

SHOULD I STAY OR SHOULD I GO? INVESTIGATING INTENTIONS OF CONSULTANTS TO WORK BEYOND STATUTORY RETIREMENT AGE

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Abstract

Background: UK hospital consultants moved onto new contracts from 2003. This, together with the European Working Time Directive was designed to influence their labour supply. **Aim:** To investigate how recent changes in pay, contractual and working conditions have affected consultants' intentions to extend their working lives beyond normal retirement age of 60.

Methods: Using data from a repeated national survey (2001 and 2006) of all NHS hospital consultants in Scotland, we model the probability of an extended working life for consultants aged 55 and under using probit regression. We weight responses according to consultants' certainty about their plans. We include pay, hours worked, job satisfaction and specialty and control for personal characteristics. **Results:** Consultants reported higher pay, fewer hours worked and higher job satisfaction in 2006 than in 2001. In 2006 more respondents (25.2%) planned to work beyond normal retirement age compared to 2001 (19.0%). In both years, we found overall job satisfaction to be a major predictor for consultants' intention to stay on. Pay had a significant negative effect in 2006 but not in 2001. Hours had no significant effect in either year. **Conclusion:** Overall job satisfaction increased between 2001 and 2006 and remains the main predictor of the likelihood of an extended working life.

Acknowledgements

We are grateful to Anne Bews, Shona Christie and Heather Mackintosh for administrative support and to Oliver Washington and Martin Price for help in inputting the data. We also thank James MacDonald and James McNally at ISD Scotland. Finally, we thank all the doctors who took the time to respond to the survey(s) and the project steering group for comments and advice on the design of the questionnaire. Scottish Executive Pay Modernisation Unit funded this research. HERU receives funding from the Chief Scientist Office of the Scottish Executive Health Department. The authors alone are responsible for the views expressed.

INTRODUCTION

The European Working Time Directive (EWTD) came into force in 1998 [Office of Public Sector Information 1998]. It recommends restricting weekly working hours to a maximum of 48 hours. NHS consultants should no longer be working more than 48 hours per week unless they have signed a waiver to opt out of the EWTD regulation. From October 2003 the National Health Service (NHS) introduced new contracts for hospital consultants. Part of the new consultant contract was in response to the EWTD and aimed at complying with its working time regulations. The new consultant contract aims at improving working conditions by acknowledging actual working hours, enabling doctors to better control their working hours and reimbursing consultants for additional working hours. However, the Audit Scotland survey found that 93% of consultants working over and above 48 hours had not signed the waiver [Audit Scotland 2006].

Both of these initiatives influence consultants' labour supply. Labour supply can be viewed in two broad dimensions: in terms of (a) workforce numbers or whole time equivalents and (b) the working hours actually provided by employees over their working lives. The age profile of NHS consultants is increasing. In 2003 36.7% of consultants were 50 years and older. This had increased to 38.2% in 2006 [ISD Scotland]. There is a general desire of highly qualified professionals to retire early [Banks et al, 2006]. Therefore it is becoming important not only to look at how to increase labour supply through increasing workforce numbers, but also to study possible strategies to encourage those already in the workforce to stay longer.

Concerns have been raised by Williams and Buchan (2007) as to unintended consequences that the new consultant contract may have had on retirement decisions among consultants in the UK. Those concerns were confirmed by the BMA (2007) expecting a higher number than average of consultants retiring in April 2007, when they will have gained the maximum benefits from the new salary scale introduced with the new contract. As the NHS pension scheme is a "final salary" scheme, retirement benefits are based on the best of the last three years' salaries. Any pay increase therefore results in an increased pension entitlement. This might have created an incentive for consultants, who are approaching retirement age, to delay their plans in order to maximise their lifetime earnings.

There is relatively little literature on the retirement of NHS consultants. Davidson et al (2001) undertook a cohort study in 1998 of all NHS doctors who qualified in 1974. Doctors were asked whether they would continue to work until their normal retirement age. They found that the mean planned retirement age for all NHS doctors was 3 years early for those whose normal retirement age would be 60, 5 years early for those whose normal retirement age would be 65 and 9 years early for those whose normal retirement age would be 70.

