	0.00
Openness to Experience	0.08	-0.22	0.06	-0.02	-0.05	0.69
Agreeableness	-0.16	0.05	0.34	0.01	0.11	0.23
Conscientiousness	-0.09	0.10	0.10	-0.09	0.07	0.01
Extraversion	-0.23	0.13	0.00	-0.13	0.16	0.00
Neuroticism	-0.26	0.06	0.11	-0.10	0.09	0.09
N	185	268		1005	819	

Sample weights are applied to construct group means.

Table 3: The family gap, by age-group and gender (summary statistics)

	Age 40 and under			Age over 40		
	No child	Child	p-value	No child	Child	p-value
Women						
Age: imputed	33.80	36.98	0.00	55.50	48.63	0.00
Real earnings in 2009 AUSD	133538	115251	0.02	152405	134624.73	0.01
Weeks worked per year	51.95	48.92	0.00	51.97	51.91	0.08
Total weekly hours	35.61	25.51	0.00	35.72	31.32	0.00
Hourly gross earnings	74.08	94.56	0.00	82.82	82.35	0.87
Fellowship of Colleges	0.75	0.88	0.00	0.51	0.61	0.01
Nr of postgraduate qualifications	0.91	0.58	0.01	0.67	0.61	0.38
Nr of patients seen in private rooms	90.54	74.60	0.01	93.96	83.45	0.01
Nr of patients seen in hospital/others	7.25	5.99	0.56	8.22	7.82	0.78
Fee for std consult	52.55	50.09	0.08	51.93	52.65	0.48
Pct Bulk-bill	55.54	57.76	0.54	56.56	55.63	0.70
Minutes per patient (imputed)	17.44	17.53	0.94	17.63	17.40	0.83
Length of wait for appt (days)	3.10	4.74	0.02	4.83	5.79	0.11
Self-employed	0.11	0.19	0.08	0.36	0.34	0.67
All male practice	0.00	0.00	.	0.00	0.00	.
All female practice	0.07	0.07	0.81	0.19	0.14	0.08
Weeks of parental/maternity leave taken	0.05	3.08	0.00	0.03	0.09	0.08
Total weeks of holidays and/or leave	4.33	6.81	0.00	4.83	4.88	0.81
Years not practiced since graduation	0.95	1.58	0.00	1.89	2.07	0.36
If GP took more than one year off	0.18	0.45	0.00	0.36	0.49	0.00
Openness to Experience	0.14	-0.22	0.00	-0.10	-0.05	0.57
Agreeableness	0.05	0.05	1.00	0.01	0.11	0.20
Conscientiousness	0.05	0.10	0.64	0.04	0.07	0.67
Extraversion	0.02	0.13	0.32	0.05	0.16	0.13
Neuroticism	0.24	0.06	0.12	0.07	0.09	0.83
N	193	268		403	819	
Men						
Age: imputed	34.50	36.47	0.00	61.70	51.31	0.00
Real earnings in 2009 AUSD	177981	219528	0.01	207032	244329	0.00
Weeks worked per year	51.98	51.47	0.00	51.96	51.97	0.49
Total weekly hours	45.11	43.50	0.32	40.71	47.18	0.00
Hourly gross earnings	75.23	98.73	0.00	99.00	100.62	0.57
Fellowship of Colleges	0.73	0.82	0.18	0.42	0.56	0.00
Nr of postgraduate qualifications	0.50	0.60	0.46	0.49	0.60	0.04
Nr of patients seen in private rooms	136.56	124.71	0.23	120.83	136.43	0.00
Nr of patients seen in hospital/others	9.44	14.20	0.12	11.83	12.94	0.39
Fee for std consult	49.95	47.37	0.14	48.27	50.62	0.00
Pct Bulk-bill	66.10	67.20	0.80	68.23	63.54	0.02
Minutes per patient (imputed)	16.81	17.94	0.51	21.83	17.12	0.28
Length of wait for appt (days)	2.00	3.02	0.09	3.77	5.30	0.00
Self-employed	0.19	0.33	0.04	0.58	0.64	0.06
All male practice	0.10	0.18	0.13	0.28	0.21	0.02
All female practice	0.00	0.00	.	0.00	0.00	.
Weeks of parental/maternity leave taken	0.02	0.53	0.00	0.04	0.03	0.49
Total weeks of holidays and/or leave	3.99	4.35	0.32	5.03	4.52	0.01
Years not practiced since graduation	0.64	0.71	0.59	0.98	0.94	0.75
If GP took more than one year off	0.10	0.09	0.77	0.09	0.13	0.06
Openness to Experience	0.21	0.08	0.50	0.06	-0.02	0.19
Agreeableness	-0.17	-0.16	0.97	-0.04	0.01	0.40
Conscientiousness	-0.30	-0.09	0.20	-0.08	-0.09	0.86
Extraversion	-0.34	-0.23	0.53	-0.03	-0.13	0.11
Neuroticism	-0.38	-0.26	0.47	0.01	-0.10	0.09
N	84	185		661	1005	

