



## COVER SHEET

---

Brown, Kerry and Gallery, Gerry and Gallery, Natalie (2004) Employees' Choice of Superannuation Plan: Effects of Risk Transfer Costs. *Journal of Industrial Relations* 46(1):pp. 1-20.

**Copyright 2004 Sage Publications**

Accessed from: [https://eprints.qut.edu.au/secure/00004810/01/Employee\\_Chioce.doc](https://eprints.qut.edu.au/secure/00004810/01/Employee_Chioce.doc)

# **Employees' Choice of Superannuation Plan: Effects of Risk Transfer Costs**

**Kerry Brown**

School of Management

Queensland University of Technology

**Gerry Gallery**

School of Accounting

University of New South Wales

**Natalie Gallery**

School of Business

University of Sydney

**Ross Guest**

Graduate School of Management

Griffith University

# Employees' Choice of Superannuation Plan: Effects of Risk Transfer Costs

## *Abstract*

Consistent with a worldwide trend away from defined benefits towards accumulation benefits, many Australian employers who traditionally offered their workers defined superannuation benefits are closing their defined benefit plans to new members and/or offering existing members the option of transferring to an accumulation plan. There has also been a push to allow members greater choice in terms of both funds and investments. Against this background, the Superannuation Scheme for Australian Universities (SSAU) made an offer to its members in 1998 to transfer from the defined benefit section to an accumulation-style plan. Their position was that the choice of fund for employees should be a matter for the employer and the employees at the workplace or their respective representative organizations. At the conclusion of the offer period only one-third of SSAU members had elected to transfer to the Investment Choice Plan (ICP). This study seeks to explain why the majority of SSAU members chose to remain in the defined benefit plan when offered the option of transferring to the accumulation-style ICP. We propose that 'risk transfer costs' explain the low ICP acceptance rate. Research findings show that both those who chose to stay in the DBP and those who elected to transfer to the ICP were prepared to accept tradeoffs in their choice. DBP members were prepared to forego a higher quantum of expected benefits for greater security of benefits expected in the DBP, whereas the ICP members were prepared to forego such security and accepted higher investment risk in return for a higher expected quantum and greater control over their benefits. Differences in financial proficiency and differences

across academic disciplines confirm that risk transfer costs were a key reason for the majority of SSAU members rejecting the ICP choice. Important implications arising from this study include the need for greater transparency of the risk transfer costs involved in offers of benefit structure change, such as that offered by the SSAU, and the need to incorporate compensation for such costs into the offer. Cognizance also needs to be taken of the major risk transfer cost of becoming informed about superannuation and the consequences of such costs for the Government's intentions to mandate superannuation fund choice for all Australian workers.

## Introduction

Over the past two decades there has been a dramatic shift away from defined benefit pension<sup>1</sup> plans to accumulation plans, particularly in the U.S. where workforce participation in defined benefit plans dropped from 83 percent in 1979 to approximately 50 percent in 1996 (Ippolito 1997). About half of this change is attributed to shifts in employment from unionised large manufacturing firms (which traditionally had defined benefit plans) to small non-unionised firms in service industries (which traditionally offer accumulation plans). A major reason for this change is also attributed to increasing administrative and regulatory costs, in that defined benefit plans have become more costly to employers as they have become subject to more regulation (Clark & McDermed 1990; Ippolito 1997). Defined benefit plans also became less attractive to employees due to greater labour mobility (Clark & McDermed 1990).<sup>1</sup>

Similarly in Australia, fewer employers are offering employees defined benefit-type superannuation. Although superannuation coverage of employees has grown from 42% in 1987 (ABS 1989-1990) to 90% in 2002 (ABS 2002) the majority of funds newly established during this period are accumulation, not defined benefit plans (ISC 1996). Over the recent past the number of defined benefit plans halved, dropping from 1,529 in June 1996 (ISC 1996) to 756 in June 2002 (APRA 2002). Many employers who traditionally offered defined benefit plans (DBPs) have now closed those plans to new members and new employees are required to join new accumulation plans. In some cases employers are closing down DBPs by offering existing members the option of transferring their benefits to an accumulation plan. The shift away from DBPs in Australia appears to be attributable to similar concerns to those

---

<sup>1</sup> While a worldwide trend towards accumulation plans is commonly commented about (see Clark & McDermed 1990; Ippolito 1997; Bernartzi & Thaler 2002), the most dramatic changes have occurred in the U.S. In other countries such as the U.K. and Canada the change is less dramatic but is nevertheless evident (see Satanove 2002; Anon. 2002). Moreover, switching from defined benefit to accumulation pension plans is becoming increasingly more common in countries such as Germany, Sweden and Japan where defined benefit pensions have been traditionally provided to employees (see Anon. 2002).

encountered by U.S. employers. Specifically, the “complexities and risks associated with defined benefit arrangements” are major contributory factors in the move towards accumulation plans (ISC 1996, p.24).

In DBPs, sponsoring employers promise to provide a certain level of benefits when employees retire (or otherwise cease employment). The benefit at retirement is usually determined as a multiple of the member’s final salary and years of service. Employers fund this promise through periodic contributions to the superannuation fund. An actuary periodically reviews the contribution rate and the extent to which assets held in the superannuation fund are adequate to meet the obligation to pay benefits. If the fund is in deficit because, for example, returns on assets held in the superannuation fund are lower than expected, the employer has an obligation to make good the shortfall by making additional contributions to the fund. In accumulation plans, employers are simply obliged to pay an agreed percentage of employees’ current salary to a superannuation fund. Once contributions are paid to the fund the employer’s obligation is fully discharged. Each member’s benefit is an accumulation of the contributions to the plan plus the investment earnings thereon.