There is more research on the intentions to quit of General Practitioners. Simeons et al (2002) examined how Scottish GPs' intentions to quit vary with demographic, job, and practice characteristics. Their results show that the intention to leave direct patient care is higher among male GP principals and non-principals than among their female counterparts. Working in excess of 50 hours per week also increased the likelihood of quitting. Intentions to leave were not influenced by age or household income. Luce et al (2002) investigated factors that might encourage GPs to delay their retirement plans and work beyond the age of 60. The main factors influencing the intention of over a third of GPs to retire early were perceived undesirable changes in the NHS and workload. The main influencing factors for later retirement were reduced hours and administrative duties as well as improving managerial support.

Sibbald et al (2003) investigated GPs' intentions to quit direct patient care. They found an increase in the proportion of doctors intending to quit direct patient care from 14% in 1998 to 22% in 2001. In both years the main drivers for an increased likelihood of quitting were older age and ethnic minority status. A higher level of job satisfaction and having children under the age of 18 were associated with a reduced likelihood of quitting.

The studies by Sibbald et al (2003) and Scott et al (2006) establish that the intention to quit direct patient care increases with increasing age. This strongly indicates that leaving direct patient care might in fact reflect doctors' plans to leave the NHS for retirement reasons. Scott et al (2006) in particular acknowledge the fact that asking whether GPs would quit direct patient care within the next five years might be dominated by GPs who are reaching retirement age and are going to retire anyway.

No studies could be identified that were solely analysing hospital consultants' stated retirement plans. Most of the literature has investigated intentions to quit without a clear distinction between retirement and other reasons to leave the NHS. This paper adds to the existing literature by clearly distinguishing retirement plans from other intentions to quit as these two exit strategies show important differences. Retiring can be seen as a planned process usually marking the end of one's working life. Quitting in contrast is a more sudden process or decision of withdrawal. The decision to retire is a trade off between leisure time and work (income) whereas quitting is in most cases a decision for alternative employment. As there are not many opportunities for alternative employment for consultants in the UK it is even more important to study retirement decisions separately. Compared to retirement, quitting also offers more opportunities for returning. As doctors who retire are in general older than those who quit, the NHS faces a smaller loss of potential labour supply as well as a smaller loss of capital, spent on training for doctors. There are also different consequences in terms of quality and productivity if older doctors perform differently to their younger colleagues.

The aim of this paper is to analyse what personal, employment-related and employer-related characteristics determine consultants' decisions whether or not to work beyond their statutory retirement age. This can provide valuable information on how to steer labour supply of the existing workforce. This paper is structured as follows. The following section will provide information on data collection and the model used for analysis, followed by a presentation of our results. We conclude our paper with a short summary of our findings and implications for further research and policy makers.

METHODS

The Scottish Council for Postgraduate Medical and Dental Education (SCPMDE), one of the predecessor organisations of NHS Education for Scotland (NES) and the Health Economics Research Unit (HERU), University of Aberdeen conducted a survey of all consultants working in the NHS Scotland in 2001 (excluding those in public health medicine).

This survey was repeated in 2006 by NES and HERU in order to investigate the impact of the new consultant contract on working conditions and job satisfaction.

For both surveys a list of consultants working in the NHS Scotland was provided by the Information Services Division (ISD) of NHS National Services Scotland. The final mailing list in 2001 comprised 3088 consultants, who were sent a questionnaire in June 2001. One reminder letter was sent together with another questionnaire after four weeks. In February 2006, 3660 consultants received a questionnaire. This was followed by a first reminder sent in March 2006 and a second reminder sent in May 2006. Consultants were removed from the original denominator if they had either died or already retired, no longer worked for the NHS, were not known under their given mailing address or were on sick or maternity leave. The response rates were 61% [1793/2923] and 56% [1920/3405] in 2001 and 2006 respectively.

In both years the questionnaire asked consultants “At what age do you plan to retire” and to indicate the likelihood of this happening on a four-level scale from “definite” to “unlikely” (definite, very likely, quite likely, unlikely).