Sample weights are applied to construct group means.

Table 4: Oaxaca Blinder decomposition of earnings differences: 2SLS results

	Log annual earnings						Log hourly wages		
	OLS			IV (2SLS)			OLS		
	Diff	z-stat (1)	%	Diff	z-stat (2)	%	Diff	z-stat (3)	%
Men	12.204	830.443		12.204	989.986		4.491	363.218	
Women	11.662	701.82		11.662	857.661		4.328	368.088	
Log difference	0.542	24.431		0.542	29.091		0.162	9.51	
Difference in AUD	83517			83517			13.35		
Difference characteristics	0.37	18.852	68.274	0.348	13.939	64.24	0.045	3.793	27.704
Difference returns	0.172	8.424	31.726	0.194	7.337	35.76	0.117	5.968	72.296
Due to differences in observable characteristics									
Working hours	0.289	18.729	53.392	0.258	8.091	47.538			
Labor force attachment	0.012	1.49	2.257	0.014	1.84	2.664	-0.004	-0.416	-2.177
Qualifications	-0.002	-0.891	-0.319	-0.002	-1.03	-0.328	-0.002	-0.743	-0.943
Practice style	0.001	0.247	0.147	0.002	0.498	0.277	-0.001	-0.218	-0.44
Market conditions	-0.004	-1.474	-0.693	-0.004	-1.68	-0.747	-0.003	-1.243	-1.932
Location	0.001	0.475	0.164	0.001	0.658	0.218	0	-0.007	-0.008
Population needs	0.01	2.893	1.845	0.01	3.357	1.921	0.009	2.685	5.718
Personality	0.004	0.82	0.676	0.004	0.876	0.655	0.004	0.871	2.42
Entrepreneurship	0.044	7.585	8.147	0.049	7.284	9.065	0.032	5.964	19.527
Practice size	0.016	4.51	2.997	0.018	4.538	3.281	0.012	3.589	7.623
Mixed practice	-0.001	-0.51	-0.228	-0.001	-0.475	-0.195	-0.002	-0.776	-1.181
Year 2009	-0.001	-0.925	-0.112	-0.001	-0.714	-0.11	-0.001	-2.024	-0.904
Due to differences in constant									
Constant	0.905	2.575	166.935	-0.355	-0.504	-65.541	-0.306	-0.873	-188.292
N	1935	1683		1935	1683		1935	1683	

Pooled samples. IVs used age of youngest child and dummy if age of youngest child missing. The F-test statistic of the first stage regression that tests for the statistical insignificance of the two instruments is 76.3 for women and 36 for men. The p-value for a Hausman-Wu test statistic of no endogeneity in hours worked is 0.05 for women and 0.10 for men.

