FACTORS INFLUENCING PLANNING FOR RETIREMENT

by
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1   Introduction

As in many the other counties, funding for retirement in Australia is a difficult public policy issue. Australians are living longer and the birth rate has been dropping consistently over recent decades. Consequently, the population here is ageing. Over-65 year olds are expected to comprise some 18% of the Australian population by 2020 and 26% by 2050, in contrast to about 12% of the population at the turn of the century (ABS, 1998). People in the post-War population bulge, the baby-boomers, are reaching the age of retirement now and in the near future. This rapid increase in the number and proportion of retirees will serve to highlight the retirement-incomes problem.

The ageing of the population may reduce economic growth but, if those extra years of life were devoted more to work rather than to retirement, economic growth may be enhanced. The age of retirement is obviously the key determinant of the division of each life between participation and dependency. However, little is known in Australia about the decision to retire.

This paper reports four different aspects of decisions to retire in order to give readers an understanding of the factors influencing retirement decisions of Australians. Firstly, it describes the planned retirement age decision of the sample in terms of an ogive; secondly, it identifies the factors influencing the decisions to retire by retirees and contrasts them with factors important to non-retirees. Thirdly, it reports a model of the probability of working full time because those who find fulltime employment are in a better position not only to plan for their retirement but also to have a secure income at retirement; and finally, it analyses the planned retirement age of non-retired Australians and investigates further the determinants of planned retirement ages.

The key factors affecting the decision to retire can be classified as:
- external or work related factors
- personal factors
- financial factors
- lifestyle factors

The external factors include the ability to find suitable employment, working environment and job satisfaction. The personal factors include marriage, pregnancy and own- and family-health. The financial factors cover accumulating a sufficient level of assets to fund retirement or qualifying for an appropriate pension scheme. The lifestyle factors include the need to join a spouse's/partner's retirement and the desire to spend the rest of life in recreational and leisure activities.

The paper is structured as follows. The next section provides a brief background to the study. Section three describes the analytical approach including the data collection. The penultimate section provides the results of the study with a discussion of key findings. The final section summarises the results with a description of major implications for government policy makers and financial planners.

2   Previous Studies

Liberalised global economic environment and growth in information technology have subjected many of the more advanced economies to similar forces. One of the parameters which have responded similarly to these forces in many countries is the labour force participation rate, which has generally fallen for males after middle age. The situation for females is not so clear-cut but introduction of equal opportunity and pay equity legislation and the growing need for financial independence have encouraged more women to the workforce. Nevertheless, participation rates and the age of retirement are normally linked.

Gendell (1998) analysed retirement ages for both men and women in the United States, Germany, Japan and Sweden during the period 1965 to 1995. He found both mean and median retirement ages had fallen in all four countries over the period, with the retirement ages for men mostly falling faster than for women. The only exception to this finding was the mean retirement age for women in the United States which fell by 0.7 years more over the period than that for men. However, the median retirement age for men in the United States showed the expected trend and fell by 0.2 years more over the period than that for women.

While Gendell's research analysed observed ages of retirement, much of the research concerned with retirement has focussed on observation and explanation of the changes in participation rates among the elderly (see, for example, Mitchell and Fields, 1982). The interest in this aspect of the issue is readily appreciated in light of the importance of the availability of social security as a driver of retirement from the workforce. At the same time, the cost of and qualifying conditions for social security are public policy issues which many governments of developed nations are finding increasingly difficult to manage.

The majority of retirement research has centred on the retirement of males. Honig (1996) found the retirement decisions of single women did not differ substantially from those of either single or married men. In relation to married women, Hurd (1988) found their retirement decisions were related to their husbands' retirement, and Pozzebon and Mitchell (1989) highlighted the importance of spouses' retirement income.

Researchers in the USA have investigated the determinants of planned retirement age, because of a particular interest in the effects of an ageing population of the viability of the social security program. In the US, some 15% of the population are over 65 years, but demographers expect that figure to increase to more than 20% in the next 30 years (USBC, 1998). To respond to this situation, it has been proposed that the general age for qualification for social security benefits may be increased from 65 to 67 years.