Employers sponsoring DBPs bear the risk that benefits will cost more than expected (actuarial risk) and the risk that invested plan assets will generate insufficient returns (investment risk); employers thus effectively underwrite the plan (IASC 1996) and bear the administrative and investment costs associated with running the fund. In contrast, because the obligation of employers sponsoring accumulation plans is discharged when periodic contributions are made to the plan, members are exposed to fluctuations in investment returns, and therefore members bear the actuarial and investment risks and costs associated with administration of the fund. Members of accumulation plans usually receive a choice of

investments in one or more funds which expose members to varying degrees of risk. When benefits are restructured as a result of a shift from a defined benefit plan to an accumulation plan, the various risks and associated costs effectively transfer from the employer to employees; this phenomenon is termed here as ‘risk transfer costs’.

In 1998 the (then) Superannuation Scheme for Australian Universities (SSAU) now UniSuper, offered its members the choice to transfer from the established defined benefit section to a new accumulation-style plan. The rationale for the offer was to provide members with “more choice and increased flexibility” (SSAU 1998a). The solely defined benefit structure of the SSAU had been criticised by some employees as inequitable (see Scheiwe 1996) and such criticism may have provided added motivation for offering the choice. Another possible impetus is the Federal government’s push to enact legislation to compel employers to provide employees with a choice of superannuation fund.<sup>3</sup> While such legislation would not affect the SSAU superannuation arrangements,<sup>4</sup> the SSAU may have wished to be seen as progressive in a ‘choice’ environment. An alternative view is that the introduction of the ICP choice under the guise of greater flexibility was aimed at restricting entry to the DBP for new employees by closing the DBP to new entrants or replacing the DBP with the ICP as the default option (see Murphy, 2002).<sup>5</sup>

This study examines the reasons for the majority of SSAU members choosing to remain in the defined benefit plan rather than transferring to the accumulation plan. We argue that member reluctance to accept the associated risk transfer costs offers a possible explanation. Factors associated with risk transfer costs are identified and the extent to which members considered each factor was important in reaching their decision is explored. Such factors

include the quantum and security of benefits, control over benefits, attitudes to investment risk, confidence in choosing an investment strategy, and an understanding of the implications of the choice. Personal characteristics including gender, age, academic discipline and financial proficiency in superannuation matters are also explored as potential explainers.

The next section presents an overview of the SSAU choice of plan offer followed by an outline of the risks associated with superannuation choice. The research method of the study is then presented, followed by the results of statistical analyses and conclusions.

### **Overview of the SSAU choice offer**

The Superannuation Scheme for Australian Universities (SSAU) was established in 1983 to provide superannuation benefits for academic and general staff in the tertiary education sector. The SSAU is structured as a trust and governed by a corporate trustee. Shareholders of the corporate trustee comprise 36 Australian universities that employ 250 or more SSAU members. Each of the shareholder universities is entitled to appoint up to four members to a Consultative Committee, with half of the Committee members representing employers and the other half equally representing academic and general staff. In proportion to their representation, the employer, academic and general staff groups within the Consultative Committee elect eight directors of the corporate trustee; that is, four directors represent employers, two represent academic staff and two represent general staff. At 31 December 1998 SSAU had almost 48,000 members (SSAU 1998 Annual Report to Members).

The SSAU was established as a contributory defined benefit plan with contribution levels fixed at employers contributing fourteen percent of employees' salaries and members contributing seven percent. Changes to the scheme's benefit structure to allow members greater choice were first publicly mooted in the SSAU's 1995 Annual Report. A discussion



paper was issued in December 1996 and a Consultative Committee meeting was held in March 1997 to address the discussion paper issues (SSAU 1996 Annual Report to Members). In November 1997 the Consultative Committee approved the Trustee Board's proposal to amend the Trust Deed to allow members the option of electing to transfer their benefits to a new accumulation plan offering a range of investment strategies, with the options available from 1 July 1998 (SSAU 1997 Annual Report to Members).

In January 1998, the SSAU issued a Bulletin advising members of the one-time option to transfer from the Defined Benefit Plan (DBP) section of the fund to a newly created accumulation section called the Investment Choice Plan (ICP) and sent an information package about the alternatives a few months later. Arrangements for funding of members' benefits in each of the plans remains the same in that employers and members continue to contribute fourteen and seven percent of salary respectively. For members electing to transfer to the ICP their transfer benefit was calculated as the lump sum resignation or retirement benefit in the DBP at the date of transfer plus a share of the SSAU surplus.<sup>2</sup> On average, the share of the surplus increased the transfer benefit by about eighteen percent. For members remaining the DBP fund their entitlement to a share of the surplus continues through supplementary benefits which are paid as a 'bonus' on top of regular benefits when the member retires or resigns.

In an evaluation of the relative merits of the DBP and ICP plans, Ray Stevens, Principal of the independent actuaries William M Mercer, states: "The membership terms of the two plans

---

<sup>2</sup> The surplus in the fund (excess of assets over total accrued benefits) had grown considerably since the early 1990s. Part of the surplus was applied to fund permanent benefit increases in 1994 and 1997 and part was distributed by granting temporary (subject to periodic review) supplementary benefits to members on leaving the fund. Nevertheless the surplus continued to grow and at the beginning of 1998 it was \$710 million, increasing to \$ 830 million by the end of that year; these amounts represent excess assets of 20% over accrued benefits (SSAU 1998 Annual Report to Members).

are well balanced and the transfer offer is fair and equitable. Future expectations are generally similar in both plans in ‘typical’ circumstances, so it is impossible to say that one plan is better than the other until the benefit actually becomes payable” (SSAU 1998b). Differences between the two plans in terms of the benefits that are ultimately payable arise from individual factors such as the members’ age, years of SSAU membership and future salary increases. Stevens’ assessment suggests that there was no bias at the time of the offer in respect of the two types of benefits that might have induced members to select one plan over the other.<sup>3</sup> However, the timing of the offer coincided with a long equity bull market which may have influenced some members to choose the ICP on the expectation that the bull run would continue. In particular, the investment performance statistics in the information kit showed that the ‘Trustee’s Selection’ and ‘Shares’ strategies averaged returns of 13.8% and 16.5% respectively over the 1993 to 1997 period (SSAU 1998c). Although the information kit provided warnings that the returns are not guaranteed, past performance is not an indicator of future performance and negative returns are possible, behavioural finance research has found that the way that past investment returns information is presented strongly influences investor choice (see for example Bernartzi and Thaler 1999).