We restrict our analysis to consultants at the age of 55 or below to reduce sample selection on this variable. We only observe consultants, who have not already made the decision to retire and this group will increase as we approach the age of 60. In our datasets this involves deletion of 228 (12.7 %) observations in 2001 and 267 (15.1 %) in 2006. Given that the statutory retirement age is 60 years this restriction seems plausible in order to allow for an “early retirement effect”. This restriction will also take account of any effects the new contract may have created in terms of a possible short term adjustment of their planned retirement age in order to maximise pension benefits.

We also exclude 195 (10.9 %) (2001) and 178 (10.0 %) (2006) consultants working in psychiatry from our analysis as for historical reasons retirement age for doctors working in the area of Mental Health before 6 March 1995 is 55 years. [Department of Health]

Finally, inconsistent answers were removed from the data set used for our analysis. These are observations, where the stated planned retirement age was below their actual age. We also deleted observations, where data for consultants’ age or their retirement plans were missing (89 (5 %) in 2001, 159 (9 %) in 2006). The final datasets in 2001 and 2006 include 1,281 and 1,167 observations respectively.

Model specification:

Using a probit model allows us to restrict the estimated probabilities to lie between one and zero.

$$Y_i = \beta_0 + \beta_1 x_{1i} + \beta_2 x_{2i} + \dots + \beta_k x_{ki} + u_i$$

x represents vectors of our included explanatory variables and u represents a random disturbance term with a standard normal distribution.

Because we only observe values of zero (non-event) or one (event) for the dependent variable Y , the probit model assumes a latent, unobserved continuous variable Y^* . We observe whether Y^* is above or below a critical value:

$$Y_i = 1 \quad \text{if} \quad Y_i^* > 0$$

$$Y_i = 0 \quad \text{otherwise}$$

We can describe this latent variable in terms of utilities. If the utility from remaining in work is greater than the utility consultants get from retirement then our latent variable $Y_i^* > 0$ and $Y_i = 1$. If consultants perceive a greater utility from retirement than they do from remaining in work then $Y_i^* < 0$ and $Y_i = 0$.

$$Pr(Y_i = 1) = Pr(\beta_0 + \beta_1 x_{1i} + \beta_2 x_{2i} + \dots + \beta_k x_{ki} + u_i > 0)$$

$$Pr(Y_i = 0) = Pr(\beta_0 + \beta_1 x_{1i} + \beta_2 x_{2i} + \dots + \beta_k x_{ki} + u_i < 0)$$

Our dependent, dichotomous variable equals one for the intention to work beyond the statutory retirement age of 60 and zero otherwise.

Explanatory variables:

Age, Gender:

To control for consultants' personal characteristics we include their age as well as their gender.

Partner/Spouse

Having a partner or spouse is expected to have an effect on consultants' retirement decisions through (a) the utility they gain from work or (b) the utility consultants gain from increased leisure time (retirement). This effect could be either positive or negative. Additional sources of income provide financial safety or freedom and therefore consultants might have a greater utility from leisure time. On the other hand, if the partner does not provide additional income, a certain amount of financial responsibility towards the family might result in greater utility from work. Consultants, who don't have a partner though might gain greater utility from work than from increased leisure time.

Overall job satisfaction

Consultants were asked to indicate their overall job satisfaction on a likert scale from 1 to 7, where "1" stands for "extreme dissatisfaction" and "7" stands for "extreme satisfaction". As a measure for job satisfaction, this scale was first applied by Warr, Cook and Wall (1979) and has been widely used since to ascertain job satisfaction for medical and non-medical professionals. Based on existing literature, job satisfaction is expected to be one major predictor for the likelihood of an extended working life.

Income

We investigate whether salary has a positive or negative effect on planned retirement decisions. The income variable has been constructed by using net income bands provided in the questionnaire. These enter the model as a "continuous" variable using midpoints of these bands. We are using individual income rather than household income.

Non-NHS work

As more than half of the consultants included in our analysis are engaged in private or non-NHS work we include this as a dummy variable. Undertaking private consultations in addition to their NHS work provides alternative sources of income and restricts the time available to work for the NHS. Undertaking non-NHS work is therefore expected to influence consultants' retirement decisions.