The interaction of planned retirement ages and qualifying ages for social security is important for individuals from the point of view of financial planning, saving, investment and the adequacy of retirement income. There have been two studies conducted in the US to predict planned retirement ages (Yuh et al., 1999; Montalto et al., 2000). They included financial, demographic and perception variables, and found 13 of 28 independent variables to be significant. The significant determinants included non-investment income, financial and non-financial assets, IRA/Keogh plans (these are US individual and self-employed retirement plans), defined-benefit superannuation, less-skilled occupations, lower education levels, age, race and life expectancy.

The sizes of the income and combined age effects were found to be large. Planned retirement ages tended to increase sharply after middle-age. This suggested that workers continually adjust their planned retirement ages, perhaps 'putting off the evil hour' of finally leaving the stimulation and monetary recompense of work.

In Australia, the participation rate for men has recently decreased through early retirement, and the participation rate for women has increased through return to the workforce after either child-bearing or child-raising. Data collected by the ABS (1998) show that:

- the number of persons in the population aged 45 and over has increased by 4% between 1994 and 1997
- of those aged 45 and over, 53% had retired from full-time work and 60% of them were female
- the average age of retirement from full-time work was 48 (58 for males and 41 for females)
- the proportion of these retirees who had retired from full-time work at ages of less than 45 was 35% (7% of males and 54% of females)
- at retirement from full-time work, the most common main source of income for males was an age or service pension (23%) but the most common main source of income for females was someone else's income, e.g. that of spouse (38%).

The data also suggest only 22% of male retirees at November 1997 had retired at age 65 years or older, giving a weighted average retirement age of 57.4 years. This means, over the period 1992-1997, more males retired when in the 45-64 year range, with consequently fewer in the 65 years and over age group. Only 3% of females retired when at age 65 years or older, and their weighted average age was 41.7 years. Over the course of the 1990s, fewer retired when under 45 years and consequently more retired when in the 45-64 years range.

Significant retirement research in Australia has been conducted over the last few years by the National Centre for Social and Economic Modelling (NATCEM). However, this research has mostly been concerned with adequacy of retirement incomes. For example, the NATCEM (2001) study for CPA Australia considered the impacts of various changes to contributions and taxation regimes on income adequacy for various family types, and AMP-NATCEM (2002) highlighted the retirement situations for people aged 50-64 years, who are retired now, preparing for retirement or 'living in denial'.

3   Analytical Approach

The analytical approach used in this paper is similar to the methodology used by Montalto et al. (2000). The data were collected by survey. Respondents were asked when they planned (or had) retired, and the reasons which may (or did) influence their decisions to retire. They were also asked a comprehensive set of demographic questions. The age data gave the result reported in section 4.1 and the determinants of retirement the results given in sections 4.2 and 4.4.

The planned retirement age of an individual has a strong correlation to the probability of having/finding a suitable job. If people can find secure sources of income, it encourages them not only to allocate sufficiently for current consumption but also to save for future consumption. In other words, it is plausible to assume a strong relationship between the current amount of hours of working and planned retirement because individuals are likely to earn more than what is required for

current consumption if they have a strong preference to work longer hours. This means the surplus can be saved for future consumption or retirement. Unless this preference for work is controlled, a specification of a model of planned retirement age may contain errors. This is commonly known as specification error due to omitting relevant variables or selection bias.

In order to treat for selection bias, a probit model was estimated following the Heckman (1979) two-step procedure. Accordingly, in the first step, the probability of a respondent working full-time was estimated for the full sample of respondents identified as "not retired". The probit regression generates a variable that can be used to isolate a selection-bias correction variable commonly called an inverse mills ratio (IMR) or lambda (λ).

In order to analyse the determinants of working full-time, a dichotomous dependent variable (WRK) was defined with 1 if the respondent is working full-time and 0 if otherwise. The probability of a respondent working full-time was estimated with a probit regression of the sample of 313 respondents. Independent variables included those capturing sex, family status, age, educational status, and locus of control. The probit estimating equation was specified as:

$$WRK = \alpha + \beta_i X_i \qquad (1)$$

where β_i is the respective coefficient of ith independent variable (X_i).

