Section A		
Institution: University of St Andrews		
Unit of Assessment: UoA16: Economics and Econometrics		
Title of case study: Influencing the Budget of the Scottish Government and its Understanding		
Period when the underpinning research was undertaken: 2008 - 2018		
Details of staff conducting the underpinning research from the submitting unit:		
Name(s):	**Role(s) (e.g. job title):**	**Period(s) employed by submitting HEI:**
David Ulph	Professor	01 October 2006 – 31 January 2021
Period when the claimed impact occurred: October 2018 – 31 December 2020		
Is this case study continued from a case study submitted in 2014? N		

Section B

1. Summary of the impact

Research by David Ulph on both (a) the design of a devolved Scottish fiscal system; and (b) behavioural responses of taxpayers and benefit recipients, was a key factor in his appointment as one of four Commissioners of the Scottish Fiscal Commission (SFC) in October 2018. The SFC is Scotland's official, independent economic and fiscal forecaster, and supports Scotland's budget cycle. Ulph's research has underpinned his input into the SFC's budget-setting and medium-term financial forecasts that provide the constraints within which the Scottish Government sets its GBP16,000,000,000 devolved tax and GBP3,500,000,000 devolved spending policies. His research has also underpinned discretionary SFC reports that support the scrutiny role played by the Scottish Parliament, and wider public understanding, of both the operation of the devolved fiscal framework (e.g. block grant adjustments, reconciliations) and the drivers of tax and spending (e.g. behavioural responses, distributional factors).

2. Underpinning research (indicative maximum 500 words)

The underpinning research undertaken by Ulph in St Andrews since 2008 builds on a sustained agenda of research over 40 years on various aspects of tax and spending, and their impact on behaviour and well-being. It falls into two distinct categories: publications [R1] and [R2] relate to the design of a devolved tax and spending system for Scotland; while [R3] to [R5] relate to the design of non-devolved tax and benefit systems taking account of how taxpayer and benefit-recipient behaviour responds to features of the system.

[R1] sets out the broad principles that should apply to the design of a devolved tax and benefit system. It examines the trade-offs between these principles and identifies where various systems of fiscal devolution across the world lie in terms of resolving them. It concludes that there is no ideal system and that designing a devolved tax system involves making choices and decisions about which principles are most important and how the trade-offs with other principles are to be handled.

[R2] examines in detail the arguments for devolving different taxes to Scotland; for adjusting the block grant system; and for granting borrowing powers to the Scottish Government. It concluded that income tax was the most natural tax to devolve; that some VAT assignment was possible; but North Sea Oil Revenues were too unstable to make them suitable for devolving/assigning.

[R3] examines the design of a tax system when there is an imperfectly competitive market selling schemes for avoiding tax. It shows how factors such as the distribution of income and how progressive is the tax system, affect the equilibrium price for such schemes, with consequences for both the number and types of taxpayers who avoid tax and the total amount of tax raised. It shows that, contrary to received wisdom, more progressive tax systems may generate less avoidance.

[R4] examines the design of income tax schemes when consumers care about relative consumption – a well-established phenomenon in the "happiness" literature. It shows that when consumers compare themselves to their peers then, contrary to standard economic thinking: (i) those with lowest wages may not have the lowest well-being – the "excluded middle" phenomenon; and (ii) the optimal tax rate when there is such peer comparison may be lower rather than higher than when there are no such comparisons.

[R5] Examines the optimal mix of universal and categorical benefits in the presence of classification errors and imperfect ex-post enforcement – i.e. checking whether recipients comply with a restriction on how much work they can do while receiving benefit. It establishes the very counter-intuitive result that social welfare may increase the higher is the propensity falsely to award benefits to those who are not entitled to receive them.

3. References to the research

[R1-R2] represent the first-stage working paper and the final report of an independent expert group formed to advise the Commission on Scottish Devolution during 2008-09. [R3-R5] are published in international peer reviewed journals.

