

Introduction

The provision of appropriate incentives to attract workers to the health industry is paramount in advancing any economy. For developed countries such as Australia, the increasing demand for health services that results from an aging population places an even greater desire to understand the nature of the health profession's labour force. As the increasing demand for health care requires a coordinated effort amongst all health professions, this paper departs from the previous literature where analysis is constrained to a single profession, namely physicians. The extent to which a number of economic and demographic factors affect an individual's prospect of choosing a health profession over all other occupations is identified. In particular, this paper isolates the effect of wages, working hours, experience, age, gender and university education on the probability of being a health professional. The policy implications arising from these findings are subsequently discussed.

The supply and demand for all types of health services is derived from the demand for better health. On the demand side, the desire by individuals for better health outcomes is driven by desire to improve their quality of life. That is, better health results in higher levels of happiness, life expectancy, earnings etc. Similarly, the demand for such health outcomes necessitates the supply of physicians and carers, thus establishing a health profession. Since the demand for health services increases substantially with an aging population, the need to supply an efficient allocation of health professionals from a diminished labour force is of crucial importance in achieving better health. Indeed, evidence from

current supply and demand of full time general practitioners suggests that the current deficit the supply of general practitioners is expected to increase substantially over the coming decade (**Figure 1**). Further, according to the NSW Nurses' Association, both the NSW auditor-general's office and the Australian Institute of Health and Welfare (AIHW) have found "the nursing workforce is ageing and Australia faces a critical shortage in the years ahead as many current nurses retire" (2006). Thus, any attempt by policy makers to resolve the shortfall in the supply of health professionals requires an understanding of the economic factors, which provide these workers with an incentive to enter the health industry.

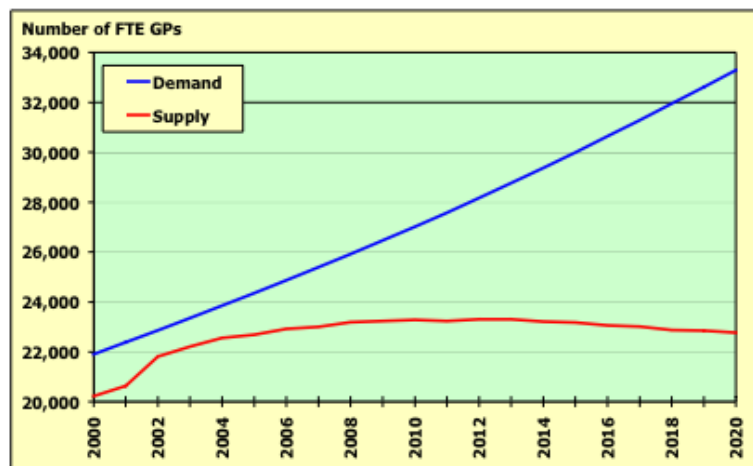


Figure 1: Long term projections of the supply and demand for GP services

Source: Access Economics (2002, p. 24)

Literature regarding the economic determinants of the health profession is sparse. Since doctors represent the prototypical health professional, the existing literature, not surprisingly, has focused quite narrowly upon physician speciality choice. However, as doctors are unable to provide comprehensive health services, it is in my opinion that characterising the economic determinants of the health profession as a whole is of greater importance. That is, this paper draws

upon the theoretical framework established in these papers, but applies it to all health professions.

By using data from the Household, Income and Labour Dynamics in Australia (HILDA) survey, I find that the possession of a university degree, greater tenure are key determinants in improving the likelihood of an individual specialising in the health profession. Contrary to the established literature, a worker's age and number of hours worked, have no bearing on an individual's decision to remain as a health professional. Finally, I find that females are more likely to be in the health profession than males. The results suggest that in order to attract more workers into the health profession, the most effective policies must improve the incentive to obtain a university qualification, guarantee longer tenures in health occupations, provide higher wages and target females.