Contract type

The type of contract consultants are holding (part time contract and honorary contract compared to full time contract) is anticipated to affect consultants' intention to work beyond normal retirement age as the contract type may already be an indicator of the degree of consultants' attachment to the labour force.

Hospital type

We include consultants' employment setting by using three categories of hospitals (teaching hospital (reference group), large general hospital and other hospitals) to account for effects that working in a teaching hospital (engagement in research and teaching) may have on retirement decisions compared to other hospital settings.

Hours

Consultants' weekly working hours enter the model as a dummy variable, which reflects whether or not consultants work in excess of 48 hours per week. Working in excess of 48 hours per week could be a measure of excessive hours through choice, reflecting an individual's preference for work. Alternatively it could be a measure of overwork with an associated opposite effect on consultants' retirement decisions.

Specialty group

To control for specialty effects we include consultants' self-reported specialty group. As different areas of work will display different characteristics in terms of workload, on-call activity and working during unsocial hours this could affect consultants' retirement intentions. After excluding consultants working in psychiatry, nine specialty groups enter the model with "Medical" serving as the reference group.

Workload perception

To emphasise job characteristics that cannot be measured directly we are also including a number of attitudinal statements about consultants' perceived workload. Consultants have been asked in both surveys to strongly agree, agree, disagree or strongly disagree with a number of statements about their job and work environment. We incorporate the following statements as dummy variables, coding "strongly agree" and "agree" as being 1 and "disagree" and "strongly disagree" as being 0:

Deal: "The implementation of the new junior doctors' deal has increased my workload" (2001) or "Reduced working hours for training grade doctors has increased

my workload” (2006), **Patient care** “My current workload is such that I am unable to provide my desired standards of patient care”, **Task** “Some of the tasks I perform could be undertaken equally well by someone less qualified”, **Workload** “My current workload is unreasonable and unsustainable”, **Health** “My current workload is adversely affecting my health”, **Staff** “There is insufficient staff in my unit to allow me to delegate tasks”

Impact of the new contract on delayed retirement plans

We begin by analysing how consultants may have adjusted their planned retirement age due to the new contract. Here we use the entire sample without restrictions on the age of respondents. We examine how planned retirement ages change for those who in 2001 reported planning to retire during the first three years of the introduction of the new contract.

Models presented

We model the probability of an extended working life for those aged under 55 years separately in the two years. We use consultants’ stated likelihood of actually retiring at their planned retirement age to assign weights to their responses. Responses from consultants with a higher level of certainty about their retirement age are given a higher weight in our model than responses from consultants who are less certain about their plans. Weights have been calculated using midpoints of cumulative frequencies for consultants’ stated likelihood of their retirement plans. For example, if 20% of respondents stated they were ‘definite’ about their retirement plans, they each receive a weight of 0.90. If 38% of respondents said they were ‘unlikely’ to retire at their stated retirement age, they each receive a weight of 0.19 in the analysis.

Table 1 in the appendix provides results of a regression of the weights on the independent variables for both survey years. In both survey years we observe that certainty about planned retirement age increases significantly with consultants’ age. Women were significantly more certain about their retirement plans in 2001 than men. This effect can not be observed for 2006 though. Again in both survey years a higher income seems to be a significant predictor for consultants’ certainty about their retirement plans.

Our main models for 2001 and 2006 include all variables presented above. We also run an additional model for both survey years, which excludes the series of respondents' perception of workload variables as well as their overall job satisfaction.

We then examine whether there was a significant change in the variables determining the probability of an extended working life between 2001 and 2006 as well as whether determinants are significantly different between those two survey years. To check for these interaction effects we interact all variables with the survey year.

RESULTS

Impact of the new contract on planned retirement ages

The mean age of consultants (N=186), who, in 2001, were planning to retire between 2004 and 2006 was 55.7 years with a mean planned retirement age of 59.8 years. In our 2006 survey 136 (73.1 %) of those consultants were still working and had answered our questionnaire. 65 of them stated their planned retirement age. Their mean age in 2006 was 59.5 years with a mean planned retirement age of 61.3 years. Consultants, who were in 2001 planning to retire between 2004 and 2006 had delayed their plans by one year and a half on average.