R1. A. Muscatelli, D. Bell, C. Jeffrey and **David Ulph**, First Evidence of the Independent Expert Group to the Commission on Scottish Devolution, November 2008. [Available upon request]

R2. A. Muscatelli, D. Bell, C. Jeffrey and **David Ulph**, Final Report of the Independent Expert Group to the Commission on Scottish Devolution, May 2009. [Available upon request]

R3. T. Damjanovic and **David Ulph**, "Tax Progressivity, Income Distribution and Tax Non-Compliance", European Economic Review, 2010, Vol 54(4), 594-607. DOI: 10.1016/j.euroecorev.2009.09.003

R4. S. Slack and **David Ulph**, "Subjective Well-being, Consumption Comparisons and Optimal Income Taxation", *Journal of Public Economic Theory,* 2018, DOI: 10.1111/jpet.12281

R5. S. Slack and **David Ulph**, "Optimal universal and categorical provision with classification errors and imperfect enforcement", *Journal of Public Economic Theory,* 2016, DOI: 10.1111/jpet.12218.

4. Details of the impact

Research by David Ulph at St Andrews (with co-authors Muscatelli, Bell, Jeffrey, Damjanovic and Slack) relating to (a) the design of a devolved Scottish fiscal system [R1-R2] and (b) behavioural responses of taxpayers and benefit recipients [R3-R5] has influenced the fiscal policy debate in Scotland through two channels. (i) It led to the appointment, in October 2018, of Ulph as 1 of 4 Commissioners of the Scottish Fiscal Commission (SFC), the body responsible for producing **independent** and **transparent** forecasts of devolved Scottish tax revenue and social security spending and assessing the reasonableness of the Scottish Government's borrowing proposals; (ii) It has also underpinned his subsequent input to the Commission's forecasts and reports.

The SFC is Scotland's official, independent economic and fiscal forecaster, whose role is analogous to that played by the Office of Budget Responsibility in relation to the Westminster Parliament. Under responsibilities directly held by the Commissioners, it produces independent, five-year forecasts of Scottish tax revenues (just under GBP16,000,000,000 in 2020-2021) and devolved social security spending (just under GBP3,500,000,000 in 2020-2021) that supports Scotland's budget cycle [S1]. These policies affect every individual in Scotland from cradle (through the Best Start Foods programme) to grave (Funeral Payments). The Scottish Government (SG) and Scottish Parliament are legally required to use these forecasts when setting and scrutinizing the Scottish budget. The SFC is required to provide a detailed explanation of its own forecasts and is responsible for assessing the reasonableness of the SG's borrowing plans. At the discretion of the Commissioners, the SFC also publishes reports on topics related to its required mandate. This ensures the public is kept informed about the SG's budget and budgetary process, and the Scottish Parliament's scrutiny of it. At the same time, it demonstrates the SFC's independence and transparency.

The importance to the SFC of Ulph's research relating to the devolved fiscal system is explained by the Chair of the SFC in the following terms: "*We wanted someone with particular understanding of the income tax system in the UK and as it was being devolved to Scotland, and which comprises by far the largest element of Scotland's pool of devolved taxes.*" (S2) The Chair goes on to explain the importance of Ulph's research on tax-induced behavioural responses - "*We wanted someone with a strong voice on how individual behaviours are affected by changes in the fiscal system, in other words, where incentives and disincentives lie. Bringing such factors into our forecast judgements and explaining them transparently adds considerable value to government as they design and iterate these systems… Professor Ulph's research had a direct link to our interests and indeed his work on behavioural responses to fiscal matters was viewed as being especially relevant as the devolution of a number of taxes and some social security benefits was in train and indeed still continues… His research clearly signalled to the search panel a deep and broad grasp of key factors in the relationship between taxation and behaviours as well as a keen understanding of how devolved tax systems work here and abroad…. As a Commissioner, Professor Ulph has continually influenced our collective judgements on these and other matters at each forecast round, deriving from his authoritative research and on his ability to express its precepts with clarity… Drawing on his highly relevant research, Professor Ulph has and continues to have very significant influence and impact on the work and outputs of the Scottish Fiscal Commission.*" (S2)

The Chief Executive of the SFC also highlights the importance of Ulph's research for the SFC's work in analysing behavioural effects of both tax and social security systems for Scotland. The Chief Executive explains that…"*In Professor Ulph's case his expertise on behavioural responses to fiscal policies has contributed significantly to our work on the new social security payments introduced by the Scottish Government, and to the diverging tax systems in Scotland and the rest of the UK. These behavioural judgements are key to our forecasts and in assessing the risks to the Scottish public finances. Professor Ulph has also made valuable contributions to our analysis of reconciliations (the ex-post corrections to the Scottish budget for the outturns on our and the OBR's forecasts) and the impact of the income distribution on Scottish tax receipts.*" (S1)

