

# Determinants of Retirement on the High Court of Australia\*

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*The objective of this study is to employ a hazard model to examine the determinants of retirement among Australia's top judges using a unique dataset for the High Court data from 1904 to 2001. Our estimation results suggest that pension eligibility, whether the judge was an active participant in the Court's work and the political persuasion of the appointing government are important predictors of when judges retire.*

## *1 Introduction*

Economists have long been interested in the microeconomic determinants of the retirement decision (see e.g. Lazear, 1979; Mitchell & Fields, 1984; Gustman & Steinmeier 1986; Filer & Petri 1988; Bahrami 1999; Kolev & Pascal, 2002). The judiciary is an interesting case study because individuals start their professional lives as judges late in their lives, often after long careers at the Bar. This is a trend that has become more manifest over time. For example, the average age of appointees to the High Court of Australia (hereafter the High Court) has risen from 45 years (1921–1940), to 46 years (1941–1960), to 52 years (1961–1980), to 54 years (1981–2000) (Leigh, 2001). Another consideration is that until an amendment to the Constitution in 1977 prescribed a retirement age of 70, Justices of the High Court were appointed for life. This has meant that a sizeable proportion of High Court judges have died in office. Of the 35 High Court Justices who were

no longer on the Court as of 2000, 10, or just less than one-third of the total, have died in office.

A sizeable literature has emerged which considers the factors that influence the retirement decisions of judges in courts in the US (see e.g. Squire 1988; Barrow & Zuk 1990; Hagle 1993; Spriggs & Wahlbeck 1995; Zorn & van Winkle, 2000; Yoon 2003). There are, however, no studies which examine the retirement decisions of judges in other countries, including the Australian judiciary. In this paper we fill this gap by employing a hazard model to analyse the determinants of retirement on the High Court using data from the Court's first full year of operation in 1904–2001.<sup>1</sup> Because the High Court is the final court of appeal in Australia, our study focuses on the retirement decisions of Australia's 'elite judges'.

A study such as this, which compares the importance of personal, economic and political factors in the judicial retirement decision, has practical significance for at least three reasons. First, recently courts in Australia have lost the services of many judges well before the age of compulsory retirement (70 years for Federal judges and 72 years for most State judges). This has sparked concern about the loss of human capital that

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<sup>1</sup>For previous studies that have modelled retirement decisions and/or competing risks of death and retirement using a hazard model see Butler *et al.* (1989) and Hayward *et al.* (1989). Zorn and Van Winkle (2000) is the only previous study to apply a hazard model to the competing risks of retirement and death in the judiciary.

this entails, and debate about the reasons why judges are taking early retirement. One reason that has been offered is that under current entitlements a High Court judge who has attained the age of 60 with at least 10 years on the bench can retire with a non-contributory pension of 60 per cent of salary and pursue other interests for additional reward (Young, 1997).

Second, in the lead up to the last Federal election, the Labour party stated that if elected, it intended to abolish the present non-contributory judicial pension scheme and replace it with community-standard superannuation arrangements. In part, this was a response to the blow-out in the unfunded liability for judicial pensions (Merritt, 2004, 2004a). Third, with each new appointment to the Court there is speculation about the opportunities Federal governments of both political persuasions have to influence the composition of the Court. A study such as this which assesses the factors that affect the probability of a vacancy on the High Court is helpful in understanding when the opportunities for such selection are likely to arise as a result of retirement, and for what reasons.

The next section discusses the factors influencing the retirement decision of sitting judges and how this decision determines how they vacate the Court. Section III discusses the data and econometric method used to test the effect of each of these factors on retirement-related vacancies on the High Court. The results from the hazard model are discussed in Section IV. Section V concludes the study.

## *II Factors Influencing Tenure on the Court*

The retirement choice is one of the main manifestations of life-cycle behaviour. The standard life-cycle model, which has been widely applied in the retirement literature, suggests that the individual maximises lifetime welfare, consisting of utility from consumption less disutility from work, subject to a lifetime budget constraint (see Feldstein, 1977; Gordon & Blinder 1981; Filer & Petri, 1988). In general, a higher lifetime income allows individuals a higher level of consumption of all goods including retirement at a younger age (Hall & Johnson 1980). In the basic specification work is assumed to generate no utility except that derived from the income that it produces. Posner (1993) argues that, in the case of judges, work generates various non-pecuniary forms of utility such as power, prestige and being in a position to shape the future direction of the law. This complicates the usual retirement decision. For a judge, the decision to retire does not just rest on trading-off the extra utility from more time spent at leisure for reduced income, but can po-

tentially depend on factors such as the extent to which the judge is effective in influencing the future direction of the law, and policy preferences as to who their replacement on the Court might be. The retirement decision becomes the outcome of a complex interaction between individual preferences and incentives as the individual gets older (Gustman & Steinmeier, 1986).