Table 5: Oaxaca Blinder decomposition of gender-earnings differences (logarithm), by family status and age

	Model I: No child			Model II: Children		
	Diff	z-stat	%	Diff	z-stat	%
Ages 40 and under						
Men	12.024	242.858		12.218	324.236	
Women	11.707	368.031		11.481	280.698	
Log difference	0.317	5.386		0.737	13.250	
Difference characteristics	0.225	4.759	71.013	0.584	10.000	79.239
Difference returns	0.092	1.694	28.987	0.153	2.956	20.761
Due to differences in observable characteristics						
Working hours	0.138	4.665	43.549	0.521	10.472	70.764
Labor force attachment	0.025	1.995	7.989	0.004	0.182	0.537
Qualifications	0.005	0.298	1.521	-0.013	-1.227	-1.783
Practice style	0.023	1.274	7.130	-0.009	-0.853	-1.201
Market conditions	-0.016	-1.351	-5.113	0.004	0.561	0.599
Location	-0.001	-0.267	-0.412	-0.004	-0.421	-0.524
Population needs	0.017	1.451	5.361	0.017	1.634	2.325
Personality	0.012	0.681	3.886	0.034	2.154	4.625
Entrepreneurship	0.012	1.243	3.729	0.020	2.042	2.689
Practice size	0.015	1.391	4.875	0.002	0.159	0.207
Mixed practice	-0.006	-0.817	-1.824	0.007	0.832	0.889
Year 2009	0.001	0.200	0.321	0.001	0.597	0.112
Due to differences in constant						
Constant	8.207	2.670	2589.227	-0.156	-0.185	-21.108
N	84	193		185	268	
Age over 40						
Men	12.072	415.808		12.303	691.854	
Women	11.774	366.104		11.656	464.601	
Log difference	0.298	6.877		0.648	21.063	
Difference characteristics	0.148	3.978	49.750	0.452	16.048	69.803
Difference returns	0.150	4.050	50.250	0.196	6.567	30.197
Due to differences in observable characteristics						
Working hours	0.110	3.999	36.945	0.348	15.085	53.695
Labor force attachment	-0.014	-0.810	-4.569	0.020	1.854	3.148
Qualifications	0.001	0.264	0.311	-0.000	-0.082	-0.015
Practice style	0.002	0.303	0.754	0.002	0.458	0.260
Market conditions	-0.003	-0.473	-1.022	-0.005	-1.386	-0.742
Location	-0.001	-0.341	-0.304	0.007	1.677	1.135
Population needs	0.011	1.847	3.718	0.008	1.205	1.200
Personality	-0.001	-0.168	-0.392	-0.003	-0.396	-0.412
Entrepreneurship	0.021	2.658	7.156	0.054	5.991	8.270
Practice size	0.022	2.085	7.246	0.023	4.037	3.527
Mixed practice	-0.001	-0.270	-0.332	0.001	0.375	0.163
Year 2009	0.001	0.733	0.240	-0.003	-2.187	-0.425
Due to differences in constant						
Constant	0.613	0.803	205.827	2.216	3.221	342.180
N	661	403		1005	819	

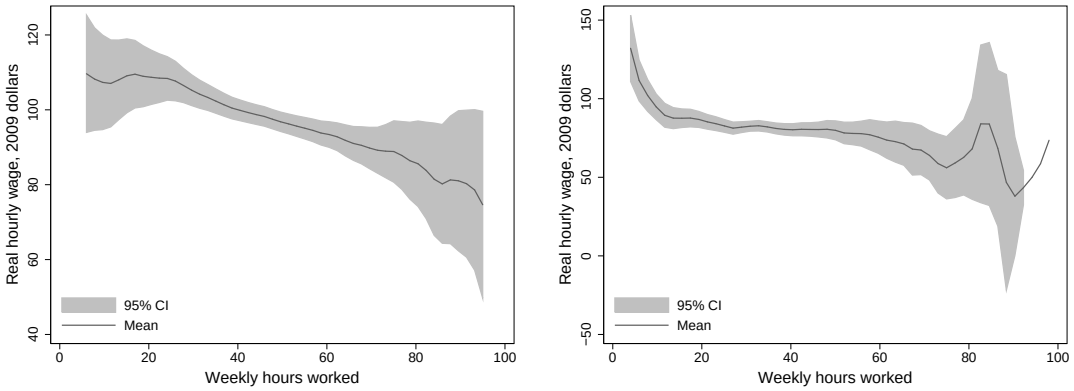
The z-statistic refers to the the hypothesis that the contribution to the gender-earnings differential is statistically significant.