The independent variables to identify sex and family status included a set of dichotomous variables to identify sex (0 if male and 1 if female), male single (1 if male single and 0 if male married), female single (1 if female single and 0 if female married) and dependent children (1 if have dependent children and 0 if otherwise). Age is used as a spline variable with actual age, number of years greater than 40, number of years greater than 50, and number of years greater than 60. A categorical dichotomous variable was used to identify the educational status such as HSC qualification, trade certificate, undergraduate qualification and postgraduate qualification (1 if yes and 0 if otherwise). The results of this analysis are given in section 4.3.

In this research we have extended the range of independent variables which may impact on the decision to retire. One of the new variables considered in this research is locus of control. The concept of locus of control comes from the psychology literature, and has been linked previously with issues from, for example, the accounting, management, health and education fields. Locus of control refers to people's expectations of control over behavioural reinforcements (Rotter and Mulry, 1965; Rotter, 1966). Internally-controlled people ('internals') believe that the outcomes in their lives substantially depend on their own actions and choices. In other words, they believe they control their own fates. Externally-controlled people ('externals'), on the other hand, believe their lives are ruled by chance, fate or powerful other people or agencies. To them, both positive and negative events are unrelated to their personal behaviour and control.

Internal locus of control has long been associated with high self-motivation and discipline, superior academic performance, high social maturity and high level of independence (see, for example, Nelson and Mathia, 1995). It is therefore to be expected that internals would exhibit better performance in planning and saving and investing for their retirements.

Locus of control orientation of respondents is normally measured using a set of 23 propositions. However, in order to reduce the size of questionnaires, a four-item instrument has been successfully used by a number of previous researchers including

Li-Ya et al. (1999). Although many of the previous studies used a four-item Lickert response scale, some used a five-item scale (see Costin, 2000).

3.1 Data Collection

Unlike in the United States, where regular surveys of consumer finances are undertaken and data are made available publicly to researchers, the ABS does not publish appropriate data. Australian data must be collected by survey.

To reduce the cost of collecting the data, the survey instrument was distributed by means of Australia Post's unaddressed delivery service which costs about 20% of regular addressed mail per delivery. A total of 5000 sets of questionnaires together with an explanatory letter which invited participation and a free-post reply envelope was distributed to private street addresses in a suburb of Brisbane, a suburb of Ipswich, a coastal near-capital city in Queensland, and a suburb of Toowoomba, an inland city. Additionally, a further tranche was distributed to householders living on a rural-residential and rural roadside delivery mail run in Queensland. The suburbs and districts were selected at random, and the researchers had no control over the actual mail delivery addresses which received the survey instrument.

A total of 5000 sets of material was decided upon on the basis that a response rate of only 10- 15% could be expected from this type of survey. The material was distributed after Easter in April 2001. No follow-up attempts were made to influence potential respondents but no deadline was set on responses[1].

The questionnaire consisted of a single A4 page printed both sides and containing 22 questions, including a set of demographic questions. The question regarding independent factors which might influence retirement decisions offered 11 items, with an open-ended 'other' available for any other influences. Respondents were asked to rank each of these factors on a five-point Likert scale. The Likert scales were anchored on "strongly agree" scoring one and "strongly disagree" scoring five. The survey instrument was extensively tested during the design phase with university colleagues and others. Constructive suggestions regarding wording, layout and font styles led to amendments.

A total of 717 replies was received; of these, 313 from non-retired respondents and 184 from retired respondents contained complete sets of data. The basic characteristics of the respondents are given in Table 1.

Insert Table 1 here

4   Survey Results

Only those responses which provided complete information including planned retirement age for non-retirees were used for the analyses, as the age of planned retirement was a key variable in this study.

4.1 Planned retirement ages

Those classified as 'not-retired' were asked to identify their planned age of retirement. Retirement is defined as having no intention at the moment to offer her/himself for paid work again. Those who had mostly stopped working and now do only a few hours of paid work per week were asked to identify themselves as retired.

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[1] No responses were received after 3 months from the posting of questionnaires.

The cumulative percentage distribution of the planned retirement age is given in the ogive, Figure 1.

Insert Figure 1 here

The planned retirement age of the respondents varied from 35 to 75 years. About 9% of the respondents planned to retire before the age of 50 years. Furthermore, about 61% respondents planned to retire between 55 and 60 years and 27% respondents planned to retire between 60 and 65 years. This means almost all respondents (96.2%) did not wish to work beyond 65 years. Inspection of the ogive in Figure 1 reveals that people plan their retirement ages in terms of 'milestone' numbers, i.e., 55, 60 and 65 years. (Note the steep slopes of the curve at these ages). This phenomenon was not observed so markedly in the US studies, except at age 65.