Literature Review

Seminal work by McKay (1990) provides initial analyses of the economic determinants of speciality choice amongst Resident physicians. Indeed, prior to McKay's work, "few studies have examined the effect of economic factor on physician specialty choice" with those that do omitting the number of hours worked (pg. 336). In other words, the motivational factors behind physician specialty choice, at least anecdotally up to this point were typically based on altruistic reasons or other non-monetary factors. By using a logistic regression, McKay determines how elastic the percentage of residents in a given specialty

are to changes in relative hours worked, relative income and relative training period. A percentage increase in the relative hours worked in a given speciality, for example, leads to a more than proportionate reduction in the percentage of residents in a specialty. By comparison, the percentage of residents in a specialty is relatively inelastic to changes in income. Finally, relative training periods for each specialty have no effect on the distribution of specialties.

This paper draws upon McKay's (1990) contributions in three ways. Firstly, since doctors are influenced by economic factors, this paper by extrapolation, will determine whether economic factors influence the decision by individuals to either enter the health profession or not. As a result, a logistic specification will also be adopted in this paper. Most importantly however, the isolation of each economic factor allows strong policy implications to be made. McKay argues that rather than providing monetary incentives, changes in the relative hours worked are a more effective way to induce physicians into entering more desirable specialties.

McKay's work is not without criticism. Given the use of reported physician income is conditional upon a given specialty, a potential selection bias issue arises where non-monetary incentives correlate with higher paying specialties. Gagne and Leger (2005) avoid this potential issue by taking advantage of Canada's exclusive fee for service system. That is, since doctors in Canada are paid based on the services provided rather than their specialisation, the use of these payments can act as a proxy for income. As a result, Gagne and Leger find

that an increase in consultation fees leads to a more than proportionate change in the number of doctors willing to specialise into surgery. In other words, the decision to specialise is income elastic.

Finally, Thornton (2000) extends the work of McKay by incorporating a number of additional explanatory variables. Whereas McKay focuses on three economic factors, Thornton argues that the addition of demographic and non-economic variables is also of key importance. In this case, the economic variables modelled by Thornton include expected earnings, hours worked and malpractice risk. Moreover, the effects of medical school debt, residency training program, foreign training and gender were also incorporated into Thornton's specifications.

In using a sample of medical school graduates from Arizona, Thornton's estimation results from a logistic regression lead to two main findings. Firstly, the decision to specialise is elastic to changes in working hours and net income. That is, economic factors are important in the decision by physicians to specialise. As importantly, however, is the finding that non-economic factors such as gender and foreign training influence a physician's decision to enter primary care specialties such as general practice, paediatrics and internal medicine. Where these specialties are most desirable to an economy, policies that induce more females to enter medical school or a greater influx of foreign graduates are most effective.

Thus, this paper combines the theoretical framework of both McKay (1990) and Thornton (2000). Whereas McKay establishes the existence of economic factors as key determinants in the decision by physicians to specialise, Thornton expands the variable set to encompass non-economic factors. Both papers, like much of the established literature focuses solely on the decision by physicians to specialise. This paper will incorporate both economic and non-economic factors but departs from the focus on physician speciality choice. That is, I hope to identify the economic and demographic variables responsible for the individuals selecting any health profession. This direction is motivated in part, by the need to adequately supply health services in all health professions rather than simply physicians.

Theoretical Model

Drawing upon the theoretical foundations of Thornton (2000), in maximising their utility, a worker, i , chooses a job, j , from one of two broad occupation classes, a health profession ($j=h$) or any other profession ($j=o$). The utility this worker derives from each occupation class is dependent upon the economic characteristics of each occupation group such as wages, tenure or working hours and also a number of demographic variables specific to the individual. These include age and gender and the possession of a university degree. Formally,

$$U_{ij} = f(x_{ij}, c_i) + \mu_{ij}$$

Where

- x_{ij} represents a vector of economic factors in the occupation class, as viewed by the individual
- c_i are demographic factors specific to individual i
- μ_{ij} represents random unobserved factors

In assuming the random component is independent and identically distributed, then the probability of observing an individual in a health profession is initially estimated using a linear probability model (LPM) with a more sophisticated logistic regression subsequently estimated. Here, the logistic specification is consistent with previous literature and allows for the dependent variable to be bounded by zero and one. These two specifications in turn, provide a method to assess the robustness of any significant factor.

