

Impact case study (REF3b)

Institution: Imperial College London
Unit of Assessment: 19 Business and management studies
Title of case study: Using tax incentives to make saving for retirement sustainable
1. Summary of the impact (indicative maximum 100 words)

There is widespread concern that UK households are not saving enough – personal saving rates fell below zero in 2007 and subsequent recovery has been modest. The challenges are whether policy can encourage households to save enough for their retirement and how to support policy makers in their thinking.

Professor Sefton developed a simulation model of the complex interaction of taxes and benefits with individual work and saving decisions. His model stimulated changes to the Pension Tax regime and informed the conclusions of the Pension Commission. This prompted further funding from HMT and HMRC, to bring his approach in-house: they now routinely embed his approach in their assessment of future tax policy changes.

The impact has therefore been that UK public policy is better informed, with fewer unintended consequences. The beneficiaries are the general public, both through minimisation of costly policy mistakes and because policy can now address the long-term sustainability of welfare policies.

2. Underpinning research (indicative maximum 500 words)
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This original research reflected concerns of the then Inland Revenue (IR) and Department of Work and Pensions (DWP).

The IR wanted to know whether greater preferential tax treatment of pensions leads to higher saving by different income groups or whether it simply induces switching from one form of saving to another. DWP wanted to know whether a rise in both the generosity and cover of means-tested pension benefits discouraged households in saving for their retirement.

A new modeling approach was required because (a) policy needs to worry about distributional implications, even where the prime purpose is to affect aggregate behaviour (b) household behaviour responds to policy changes, and (c) different subgroups respond differently and cannot simply be modelled in the aggregate

Econometric estimates require ‘natural experiments’ to allow identification of key microeconomic responses; such data are not systematically available with sufficient disaggregation. Sefton adopted an agent-based dynamic stochastic general equilibrium model (DSGE), a computable simulation model of the dynamic optimizing behaviour of households over their life-cycle. Such computer-based micro models make assumptions about people’s behaviour, and are difficult to calibrate, but are very flexible as a policy tool. The simulations can highlight household responses that might otherwise be ignored. When calibrated to the UK economy, the simulations make quantitative predictions on the likely response of households to any changes tax and benefits.

The first paper was published in 2000 [1]; the work is still on-going. Sefton has been at Imperial throughout.

The research concluded that incentives to save needed to be targeted more tightly at those on lower incomes. Some form of gentle progressive taxation on private pensions is desirable.

More specifically, those on low incomes need strong incentives if they are to save more, for two reasons: they are anyway short of cash and liquidity, and welfare benefits are large relative to market opportunities. This led to experimental simulations exploring a higher annual contribution threshold in combination with a lifetime allowance.

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In research motivated by the DWP [7, 8], Sefton found that a minimum income guarantee for pensioners (1999-2003) - acting like a 100% tax on the first amount of private pension income - did little to incentivize low-income households either to stay in the labour market or to save for retirement. Further, as these households rely almost exclusively on benefits if they fall out of the labour market before retirement, the implied costs of this policy were large. More modest taxation of private pension income over a broader band encourages low-income households to work longer and save more. The gains are partially offset by reduced saving by middle-income households but have little impact on high-income families. The overall impact of this research is strongly positive in both financial and welfare terms.

Finally, the research concluded that flat (non-progressive) pension benefits are costly to the public purse and significantly discourage aggregate private saving.

3. References to the research (indicative maximum of six references)**Key Outputs**

- [1] [‘Solution method for consumption decisions in a dynamic stochastic general equilibrium model’](#), *Journal of Economic, Dynamics and Control*, (2000).
- [2] [‘Income Distribution and Income Dynamics in the United Kingdom’](#). *Journal of Applied Econometrics*. (2001), Vol 16. pp 599-616. With J. Dutta and M. Weale
- [3] Cantor, A. C. M., and J. A. Sefton. ["Economic applications to actuarial work: personal pensions and future rates of return."](#) *British Actuarial Journal*, 8.01 (2002): 91-131.
- [4] [‘Social Security Design in the UK: What is optimal?’](#), (2003). *Fiscal Studies*, June 2003, vol. 24, no. 2, pp. 121-151. With David Miles.
- [5] [‘Simulating Household Savings and Labour Supply: an Application of Dynamic Programming’](#), *National Institute Economic Review*, (2004), pp. 56-72. With Justin van de Ven.
- [6] [‘A Comparison of National Saving Rates in the UK, US and Italy’](#) *European Economic Review*, (2007), Volume 51, Issue 8, November 2007, Pages 1998-2028.
- [7] [‘Means Testing Retirement Benefits: fostering equity or discouraging savings?’](#), *Economic Journal*, (2008), Volume 118, Issue 528, April 2008, Page 556-590 with Justin van de Ven and Martin Weale.
- [8] [‘Optimal Design of Means Tested Retirement Benefits’](#), *Economic Journal*, (2009) Volume 119, Issue 541, November 2009, with Justin van de Ven.