### *(i) Age*

Some judges on the High Court have served well into their eighties. Gavan Duffy (1913–1935) was 83 years when he retired, McTiernan (1930–1976) was 84 years when he retired and Rich (1913–1950) was 87 years when he retired. Nevertheless, it is intuitively obvious to expect that the likelihood of retirement increases with age. Studies for other occupations have found that the propensity to retire increases with age (see e.g. Sheppard 1976; McConnell 1983; Reitzes *et al.* 1988). Previous studies of judges' retirement decisions for courts in the US have reached mixed conclusions on age. Hagle (1993) and Hall (2001) found age to have a statistically significant effect on the propensity to retire, while Squire (1988) and Zorn and van Winkle (2000) found age to be statistically insignificant.

Retirement might also be related to poor health. Most studies of the retirement decisions of older males find poor health to be a major factor (see Hall & Johnson, 1980 for a review). There is some evidence from the US that judges who suffer serious physical infirmities, such as strokes, are more likely to retire (Squire, 1988). Hagle (1993, p. 35) criticises the findings from studies that have attempted to explicitly identify the health status of judges on the grounds that the data from anecdotal sources are not reliable and are incomplete. The same problem exists for judges of the High Court. Although there are some well-known cases where judges, such as Jacobs (1974–1979), have retired because of poor health, obtaining accurate information on the health status of all the Justices is not possible. Therefore, age has the added advantage that it serves as a convenient proxy for mental and physical infirmity, with mental and physical deterioration more likely to play a role in the retirement decision as the judge ages (Zorn & van Winkle, 2000).

### *(ii) Pension Eligibility*

Previous studies for a range of occupations suggest that retirement behaviour is significantly influenced by pension structure (Gordon & Blinder, 1981; Hall & Johnson 1980; Fields & Mitchell 1985; Filer & Petri, 1988). Squire (1988) and Zorn & van Winkle (2000) find that pension eligibility has a statistically significant positive effect on the propensity to retire

from the US Supreme Court. Spriggs and Wahlbeck (1995) reach the same conclusion for the US Courts of Appeal, although Barrow and Zuk (1990) and Hall (2001) find that financial incentives are less important in the lower Federal courts and State supreme courts, respectively.

The pension structure for judges of the High Court has changed over time. Until 1926, High Court judges did not receive any pension, although in 1918 a special legislation was enacted to grant the first Chief Justice, Sir Samuel Griffith (1903–1919), the pension he would have received had he remained Chief Justice of Queensland. In 1926 a non-contributory pension of 50 per cent of salary after 15 years of service was introduced. In 1958 this was changed to 50 per cent of salary after 10 years of service and attainment of the age of 60. In 1973 this was increased to 60 per cent of salary after 10 years and the attainment of the age of 60 (Winterton, 2001). This continues to be the current entitlement. Particularly in the early years of the Court there is anecdotal evidence of judges remaining in office in the face of failing health for financial reasons. O’Conner (1903–1912) was unable to retire despite suffering from chronic illness from 1907 onwards because he was pensionless, and he eventually died in office. Griffith suffered a stroke in 1917 and sat on few cases in his last 2 years on the Court, but refused to retire because he had insufficient funds, until the government passed a legislation granting him a pension.

### (iii) Work Satisfaction

It is arguable that a judge’s satisfaction with work will influence the retirement decision.<sup>2</sup> One factor that potentially influences judicial satisfaction is caseloads. Barrow and Zuk (1990) find that increasing caseloads are important predictors of turnover on lower Federal courts in the US, although Spriggs and Wahlbeck (1995) find caseloads to be unimportant on the US Courts of Appeal. Posner (1993) suggests that leaving an imprint on the law and/or ‘making a difference’ through the impact of one’s judgements forms an important component of the judicial utility function.

The extent to which the judge feels that this objective is being frustrated could arguably result in the

judge being less satisfied and therefore more likely to retire. This seems to be a principle consideration in the decision of Evatt (1930–1940) to retire at the age of 46. His biographer argues that Evatt’s sociopolitical objectives were not being realised on the High Court and that this was the main reason he re-entered federal politics (Tennant, 1970). Consistent with this conjecture, Zorn and van Winkle (2000) find that as the proportion of a judge’s decisions that are made up of dissents increases, the probability of retirement due to disenchantment with the policy direction of the Court increases. However, the predicted relationship between dissent and retirement is not clear-cut and one might equally argue that judges with high dissent rates are less likely to retire because of obstinacy. One thinks of a judge such as Murphy (1975–1986), who had one of the highest dissent rates in the history of the Court and whose views were generally regarded by the other judges as ‘ill-conceived’, but ended up dying in office.