The Options Form included in the information kit sent to members in May 1998 was to be completed and returned by June 1999.<sup>4</sup> In May 1999 a reminder letter and another Options Form were sent to members who had not yet responded. Members who did not make an election by the due date remained in the DBP by default.

---

<sup>3</sup> However, the immediate allocation of a share of the surplus to ICP members’ accounts may have been seen as a ‘sweetener’ to transfer from the DBP, particularly as DBP members have to wait until they resign, retire or otherwise leave the fund to receive a share of the surplus.

<sup>4</sup> The information kit included four booklets comprising summaries of each of the DBP and ICP, a transfer guide and a guide to investment strategies in the ICP.

Members who opted to transfer to the ICP also had to choose one of four investment strategies: *Secure*, *Stable*, *Trustee's Choice*, and *Shares*<sup>7</sup> and have the ongoing choice to periodically change their strategy. The choice to remain in the DBP is, however, irrevocable. That is, those who chose to transfer to the ICP cannot revert to the DBP, and in a letter from the SSAU administrator, members opting to remain in the DBP were advised that they “will not be given any further opportunity to transfer to the Investment Choice Plan”.

About two-thirds of SSAU members returned the election form by the due date, and so one-third of members remained in the DBP by default (UniSuper Management, 1999). Of the two-thirds making an election, about half chose to transfer to the ICP. This result means that overall, two-thirds of SSAU members remained in the DBP (one-third by default and one-third by election) and one-third transferred to the ICP.<sup>8</sup>

### **Risks associated with superannuation choice**

Australian employer-sponsored superannuation funds have operated traditionally with little or no choice available to employees regarding which schemes they join, the types of benefits (defined benefit or accumulation) provided, or alternative investment strategies. The Federal Government's initiative to allow superannuation members a choice of which fund they join and a choice to subsequently switch funds is generally viewed as desirable, as indicated by the ASSIRT Investor Market Trends survey which found that 83 percent of respondents considered choice-of-fund legislation to be a ‘good’ or ‘great’ idea (Superfunds 2000). However, when investment choice is actually offered, on average, fewer than ten percent of members actively exercise that choice (SSCSFS 2000). This outcome suggests that many individuals value choice as an option, but are willing to exercise that choice only where the expected outcomes of the choice result in gains that exceed the costs associated with making the choice (Brown, Gallery & Gallery 2002). Achievement of the objective of maximising

retirement benefits is heavily reliant on individuals making informed choices. Constraints on individuals becoming informed include such factors as their inability or unwillingness to become informed and the costs of becoming informed. Becoming informed is costly, particularly in relation to complex superannuation issues. Such costs include the time taken to acquire, read and interpret relevant fund reports and other investment material, attend training sessions, and seeking professional advice from financial experts or other information intermediaries. There is also the risk and associated costs of making the wrong decision. If these costs exceed the perceived benefits of choice, then members will rationally avoid the choice decision (Gallery 2002).

The relatively small proportion of SSAU members electing to transfer to the ICP is interesting, particularly in light of the very long time period members were given to make their decision (about 15 months) and the considerable amount of information offered by the SSAU to assist members with their decision-making. This information included the comprehensive information kit mailed to each member, a dedicated helpline, 'roadshow' seminars, and access to a computer-modelling program on the SSAU website. Despite this intensive education campaign, most SSAU members opted to remain in the defined benefit plan. Risk transfer costs potentially explain the low rate of acceptance of the ICP option. In addition to actuarial and investment risks, 'risk transfer costs' include the costs of becoming informed, such as time taken to acquire, read and interpret relevant material and/or seek professional advice from a financial expert, for the purposes of making the initial choice, and then ongoing monitoring of the ICP option. Risk transfer costs also extend to the cost of not becoming informed (and therefore making an uninformed choice) and the cost of making a wrong choice (Brown, Gallery & Gallery, 2002). Within the context of this study, risk transfer costs are broadly defined as any costs associated with risks that transfer from the

employer to employees when employees shift from a defined benefit to an accumulation plan, and any newly arising risks borne by employees when they transfer.

Defined benefit and accumulation plans fundamentally differ in the way that benefits under each type of plan are determined. In defined benefit plans an employee's end benefit is usually a function of the employee's period of employment and final salary at retirement. Accumulation plans operate in a similar way to a bank savings account in that the end benefit comprises an accumulation of the periodic contributions to the plan and net investment earnings thereon. Fundamental differences between the two types of plans in the way benefits are determined could lead to significant differences in the value of expected benefits. Because defined benefits are formula-based and accrue over a long period of time it is difficult to determine their true value at any point in time (Clark & McDermed 1990). In contrast, accumulation benefits are easily determinable as the cumulative contributions and earnings thereon.

Both worker characteristics and types of risks borne by employees are contributory factors to differences in the expected value of benefits derived from defined benefit and accumulation plans (Clark & Pitts 1999). Worker characteristics include age at initial employment, years of service, salary levels during employment and at retirement, and longevity post-retirement. The major risks that lead to differences in the expected values of defined benefit and accumulation plans are those associated with changing jobs and financial market risks.

Clark and Pitts (1999) suggest that workers in defined benefit plans bear the risk of labour market mobility because total working life benefits are reduced due to the use of final earnings benefit formulas. They argue that in the context of their study of U.S. academics'

choices between defined benefit and accumulation plans, frequent job changes will lead to multiple defined benefit plans and erosion of the overall benefits. Thus they expect that workers who change jobs frequently prefer accumulation plans instead of defined benefit plans. Consistent with this expectation, Clark and Pitts (1999, p.44) found that

[U.S.] workers strongly prefer [accumulation] plans over defined-benefit plans. The most likely reason for this preference is the avoidance of the mobility risk associated with the loss of pension benefits that is inherent in the defined benefit plan.