It will be assumed that the set of economic and demographic variables are observable by all individuals. Individuals, ex ante, are able to use this information to guide their occupation choice. For example, it's expected that the possession of either a general science degree (BSc) or a specialist degree (BOptom) will increase the probability that an individual is a health professional, holding all else constant. Similarly, the probability that an individual becomes or remains as a health professional is expected to increase with tenure.

Data

The unit of observation in this paper is an individual. Since the estimation of the theoretical model essentially involves predicting the probability that an individual is a health professional, unit record data is required. The data used in this paper is derived from the Household Income and Labour Dynamics in Australia (HILDA)¹ survey. In particular, a relevant cross sectional sample derived from HILDA's 2001 survey of approximately 19000 individuals is used.

It should be noted that within this dataset, an individual's occupation is defined according to a broad industry based category. More specifically, the 2-digit Australian and New Zealand Standard Classification of Occupations (ANZSCO 2006) code is used such that occupation sub-major group 25 "Health Professionals" are responsible for the development, diagnosis and treatment of disorders (Australian Bureau of Statistics, 2009). This group therefore, includes doctors, nurses, optometrists, and psychologists among others. The variables used in this paper are given in the following table.

Table 1: Variable definitions

Variable	Definition
Health	A dummy variable (=1) indicating whether a person's occupation is classified as a "Health Professional"
Age	Age of the person (years) as at June 30, 2001

¹ "The HILDA Survey was initiated, and is funded, by the Australian Government through the Department of Families, Housing, Community Services and Indigenous Affairs (FaHCSIA). Responsibility for the design and management of the survey rests with the Melbourne Institute of Applied Economic and Social Research (University of Melbourne)." (The Melbourne Institute, 2005)

Hours	The number of usual working hours per week in the individual's main job
Sex	Dummy variable (=1) if the individual is male
Degree	Dummy variable (=1) if the person possesses a Bachelors degree (or higher)
FTEwage	The current weekly gross wage of the individual normalised to a full time equivalent rate (38 hours).
Tenure	Tenure (years) in the current occupation
RN	Dummy variable (=1) if the health professional is a Registered Nurse

Although HILDA encompasses an extensive range of household and individual characteristics, participants are in no way obligated to answer all survey questions, typically resulting in non-responses across a number of variables. As a result, a number of restrictions are applied to create a subset of individuals that have provided a response to all the relevant variables. Firstly, it must be explicitly stated that this paper is concerned only with adults in the working age population. In other words, the sample is restricted to a population aged 18-65 as it is unreasonable to estimate the probability that a child is a health professional. Further, all individuals in the sample are required to state the number of hours worked, their occupation group, length of tenure in their current occupation and whether they possess a degree. Finally, the sample was restricted to only individuals who earn a positive wage, to avoid corner solution responses where a fraction of the sample would have otherwise reported zero

income. After applying these exclusions, a sample of 663 observations consisting of 330 females and 315 males remain.

The following two tables provide descriptive statistics of the data set used.