### (iv) Retirement Norm

Studies for the US Supreme Court have documented the evolution of a retirement norm (see e.g. Squire 1988; Zorn & van Winkle, 2000). Although a disproportionate number of justices of the US Supreme Court died in office in the eighteenth and nineteenth centuries, since the beginning of the twentieth century justices have generally left that Court through retirement rather than mortality. As Zorn and van Winkle (2000, p. 148) put it: “In part, this is likely due to the desire to avoid incidents in which justices who are incapable of conducting the business of the Court continue to serve. . . . Whatever the reason, there have been proportionally more retirements than deaths in the present century than in previous years”. The emergence of such a retirement norm, if it exists, on the High Court is a more recent phenomenon. Each of the 10 Justices who have died in office was appointed before the amendment to the Constitution in 1977, which introduced compulsory retirement.

### (v) Political Factors

The existing studies on the US Supreme Court have focused on testing the importance of political factors on a judge’s retirement decision. As Zorn and van Winkle (2000, p. 149) note: “A judge who is concerned with the policy outputs of the Court ought to consider the likelihood that, under existing political circumstances, his or her departure will result in a like-minded successor”. Most of the studies for courts in the US, with the exception of Squire (1988), provide support for the relevance of political factors in the retirement decisions of judges. Squire (1988) finds

<sup>2</sup>The psychology literature has reached mixed conclusions about the relationship between job satisfaction and the intention to retire. For example, job satisfaction has been found to have an effect on the retirement decision among medical practitioners (Sibbald *et al.*, 2003), but not academics (NCES, 1997). There are no studies of the effect of satisfaction levels on the retirement decisions of judges of which we are aware.

that political factors are not as important as infirmity, pension eligibility and workload in the retirement decision of judges of the US Supreme Court. The US Supreme Court is more politicised and finely balanced than the High Court, probably making judges on the US Supreme Court more acutely conscious of the impact of their retirement. The existence of fixed election dates in the US means that they are more able to predict the political predisposition of their replacement.

Having said this, there are several instances where appointments to the High Court have been criticised as political. One of the first of these was Hughes' appointment of Piddington in 1913. The latter compromised his autonomy by assuring Hughes that in constitutional cases he did not favour States' rights over Federal powers before being offered the position. There was such opposition in the media that Piddington was forced to resign before hearing a case. The appointments of Evatt and McTiernan by the Scullin Labour government and Murphy by the Whitlam Labour government are usually regarded as political (Coper, 2001). More recently, Callinan's (1998) appointment by the Howard government provoked controversy after the then Deputy Prime Minister, Tim Fischer, stated that the government would aim to appoint 'capital C conservatives' to replace retirees from the High Court (Lane, 1998). Heydon's (2003) appointment was also controversial. Following Gaudron's (1987–2002) announcement that she intended to retire (it was, therefore, well-known that a vacancy would arise on the Court), 1 month before the announcement he would be appointed as Gaudron's replacement, Heydon made a provocative speech at a dinner organised by the magazine, *Quadrant*, which criticised judicial activism. There was much speculation within legal circles that the speech was designed to shore up his credentials with the Howard government.

There is some evidence of High Court judges acting strategically in planning their retirements. The cases of Rich and Starke (1920–1950), who at the ages of 87 and 79, respectively, retired within months of the election of the Menzies government in December 1949, are the best known. Coper (1987, p. 143) states that "Justices Starke and Rich fought off the ravishes of advancing years and deferred their retirements until after the federal election of 1949, because they did not want the Chifley Labour government and in particular its Attorney General, their former colleague Evatt, to be in a position to replace them". McTiernan is another interesting case, whose intentions seemed to have been frustrated. As a Labour appointee in 1930, McTiernan was widely regarded as hanging on for the election of the Whitlam Labour government to retire. According to Whitlam (2001, p. 710), in early 1975 McTiernan

indicated to him his desire to retire and McTiernan asked the government to "[appoint] a catholic to succeed him". However, the Whitlam Labour government was dismissed before a suitable replacement could be found, and McTiernan retired in 1976 and was replaced by a Fraser government appointee.

### *III Data, Empirical Specification and Econometric Method*

#### *(i) Data and Empirical Specification*

We have data on 42 judges who have served on the High Court over the period 1904–2001.<sup>3</sup> For all the judges we have separate observations for each year they were on the bench. This gives us a total of 679 observations on 42 judges. Of the 42 judges, 25 retired and 10 died while in office. The remaining seven were still on the bench at the end of 2001. The definition of each of the variables used to operationalise the factors influencing the retirement decision discussed in the last section are provided in Table 1.<sup>4</sup> Selected descriptive statistics for each of the variables are presented in Table 2. Table 2 shows that the average period in office for those judges who retired has been 19.68 years with a minimum of 6 years and a maximum of 47 years. The average tenure for judges who have died in office is 13.3 years, with a minimum of 5 years and a maximum of 23 years.

The first of the explanatory variables in Table 1 is age at appointment (AGEAPPT). By definition this is a fixed judge-specific variable. A priori we expect the age at appointment to be associated with a lower duration on the bench and an increased hazard of retirement. The second explanatory variable is PENSION, denoting whether the judge was eligible for a pension in any given year. This is a time-varying explanatory variable and we expect pension eligibility to have a positive effect on the decision to retire.