4.2 Non-retired vs retired people's reasons for planned/executed retirement ages

In anticipation that there may be differences between the opinions of non-retired and retired respondents, the rankings by the two groups of the 11 proposed determinants of retirement were analysed. Table 2 presents the results of the respondents' first and second rankings of each of the reasons for retirement.

Insert table 2 here

The risk of ill health, having accumulated sufficient assets and having fewer financial dependants were found to be the most important factors affecting the decision to retire for currently working respondents. In contrast, for the retired group, the need to care for others, having accumulated sufficient assets, and having reached the qualifying age for pensions or superannuation preservation age were common reasons influencing the decision to retire.

Contrasts in the rankings of importance of reasons between the non-retired and the retired groups provide an insight into people's attitudes to the retirement decision. The greatest contrast among highly-ranked reasons was in having accumulated sufficient assets. Non-retirees thought this to be very highly important while retirees, while still ranking this as important, thought it less so, possibly because they found it a goal largely unobtainable. This outcome is likely to change somewhat in the next few decades, as more people who have lived through the compulsory superannuation/personal financial planning revolution decide to retire. Reasons such as inability to find work, possibility of ill-health, having fewer financial dependants and spouse having reached retirement similarly showed large contrasts in importance, possibly due to their posing either threats or opportunities which retirees had found were not realised.

4.3 Probability of working full-time

Results of the probit regression are presented in Table 3 along with means for the continuous variables and a percentage for the dichotomous variables on sex and education. Of the several types of R^2 available, two types, Cragg-Uhler R^2 (Cragg-Uhler, 1970) and count R^2 (Maddala, 1992), have been reported. The count R^2 indicates that the model could predict 76% of the correct predictions. The results suggest that there could be more factors influencing the probability of working full-

time. The additional factors may include years of work experience, ethnic background, status of the economy, influence of trade unions and status of legislation on employment relations. However these factors were not considered due to ethical and measurement problems. The likelihood ratio statistics reject the joint null hypothesis that the coefficients of the regression are equal to zero (H_0: $\beta_i = 0$).

Insert Table 3 here

The probability of working full-time was considerably affected by sex and having a family. Men were found to have a higher probability of working full-time than women. Having dependent children also acted as a barrier to employment on full-time basis. Education achievement was found to be one of the most influential factors affecting the probability of working full-time. People with trade certificates or postgraduate qualifications are highly likely to have full-time employment. The locus of control of respondents was found to have significant influence on working full-time. Internally-controlled people believe that the outcomes in their lives substantially depend on their own actions and choices. The results suggest that this group has a higher probability of being employed on full-time basis than externally-controlled people who believe that their lives are ruled by chance, fate or powerful other people or agencies.

4.4 Determinants of planned ages of retirement

For analytical purposes, a sub-sample of data was selected by dropping the respondents who were classified as currently unemployed. The preferred methodology used to examine planned retirement age was OLS regression (see Table 4). A model was specified using planned retirement age as the dependent variable. The selection of independent variables was based on a conceptual model that encompassed *a priori* expectations. It was assumed that non-retired people consider various characteristics of their jobs, personal commitments and their financial adequacy as driving forces for the determination of the age of their retirement. The locus of control variable was also used as an indirect measure of possible selection bias.

Accordingly, planned retirement age was modelled as a function of current job, occupation, type of super scheme, work stability, working environment, job satisfaction, health, need to care for others, sufficient assets for retirement, qualifying for the age pension, reaching superannuation preservation age, some demographic characters and locus of control. The selection bias correction variable was included.

Insert Table 4 here

The R^2 values indicate that the model explains 34% of the variation in planned retirement ages of the non-retired individuals. Overall, the test results indicate the model is adequately specified. According to the results of the regression, 12 of the independent variables are significant at the 5% level with two variables significant at the 10% level.