In contrast to the U.S. situation, most Australian academics are members of UniSuper, which is sponsored by almost all public universities. Although academics may resign from one university to commence employment with another, if they are UniSuper members, then their superannuation benefit is unaffected. Only if an academic moves overseas or out of the public university sector, will they then be exposed to the risk that the job change will adversely affect their accrued defined benefits. Thus, our study of Australian academics permits conclusions to be drawn about superannuation plan choices largely in the absence of the mobility risk factor.

Financial market risk is the second major risk and the most relevant to our study. In accumulation plans members directly bear financial market risk, whereas members of defined benefit plans are only indirectly exposed to such risk (Clark & Pitts 1999).<sup>8</sup> In accumulation plans that offer choice of investment strategy, it is essential that members have a certain level of financial literacy to evaluate and monitor performance of the alternatives. In choosing an investment option, members are faced with the tasks of examining, comprehending and evaluating an array of financial information to assess the relative merits of the differing

superannuation plan options. This process includes considering the nature of the investment strategy for each option, allocation of assets within each option, and assessing the relative risks and returns of each option to determine which one best matches the member's risk-return preferences. Superannuation fund members who are more comfortable with making such significant investment decisions and are more willing to accept the associated financial risks are more likely to choose an accumulation plan over a defined benefit plan (Clark & Pitts 1999).

In the context of the SSAU choice of transferring to the ICP or remaining in the DBP, members were faced with making a complex decision based on an array of uncertain future events affecting them individually such as prospective period of employment in the Australian public university sector, salary progression and longevity post-retirement as well as collectively including investment returns and inflation. Members who chose to change from the DBP to the accumulation plan (ICP) also had to choose one of the four investment strategies. Choosing to change to the ICP also entails ongoing choices in that ICP members were initially given the option of changing to another strategy every twelve months and in October 2002, this option was extended to allow members to switch investment strategies monthly. Some financial proficiency is needed by the member (or adviser) to make the initial choice between the DBP and ICP, and then for those choosing the ICP, to make ongoing choices of investment strategy. Thus members choosing to transfer to the ICP bear ongoing information and transaction costs .

## **Research method**

The research method involved a survey of a sample of 620 academic staff, randomly selected from 14 Australian universities. Half were selected from accounting/finance

schools/departments (AF) and half from physical science schools/departments (PS). Academic staff were chosen, rather than administration or other staff, so that the level of education would be held relatively constant (i.e., it could be assumed that all respondents have tertiary qualifications). A questionnaire was emailed to the selected sample of academics on 16 July 1999 requesting that they complete and return the survey by email, or if anonymity was preferred, a copy of the questionnaire was attached to the email to allow printing and return by mail. Addressees were asked to respond by 6 August and a reminder email message was sent on 4 August.

The questionnaire contained 32 questions, of which respondents were asked to answer between nine and twenty-seven questions depending on whether they are SSAU members, they made an active DBP/ICP election, and which choice they made. A five-point Likert scale was used for respondents to indicate the extent to which each of seven factors was important in their choice decision. The five-point coding used for the ratings ranges from strongly agree (coded 1) to strongly disagree (coded 5).

Descriptions of the dependent and independent variables used in statistical testing are presented in Table 1. Either a dichotomous dependent variable (CHOICE) or trichotomous dependent variable (OPTION) is used to measure the choice decision. The CHOICE variable measures the decision to remain in the DBP (coded as 0) or switch to the ICP (coded as 1). The OPTION variable extends the CHOICE variable by including the Trustee's selection and the shares investment option of the ICP as additional decision categories.

The independent variables were selected to capture various dimensions of the perceived costs of a member transferring from the DBP to the ICP. The first group of variable measure



perceptions of risk and return from the choice: perceived benefits of the choice (BENQUANT), perceived security of benefits (BENSEC), aversion to investment risk (INVRISK), uncertain about the implications of the choice (UNCIMPLIC) and level of control over benefits (CONTROL). Risk transfer costs are likely to be greater for members who consider the ICP returns to be lower and/or ICP risks to be greater.

The second group of variables measures the perceived ability of a member to make a superannuation investment choice: confidence in choosing an investment strategy (INVSTRAT), and self-assessed financial proficiency in superannuation matters (FINPROF). It is expected that risk transfer costs will be greater for those who have greater difficulty in making such a choice.

The third group of variables measures member characteristics: the age of the member (AGE), the academic discipline (either accounting/finance or physical science) that the member is primarily employed in (DISCIPL), and the gender of the member (GENDER). Risk transfer costs are likely to be greater for members closer to retirement, and for those who do not have formal training or who are actively employed in teaching finance and accounting-related subjects. Also, if women are more risk averse than men, risk transfer costs are expected to be greater for women than for men. A further member characteristic that is likely to influence the choice decision is length of SSAU membership. In initial testing of our sample we found that member age and years of SSAU membership are highly correlated ( $r = 0.65$ ), suggesting that the two variables effectively proxy for each other. To avoid potential multicollinearity problems associated with inclusion of both variables in multivariate tests, only AGE is included in sample testing.

[INSERT TABLE 1 HERE]

Univariate tests are first conducted to explore relationships between the DBP/ICP choice and the independent variables. Mann-Whitney two-independent samples tests are used for the ordinal independent variables and Chi-square tests of association are used for the categorical variables. A binomial logistic regression model then jointly tests those relationships. A multinomial model is run to identify determinants of the type of ICP chosen. For the purposes of the multinomial model the dependent variable coded into three categories where DBPs are coded zero, trustee's choice are coded one and shares option coded two.<sup>9</sup>

## **Results and analysis**

Of the 620 email messages sent, 152 responses were received by either email (131) or mail (21), representing a 26% response rate. Thirty-eight (38) email messages failed to reach addressees and were returned as undeliverable. Of those responding, 19 were eliminated from the final sample due to missing data for analysis and 15 were not SSAU members,<sup>10</sup> leaving a final sample of 118, of whom 53 are in the accounting/finance (AF) and 65 are in the physical science (PS) disciplines. This provided a sufficient sample to statistically test between choices and across disciplines.