We include two variables – WRITING and DISSENT – to reflect work satisfaction.<sup>5</sup> Both are

<sup>3</sup>We exclude Albert Piddington, who was a Justice for just 1 month (6 March to 5 April 1913) and never sat on a case.

<sup>4</sup>Note that gender might also mediate the satisfaction/retirement decision. Chiu (1998) finds that among lawyers, females have lower job satisfaction than males. However, there has only been one female judge of the High Court (Gaudron) who was still on the Court in 2001, so we are unable to test the 'gender effect' in our article.

<sup>5</sup>DISSENT and WRITING or similar proxies have been used in existing studies of the judicial retirement decision to reflect work satisfaction. There are other potential aspects of judicial work satisfaction, based on surveys that psychologists often employ, which we do not capture because it is impossible to measure these over the timeframe

TABLE 1  
*Definition of the Variables*

Variable	Description
AGEAPPT	Age of the judge at appointment
TENURE	Number of years the judge has served on the Court
PENSION	A dummy variable set equal to 1 if the judge is eligible for a pension, 0 otherwise
DISSENT	The proportion of judgements where the judge was in dissent
WRITING	Number of judgements authored in cases reported in the Commonwealth Law Reports
APPOINT	A dummy variable set equal to 1 if the judge was appointed by a conservative government, 0 otherwise
ELECT	A dummy variable set equal to 1 if it is an election year; 0 otherwise
APPOINT × ELECT	An interaction dummy variable denoting the actions of conservative appointments in election years
APPOINT × LABOUR	An interaction dummy variable denoting the actions of conservative appointments in years in which Labour governments were in power
YEAR	Year of service rescaled (i.e. 1904 = 1, 1905 = 2 etc.)

Note: DISSENT, WRITING, PENSION, ELECT, APPOINT × ELECT and APPOINT × LABOUR are time-varying variables.

TABLE 2  
*Selected Descriptive Statistics*

Variable	Mean	Standard deviation	Minimum	Maximum
TENURE				
RETIRED	19.6800	9.6121	6	47
DIED IN OFFICE	13.3000	5.4579	5	23
AGEAPPT	51.3284	6.4698	36	61
PENSION	0.3181	0.4661	0	1
DISSENT	10.3161	9.3841	0	100
WRITING	38.6627	18.0408	0	99
APPOINT	0.6760	0.4683	0	1
ELECT	0.3918	0.4885	0	1

time-varying parameters. WRITING is the number of judgements written by a judge in a particular year, which are reported in the Commonwealth Law Reports, the sanctioned law reports of the High Court. This is an indicator of the extent to which the judge is an active participant in the Court's most important cases. As such it is an indicator of the degree to which the judge is active in shaping the law. Low judgement output can also be seen as a proxy for physical infirmity (Zorn & van Winkle, 2000, p. 151). For these reasons we expect that active engagement in the Court's work should be negatively related to retirement. DISSENT is the proportion of judgements in any given year published in the Commonwealth Law Reports in which the judge was in dissent. As discussed in the previous section, conceptually the sign on DISSENT

is unclear. Judges who have high dissent rates might be more likely to retire because of disenchantment with the policy direction of the Court. An alternative hypothesis is that such judges are less likely to retire because of obstinacy. Information on both the number of judgements and the dissent rate were collected for each judge from the Commonwealth Law Reports.<sup>6</sup>

of the study. For further information on how organisational psychologists generally view the dimensionality of work satisfaction see the Minnesota Satisfaction Questionnaire, available at <http://www.psych.umn.edu/psylabs/vpr/msqinf.htm>.

<sup>6</sup>Our treatment of the DISSENT and WRITING variables over the whole timespan of the Court is similar to Zorn and van Winkle (2000). We agree with Zorn and van Winkle (2000, p. 162) who state, "there are possible objections to the operationalisations of [DISSENT and WRITING] due to their arguably not accounting for various proposed different eras of different behaviours on the bench. Some practices indeed seem to have varied systematically over time (e.g. number of cases, dissents etc.). Accounting for all or some of these historical nuances has its own costs and introduces its own difficulties. In order to gain the advantage of models comprehensive with respect to the entire history of the Court with greater simplicity, we have chosen to accept the

We include four political factors. APPOINT is a dummy variable set equal to 1 if the judge was appointed by a conservative government and 0 otherwise. ELECT is a dummy variable set equal to 1 for an election year and 0 otherwise. We expect retirement to be positively related to elections. Judges fearing a change in government will hold on as long as possible, retiring just before the election is expected to take place, while judges holding on for a change in government, will retire as soon as the results of the election are known. APPOINT  $\times$  ELECT is an interaction dummy variable denoting the actions of conservative appointments in election years. APPOINT  $\times$  LABOUR is an interaction dummy variable denoting the actions of conservative appointments in years in which Labour is in power. Our expectation is that if judges do act strategically, a judge who is a conservative appointment, seeking to be replaced by another conservative appointment, will be less likely to retire while Labour is in government. Note that of the political variables, APPOINT is a fixed judge-specific variable, while ELECT, APPOINT  $\times$  ELECT and APPOINT  $\times$  LABOUR are time-varying variables.