Planned retirement age increases when individuals are not holding full-time employment, but is decreased by factors such as having a managerial, trades or professional position, when there is no possibility of finding work, ill-health or chronic injury, and having qualified for the age pension. Interpretation of the

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influence of the latter three variables is not a simple matter. For these variables, the Lickert scale was calibrated with strong relevance equal to 1 and strong non-relevance equal to 5. Thus, while relevance of each variable reduces planned retirement age, strong non-relevance reduces it even further. A person not dependent on having to qualify for the aged pension therefore plans to retire earlier than one planning to retire on the pension. This factor is reinforced by the finding that having investments and investment income tends to reduce planned retirement ages. People with higher debt levels delay their planned retirement age.

Planned retirement age is advanced by having superannuation and having achieved the superannuation preservation age. The more highly educated and older the respondents are, the more they defer their planned retirements. This suggests that many people do not have fixed ages in mind, but are influenced by circumstances as they enter the retirement-age zone. Women plan to retire earlier than men, and unmarried men plan to retire earlier than married men.

Additionally, as can be seen in Table 4, the locus of control variable is not significant, but has a positive sign. Locus of control was found above to be significant for securing fulltime employment, but thus not an important determinant of retirement. It is likely that those who work on fulltime basis are in a better position have adequate savings to retire earlier. The coefficient of the selection bias variable justified the treatment for specification error.

5   Implications of Results

That people adjust their planned ages of retirement as they live through the retirement-age years is not surprising and is in accord with the experiences of people in other countries. Deferment of retirement may result from the realisation that assets will not support a comfortable retirement and that more time working and saving is necessary. The results of this research also contradict some of the previous research. Previous studies (for example, Honig, 1996) indicated that retirement decisions of single women did not differ substantially from those of men. In contrast, this research provides strong evidence for differences in planning for retirement between the single men and women.

Contributing to superannuation savings/investment schemes may significantly reduce the risk of not being able to secure a stable income after retirement. The results suggest that those who have contributed to superannuation will retire earlier than others. This should provide strong incentive to financial institutions and personal financial planners to promote their superannuation savings/investment products. The awareness of the determinants of planned retirement will also assist the suppliers of financial services to promote private saving more effectively.

The ability of individuals to plan their own retirement ages has an impact on government budgetary requirements and will undoubtedly reduce the drain on government resources, when people plan to retire on their own resources. Those who plan confidently for their retirement will normally be expected to make appropriate decisions on the levels of investments that they should generate to secure a satisfactory flow of income upon their retirement. However, despite the effort some individuals make to plan for their retirement, some of those plans may not be achieved due to a number of other factors outside their control. Job insecurity, ill health and family considerations may have unforeseen impacts and confound the determination of retirement age.

A majority of retirees appear to be currently reconciled to living 'on the pension'. This view is consistent with personalities driven by external locus of control. From the public policy development point of view, the government could be well advised to commit resources to further education programs to try to motivate people to take control of their own lives, instead of relying on the government. Further research is certainly necessary into many aspects of retirement planning, including issues not strictly within the finance discipline.

Some factors such as economic stability, ethnicity, work experience, influence of labour unions and legislation surrounding employment relations were not considered in this analysis due to ethical and measurement problems. Adding these variables into analysis may have provided more explanation of the determinants of planned retirement age.

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FIGURE 1
PLANNED RETIREMENT AGE
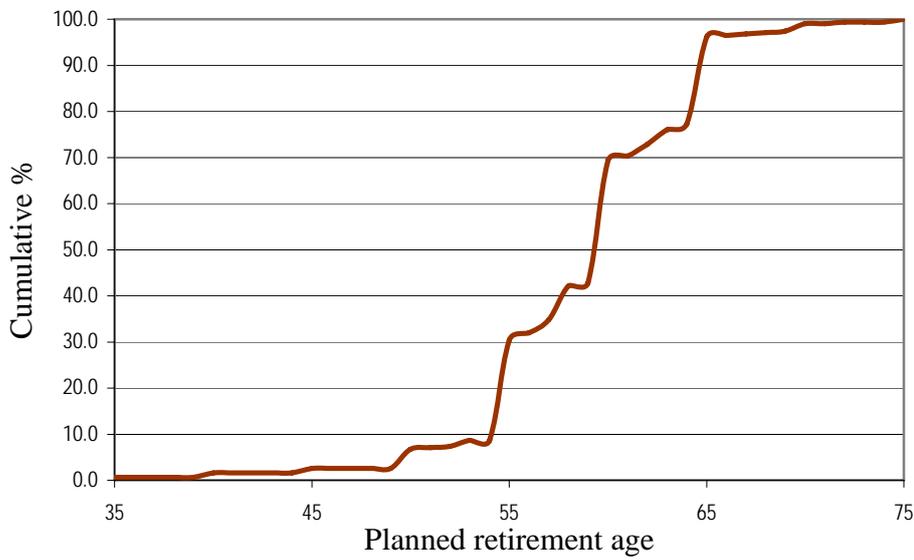
TABLE 1
ANALYSIS OF RESPONSES

