Plan A or Plan B? The effect of fees, returns and disclosure format on retirement plan choices

Supplemental Material D: Calculation of dashboard data

We calibrated the experiment to the most common (default) MySuper investment product, a Strategic Asset Allocation fund. The average mix of assets in an SAA MySuper product is close to 70% growth and 30% defensive (Chant et al. 2014, Table 2). The weights we chose for six asset classes mimic the allocation of a typical SAA default fund (T1-3 and T5-6). Growth assets consist of Australian and international equities and property; defensive assets consist of Australian and international bonds and Australian cash (Table D1). For the low volatility treatments (T4 and T7), only defensive Australian assets are included.

We set the base fees for the constant fund (XYZ) at the average MySuper fee on a $50K account balance of 1.06% p.a., or $530.00 (Chant et al. 2014, Table 5). At each choice set, we added random variation to the fees by adding draws from a normal distribution with mean zero and standard deviation of 3.33 to the base fee level. We calibrated the high starting fee level for T1 and T5 to $800 (increasing condition) and the low fee level to $270 (decreasing condition) approximating observed variation in MySuper SAA default fees.

Steps:

1. We computed 288 gross monthly portfolio returns $R_{p,t} = \Sigma_{n=1}^{6} w_n R_{n,t}, 1 = \Sigma_{n=1}^{6} w_n$ where w_n is the weight allocated to asset class *n* and $R_{n,t}$ is the gross monthly return to asset class *n* in month *t* in Australian dollars.
2. From the 288 monthly returns we bootstrapped 31 x 12 months of portfolio returns and the associated monthly changes in the CPI and computed annual gross nominal portfolio returns as $R_{p,i} = \Pi_{t=1}^{12} R_{p,t,i}$ where $i = 1, \dots, 31$. and compute the average 10 year nominal return $\bar{R}_{p,i} = (\Pi_{k=i-10}^{i} R_{p,k})^{1/10}$. The 31 bootstraps give us 20 years of data for the choice set, preceded by 10 years of "historical returns" used to calculate the 10 year average net return in the first choice set.
3. For the constant fund, we calculate the nominal 1 year return net of fees (1.06% of a $50K balance) and 7% taxes on earnings as $r_i = [R_{p,i} - (0.0106 + x_i)]0.93 - 1$ where x_i is the random adjustment to the base fee described above. The 10 year average net return is $\bar{r}_i = \Pi_{k=i-10}^{i}(1 + r_k)^{1/10} - 1$. (We sum the return target plus the average CPI over the same 10 years as used to calculate $\bar{r}_i$ to compute the blue line on the dashboard graph.)
4. For Treatments 1 and 5, difference in fees drive the differences in performance between the constant and alternative funds. For the increasing condition in Treatment 1 (and 5), we follow step 3, but starting with a fee level of $800/$50000 or 1.6%. At each choice set this fee decreased by a randomly drawn dollar amount between $20-$30, e.g. $775/$50000, $751/$50000 etc. until it equals the fee for the constant fund (1.06%) and then decreases lower. This decline in fees also means that the net returns of the alternative fund gradually increases over the 20 choice sets. For the decreasing condition, the starting fee is $270/$50000 or 0.54%. At each choice set this fee increases by a randomly drawn dollar amount between $20-$30, e.g. $300/$50000, $326/$50000 etc., until it equals and exceeds

the constant fund fee. This increase in fees also ensures a gradual decline in the net returns of the alternative fund over the 20 choice sets.

5. For Treatments 2, 3, 4, 6 and 7 difference in returns, not fees drive the differences in performance between the constant and alternative funds. (This treatment mimics differences in performance due to investment management such as asset or fund manager selection or market timing). For the increasing and decreasing conditions in Treatment 2 (3, 4, 6, and 7) differences in performance are evident in returns not fees. Fees for both the constant and alternative funds are calculated as for the constant fund at step 3, that is, as 1.06% of a $50K balance with a small random adjustment at each choice set. However the fee penalty (bonus) from step 4 is applied to net returns of the alternative fund in the decreasing (increasing) condition. The high (Treatments 2, 3, and 6) and low (Treatments 4, and 7) volatility settings are generated by changes to asset allocation in the underlying portfolio. (Low volatility returns are computed from bootstrapping historical returns to cash and fixed interest assets.)

Table D1: Portfolio structure and data sources

	Asset class							
	Australian Equities	**International Equities**	**Property**	**International Bonds**	**Australian Bonds**	**Australian Cash**	**AUD/USD**	**CPI**
Weights T1-T3 and T5-T6	30%	25%	15%	10%	10%	10%		
Weight T4 and T7	0	0	0	0	20%	80%		
Source	Datastream Australia-DS Market Total Returns Index TOTMKAU(RI)	Datastream MSCI WORLD EX AU U$ - Total Returns Index MSWXAU$(RI)	Datastream S&P AUSTRALIA PROPERTY - Total Returns Index SBBPAUL(RI)	Datastream JPM GLOBAL GOVT.BND X.AUSTRALIA A$ - Total Returns Index JPMGXAU(RI)	Datastream UBS AU COMPOSITE ALL MATURITIES Total Returns Index ACIALLM	Datastream UBS AU BANK BILL ALL MATURITIES Total Returns Index ABNKBLI	Datastream AUSTRALIAN $ TO US $ - EXCHANGE RATE USDAUSP	RBA Bulletin Database Table G1 All groups seasonally adjusted GCPIAGSAYP
Sample	30/12/89-30/01/14	30/12/89-30/01/2014	30/12/89-30/01/14	30/12/89-30/01/14	30/12/89-30/01/14	30/12/89-30/01/14	30/12/89-30/01/14	30/12/89-30/01/14

Note: Quarterly CPI data were linearly interpolated to monthly frequency. International equity index values were converted from USD to AUD using end-month exchange rates.