How does one capture the emergence of a possible 'retirement norm' on the Court? The common approach in the published works on the US Supreme Court is to include a calendar year variable (YEAR) (see e.g. Zorn & van Winkle, 2000). The rationale is that judges serving on the Court in more recent times have a significantly higher probability of retiring (as opposed to dying while on the bench). The average tenure for judges who retired before the end of 1950 was 21.88 years and this drops to 18.65 years for judges who retired after 1950. If a retirement norm has indeed emerged on the High Court over time, the calendar year should be positively related to retirement.

#### (ii) *Econometric Method*

We estimate a hazard model for retirement where judges who retire voluntarily are treated as having completed their tenure or are uncensored, while those who died while in office or remained on the Court at the end of 2001 are viewed as being censored.<sup>7</sup> We use a survival analysis to model the conditional probability of retirement as a function of each of the

limitations in our operationalisations, and at least attendant monotonicity".

<sup>7</sup>Since the introduction of mandatory retirement in 1977, three judges (Gibbs, Mason and Brennan) have been forced to retire at the age of 70. Because this is only a small proportion of total retirements from the Court, we treat these three judges as 'voluntary retirements'.

explanatory variables discussed earlier. The time to retirement (the tenure of the judge) is modelled as a failure time process represented by a log hazard of the retirement equation. The hazard or risk is the conditional probability of retiring at age  $t$ , provided that the judge has not retired until that date. The hazard rate of an event  $T$  can be defined as:  $h(t|u, \eta) \equiv$  probability that the event  $T$  occurs in the time interval  $(t, t + dt)$ , given that it has not occurred until  $t$ . Let  $U$  denote the set of strategies that the judge might adopt to affect the decision, where  $u \in U$  denotes the actual decision and  $\eta$  denotes the set of unobservable factors that affect the hazard of retirement.

The proportional hazard model for the observed time to retirement is given by  $h(t|X, \eta) = \lambda_0(t) e^{X\beta}$ , where  $\lambda_0(t)$  denotes the baseline hazard function ( $\lambda_0(t) = h(t|u = 0, \eta = 0)$ ) and  $X$  denotes the set of covariates whose values represent the information available to the judge at time  $t$ . The parameters ( $\beta$ ) can be estimated using maximum likelihood methods. We estimate the log hazard of duration to retirement semiparametrically using Cox's proportional regression model, where we do not make any distributional assumption regarding the baseline hazard because in the Cox model the baseline hazard function is not formally estimated.

We calculate White's (1980) heteroscedasticity consistent standard errors for all coefficients to account for arbitrary heteroscedasticity and clustering over judges. It is important to realise that the signs on the variables represent their effect on the hazard rate. A negative sign associated with a coefficient denotes longer durations of tenure (or a decreased hazard of retirement) and a positive sign associated with a coefficient denotes shorter durations of tenure (or an increased hazard of retirement).

#### *IV Results*

The Cox proportional hazard regression results for retirement are presented in Table 3. A standard Wald test indicates that the estimated model is an improvement over the intercept-only model ( $\chi^2(8) = 78.94$ ;  $P = 0.0000$ ). We also computed the cumulative Cox-Snell residuals and these residuals were used in assessing overall model fit. The model's fit is computed by fitting an empirical estimate of the cumulative hazard function using the cumulative Cox-Snell residuals as the time variable and the data's original censoring variable. If the model fits the data, the plot of the cumulative hazard versus the cumulative Cox-Snell residual should be a straight line with slope 1. The plot of the estimated cumulative hazard versus the cumulative Cox-Snell residual is presented in Figure 1. Visual comparison on the jagged line in relation to

Q3

TABLE 3  
Cox Proportional Hazards Regression Results

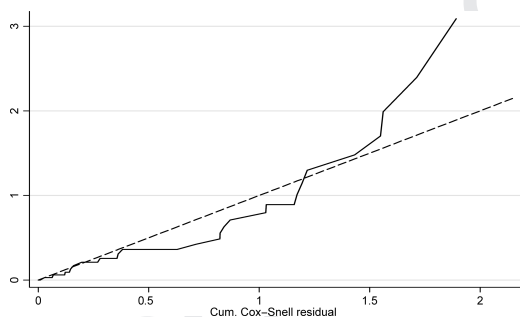
	Coefficient estimate	Hazard ratios
AGEAPPT	0.0061 (0.0422)	1.0061
PENSION	1.5423* (0.7934)	4.6752*
WRITING	-0.0920*** (0.0131)	0.9121***
DISSENT	-0.0136 (0.0190)	0.9865
APPOINT	1.7362** (0.7908)	5.6760**
ELECT	1.5438 (1.0571)	4.6823
APPOINT × ELECT	-1.9433** (0.9348)	0.1432**
APPOINT × LABOUR	-0.3933 (0.4955)	0.6749
Observations	679	
Subjects	42	
Failures	25	
Log pseudo likelihood	-39.5194	
Wald $\chi^2$	78.94	

Note: Standard errors adjusted for clustering on judge.