Determinants of planned retirement ages

Table 2 provides characteristics of consultants who have been included in the sub-sample for our analysis. In 2001 only 18% of consultants aged 55 years and under stated a planned retirement age above the age of 60. 11.3% of all women included in our analysis are planning to work beyond the age of 60, compared to 20% of their male colleagues. Five years later, 25.5% stated they were planning to retire above the age of 60. This time 12.7% of women were planning to stay on compared to 30.4% of male consultants.

Consultants reported a higher mean (SD) level of overall job satisfaction in 2006 than they did in 2001 (4.93 (1.1)), 4.53 (1.2)).

In table 3 we present our results from our regression analysis. Overall job satisfaction remains one of the main predictors of an extended working life being positive and significant in both survey years.

Age and gender showed the expected signs with age having a positive and significant correlation with consultants' likelihood to continue working after the age of 60 in both years. Females have a negative and highly significant correlation with our dependent variable in 2001 and 2006. Previously the statutory retirement age for women has been lower than for men. Although this is no longer the case there might still be an effect that has been "carried over" and influences women's retirement decisions. As women tend to be younger than their male partner [National Statistics] they may wish to retire at the same time as their spouse.

In 2006 consultants reported fewer working hours (47.5 (9.6)) than in 2001, (48.8 (13.8)). However, working in excess of 48 hours per week did not have a significant effect on the probability of continue working after statutory retirement age in either year.

The proportion of respondents engaging in private, non-NHS work reduces from 57.2% in 2001 to 52.7% in 2006. Engaging in private work has a negative effect on the probability of an extended working life in both years and is a significant predictor for the probability of an extended working life for 2001 but not for 2006.

Consultants working in large general hospitals are significantly less likely, in both years, to stay on beyond the age of 60 compared to consultants working in a teaching hospital.

We observe no change in specialty effects. Joint significance tests for 2001 and 2006 both reject the hypothesis that the model excluding specialty groups is correctly specified in relation to the full model at a one percent level (2001: Prob > F = 0.011; 2006: Prob > F = 0.0011).

Consultants received a considerable pay rise under the new contract. Our results show that income has a negative effect for both survey years and is significant for 2006. We appear to observe a backward bending labour supply curve, where the income effect dominates the substitution effect [Hanoch, 1965]. Lifetime labour supply decreases as income increases.

The signs and significance for some of the statements on workload perception included have changed from the first to the second survey year:

1. Consultants who agreed in 2001 with the statement that the implementation of the “Junior Doctors New Deal” has increased their workload were significantly less likely to work beyond 60. In 2006 this question was worded differently. Consultants who agreed with the statement that reduced hours for training grade doctors had increased their workload were less likely to work beyond the age of 60, although this does not have a significant effect anymore.
2. Consultants who agreed with the statement that they have insufficient staff in their unit to allow them to delegate tasks were more likely to work beyond the age of 60 in both survey years. This variable has a significant effect in 2006, but not in 2001.

The type of contract consultants are holding affects their retirement decision significantly in both years. Consultants who are holding a part time contract are less likely to work beyond their statutory retirement age, compared to their colleagues on a full time contract. Consultants holding an honorary contract though do have a significantly higher probability of an extended working life compared to their full time colleagues. These results seem sensible as honorary consultants are more likely to have greater variety in their work by being more engaged in research and teaching than their full time or part time colleagues. As mentioned above, the type of contract may be an indicator of the degree of consultants’ attachment to the labour force and doctors holding a part time contract may have a lower level of attachment than their full time colleagues.

The main models for 2001 and 2006 including the series of workload perceptions as well as consultants’ overall job satisfaction seem to perform better than those excluding these variables. The changes of coefficients was further investigated by interacting all variables with the survey year to analyse whether there was a significant change of determinants predicting retirement decisions between our two survey years. Our results in table 4 show that, although there have been changes in terms of significance for some of our variables between the two survey years, the underlying movement of coefficients is not of itself significant. One exception is

consultants' beliefs about the "quality of patients care", which changed significantly over the years but remains insignificant in our two main models.