Table 6: Oaxaca Blinder decomposition of family-earnings differences (logarithm), by sex and age

	Model III: Women			Model IV: Men		
	Diff	z-stat	%	Diff	z-stat	%
Ages 40 and under						
No Child	11.707	368.335		12.024	242.781	
Children	11.481	280.717		12.218	323.887	
Log difference	0.226	4.383	.	-0.194	-3.121	.
Difference characteristics	0.293	5.709	129.536	-0.034	-0.699	17.528
Difference returns	-0.067	-1.591	-29.536	-0.160	-2.814	82.472
Due to differences in observable characteristics						
Working hours	0.328	8.090	145.274	0.021	0.858	-10.929
Labor force attachment	0.036	1.352	16.134	-0.018	-1.107	9.391
Qualifications	-0.047	-3.189	-20.944	-0.029	-1.524	14.995
Practice style	-0.001	-0.168	-0.515	0.005	0.438	-2.444
Market conditions	-0.002	-0.288	-0.943	0.027	2.154	-14.152
Location	0.001	0.349	0.348	-0.007	-0.544	3.546
Population needs	-0.010	-1.391	-4.415	-0.012	-0.908	6.283
Personality	-0.000	-0.011	-0.048	-0.005	-0.328	2.629
Entrepreneurship	-0.014	-1.865	-6.140	-0.020	-1.574	10.522
Practice size	-0.001	-0.280	-0.507	0.003	0.570	-1.693
Mixed practice	0.000	0.253	0.131	0.003	0.462	-1.318
Year 2009	0.003	0.662	1.163	-0.001	-0.552	0.701
Due to differences in constant						
Constant	-1.049	-1.253	-464.725	7.313	2.350	-3768.450
N	193	268		84	185	
Age over 40						
No child	11.774	366.123		12.072	415.895	
Children	11.656	464.507		12.303	691.823	
Log difference	0.119	2.933		-0.231	-6.841	
Difference characteristics	0.115	3.504	97.089	-0.183	-6.691	79.177
Difference returns	0.003	0.113	2.911	-0.048	-1.546	20.823
Due to differences in observable characteristics						
Working hours	0.109	4.203	92.224	-0.143	-7.592	61.771
Labor force attachment	0.011	0.929	9.291	-0.012	-0.663	5.205
Qualifications	-0.001	-0.394	-1.113	0.003	0.748	-1.247
Practice style	-0.002	-0.540	-1.811	0.003	0.955	-1.312
Market conditions	0.002	0.720	1.827	-0.012	-2.329	5.399
Location	-0.003	-0.950	-2.496	-0.001	-0.142	0.239
Population needs	-0.000	-0.222	-0.374	-0.008	-2.012	3.524
Personality	0.002	0.626	2.098	-0.002	-0.317	0.725
Entrepreneurship	0.004	0.654	3.556	-0.008	-1.938	3.406
Practice size	-0.006	-1.330	-4.807	-0.007	-1.325	2.938
Mixed practice	-0.002	-0.951	-1.889	0.001	0.589	-0.393
Year 2009	0.001	0.596	0.582	0.002	1.497	-1.079
Due to differences in constant						
Constant	-0.081	-0.099	-68.551	-1.684	-2.719	729.093
N	403	819		661	1005	

The z-statistic refers to the the hypothesis that the contribution to the gender-earnings differential is statistically significant.

APPENDIX



(a) Men (b) Women

Figure A.1: Hourly wage versus hours worked (kernel regression)

Table A.1: Big-Five Personality Traits in MABEL

Extraversion	**Agreeableness**	**Conscientiousness**	**Neuroticism**	**Openness to Experience**
Communicative	Rude to others	Thorough	Worried	Original
Outgoing	Forgiving	Lazy (R)	Nervous	Artistic
Reserved (R)	Considerate	Effective	Relaxed (R)	Imaginative

R=Reversed score, each sub-category is coded between 1=does not apply and 7=applies to me perfectly.