\*Significant at 10 per cent; \*\*significant at 5 per cent; \*\*\*significant at 1 per cent.

FIGURE 1

Q4 Assessing the Overall Fit of the Cox Proportional Hazard Model



the reference (45°) line in Figure 1 shows that the Cox proportional hazard model is a reasonably good fit.

This conclusion is supported by a test of the validity of the proportional hazards assumption. The most important assumption of the Cox proportional hazard model is that the hazard ratio is proportional over time. Grambsch and Therneau (1994) show that a test for proportional hazards is essentially a test of non-zero slope in a generalised linear regression of the scaled 'Schoenfeld' residuals on functions of time. This is equivalent to testing that the log hazard ratio is constant over time and a rejection of the null hypothesis of a zero slope indicates deviation from the

proportional hazard assumption. The results from the relevant test are presented in Table 4. The null hypothesis of zero slope is never rejected (globally and for individual covariates) and this implies that there is no evidence that the proportional hazards assumption has been violated. The (smoothed) estimated hazard and survival functions (after fitting a Cox proportional hazard model) are presented in Figure 2.<sup>8</sup> The estimated hazard does not have a monotonic pattern: there is a small increase in the estimated hazard of retirement at the beginning, but that falls before finally increasing monotonically with the length of the time the judge is on the bench.

Turning to the actual regression results in Table 3, contrary to our initial hypothesis, the age of the judge at appointment (AGEAPPT) does not have a statistically significant effect on the hazard of retirement, conditional on the other personal, institutional and political factors. Squire (1988) and Zorn and van Winkle (2000) obtained a similar result for judges on the US Supreme Court. Squire (1988) attributes this result to the wide range of ages at which Justices of the US Supreme Court have retired. The finding that the coefficient on AGEAPPT is statistically insignificant in this study is consistent with the wide range of ages at which High Court judges have been appointed, ranging from 36 years (Evatt) to 61 years (Owen). The pension eligibility dummy (PENSION) is positive and statistically significant. The coefficient estimate of PENSION implies that eligibility of a judge for retirement benefits increases the hazard of retirement by 367 per cent (i.e. more than quadruples the baseline hazard of retirement).<sup>9</sup> This is similar to the US Supreme Court where Zorn and van Winkle (2000) found that pension eligibility increased the baseline hazard of retirement by 393 per cent.

The number of judgements written by the judge (WRITING) is negative and statistically significant. This is in some sense a measure of judicial activity and the workload of the judge. The negative and statistically significant coefficient associated with WRITING implies that increased judicial activity is associated with a longer duration of tenure and a lower hazard of retirement. This result holds even after controlling for other variables that might affect the number of judgements written by the judge. This result is

<sup>8</sup>The hazard function is estimated by a kernel smooth of the estimated hazard contributions. We use a Gaussian kernel to smooth the estimated hazard contributions.

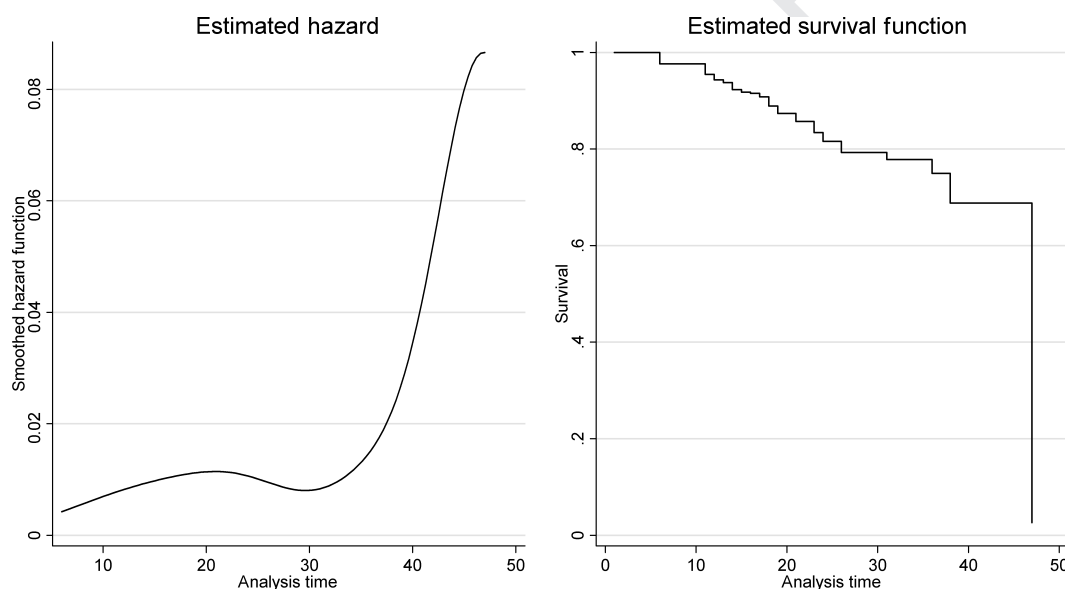
<sup>9</sup>Following Box-Steffensmeier and Jones (1997) the effect of a one-unit increase in an independent explanatory variable  $X_j$  on the hazard rate is computed as  $100 \times (\exp(\beta_j) - 1)$  where  $\beta_j$  is the associated coefficient estimate.