Respondents comprise 75% males and 25% females and their median age group is 41 to 45 years. Positions held by respondents are 43% Associate Lecturer A or Lecturer B, 29% Senior Lecturer C, and 28% Associate Professor D or Professor E. The mean (median) number of years that respondents have worked in universities is 16.3 (14). Respondents who are SSAU members have been members for a mean (median) of 9.5 (10) years. Forty-three percent of the respondents indicated that they have superannuation savings in funds other than SSAU or TESS, comprising 14% percent with superannuation in financial institutions,

17% with previous employer's superannuation fund, 3% with a DIY fund, and 9% with various other types of superannuation savings.

Table 2 shows the break-up of respondents by the DBP/ICP choice and the investment strategy selected by those choosing to transfer to the ICP. Eighty-three percent of respondents stated that they completed the election form and returned it to the SSAU by 30 June 1999. Of the respondents who did not return the form, 76% indicated that they decided to stay with the DBP and did not see any need to notify the SSAU of their decision. Of the respondents who made an active election, 64% opted to stay in the DBP and 36% opted to transfer to the ICP. Overall, 69% of SSAU members in the sample either actively elected to remain in the DBP or remain in the DBP by default, and 31% elected to transfer to the ICP.<sup>11</sup> Of those who choose to transfer to the ICP, one selected the 'secure' investment strategy, three selected 'stable' and 14 selected each of the 'trustee's choice' and 'shares' options.

[INSERT TABLE 2 HERE]

Table 3 presents descriptive statistics and results of univariate tests for the ten independent variables. The results show that seven of the ten variables are significantly associated with the DBP/ICP choice decision. A clear difference is evident on whether the choice would maximise benefits (BENQUANT). Those choosing to transfer to the ICP agreed that their choice would maximise benefits, whereas DBP respondents tended to be neutral on this issue ( $Z = 5.392, p < 0.01$ ). Interestingly, in relation to security of benefits (BENSEC), the results suggest that both DBP and ICP members consider benefits in the DBP to be more secure than the ICP ( $Z = 6.532, p < 0.01$ ). This indicates that those choosing to transfer to the ICP were prepared to forego the greater security of their superannuation benefits in the DBP for other advantages associated with the ICP.

[INSERT TABLE 3 HERE]

Consistent with the results for BENSEC, a significant difference is evident for the influence of investment risk on their decision (INVRSK), with the ICP group indicating willingness to accept the investment risk associated with the ICP and the DBP group indicating a preference to avoid the associated investment risk ( $Z = 7.412, p < 0.01$ ). Moreover, the ICP group indicated that they are confident with choosing an investment strategy (INVSTRAT) and prefer to have greater control over their benefits (CONTROL), whereas the DBP group tended to be neutral on these issues ( $Z = 4.578, p < 0.01$  and  $Z = 4.284, p < 0.01$  respectively). Although on average both groups indicated that they are certain about the implications of their choice (UNCIMPLIC), the DBP group indicated less certainty than the ICP group ( $Z = 4.284, p < 0.01$ ). The results for INVSTRAT, CONTROL and UNCIMPLIC reinforce the view that the ICP group were more confident in making their choice relative to the DBP group.

In relation to the individual characteristics of the respondents, there are no statistically significant differences between those choosing between the DBP or ICP in relation to their gender (GENDER), age group (AGE) or their perceived financial proficiency in superannuation matters (FINPROF). The test of association between DISCIPL and choice shows that a greater proportion of accounting/finance academics chose to transfer to the ICP than the physical science academics ( $\chi^2 = 5.49, p < 0.05$ ). While 42% of the accounting/finance academics elected to transfer to the ICP, only 22% of the physical science academics made this choice. The result of a Chi-square test of association between benefit type and discipline shows that significantly more accounting/finance academics elected to transfer to the ICP, whereas more of the physical science academics chose to remain in the DBP. Thus, it appears that differences in financial knowledge and skills explain differences in the choice decision between the two groups of academics.

Table 4 presents the results of the logistic regression analysis to jointly assess the effects of the choice factors. The first model (Model 1) incorporates each of the ten independent variables.<sup>12</sup> The results are consistent with the univariate test results except for INVSTRAT, which is no longer significant and FINPROF, which is now significant at the 10% level. The latter is an interesting result because it suggests that contrary to our expectation, those who rated their financial proficiency in superannuation matters lower tended to choose to transfer to the ICP, whereas those who rated their proficiency higher were more likely to choose the DBP. A further test was conducted to assess whether there is an interaction effect between financial proficiency and attitude to ICP investment risk. To do this, an interaction variable between FINPROF and INVRISK is added to Model 2, results for which are presented in Table 4. The results show a significant negative coefficient between the interaction variable and the choice decision (-1.665,  $p < 0.05$ ). At the same time the coefficient on FINPROF has changed sign and is no longer significant at 10%. Also, the coefficient on INVRISK is much larger and remains significant. The implication of the Model 2 results is that risk preference has a strong effect on the DBP/ICP choice but that this effect is moderated by the member's degree of financial proficiency. That is, the perceived difference in riskiness of the two options is not as great for those with more financial proficiency.