Table 2: Descriptive Statistics for entire dataset

Variable	Obs	Mean	Std. Dev.	Min	Max
age	663	37.82051	11.21633	18	64
sex	663	.4751131	.4997573	0	1
hours	663	30.12217	15.66488	1	100
health	663	.0754148	.2642588	0	1
tenure	663	8.887922	9.419859	.0192308	47
degree	663	.0467572	.2112777	0	1
RN	663	.0271493	.1626411	0	1
FTEwage	663	780.1005	632.6928	15.83333	7695

Table 3: Descriptive Statistics for Health Professionals

Variable	Obs	Mean	Std. Dev.	Min	Max
age	50	39.76	10.60527	20	61
sex	50	.14	.3505098	0	1
hours	50	30.1	15.15128	8	80
health	50	1	0	1	1
tenure	50	14.90962	10.86503	.4807692	36
degree	50	.28	.4535574	0	1
RN	50	.36	.4848732	0	1
FTEwage	50	1029.349	459.3712	173.375	2915.233

From the descriptive statistics for the entire sample, it can be seen that the “average” individual is approximately 38 years old, works 30 hours a week, remains in their current occupation for 9 years and earns a full time equivalent weekly wage of \$780. Wages are subject to significant variation. It is, however, interesting to note that wages in the health profession are more narrowly distributed than wages across all occupations. This may reflect the fact that many health professions are paid on a salary basis. The proportion of males to

females in the entire sample is roughly equal with just under 8% of the sample possessing a university qualification. By comparison, the sample's fifty health professionals on average are slightly older than other occupation groups, remain in their current occupation for almost 15 years and earn a higher full time equivalent wage of \$1029. The modal sex for health professionals is female, contrasting the typical notion of a male dominated industry. That is, although physicians are more likely to be male (Australian Bureau of Statistics, 2002, pg 5), the health industry as a whole typically employs more female professionals.

A correlation matrix of the variables used is provided in **Table 4**. Correlation matrices sorted by occupation are provided in **Appendix A**.

Table 4: Correlation Matrix (whole sample)

	age	sex	hours	health	tenure	degree	RN	FTEwage
age	1.0000							
sex	0.0818	1.0000						
hours	0.1255	0.3777	1.0000					
health	0.0494	-0.1917	-0.0004	1.0000				
tenure	0.5190	0.0536	0.1286	0.1827	1.0000			
degree	0.0947	-0.1678	-0.0136	0.3155	0.0824	1.0000		
RN	-0.0031	-0.1589	-0.0493	0.5849	0.0917	0.2268	1.0000	
FTEwage	0.1725	0.0635	-0.1270	0.1126	0.1171	0.0313	0.0434	1.0000

Two relatively significant correlations arise. Firstly, age and tenure as expected are correlated to a moderate degree. That is, the longer an individual remains in an occupation, the older they become. More importantly, the relatively high correlation between registered nurses and health professionals may raise a potential issue in the subsequent analysis. Because registered nurses by

definition must possess a university qualification, this is expected. However, the high correlation suggests a significant proportion of the health professional's sample contains registered nurses (18 of the 50). Further, the fact that the 18 registered nurses in the sample are all female place a downward bias on the sex coefficient in the econometric regressions. As a consequence, an additional logistic regression is performed where all registered nurses are dropped from the sample in an attempt to reduce this high multicollinearity. These general findings are consistent with the correlation matrices sorted by occupation.

Empirical Model

Thus, the econometric models to be estimated are given by

$$\Pr(\text{Health} = 1 | X) = \alpha + \beta_1 \text{age} + \beta_2 \text{sex} + \beta_3 \text{hours} + \beta_4 \text{Degree} + \beta_5 \text{FTEwage} + \beta_6 \text{tenure} + \mu$$

$$\text{Logit}(\text{Health} = 1 | X) = \alpha + \beta_1 \text{age} + \beta_2 \text{sex} + \beta_3 \text{hours} + \beta_4 \text{Degree} + \beta_5 \text{FTEwage} + \beta_6 \text{tenure} + \mu$$

Where the dependent variable reflects the probability that the individual is in the health profession. The first equation refers to a linear probability model estimated by ordinary least squares and the latter uses a logistic functional form.

Estimation Results

Table 5 represents three econometric specifications performed. The first column represents a linear probability model, whilst the second and fourth show logistic regressions performed on the sample with and without registered nurses, respectively. Columns three and five represent the marginal effects calculated at the mean for the

logistic specifications. The full estimation results for each specification are provided in **Appendix B**.