Table A.2: Estimation results for women, by age-groups

	Pooled		Under 40		Over 40	
	OLS	2SLS	No child	Children	No child	Children
	(1)	(2)	(3)	(4)	(5)	(6)
Openness to Experience (Std)	-0.006	-0.004	0.014	-0.003	0.022	-0.016
	(0.012)	(0.012)	(0.026)	(0.028)	(0.024)	(0.017)
Agreeableness (Std)	-0.021	-0.023	-0.078**	-0.006	-0.018	-0.010
	(0.012)	(0.013)	(0.029)	(0.026)	(0.028)	(0.018)
Conscientiousness (Std)	0.004	0.007	-0.021	0.059*	-0.025	0.001
	(0.013)	(0.013)	(0.028)	(0.030)	(0.032)	(0.017)
Extraversion (Std)	-0.001	-0.002	0.020	-0.027	-0.040	0.017
	(0.013)	(0.013)	(0.030)	(0.028)	(0.031)	(0.017)
Neuroticism (Std)	-0.042***	-0.044***	-0.024	-0.026	-0.062*	-0.034
	(0.012)	(0.012)	(0.022)	(0.026)	(0.026)	(0.018)
Fellowship of Colleges (0,1)	0.071**	0.069**	0.217**	0.188*	0.004	0.032
	(0.026)	(0.026)	(0.073)	(0.078)	(0.051)	(0.038)
Nr of postgraduate qualifications	-0.025*	-0.022	-0.022	-0.015	-0.012	-0.009
	(0.012)	(0.012)	(0.019)	(0.029)	(0.030)	(0.023)
ASGC: Inner regional (0,1) (Excl: Maj City)	0.014	0.019	-0.102	-0.013	-0.034	0.076
	(0.033)	(0.033)	(0.071)	(0.064)	(0.080)	(0.050)
ASGC: Others (0,1)	0.057	0.079*	0.140	-0.074	-0.032	0.176***
	(0.038)	(0.040)	(0.094)	(0.085)	(0.092)	(0.052)
Ratio GP population	-0.012	-0.014	0.013	-0.039*	0.025	-0.026
	(0.012)	(0.012)	(0.033)	(0.019)	(0.025)	(0.014)
Ratio GP pop miss	0.050	0.066	0.027	0.083	-0.043	0.032
	(0.039)	(0.040)	(0.080)	(0.079)	(0.087)	(0.063)
SEIFA index (Std.)	-0.012	-0.014	-0.003	-0.067	-0.024	-0.001
	(0.015)	(0.015)	(0.036)	(0.036)	(0.032)	(0.021)
Mixed gender practice (0,1)	0.066	0.068	0.218	-0.226*	0.102	0.066
	(0.037)	(0.037)	(0.130)	(0.092)	(0.061)	(0.054)
Length of wait for appt (days)	-0.001	-0.001	0.007	-0.004	-0.003	-0.002
	(0.001)	(0.001)	(0.004)	(0.003)	(0.003)	(0.001)
Fee for standard consultation	-0.001	-0.000	0.006	-0.004	-0.002	-0.000
	(0.001)	(0.001)	(0.004)	(0.003)	(0.003)	(0.002)
Fee for standard consult missing (0,1)	-0.081	-0.077	0.397	-0.259	-0.047	-0.112
	(0.076)	(0.076)	(0.231)	(0.185)	(0.153)	(0.125)
Pct Bulk-bill	-0.000	0.000	0.002	-0.001	-0.000	-0.000
	(0.000)	(0.000)	(0.001)	(0.001)	(0.001)	(0.001)
Minutes per patient (imputed)	-0.005***	-0.004***	-0.004	-0.007***	-0.004	-0.004*
	(0.001)	(0.001)	(0.003)	(0.002)	(0.002)	(0.002)
Throughput missing (0,1)	-0.072	-0.065	-0.031	-0.135	-0.087	-0.042
	(0.038)	(0.038)	(0.104)	(0.095)	(0.078)	(0.052)
Log of total hours	0.830***	0.685***	0.557***	0.885***	0.852***	0.856***
	(0.028)	(0.077)	(0.096)	(0.063)	(0.071)	(0.046)
Weeks worked (less total time away)	0.004	0.008	0.027	0.001	0.011	0.007
	(0.003)	(0.004)	(0.017)	(0.004)	(0.011)	(0.010)
Weeks holiday taken	0.001	0.001	0.027	0.015	0.008	-0.000
	(0.005)	(0.005)	(0.017)	(0.010)	(0.012)	(0.012)
Yrs medical practice experience	0.002	0.003	0.008	-0.010	-0.002	0.004
	(0.001)	(0.001)	(0.010)	(0.009)	(0.003)	(0.003)
If GP took more than one year off (0,1)	-0.026	-0.050*	-0.072	-0.066	-0.018	-0.016
	(0.022)	(0.025)	(0.079)	(0.056)	(0.050)	(0.032)
Self-employed (0,1)	0.189***	0.222***	0.070	0.181**	0.087	0.237***
	(0.026)	(0.031)	(0.108)	(0.060)	(0.052)	(0.038)
Year 2009 (0,1)	0.010	0.015	-0.044	0.052	0.014	0.027
	(0.018)	(0.018)	(0.055)	(0.049)	(0.040)	(0.026)
Constant	8.634***	8.897***	7.623***	9.176***	8.384***	8.297***
	(0.200)	(0.227)	(0.907)	(0.330)	(0.645)	(0.576)
N	1683	1683	193	268	403	819
F	51	24	6	22	10	30
R-squared	0.528	0.518	0.312	0.634	0.432	0.563
RMS error	0.398	0.399	0.338	0.355	0.420	0.401
F-test (first stage)		76.335				
Endogeneity - p		0.048				