[INSERT TABLE 4 HERE]

To further explore the influence of the risk-return tradeoff on members' choice decision, Table 5 presents the results of the multinomial logistic regression analysis, which compares the investment choices within the ICP as an alternative to the DBP choice.<sup>13</sup> In the table, 1/0 signifies that the dependent variable is  $\log(P1/P0)$  where P1 is the probability that 'trustee's choice' (i.e. not shares) ICP choice option will be chosen in favour of the DBP. Similarly, 2/0 signifies that the dependent variable is  $\log(P2/P0)$  where P2 is the probability that the 'shares' option will be chosen in favour of the DBP.<sup>14</sup> The important contribution of the

multinomial model lies in the significant (at 5%) negative coefficient on the AGE variable for the 2/0 comparison. This indicates that older members are less likely to choose the ‘shares’ option in favour of the DBP, while there is no significant effect of age on the choice of the ‘trustee’s choice’ option. The effect of age on the choice of the share option was not evident in the binomial model which considered only the choice between DBP and ICP. The reluctance of older members to choose the shares option is interesting when it is remembered that the preference for investment risk has already been controlled for through the INVRISK variable. So we cannot attribute the significant effect of age to the risk aversion of older members. One possible explanation is an increase in familiarity and confidence in equity investments amongst younger people across the wider community. However, it may be that while older members were prepared to accept the greater investment risk associated with the ICP, their preference was to avoid the higher risk associated with the ‘shares’ option.

[INSERT TABLE 5 HERE]

Overall, the logistic regression results in Tables 4 and 5 illustrate that those choosing to transfer to the ICP were willing to accept tradeoffs in making their choice. That is, they are willing to accept the greater investment risk associated with the ICP in return for a higher expected quantum of benefits and greater control over their benefits. They are also prepared to forego the greater security of benefits that they would have otherwise had by remaining in the DBP. In contrast, those choosing to remain with the DBP are prepared to forego the higher expected quantum of benefits in the ICP for the greater security of benefits that they expect to derive from the DBP. While the DBP group generally indicated a preference for avoiding investment risk associated with the ICP, this concern does not extend to those with more financial proficiency. This suggests that factors other than risk aversion influenced the decision to remain in the DBP. In particular, those with a higher financial proficiency are likely to have a better understanding of the implications of the choice in terms of potential

costs of forgoing the security of the DBP in exchange for higher potential benefits in the ICP. This is reinforced by the differences across disciplines in that the risk transfer costs to the physical sciences academics are likely to be greater than for the accounting/finance group.

## **Conclusion**

This study examines why the majority of SSAU members chose to remain in the defined benefit plan when offered the option of transferring to the accumulation-style ICP. We proposed that risk transfer costs, which were not explicitly incorporated into the analysis of the options in the publicity material, explain the low ICP acceptance rate. To test this proposition, we identified and examined factors likely to capture the risk transfer costs associated with the DBP/ICP choice. The importance of these factors was tested using univariate and multivariate statistical procedures from data obtained from a survey of SSAU members in accounting/finance and the physical science disciplines. Our findings are consistent with the proposition that the risk transfer costs were an important influential factor in SSAU members' choices. Both those who chose to stay in the DBP and those who elected to transfer to the ICP were prepared to accept risk tradeoffs in making their choice. Differences in financial proficiency and differences across academic disciplines confirm that risk transfer costs played a key role in majority of SSAU members rejecting the ICP choice. Thus from the employee's perspective, the less-publicised costs of the ICP option appear to outweigh the well-publicised benefits.

The findings of this study have several important implications. First, when employees are offered a choice of defined benefit or accumulation plans, there is clearly a need for greater transparency of the risk transfer costs involved. Second, there is a need to incorporate compensation for such costs (e.g. improved benefits) into the offer. A major risk transfer cost

is the cost of becoming informed, including time incurred and/or costs of seeking professional advice in selecting and ongoing monitoring of superannuation investments. In turn, this has consequences for any regulatory attempt by governments to mandate superannuation/pension fund choice for workers.



## References

- Anonymous (2002) A matter of definition. *The Economist* 16 February.
- Australian Bureau of Statistics (1989-90) Major Labour Costs Australia, Catalogue No. 6348. Canberra: ABS.
- Australian Bureau of Statistics (2002) Employee Earnings, Benefits and Trade Union Membership, Australia, Catalogue No. 6310. Canberra: ABS.
- Australian Prudential Regulation Authority (2002) *APRA Superannuation Trends*, September quarter.
- Bernartzi S, Thaler RH (1999) Risk Aversion or Myopia? Choices in Repeated Gambles and Retirement Investments. *Management Science*, 45 (2), 364-381.
- Bernartzi S, Thaler RH (2002) How Much is Investor Autonomy Worth? *The Journal of Finance* 57 (4), 1593-1616.
- Brown K, Gallery G, Gallery N (2002) Informed superannuation choice: constraints and policy resolutions. *Economic Analysis & Policy* 32 (1), 71-90.
- Clark RL, McDermed AA (1990) *The Choice of Pension Plans in a Changing Regulatory Environment*. Washington, D. C: AEI Press.
- Clark RL, Pitts MM (1999) Faculty Choice of Pension Plan: Defined Benefit versus Defined Contribution. *Industrial Relations* 38 (1), 18-45.
- Dulebohn JH, Murray B, Sun M (2000) Selection among employer-sponsored pension plans: The role of individual differences. *Personnel Psychology* 53, 405-432.
- Gallery N (2002) Superannuation fund choice: Opening pandora's box. *The Drawing Board*. 5 September, <http://www.econ.usyd.edu.au/drawingboard/>.
- Insurance and Superannuation Commission (1996) The declining market share of defined benefit funds. *ISC Bulletin* June.