TABLE 4  
Testing the Proportional Hazard Assumption

	$\rho$	$\chi^2$	Degrees of freedom	Prob > $\chi^2$
AGEAPPT	0.2229	2.43	1	0.1194
PENSION	0.1690	1.59	1	0.2067
WRITING	-0.1575	0.30	1	0.5866
DISSENT	0.1046	0.31	1	0.5762
APPOINT	0.1891	0.71	1	0.3985
ELECT	0.0689	0.16	1	0.6869
APPOINT $\times$ ELECT	-0.0578	0.09	1	0.7685
APPOINT $\times$ LABOUR	0.0983	0.28	1	0.5971
Global test		4.28	8	0.8307

FIGURE 2  
Estimated Hazard and Survival Functions

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consistent with findings for the US Supreme Court by Squire (1988) and Zorn and van Winkle (2000). As Squire (1988, p. 187) puts it: “Justices who continue to shoulder a heavy workload have no real incentive to retire; they are too involved to leave”. It is, however, important to remember that this particular variable could also be measuring some unobserved characteristic specific to the judge, such as a judge’s health.

Interestingly, the proportion of dissenting judgments written by the judge (DISSENT) has a negative but statistically insignificant effect on the hazard of retirement. Thus, possible discontent over the Court’s policy direction does not have a significant effect on the decision to retire. Of the political

variables we find that APPOINT (whether the judge is appointed by a conservative government) and the interaction term APPOINT  $\times$  ELECT are both statistically significant. Although APPOINT is positive and statistically significant, APPOINT  $\times$  ELECT is negative and statistically significant. The coefficient estimate of APPOINT implies that relative to a Labour appointment, the hazard of retirement is higher by almost 467 per cent for a conservative appointment. The results for APPOINT  $\times$  ELECT suggest that conservative appointments are less likely to retire in election years. This result makes sense, given that conservative governments have been in office for most of the time since Federation, and made most of the appointments.



A conservative appointment wanting to be replaced with another conservative appointment is less likely than a like-minded Labour appointment to have to hold on to the next election in the hope that there would be a change in government.

As we have argued so far, the calendar year variable (YEAR) could be used to capture the effect of a retirement norm on the hazard of retirement. To examine the possible existence of a retirement norm we re-estimated the model including YEAR as an additional explanatory variable. YEAR turned out to be positive and statistically significant. This implies that judges serving on the Court in more recent times have a significantly higher probability of retiring (as opposed to dying while on the bench). This suggests the emergence of a retirement norm in the second half of the twentieth century.

To explore this issue further we re-estimated the retirement hazard model including a dummy variable set equal to 1 for the year 1950 or earlier and 0 otherwise, instead of the continuous variable YEAR. This variable turned out to be negative and statistically significant and the coefficient estimate implied that the hazard of retirement was lower by 73.6 per cent for judges who retired in 1950 or earlier. However, when we included YEAR (or the dummy variable for 1950 or earlier) as an additional explanatory variable, PENSION ceased to be statistically significant. Although the actual coefficient estimates of PENSION in the two specifications with and without YEAR as an explanatory variable were quite similar (1.54 when we do not include YEAR compared to 1.49 when we include YEAR), the standard errors were significantly higher when we included YEAR (increasing from 0.79 to 1.21). Therefore it appeared that introducing YEAR as an additional explanatory variable introduced multicollinearity between the PENSION dummy variable and the YEAR variable, which resulted in higher standard errors. Thus, we do not present the results with YEAR as an explanatory variable.

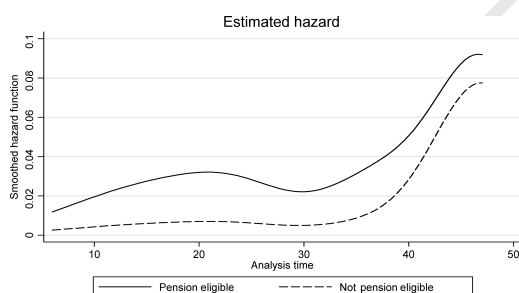
One issue concerns whether the salaries of the judges had any impact on the hazard of retirement.<sup>10</sup>

A priori we would expect higher wages to be associated with a reduced hazard of retirement. To examine this issue, we included the real wages as an additional regressor.<sup>11</sup> Data on nominal salaries of High Court Justices from 1904 to 1994 are available in Winterton (1995, p. 76) and this was updated using

<sup>10</sup>One of the referees raised this point.