Table 5 – Estimation results

Variable	LPM	Logit	Marginal effects	Logit w/o nurses	Marginal effects
	(1)	(2)	(3)	(4)	(5)
age	-0.0022* (-0.0010)	-0.0488* (0.0223)	-0.0017* (0.0008)	-0.0369 (0.0263)	-0.0009 (0.0007)
sex	-0.0973* (0.0007)	-2.1356* (0.4858)	-0.0804* (0.0183)	-1.6776* (0.5168)	-0.0456* (0.0146)
hours	0.0013 (0.0456)	0.0240* (0.0114)	0.0008* (0.0004)	0.0297* (0.0130)	0.0007* (0.0003)
degree	0.3436* (0.0000)	2.1117* (0.4645)	0.1839* (0.0787)	1.9851* (0.5481)	0.1276 (0.0700)
FTEwage	0.0000* (0.0012)	0.0007* (0.0002)	0.0000* (0.0000)	0.0007* (0.0002)	0.0000* (0.0000)
tenure	0.0055* (0.0385)	0.0927* (0.0217)	0.0032* (0.0008)	0.0835* (0.0245)	0.0021* (0.0006)
constant	0.0629 (0.0385)	-2.6289* (0.7311)		-3.6612* (0.8939)	
Sample size	663	663	663	645	645

* Denotes significance at the 5% level. The marginal effects for the dummy variables sex and degree represent a discrete change from 0 to 1.

Discussion

The results from the linear probability model (LPM) show that although the economic variables of wage and tenure are statistically significant, the magnitudes of these coefficients are economically small. Together with the statistically and economically insignificant hours variable, these results suggest that extent to which economic

factors affect the probability that an individual will enter or remain in the general health profession is minimal. A single year increase in tenure will improve the probability that an individual is a health professional by 0.6%. These findings are generally robust and consistent with the marginal effects from the full sample logistic regression.

With respect to the three non-economic variables of age, sex and degree, both sex and degree are statistically and economically significant in both the linear probability model and full sample logistic regression. Moreover, the marginal effects from the full sample logit model (column 3) suggest that the possession of a university degree raises the probability of employment in the health profession by approximately 18%. Similarly, being male reduces the probability of employment in the general health professional by about 8%. This finding is in stark contrast to the typical notion of a medical professional where doctors are typically male. The effect of an increase in an individual's age potentially reduces employability in the health profession compared with other occupations. However, the size of this marginal effect is considered negligible at best.

The fact that no economic effect was found with respect to hours and wages is in stark contrast to the findings of McKay (1990) and Thornton (2000). Whereas both these authors found that physician specialty choice was influenced by wages, no such finding was established. Similarly, the significant economic effect of hours, established by McKay could not be identified. This discrepancy is explained in two ways. Firstly, it may be the case that these findings are specific only to medical

physicians. Because this paper aggregates all health professions into a single dummy variable, it may very well be the case that these occupation specific effects cannot be sufficiently isolated. Moreover, McKay employs a more sophisticated approach in defining the hours and wages worked by physicians. In particular, the wages and working hours a physician is subject to in a given specialty are calculated relative to other specialities. Where the relative differences in these variables are sufficiently large, speciality choice changes. I suspect that given the way I have modelled wages, hours worked and the dependent variable in this model, the ability to make the same causal inferences is compromised. That is, the general classification of occupations means that an increase in either working hours or wages in this model may equally affect employability in both occupation groups. As a result, the power to detect the effect of these economic variables on only the health profession cannot be easily isolated.

Interestingly, the ability for non-economic variables such as sex and the possession of a university degree to affect an individual's occupation choice is consistent with Thornton's findings. Whereas Thornton found that female medical graduates were more likely to specialise in primary care, I find that females who are in possession of a degree are more likely to enter the health profession. Indeed, by taking advantage of HILDA's nursing questionnaires, re-estimation of the logistic regression after removing the female dominated nursing occupation reduces the disadvantage males have of entering the health profession. However, the effect of sex is still economically and statistically significant.