- Insurance and Superannuation Commission (1998) Member investment choice – analysis update. *ISC Bulletin*, March .
- International Accounting Standards Committee (1996) Exposure Draft. *E54: Employee Benefits*, October.
- Ippolito RA (1997) *Pension Plans and Employee Performance*. Chicago: The University of Chicago Press.
- Kennedy R (1998) Focus will be on understanding choice. *Superfunds*, April, 13.
- McIlwraith J (1999) Higher learning, higher earning. *Superfunds*, May, 16-20.
- McIlwraith J (2000) UK pension nightmare a lesson for us. *Superfunds*, April, 54-56.
- Murphy T (2002) The politics of super flexibility. *The Advocate* 9 (2), 8.
- Satanove, H (2002) Discussion of “Macroeconomic Aspects of Private Retirement Programs” Krzysztof M. Ostaszewski, and “The Shift to Defined Contribution Pension Plans : Why Did It Not Happen in Canada?” Robert L. Brown and Jianxun Liu, July 2001. *North American Actuarial Journal* 6 (2), 127-129.
- Scheiwe DJ (1996) Are defined benefit plans fundamentally a fraud?. *Australian Superannuation Law Bulletin*, November, 34-35
- Senate Select Committee on Superannuation (1998) *Choice of Fund*, 28<sup>th</sup> Report. Canberra: Parliament of the Commonwealth of Australia.
- Senate Select Committee on Superannuation and Financial Services (2000) *Roundtable on Choice of Superannuation Funds*. Canberra: Commonwealth of Australia.
- Sherry N (2002) *Broader Choice, Stronger Protection and Fairer Tax Superannuation Policy Paper A*.
- Superannuation Legislation Amendment (Choice of Superannuation Funds) Bill (2002) Explanatory Memorandum, House of Representatives. Canberra: The Parliament of the Commonwealth of Australia.

Superannuation Scheme for Australian Universities (1998a) Bulletin, April.

Superannuation Scheme for Australian Universities (1998b) *Advance – A Transfer Guide*,  
June.

Superannuation Scheme for Australian Universities (1998b) *Investing for the future*, June

Superannuation Scheme for Australian Universities (1999) UniSuper Management Pty Ltd  
website <http://www.unisuper.com.au/>, September.

*Superfunds* (2000) Investors endorse choice of fund. June, 5.

**Endnotes**

- <sup>1</sup> The term ‘pension’ is used in the U.S. and many other countries when referring to employment-related retirement benefits whereas the term ‘superannuation’ is commonly used in Australia.
- <sup>2</sup> This number includes 415 ‘hybrid’ funds which have both defined benefit and accumulation members. Statistics are not available on the number of funds which have predominantly defined benefit members. In a study of the superannuation disclosure practices of public companies, Gallery (forthcoming) found that 73% of the companies in the sample sponsored hybrid funds of which many had only small proportions of DBP members. For example, in the Bank of Western Australia superannuation fund fewer than 0.5% of the members receive defined benefits. Accordingly, inclusion of hybrid funds overstates the count of defined benefit funds as at June 2002, and understates the decline in the number of such funds over the preceding six-year period.
- In 1997 the Government introduced choice of fund legislation to the Federal Parliament, but after several iterations between the House of Representatives and the Senate, the legislation failed in August 2001. In early 2002 the Government reintroduced the choice-of-fund bill which if enacted will commence on 1 July 2004.
- <sup>5</sup> The choice of fund legislation will only apply to compulsory employer superannuation benefits provided under the Superannuation Guarantee (SG) legislation. Thus, where employers voluntarily provide benefits in excess of SG contributions, they will have no obligation to provide employees with choice of fund in relation to the voluntarily provided benefits.
- <sup>6</sup> New university workers join the Defined Benefit Plan on commencement of employment but have an option to switch to the Investment Choice Plan within twelve months.

- <sup>7</sup> The *Secure* strategy is capital guaranteed with all assets invested in cash and fixed interest deposits. The *Stable* strategy is invested in a mix of cash, interest bearing securities, shares and property. The *Trustee's Choice* strategy is the same as that adopted by the trustee for the DBP and is invested mainly in Australian and international shares (70%) and property, with some cash and fixed interest investments. The *Shares* strategy is invested fully in a portfolio of Australian and international shares.
- <sup>8</sup> Of those transferring to the ICP, 30% chose the *Shares*, 50% chose the *Trustee's Choice*, 15% chose the *Stable* and 5% chose the *Secure* investment strategy.
- <sup>9</sup> Defined benefit plan members are promised a benefit determined on the basis of their final salary and years of employment. Employers contribute to the plan in accordance with expected growth of benefits and returns on assets. If the rate of return of assets in the plan is greater or less than expected, the employer bears the benefit or cost by reducing or increasing the contribution rate.
- <sup>10</sup> In the multinomial model, the four observations for the 'stable' and 'secure' options are included with the DBP observations because by nature they are low risk.
- <sup>11</sup> Almost all of the 15 non-SSAU member respondents are members of the NSW State Super Scheme.
- <sup>12</sup> The proportional split of members between those staying in the DBP and transferring to the ICP is consistent with the proportions reported for all members on the SSAU website (see SSAU 1999), thus adding validity to the sample used in this study.
- <sup>13</sup> Analysis of Spearman correlation coefficients among the independent variables (not presented in tables) revealed no high bivariate correlations which suggests that multicollinearity is unlikely to pose a threat to the interpretation of the logistic regression results.

- <sup>14</sup> As previously noted the four observations for the low risk ICP options are included with the DBP observations for the purpose of the multinomial analysis.
- <sup>15</sup> The probability that the 'shares' option will be chosen in favour of the 'trustee's choice' option is not reported but can be calculated as  $2/0-1/0$ .