<sup>11</sup>In this specification we did not include YEAR in the set of explanatory variables.

FIGURE 3  
*The Effect of Pension Entitlement on the Hazard of Retirement*



salaries reported in High Court Annual Reports. Nominal salaries were deflated using the Retail Price Index (1945 = 100) in ABS (2001, p. 750). The Cox proportional hazards regression results from this exercise showed that wages do not have a statistically significant effect on the hazard of retirement. The statistical significance of the other explanatory variables did not change and the coefficient estimates were similar.<sup>12</sup>

Given that pension eligibility has a statistically significant effect on the hazard of retirement, it is natural that we try and isolate the effect of pension eligibility. To do that we compute and present, in Figure 3, the (smoothed) estimated hazard of retirement conditional on pension eligibility (holding all other explanatory variables at their sample means). Not surprisingly, irrespective of the duration of tenure on the bench, the estimated hazard of retirement is significantly higher once the judge becomes eligible for a pension. It is also worth noting that the two estimated hazard functions are almost parallel, implying that pension eligibility has a similar impact on the hazard of retirement, irrespective of the duration of tenure. Remember that the Federal opposition had stated before the last federal election that if elected, it intended to abolish the present non-contributory judicial pension scheme and replace it with community-standard superannuation arrangements. This was, as we have noted, in a response to the blow-out in the unfunded liability for judicial pensions. This has potential implications for turnover on the High Court as well as the Federal government's ability to attract the best candidates because it increases the opportunity

<sup>12</sup>In addition, some measure of outside opportunities or an alternative wage such as the income of Queen's Counsel or barristers or even lawyers more generally may be useful in explaining the decision to retire. Unfortunately, there is no data available on these items in a time series form.

cost of appointment. As the estimated hazard functions presented in Figure 3 indicate, any change in pension eligibility is likely to be associated with a significant reduction in the hazard of retirement before the age of 70. This means that the Federal government would have to increasingly depend on the compulsory retirement rule to have adequate turnover on the bench.

We have thus far estimated the hazard of retirement using a Cox proportional hazard model. One advantage of using this model is that here we do not have to make any assumptions about the distribution of the baseline hazard function. We did, however, examine the robustness of the results by using different distributions to parametrise the baseline hazard function: Weibull, Exponential, Log normal, Log logistic and Gompertz.<sup>13</sup> We used the Akaike Information Criterion (AIC) to choose among the alternative models. The AIC is defined as:  $AIC = -2(\log \text{likelihood}) + 2(c + p + 1)$ , where  $c$  is the number of model covariates and  $p$  is the number of model-specific ancillary parameters. The preferred model is the one with the lowest AIC value. In our case parametrising the baseline hazard function as a Weibull distribution gives us the lowest AIC value. The results using the Weibull parametrisation of the baseline hazard function gave results similar to those obtained using the Cox proportional hazard model.

#### V Conclusion

The objective of this study has been to examine the determinants of retirement among Australia's top judges using High Court data for 1904–2001. This is the first such study to examine these issues for a jurisdiction outside the US. The results should be useful in both economic and political contexts. In an economic context, identifying and retaining the best talent on the Court is predicated on an understanding of how, when and why judges leave office. This issue takes on added significance in the light of recent debate about the appropriateness of judicial pensions. In a political context, any change in the membership of the Court first requires that a seat on the bench be vacated. This is not to suggest that governments in Australia are as overtly political as in the US when selecting candidates for the High Court. In Australia, the process of judicial selection is not as politicised as in the US. However, there are clearly cases where political appointments have been made and there is plenty of evidence to suggest that historically, federal governments

on both the conservative and Labour side of politics have sought to leave their imprint on the composition of the bench.

The main findings from the Cox proportional hazard model can be summarised as follows: pension eligibility, active engagement in the Court's most important cases proxied by judgements reported in the Commonwealth Law Reports and the political persuasion of the appointing government are important predictors of when judges retire. We find that a conservative appointment wanting to be replaced with another conservative appointment is less likely than a like-minded Labour appointment to have to hold on to the next election in the hope that there would be a change in government.

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<sup>13</sup>We wanted to also parametrise the baseline hazard as a generalised gamma distribution, but that resulted in convergence problems.

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## Queries

- Q1** The year '1980' has been changed to '1981' as per the reference list. Please check whether this is correct.
- Q2** Author: This sentence has been slightly amended for clarity. Please confirm that meaning has been retained.
- Q3** Author: This sentence has been slightly amended for clarity. Please confirm that meaning has been retained.
- Q4** Author: Please supply y-axis label.
- Q5** Author: Please provide unit of measurement for x & y axis.