Since the goal of this paper was to identify whether or not economic and non-economic factors affect the decision by workers to specialise in the health industry, the results are therefore mixed. With greater access to HILDA's 4-digit occupation variables, it may be possible to reproduce the findings of McKay and Thornton with respect to the economic determinants of physician specialisation choice. That is, rather than predicting the probability of being a health professional, it may be more meaningful to predict the probability of specific occupational choices by workers. Although this will require significant changes to the dependent variable, in my opinion, determining how robust these economic and demographic variables are across a range of health specialities is much more vital than physician specialty alone.

Given the results obtained, however, a number of potential policy applications ensue. If the goal of policy makers is to attract more workers into the health profession in order to cope with increasing demand, policies targeting the number of hours worked or wages will be ineffective. Although age and tenure do not affect occupation choice in any economically significant manner, both younger workers and more experienced workers are more likely to be hired in the health profession. Together with the fact that females and educated individuals are more likely to enter the health profession, a case can be made to target this demographic. By reducing the cost of obtaining a university qualification or guaranteeing long-term employment by means of an appropriate contract, the likelihood that more individuals enter the health industry can be increased. The most effective policy would require a combination of each of these elements. For example, since university education typically occurs during early adulthood, scholarships can be made available to females studying degrees related to the medical profession. Upon graduation, contractual agreements can be put in place

to ensure longer tenure periods coupled with pay increases are above industry averages.

Conclusion

This paper has thus identified a number of potential economic and demographic variables that determine the choice by individuals to enter the health profession. Contrary to previous work, economic variables such as wage and working hours do not significantly contribute to an individual's decision to enter the health industry. Whether these variables affect the decision to enter specific occupations within this category is yet to be determined. The fact that demographic factors such as gender and university education can provide appropriate incentives to join the health sector leads a to number of potential policy applications. Although the list of variables used in this paper is in no way exhaustive, it is hoped that at the very least, the theoretical and empirical framework discussed can provide an initial avenue for further research into the economic determinants of health specialties in Australia. Where these factors can be adequately isolated and deemed significant, vital changes to policy will inevitably ease the strain on Australia's health system.

Appendix A – Correlation matrix sorted by occupation

Correlation matrix of variables for non-health professionals

-> health = 0
(obs=613)

	age	sex	hours	health	tenure	degree	RN	FTEwage
age	1.0000							
sex	0.0914	1.0000						
hours	0.1188	0.3801	1.0000					
health	.	.	.	1.0000				
tenure	0.5036	0.0904	0.1180	.	1.0000			
degree	0.0775	-0.1101	0.0069	.	0.0352	1.0000		
RN	1.0000	
FTEwage	0.1695	0.0750	-0.1304	.	0.0915	0.0130	.	1.0000

Correlation matrix of variables for health professionals

-> health = 1
(obs=50)

	age	sex	hours	health	tenure	degree	RN	FTEwage
age	1.0000							
sex	0.1300	1.0000						
hours	0.2209	0.4892	1.0000					
health	.	.	.	1.0000				
tenure	0.7084	0.1266	0.2744	.	1.0000			
degree	0.1543	-0.2516	-0.1200	.	0.0011	1.0000		
RN	-0.1535	-0.3026	-0.2300	.	-0.0596	0.0891	1.0000	
FTEwage	0.1503	0.3919	-0.0850	.	0.2185	-0.1190	-0.1400	1.0000

Appendix B – Estimation Results

Linear Probability Model (Ordinary Least Squares)