Item	Currently not-retired	Currently retired	Total
Complete responses	313	184	497
Incomplete responses	193	27	220
Total	506	211	717
Complete responses			
No. of male	178	104	282
No. of female	135	80	215
Currently single	37	42	79
Couples	111	130	241
Families with dependants	165	12	177
Average age	46	66	—
Maximum age	72	88	—
Minimum age	18	34	—

TABLE 2
RANKED REASONS FOR PLANNED/EXECUTED RETIREMENT

Factors	Most relevant (%)		Second most relevant (%)		Aggregated first and second rankings (%)	
	Non-retired	Retired	Non-retired	retired	Non-retired	retired
Work place related						
Inability to find work	16	3	16	4	32	7
Working environment	5	7	18	6	23	13
Job satisfaction	11	16	19	5	30	21
Personal						
Ill health	30	9	16	2	46	11
Marriage/pregnancy	6	8	6	3	12	11
Need to care for others	14	15	15	11	29	26
Financial						
Accumulated sufficient assets	42	19	23	4	65	23
Qualified for age pension	12	15	10	6	22	21
Reached superannuation preservation age	23	13	19	11	42	24
Lifestyle						
Fewer financial dependants	19	17	27	5	46	22
Spouse reached retirement	12	4	19	2	31	6

TABLE 3
PROBIT RESULTS OF PROBABILITY OF WORKING FULL-TIME

Variable	Mean	Estimate (β_I)	Asym. t (Absolute value)
Sex (male/female)	43%	-0.665	3.67
Male single	5%	-0.539	1.35
Female single	6%	0.366	1.00
Dependent children	52%	-0.371	1.94
Age of the respondent	46	0.003	0.14
Years of age greater than 40	8.17	-0.024	0.53
Years of age greater than 50	2.29	-0.033	0.60
Years of age greater than 60	0.10	0.125	0.65
Educational status			
HSC qualification	9%	-0.032	0.10
Trade certificate	22%	0.415	1.67
Undergraduate qualification	23%	0.308	1.30
Post graduate qualification	24%	0.439	1.79
Locus of control	15.65	0.060	2.15
Constant	—	0.033	0.03

Cragg-Uhler $R^2 = 0.15$ Count $R^2 = 0.76$ Likelihood ratio stat. 34.90 with 13 d.f.
For estimations Shazam software (version 7) was used.

TABLE 4

RESULTS OF ESTIMATION OF MODEL OF PLANNED AGE OF RETIREMENT

Independent Variable	Co-efficients	t value
Nature of the job	0.923	3.14**
Position	-0.301	1.52*
Type of super scheme	0.079	0.40
Work place related		
..Inability to find work	-0.436	1.99**
..Working environment	0.284	1.31
..Job satisfaction	0.491	1.92*
Personal		
..Ill health	-0.456	2.11**
..Need care for others	0.362	1.54
Financial		
..Accumulated sufficient assets	0.143	0.70
..Qualified for age pension	-0.778	3.80**
..Reached the super preservation age	0.767	4.08**
Sex	-1.536	2.49**
Male single	-3.253	2.25**
Female single	1.272	1.05
Dependent children	-0.457	0.77
Age of the respondent	0.223	7.46**
Educational attainment	0.678	3.00**
Household income level	-0.194	1.05
Household savings/investment income	-0.288	2.19**
Household debts	0.430	2.67**
Locus of control	0.126	1.29
Selection bias (Lambda)	2.178	3.14**
Constant	43.36	16.72

Adjusted R^2 =0.34. F statistic = 8.12

(* variable significant at the 10% level; ** variables are significant at the 5% level)