CONCLUSIONS

The existing workforce is a valuable source of labour supply and it therefore it is of great interest to investigate how to predict their behaviour in terms of retirement decisions.

Since 2001 there has been a significant increase in consultants' overall job satisfaction (French et al 2006). With overall job satisfaction remaining one of the main indicators for an extended working life, this may explain why more consultants are now planning to work beyond their statutory retirement age than five years ago. There is a reduced effect for engaging in non-NHS work. We observe an increased effect of consultants' salary on the probability of not having an extended working life. But with explanatory variables included in our analysis being not significantly different between our two survey years it remains difficult to predict any changes the new consultant contract may have had on retirement decisions.

This paper adds to the existing literature by modelling NHS hospital consultants' probability of extending their working live beyond their statutory retirement age of 60. No literature could be identified that clearly distinguished between leaving NHS employment for retirement reasons and quitting for other reasons. The repeated national survey is based on all NHS hospital consultants in Scotland. Modelling retirement intentions or intentions to stay on can provide valuable information to policy makers in terms of determinants that influence these decisions. Including what consultants, who have officially retired from the NHS, are doing and whether they engage again with the NHS at a later time or provide their services in other non-NHS settings could be valuable additional information to collect in any subsequent study, but was beyond the scope of this paper and the data available from our surveys.

Appendix

Table 1: Regression of weights

Variable	2001		2006	
	β	t	β	t
Age	0.004***	2.64	0.008***	4.14
Gender	0.058**	2.51	0.021	0.86
Partner	0.076**	2.34	-0.006	-0.16
Overall Job Satisfaction	-0.004	-0.54	-0.002	-0.20
Income	0.002***	3.41	0.001**	2.5
Hours	0.009	0.47	0.002	0.11
Private Work	0.004	0.22	-0.01	-0.48
Large General Hospital	-0.011	-0.58	-0.005	-0.22
Other Hospital Settings	-0.029	-1.03	-0.049	-1.62
Part time	-0.051	-1.16	-0.019	-0.43
Honorary	-0.08**	-2.07	-0.057	-1.20
Deal	-0.012	-0.50	-0.001	-0.04
Patient Care	0.045**	2.01	-0.002	-0.08
Task	0.022	0.88	-0.014	-0.62
Workload	0.017	-0.70	-0.023	-0.92
Health	-0.027	-1.33	0.01	0.38
Staff	-0.031	-1.32	-0.014	-0.66
A&E	0.004	0.07	0.08	1.15
Anaesthesia	0.047*	1.81	0.00004	0.00
Clinical	-0.029	-0.85	-0.013	-0.33
Community	0.032	0.36	-0.088	-0.80
Dental	0.071	1.23	0.045	0.67
Obstetrics & Gynaecology	0.017	0.42	0.037	0.92
Radiology	-0.05	-1.56	0.037	0.99
Surgical	0.036	1.38	0.034	1.21
Constant Term	0.146	1.60	0.098	0.92