Table 1  
Variables Definitions and Measurement

Variable	Description	Coding/measurement
<b>Dependent:</b>		
CHOICE (binomial)	Choice to stay with DBP or transfer to ICP	0 = Defined benefit plan (DBP); 1 = Investment choice plan (ICP)
OPTION (multinomial)	Choice to stay with DBP or transfer to ICP and choice of investment strategy	0 = DBP + ICP Secure option + ICP Stable option 1 = ICP Trustee's selection option 2 = ICP Shares option
<b>Independent:</b>		
BENQUANT	Choice will maximise benefits	1 = Strongly agree 2 = Agree 3 = Neither agree nor disagree 4 = Disagree 5 = Strongly disagree
BENSEC	Benefits are more secure with the choice made	As for BENQUANT
INVRISK	Want to avoid investment risk associated with the ICP	As for BENQUANT
INVSTRAT	Not confident with choosing an investment strategy	As for BENQUANT
UNCIMPLIC	Uncertain about the implications of the choice	As for BENQUANT
CONTROL	Level of control over benefits is important	As for BENQUANT
FINPROF	Financial proficiency in superannuation matters	1 = Very poor 2 = Poor 3 = Average 4 = Good 5 = Very good
AGE	Age group	1 = Under 25 2 = 26 – 30 3 = 31 – 35 4 = 36 – 40 5 = 41 – 45 6 = 46 – 50 7 = 51 – 55 8 = 56 – 60 9 = over 60
DISCIPL	Primary area of research/teaching	0 = Accounting/finance 1 = Physical science
GENDER		0 = Male 1 = Female

**Table 2**  
**Choice and investment strategy**

	N	%
<b><u>Choice</u></b>		
Remained in the DBP by default	19	
Elected to remain in the DBP	<u>63</u>	
Total DBP	82	69.5
Elected to transfer to the ICP	<u>36</u>	<u>30.5</u>
Sample Total	<u>118</u>	<u>100.0</u>
<b><u>Investment strategy chosen by those electing to transfer to the ICP</u></b>		
	N	%
Secure	1	2.8
Stable	3	8.3
Trustee's selection	16	44.4
Shares	<u>16</u>	<u>44.4</u>
Total	<u>36</u>	<u>100.0</u>



**Table 3**  
**Descriptive Statistics and Univariate Tests**

<b>Panel A: Ordinal variables</b>						
<b>Variable*</b>	DBP (n = 82)		ICP (n = 36)		Mann-Whitney two- independent samples test	
	Mean	Median	Mean	Median	<i>Z-statistic</i>	<i>p-value</i>
	<i>(two-tailed)</i>					
BENQUANT	2.72	3	1.67	1	5.392	0.000
BENSEC	2.13	2	3.56	4	6.532	0.000
INVRISK	2.33	2	4.42	4	7.412	0.000
INVSTRAT	3.12	3	4.22	4	4.578	0.000
UNCIMPLIC	3.44	4	4.39	4.5	4.284	0.000
CONTROL	3.09	3	2.11	2	5.145	0.000
FINPROF	3.80	4	4.14	4	1.406	0.160
AGE	5.52	5	4.97	5	1.220	0.223
<b>Panel B: Categorical variables</b>						
	Value	Frequencies		$\chi^2$	<i>p-value</i>	
		DBP	ICP			
DISCIPL	0	31	22	5.492	0.027	
	1	51	14			
GENDER	0	60	30	0.232	0.347	
	1	22	6			

\* The coding/measurement of variables is presented in Table 1.

**Table 4**  
**Logistic Regression Analysis**  
**(DBP = 82, ICP = 36)**

Variable*	Model 1			Model 2		
	Coefficient	<i>t</i> -statistic	Sig.	Coefficient	<i>t</i> -statistic	Sig.
BENQUANT	-0.754	1.75	0.079	-0.851	1.91	0.056
BENSEC	2.186	2.63	0.009	3.204	2.51	0.012
INVRISK	1.957	2.33	0.020	9.174	2.45	0.014
INVSTRAT	-0.162	0.31	0.756	-0.155	0.27	0.787
UNCIMPLIC	0.812	1.67	0.094	1.049	1.80	0.071
CONTROL	-0.974	2.13	0.033	-1.317	2.36	0.018
FINPROF	-1.174	1.73	0.084	4.362	1.60	0.112
AGE	-0.362	1.33	0.183	-0.455	1.46	0.144
DISCIPL	-2.366	1.81	0.071	-4.260	1.96	0.050
GENDER	-0.838	0.74	0.460	-2.055	1.38	0.167
FINPROF × INVRISK				-1.665	2.12	0.034
Constant	-4.778	1.23	0.218	-29.597	2.18	0.029
Model Chi-square	105.35			111.65		
Significance	0.000			0.000		
Degrees of freedom	10			11		
Percent correctly classified	91.5%			94.1%		

\* The coding/measurement of variables is presented in Table 1.

**Table 5**  
**Multinomial Logistic Regression Analysis**  
**(DBP = 82, ICP = 36)**

<b>Variable*</b>	<b>Comparison</b>	<b>Coefficient</b>	<b>t-statistic</b>	<b>Sig.</b>
BENQUANT	1/0	-0.888	-1.81	0.072
	2/0	-0.83	-1.58	0.112
BENSEC	1/0	2.986	2.35	0.019
	2/0	3.393	2.63	0.008
INVRISK	1/0	8.594	2.23	0.026
	2/0	9.712	2.06	0.04
INVSTRAT	1/0	-0.005	-0.01	0.994
	2/0	-0.359	-0.53	0.599
UNCIMPLIC	1/0	1.431	2.07	0.038
	2/0	0.513	0.75	0.452
CONTROL	1/0	-1.226	-2.15	0.032
	2/0	-1.606	-2.43	0.015
FINPROF	1/0	3.932	1.30	0.195
	2/0	5.068	1.26	0.209
AGE	1/0	-0.309	-0.94	0.350
	2/0	-0.790	-2.14	0.032
DISCIPL	1/0	-3.903	-1.82	0.069
	2/0	-4.095	-1.86	0.063
GENDER	1/0	-1.486	-0.97	0.333
	2/0	-2.640	-1.55	0.121
FINPROF × INVRISK	1/0	-1.603	-1.92	0.055
	2/0	-1.725	-1.68	0.093
Constant	1/0	-29.842	-2.08	0.037
	2/0	-30.051	-1.62	0.105
Madalla's pseudo R-squared		0.64		
Percent correctly classified		85.6%		

\* The coding/measurement of variables is presented in Table 1.