Source	SS	df	MS	Number of obs = 663		
Model	7.68285591	6	1.28047599	F(6, 656) =	21.79	
Residual	38.546405	656	.058759764	Prob > F =	0.0000	
				R-squared =	0.1662	
				Adj R-squared =	0.1586	
Total	46.2292609	662	.06983272	Root MSE =	.2424	

health	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
age	-.0021712	.0009978	-2.18	0.030	-.0041305	-.0002119
sex	-.097336	.0208678	-4.66	0.000	-.1383117	-.0563604
hours	.0012558	.0006673	1.88	0.060	-.0000546	.0025661
degree	.3435537	.0456118	7.53	0.000	.2539909	.4331165
FTEwage	.0000494	.0000154	3.20	0.001	.0000191	.0000797
tenure	.0054524	.0011757	4.64	0.000	.0031439	.0077609
_cons	.0628872	.0384779	1.63	0.103	-.0126674	.1384419

Full sample logistic regression

Logistic regression	Number of obs =	663
	LR chi2(6) =	86.63
	Prob > chi2 =	0.0000
Log likelihood = -133.98871	Pseudo R2 =	0.2443

health	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
age	-.0488274	.0223472	-2.18	0.029	-.0926271	-.0050278
sex	-2.135638	.4858354	-4.40	0.000	-3.087858	-1.183418
hours	.0239729	.0113781	2.11	0.035	.0016723	.0462735
degree	2.111714	.4644554	4.55	0.000	1.201398	3.02203
FTEwage	.0006988	.0001874	3.73	0.000	.0003314	.0010661
tenure	.0926636	.021678	4.27	0.000	.0501755	.1351517
_cons	-2.628898	.7310823	-3.60	0.000	-4.061793	-1.196003

Marginal effects (at mean) from the full sample logistic regression

Marginal effects after logit
 $y = \text{Pr}(\text{health})$ (predict)
 = .03554683

variable	dy/dx	Std. Err.	z	P> z	[95% C.I.]		X
age	-.001674	.00076	-2.20	0.028	-.003164	-.000184	37.8205
sex*	-.0804143	.01828	-4.40	0.000	-.116239	-.044589	.475113
hours	.0008219	.0004	2.08	0.038	.000046	.001598	30.1222
degree*	.1839239	.07868	2.34	0.019	.029714	.338134	.046757
FTEwage	.000024	.00001	3.46	0.001	.00001	.000038	780.1
tenure	.0031768	.00078	4.07	0.000	.001646	.004708	8.88792

(*) dy/dx is for discrete change of dummy variable from 0 to 1

References

Access Economics (2002). *An Analysis of the Widening Gap between Community Need and the Availability of GP Services*.

Australian Bureau of Statistics (2002). *Private Medical Practitioners, Australia, 2002*. Retrieved November 5, 2009, from Australian Bureau of Statistics: <http://www.abs.gov.au/AUSSTATS/abs@.nsf/Lookup/8689.0Explanatory%20Notes12002?OpenDocument>

Australian Bureau of Statistics (2009). *SUB-MAJOR GROUP 25 HEALTH PROFESSIONALS*. Retrieved November 5, 2009 from Australian Bureau of Statistics: <http://www.abs.gov.au/ausstats/abs@.nsf/Latestproducts/61E502FFBABDD327CA2575DF002DA5B2?opendocument>

Gagne, R., & Leger, P. T. (2005). Determinants of physician's decision to specialize. *Health Economics*, 14, 721-735.

McKay, N. (1990). The economic determinants of speciality choice by medical residents. *Journal of Health Economics*, 9, 335-357.

The Melbourne Institute (2005). *What is the HILDA Survey?*. Retrieved November 6, 2009 from The Household, Income and Labour Dynamics in Australia (HILDA) Survey: <http://www.melbourneinstitute.com/hilda/>

NSW Nurses' Association (2006) *AIHW Confirms Many of the NSW Auditor-General's Findings on the Nurse Shortage*. Retrieved November 5, 2009 from NSW Nurses' Association: <http://www.nswnurses.asn.au/news/6941.html>

Thornton, J. (2000). Physician choice of medical specialty: do economic incentives matter? *Applied Economics*, 32, 1419-1428.