Evidence of quality of research

Published in a series of journals of international standing (*Economic Journal* (twice), *European Economic Review*, *Journal of Economic Dynamics and Control*, *Fiscal Studies*).

Three papers [2, 4, 7] were co-authored with academics subsequently appointed to the Bank of England’s Monetary Policy Committee.

4. Details of the impact (indicative maximum 750 words)

The development of this model (renamed NIBAX, or the National Institute Benefit and Tax Model) influenced spending decisions by government departments and non-governmental bodies. Recognizing the model’s usefulness, government departments (HMT, HMRC, DWP) have funded further development of the model (amounting to c. £430K since 2009 to bodies including the National Institute for Social and Economic Research), and taken it in house for routine deployment

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in analysing responses to possible policy changes. Confirmation of this is available from the former Chief Economist at DWP [A], a member of the Knowledge, Analysis and Intelligence unit at the HMRC [B] and the Head of Model Development, Labour Markets and Distributional Analysis at HM Treasury [C].

The impact of this work is being demonstrated through current policy changes. A slow rise in the state retirement age from 65 to 68 became policy in the Pension Act of 2007, was accelerated in the 2010 Spending review and will accelerate further in 2014 if the current Pension Bill receives royal assent.

The Chief Analyst at the DWP has stated:

“[Sefton’s work] demonstrated that ...an increase in the state retirement age would affect the retirement decisions of people on low income significantly more than those on middle incomes. ... As such, it contributed to the decisions made in the final White Paper ‘Security in Retirement’.” [D]

Another significant policy change has been the introduction of a lifetime allowance for pension savings with a simultaneous increase in the maximal annual contribution allowance. In the Finance Bill of 2013, this lifetime allowance was reduced to £1.25m per individual. The specific simulation of introducing a lifetime allowance was first analysed in the publication in 2000 [1]. Essentially, enhancing saving requires a powerful annual fiscal incentive; the lifetime cap then maintains overall fiscal affordability.

The former Director of Analysis and Research in the Inland Revenue, attests:

“Given the complexity of saving behaviour, it was difficult to fully anticipate and quantify the likely impact of households’ response, without such a modelling framework - especially when these effects are designed to accumulate over the entire lifetime of an individual”.

Moreover, he confirms the ongoing and enhanced impact of Sefton’s research since it was taken in house and embedded in Treasury policy analysis:

“I am in regular contact with both HMRC and HM Treasury and understand that this model has gone from strength to strength and continues to have an impact as an integral part of the policy process at HM Treasury – which is the department that now has responsibility for strategic tax policy.” [E]

Providing further confirmation of the application of Sefton’s research, a member of the Knowledge, Analysis and Intelligence unit at the HMRC, has stated:

“This NIBAX model has been used by HMRC to assess the impacts of changes in the tax Regime; in particular, changes to the taxation of pensions and saving. More recently, we have been collaborating with HM Treasury to develop the model. This has resulted in us commissioning NIESR [the National Institute for Economic and Social Research] to adapt the model so it can project from a population cross-section. This new model will provide us with a better understanding about the long-term prospects of those affected by potential policy changes. This work is seen as pioneering, as it is developing new capabilities within the department.” [B]

This is echoed in the statement from the former Chief Economist at Department for Work and Pensions:

“It is clear the model fills a major gap in the policy process. It remains the only large-scale microsimulation model that explicitly models behavioural responses to policy changes such as the introduction of Universal Credit, possibly the most important reform to the benefit system in the last 25 years...So, in short, this approach to modelling household saving and

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work decisions has gone from being of academic interest to being widely used by government departments and others in the evaluation of potential policy decisions” [A]

To sum up, Sefton’s work underpins modern tax policy analysis by UK government advisers and departments. A workable tool, it displays induced behaviour changes that are not always immediately apparent. Its impact has been greatest in relation to pensions, saving, and the choice of retirement age. Its impact has therefore been to promote policies that more effectively foster work and labour supply, more responsible saving behaviour, and hence promote a more sustainable pension system despite adverse demographics. Sefton’s pathbreaking research is the fulcrum on which much of this policy analysis now turns. That denotes both materiality and reach; the social and budgetary implications are profound.

5. Sources to corroborate the impact (indicative maximum of 10 references)

- [A] Director, National Institute of Economic and Social Research (formerly Chief Economist at Department for Work and Pensions);
- [B] Member of the Knowledge, Analysis and Intelligence unit, HMRC;
- [C] Head of Model Development, Labour Markets and Distributional Analysis, HM Treasury;
- [D] Chief Analyst, Department for Work and Pensions;
- [E] Director of the Scottish Institute for Research in Economics, University of St Andrews (formerly Director of Analysis and Research in the Inland Revenue): statement available on request.