All models apart from (2) are estimated with OLS, clustered standard errors are in parentheses. The instrumental variable used in the 2SLS model is "the age of the youngest dependent child" (and an indicator for whether this information is missing). * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table A.3: Estimation results for men, by age-groups

	Pooled		Under 40		Over 40	
	OLS	2SLS	No child	Children	No child	Children
	(1)	(2)	(3)	(4)	(5)	(6)
Openness to Experience (Std)	-0.047***	-0.047***	0.052	-0.079*	-0.051*	-0.038*
	(0.013)	(0.013)	(0.040)	(0.036)	(0.025)	(0.017)
Agreeableness (Std)	-0.046***	-0.042***	-0.024	-0.015	-0.053*	-0.049**
	(0.012)	(0.013)	(0.045)	(0.034)	(0.022)	(0.017)
Conscientiousness (Std)	0.033*	0.027*	-0.012	-0.041	0.057*	0.034*
	(0.013)	(0.013)	(0.045)	(0.032)	(0.022)	(0.017)
Extraversion (Std)	0.026	0.023	0.015	-0.081*	0.002	0.053**
	(0.013)	(0.014)	(0.050)	(0.035)	(0.023)	(0.018)
Neuroticism (Std)	-0.040**	-0.046**	0.024	-0.111**	-0.046*	-0.029
	(0.014)	(0.014)	(0.053)	(0.033)	(0.023)	(0.019)
Fellowship of Colleges (0,1)	0.020	0.018	0.345**	0.346***	-0.072	0.002
	(0.026)	(0.026)	(0.106)	(0.076)	(0.046)	(0.035)
Nr of postgraduate qualifications	-0.009	-0.011	0.028	-0.035	0.035	-0.015
	(0.014)	(0.014)	(0.030)	(0.030)	(0.027)	(0.019)
ASGC: Inner regional (0,1) (Excl: Maj City)	-0.018	-0.016	-0.018	-0.244**	-0.032	0.008
	(0.034)	(0.035)	(0.120)	(0.091)	(0.063)	(0.046)
ASGC: Others (0,1)	0.006	-0.005	-0.115	-0.005	-0.090	0.058
	(0.040)	(0.040)	(0.132)	(0.071)	(0.081)	(0.056)
Ratio GP population	-0.028	-0.025	-0.064	-0.069**	-0.051	-0.005
	(0.015)	(0.015)	(0.051)	(0.024)	(0.026)	(0.019)
Ratio GP pop miss	0.020	0.006	0.368**	0.047	0.032	0.013
	(0.041)	(0.042)	(0.114)	(0.086)	(0.087)	(0.060)
SEIFA index (Std.)	-0.050**	-0.044**	-0.083	-0.050	-0.069*	-0.046*
	(0.016)	(0.017)	(0.048)	(0.033)	(0.031)	(0.023)
Mixed gender practice (0,1)	0.031	0.038	0.082	-0.087	0.050	0.008
	(0.031)	(0.032)	(0.143)	(0.073)	(0.057)	(0.040)
Length of wait for appt (days)	0.001	0.001	-0.032**	-0.003	0.003	0.001