2001: N = 1,005, $R^2 = 0.0523$

2006: N = 885, $R^2 = 0.0528$

Table 2: Consultants characteristics: sample aged under 55 years

	2001 N (percentage)	2006 N (percentage)
Total number in sub-sample	1,005 (100)	885 (100)
<i>Planned retirement age (years)</i>		
Mean (SD)	59.7 (2.8)	60.3 (2.8)
<i>Age (years)</i>		
Mean (SD)	44.7 (5.9)	45.4 (5.4)
<i>Gender</i>		
Male	775 (77.11)	641 (72.43)
Female	230 (22.89)	244 (27.57)
<i>Marital status</i>		
Married	925 (92.0)	814 (92.0)
Not married	80 (8.0)	71 (8.0)
<i>Overall Job Satisfaction</i>		
Mean Score (SD)	4.53 (1.24)	4.94 (1.1)
<i>Annual new individual income (£)</i>		
40,000	107 (10.7)	15 (1.7)
50,000	435 (43.3)	216 (24.4)
70,000	366 (36.4)	473 (53.5)
90,000	76 (7.6)	121 (13.7)
110,000	18 (1.8)	36 (4.1)
130,000	1 (0.1)	16 (1.8)
150,000	1 (0.1)	5 (0.6)
170,000	1 (0.1)	1 (0.1)
180,000	n/a	2 (0.2)
<i>Working in excess of 48 hours</i>		
Yes	537 (53.4)	428 (48.4)
No	468 (46.6)	457 (51.6)
<i>Engaged in non-NHS work</i>		
Yes	575 (57.2)	466 (52.7)
No	430 (42.8)	419 (47.3)
<i>Hospital type</i>		
Teaching	377 (37.5)	385 (43.5)
General	469 (46.7)	366 (41.4)
Other	159 (15.8)	134 (15.1)
<i>Contract Type</i>		
Full Time	893 (88.9)	794 (89.7)
Part Time	49 (4.9)	54 (6.1)
Honorary	63 (6.3)	37 (4.2)
<i>Workload Perception</i>		
<i>(Percentage of doctors who agree with each of the statements)</i>		
Deal	804 (80)	737 (83.3)
Patient Care	670 (66.7)	341 (38.5)
Task	841 (83.7)	670 (75.7)
Workload	678 (67.5)	356 (40.2)
Health	447 (44.5)	217 (24.5)
Staff	809 (80.5)	599 (67.7)
<i>Specialty Group</i>		
A&E	21 (2.1)	17 (1.9)
Anaesthesia	208 (20.7)	193 (21.8)
Clinical	86 (8.6)	72 (8.1)
Community	11 (1.1)	7 (0.8)
Dental	26 (2.6)	19 (2.2)
Medical	312 (31.0)	285 (32.2)
Obstetrics & Gynaecology	52 (5.2)	56 (6.3)
Radiology	101 (10.1)	71 (8.0)
Surgical	188 (18.7)	165 (18.6)

Table 3: Main models for 2001 and 2006 and models without workload perception and overall job satisfaction

Variable	2001 Main Model		2001 Without Workload Perception and Overall Job Satisfaction		2006 Main Model		2006 Without Workload Perception and Overall Job Satisfaction	
	β	z	β	z	β	z	β	z
Age	.016*	1.72	.015*	1.71	.019*	1.76	.017	1.61
Gender	-.457***	-2.93	-.363**	-2.52	-.73***	-4.73	-.714***	-4.69
Partner	-.015	-0.07	-.148	-0.71	-.293	-1.45	-.277	-1.39
Overall Job Satisfaction	.147***	2.79			.12**	2.15		
Income	-.0004	-0.13	.0004	0.12	-.007**	-2.27	-.007**	-2.44
Hours	.056	0.46	-.033	-0.29	-.113	-0.96	-.145	-1.29
Private Work	-.301***	-2.64	-.296***	-2.67	-.064	-0.55	-.060	-0.53
Large General Hospital	-.228*	-1.81	-.180	-1.49	-.335***	-2.75	-.300**	-2.51
Other Hospital Settings	-.208	-1.18	-.098	-0.58	-.097	-0.57	-.051	-0.30
Part time	-.670**	-2.04	-.485	-1.47	-.56*	-1.86	-.463	-1.52
Honorary	.438**	2.02	.393*	1.89	.599**	2.35	.648**	2.54
Deal	-.574***	-3.94			-.194	-1.31		
Patient Care Task	-.211	-1.50			.200	1.52		
Workload	-.134	-0.87			.096	0.72		
Health	.009	0.06			-.239*	-1.66		
Staff	-.074	-0.55			.036	0.22		
A&E	.312 **	1.96			.063	0.50		
A&E	-1.069**	-2.15	-1.044**	-2.33	-.565	-1.14	-.518	-1.08
Anaesthesia	-.417**	-2.47	-.365**	-2.29	-.64***	-4.00	-.669***	-4.29
Clinical	-.293	-1.37	-.128	-0.61	-.124	-0.54	-.078	-0.37
Community	.818*	1.94	1.156***	2.59	1.223**	2.14	1.148*	1.91
Dental	-.647*	-1.66	-.408	-1.06	-.199	-0.53	-.1718	-0.43
Obstetrics & Gynaecology	-.169	-0.62	-.312	-1.17	-.092	-0.38	-.071	-0.30
Radiology	-.163	-0.77	-.022	-0.11	.199	0.95	.184	0.89
Surgical	-.034	-0.22	-.008	-0.06	-.148	-0.96	-.149	-0.97
Constant Term	-1.361	-2.49	-1.11	-2.26	-.754	-1.18	-.144	-0.27

