



The impact on superannuation fund balances from the new compulsory superannuation rate

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Introduction

The federal government has introduced an amendment to the compulsory superannuation minimum rates. This study will use the new compulsory minimum rates to project and analyse the likely fund balances of compulsory superannuation. The results presented here are produced by applying the CSIRO Simulation of Uncertainty for Pension Analysis Model (the “SUPA” model - the SUPA model has been developed to assist superannuation-related research within the CSIRO-Monash Superannuation Research Cluster). In this paper, we will use the SUPA model to study retirement outcomes under both the newly-legislated superannuation contribution rate regime and the previous schedule. These results will provide some insight as to the accuracy of recent statements made by relevant participants in the politically-charged superannuation debate.

Assumptions of the Modelling Work

The SUPA model is firstly calibrated by relevant economic data from the years 1993 to 2013, a period selected as the longest recent period for which the economy has been structurally consistent since the introduction of the Reserve Bank of Australia’s inflation targeting policy of mid-1993. In the SUPA model, we incorporate the co-dependent behaviour of seven elements of the Australian economy relevant to superannuation research: (1) price inflation; (2) wage inflation; (3) Australian stock market returns; (4) international stock market returns; (5) Australian bond returns; (6) international bond returns; and (7) Australian cash investment returns. Through a large number of simulations of probable paths of these economic variables, the SUPA model can be used to project a range of retirement outcomes achievable through an individual’s superannuation fund activity given certain assumptions relating to the individual’s behaviour. These assumptions are:

- The individual’s rate of contribution to the fund relates to the percentage of weekly salary. For the purposes of this study, the assumption is varied to match both the pre-2014 schedule of compulsory superannuation contributions and the “new” schedule – these are provided in the table below:

Table 1 Comparison of “old” (pre-2014) and “new” (2014) compulsory superannuation contribution schedules

YEAR	2014-2015	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020	2020-2021	2021-2022	2022-2023	2023-2024	2024-2025	2025-2026+
Pre-2014	9.5%	10%	10.5%	11%	11.5%	12%	12%	12%	12%	12%	12%	12%
New	9.5%	9.5%	9.5%	9.5%	9.5%	9.5%	9.5%	10%	10.5%	11%	11.5%	12%

- The retirement age of the individual is assumed to be 65 years old.
- The career commencement age of the individual is assumed to be 25 years old.
- The individual is assumed to withdraw (at the beginning of each year) from their retirement age onward an annual amount equivalent to the ASFA comfortable living standard annual income requirement, which is \$42,254.00 per annum at 2014, inflated in accordance with projected price inflation rate (CPI) until death.
- The individual is assumed to receive an annual salary (at the end of each working year) beginning at the average graduate starting salary in 2013 of \$54,425.00 and growing with the SUPA projected wage inflation until retirement at the age of 65.

- Individual mortality is projected by utilising the Lee-Carter mortality model as applied to Australian Bureau of Statistics mortality data, and by including projection for longevity improvements based upon this model.
- It is assumed for the purposes of this study that no superannuation contributions tax or investment earnings tax is applied to the individual.
- The summary output from calibrating the SUPA model by fitting to relevant economic data sets from the Australian Bureau of Statistics and Thomson Reuters Datastream is tabled below for the average returns across the projected 85 year period:

Table 2 Average annual returns of relevant economic variables produced by SUPA model over 85 year period

Economic variable	Annual mean	Annual Standard Deviation
Price Inflation (%pa)	2.54%	1.46%
Wage Inflation (%pa)	4.38%	1.06%
Australian Equities Return (%pa)	8.50%	14.95%
International Equities Return (%pa)	4.12%	19.46%
Domestic Bonds Return (%pa)	5.07%	8.69%
International Bonds Return (%pa)	6.24%	7.01%
Cash Investment Return (%pa)	5.25%	2.12%

Outputs from Modelling Work

By using the calibrated SUPA model, we can generate detailed scenario outcomes with regards to potential future paths of these key economic variables. For an overview of the potential impact from the new government amendment, we can provide the following statistics on the outputs from the modelling work:

Table 3 Output statistics from application of SUPA model

Statistic	Old CR structure	New CR structure	Difference
Average fund length post-retirement (years)	28.2186	26.9537	-1.2649
Standard deviation of fund length post-retirement	12.0198	11.9060	-0.1138
Probability of super funds ruin before death	23.49%	26.00%	+2.51%
Expected number of years between ruin and death	1.8083	2.04	+0.23
Fund balance at retirement at 65 (current \$)	\$781,941.92	\$749,734.84	-\$32,207.10
Fund balance at retirement at 65 (nominal \$)	\$2,160,401.40	\$2,071,202.09	-\$89,199.30
Fund balance at mid-2025 (current \$)	\$87,713.68	\$77,205.64	-\$10,508.00
Fund balance at mid-2025 (nominal \$)	\$115,970.94	\$102,078.70	-\$13,892.20

The above figures indicate that given the assumptions of the SUPA model, the post-retirement duration of the superannuation fund of an individual will fall by approximately one year, and the probability of them running out of money to support their retirement prior to death will increase by approximately two percent. Furthermore, at retirement the 25-year-old individual commencing their career in 2014 can expect

to have approximately \$32,200.00 less in their superannuation fund in current dollar terms, or approximately \$89,100.00 less in terms of nominal dollars on retirement. Finally, the 25-year-old individual commencing their career in 2014 can expect to have approximately \$10,500.00 less in current dollar terms or approximately \$13,800.00 less in nominal dollar terms by the middle of 2025. Recently, the Industry Super Australia stated that 'For an average income earner, aged 25, the delay in the SG [superannuation guarantee rises relative to the previous schedule] will cost them around \$100,000 over their working life (\$36,000 in today's dollars)' (Industry Super Australia 2014); and the Australian Labor Party released a press announcement: 'a 25-year-old Australian earning \$55,000 a year will be more than \$9000 worse off by 2025' (Crowe 2014) as a result of the recent legislative changes. As a policy, we do not make comment on any discussions with commercial or political objectives. We only note the figures quoted by the two parties are in the same order of magnitude as calculated by the SUPA model.

Summary

The objective of this study is to use the SUPA model to forecast the likely effect of the new schedule for the compulsory superannuation contribution rate introduced in September 2014. Through the SUPA model, we have provided detailed quantitative estimate of the likely impact from the new superannuation contribution rate. Our estimates are shown to be of the same order of magnitude as the estimates from other two sources. For the next case study, we will focus on studying whether the reductions in compulsory superannuation contributions can be adequately offset by likely wage increases into the future (Crowe & Owens 2014).

References

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