	(0.001)	(0.002)	(0.012)	(0.005)	(0.003)	(0.002)
Fee for standard consultation	0.005***	0.005***	-0.003	0.006	0.007*	0.006***
	(0.001)	(0.001)	(0.005)	(0.003)	(0.003)	(0.002)
Fee for standard consult missing (0,1)	0.211*	0.212*	-0.387	0.189	0.147	0.372***
	(0.083)	(0.085)	(0.260)	(0.186)	(0.161)	(0.106)
Pct bulk-bill	0.001	0.001	0.004	0.000	0.001	0.001
	(0.001)	(0.001)	(0.002)	(0.001)	(0.001)	(0.001)
Minutes per patient (imputed)	-0.000*	-0.000*	0.003	-0.006*	-0.000**	-0.001
	(0.000)	(0.000)	(0.005)	(0.002)	(0.000)	(0.001)
Throughput missing (0,1)	0.063	0.072*	0.079	-0.092	0.157**	-0.058
	(0.032)	(0.033)	(0.192)	(0.117)	(0.055)	(0.044)
Log of total hours	0.762***	1.068***	0.639***	0.665***	0.886***	0.546***
	(0.043)	(0.182)	(0.172)	(0.157)	(0.057)	(0.062)
Weeks worked (less total time away)	-0.011*	-0.015**	-0.143*	0.013	-0.013	-0.012
	(0.005)	(0.005)	(0.065)	(0.017)	(0.008)	(0.007)
Weeks holiday taken	-0.011	-0.008	-0.109	0.009	-0.009	-0.016
	(0.006)	(0.006)	(0.063)	(0.020)	(0.009)	(0.009)
Yrs medical practice experience	-0.000	0.002	0.018	0.014	0.001	0.000
	(0.001)	(0.002)	(0.013)	(0.010)	(0.003)	(0.003)
If GP took more than one year off (0,1)	0.005	0.028	0.132	0.287**	0.109	-0.060
	(0.037)	(0.041)	(0.108)	(0.108)	(0.071)	(0.050)
Self-employed (0,1)	0.137***	0.076	0.196	0.161*	0.075	0.151***
	(0.026)	(0.043)	(0.098)	(0.073)	(0.048)	(0.034)
Year 2009 (0,1)	0.024	0.031	0.077	-0.012	-0.024	0.082**
	(0.019)	(0.020)	(0.083)	(0.050)	(0.035)	(0.027)
Constant	9.477***	8.468***	16.100***	8.504***	9.018***	10.385***
	(0.303)	(0.663)	(3.604)	(0.817)	(0.490)	(0.429)
N	1935	1935	84	185	661	1005
F	32	17	.	7	24	10
R-squared	0.324	0.295	0.429	0.414	0.443	0.182
RMS error	0.452	0.459	0.315	0.352	0.476	0.441
F-test (first stage)		36.004				
Endogeneity - p		0.098				

All models apart from (2) are estimated with OLS, clustered standard errors are in parentheses. The instrumental variable used in the 2SLS model is "the age of the youngest dependent child" (and an indicator for whether this information is missing). * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.