Table 4: Variables interacted with survey year

Variable	Main Effect		Interaction Effect	
	Coefficient	z	Coefficient	z
Survey	.633	0.75		
Age	.016*	1.73	.003	0.22
Gender	-.458***	-2.96	-.274	-1.25
Partner	-.014	-0.07	-.28	-0.98
Overall Job Satisfaction	.148***	2.83	-.029	-0.38
Income	-.0004	-0.13	-.007	-1.47
Hours	.060	0.50	-.176	-1.04
Private Work	-.295***	-2.62	.233	1.43
Large General Hospital	-.224*	-1.80	-.112	-0.64
Other Hospital Settings	-.208	-1.19	.113	0.46
Part time	-.654**	-2.02	.094	0.21
Honorary	.441**	2.05	.158	0.47
Deal	-.572***	-3.97	.381	1.84
Patient Care	-.212	-1.53	.413**	2.16
Task	-.133	-0.87	.233	1.15
Workload	.013	0.09	-.254	-1.22
Health	-.073	-.055	.112	0.54
Staff	.311	1.97	-.246	-1.22
A&E	-1.049**	-2.10	.496	0.70
Anaesthesia	-.415**	-2.49	-.228	-0.99
Clinical	-.291	-1.37	.166	0.53
Community	.818*	1.95	.413	0.58
Dental	-.636*	-1.66	.445	0.82
Obstetrics & Gynaecology	-.169	-0.62	.084	0.23
Radiology	-.161	-0.77	.368	1.24
Surgical	-.036	-0.24	-.111	-0.51
Constant Term	-1.376	-2.54		

Table 3:

*** $\alpha=0.01$, ** $\alpha=0.05$, * $\alpha=0.1$
 2001 Main model: N=1005, $R^2 = 0.1179$
 2001 no “soft measures”: N=1005, $R^2 = 0.0648$
 2006 main model: N=885, $R^2 = 0.11$
 2006 no “soft measures”: N=885, $R^2 = 0.0951$

Table 4

*** $\alpha=0.01$, ** $\alpha=0.05$, * $\alpha=0.1$
 N=1890
 $R^2 = 0.1231$

Variable description: **age** (continuous), **gender** (1=female, 0=male), **partner** (1=married, 0=not married), **overall job satisfaction** (1 to 7 likert scale), **income** (midpoints of income bands), **hours** (1= working in excess of 48 hours, 0=not working in excess of 48 hours), **private work** (1=consultant undertakes non-NHS work, 0= consultant does not undertake non-NHS work) **large general hospital and other hospital setting** (1=yes 0=no- teaching hospital=reference group) **part time and honorary contract** (1=yes, 0=no- full time contract=reference group), **deal** (1= agree with “The implementation of the new junior doctors’ deal has increased my workload” (2001) or “Reduced working hours for training grade doctors has increased my workload” (2006), 0= disagree), **patient care** (1= agree with “My current workload is such that I am unable to provide my desired standards of patient care”, 0= disagree), **task** (1= agree with “Some of the tasks I perform could be undertaken equally well by someone less qualified”, 0= disagree), **workload** (1= agree with “My current workload is unreasonable and unsustainable”, 0= disagree), **health** (1= agree with “My current workload is adversely affecting my health”, 0= disagree), **staff** (1= agree with “There is insufficient staff in my unit to allow me to delegate tasks, 0= disagree) **specialty groups** (self reported, set of dummies, medical= reference group)

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