A significant and innovative contribution to the fiscal policy debate in Scotland is the SFC Fiscal Update. This is a discretionary report initiated by Ulph and the other Fiscal Commissioners that relies in part on their research to provide evidence-based analysis and interpretation to the Scottish Parliament and Scottish public on the fiscal impact (actual and potential) of contemporary events. For instance, the Fiscal Update published in September 2020 was especially important, setting out how "…*the coronavirus (COVID-19) pandemic has had a profound effect on the fiscal and economic outlook in Scotland and the UK. In April we published our first Fiscal Update, setting out how the Scottish Budget had changed since the passage of the Budget Bill in February. This second Fiscal Update sets out the latest position of the Scottish Budget, discussing the potential variations in the Scottish Budget which the Government will have to manage this year, and the levers available to do so. We also consider the effects of COVID-19 on the economy. We are publishing this information to provide the Scottish Parliament and the wider public with transparent information on the scale of changes to the Scottish Budget.*" [S3, p. 1]

The Fiscal Commissioners, as owners of the SFC forecasts, give evidence to various committees of the Scottish Parliament as they exercise their budget scrutiny function. While all the reports produced by the SFC are collectively owned and agreed, the Commissioners have a range of different expertise that may help shape the SFC's thinking on particular issues (as confirmed in the above quoted statements from the Chair and Chief Executive of the SFC (S1, S2)).

Three significant reports published by the Commission relate to issues covered by UIph's underpinning research:

(i) The Budget Forecast in December 2018 contained SFC's forecasts of the additional tax that would be raised by the SG's first significant departure from the UK income tax system by having 5 rather than 3 tax bands. The forecasts included a behavioural effect which was modest but nevertheless was of considerable interest to both the media and the Finance and Constitution Committee (FCC). The effect was calculated based on evidence on elasticities taken from the economics literature. Commenting on the higher marginal tax rate implied by the new tax bands, the report concluded that "*We expect that this higher marginal tax rate will start to affect taxpayer behaviour, for example decisions on how many hours to work. We estimate that in 2019-20 around 120,000 [people] taxpayers in Scotland will be subject to this higher marginal rate. Using our standard approach to modelling taxpayer behaviour, we have estimated that this effect will lead to a reduction in income tax in Scotland of £7 million [GBP7,000,000] in 2019-20.*" (S4, pp. 20-21)

(ii) The forecasts that the SFC published in May 2019 to accompany the Medium Term Financial Strategy contained their first estimates of the impact that income tax reconciliations would start to have on the budget of the Scottish Government. The May 2019 report stated that *"We are currently forecasting a series of large negative reconciliations for income tax over the next few years… …The latest estimates are that the Scottish Government will receive £229 million [GBP229,000,000] less in 2020-21, £608 million [GBP608,000,000] less in 2021-22, and £188 million [GBP188,000,000] less in 2022-23."* (S5, p. 5) Again, these estimates generated considerable interest by both the media and the FCC.

(iii) In October 2020, the SFC published a report on the link between the growth of earnings and the growth of income tax revenue. It showed how this depended on both the distribution of income and the progressivity of the tax system. Of particular interest was understanding the role that differences between Scotland and the rest of the UK (rUK) in terms of both the distribution of income and the progressivity of the tax system had on the Scottish budget via Scottish income tax revenue and the income tax Block Grant Adjustment - which is linked to the growth of income tax revenue in rUK. One important conclusion is "*…that by switching from the three-band tax system to the more progressive five-band system, the aggregate tax-revenue elasticity rose…* [so] *… the static distributional effect will contribute positively to faster income tax revenue growth in Scotland compared to the UK. In any one year, …the static distributional effect will add around £20 million [GBP20,000,000] to Scottish income tax revenue growth compared to the UK. Because this effect is relatively stable, it will build over time.*" (S6, p. 5)

In the Summer of 2019, the OECD carried out an Independent Review of SFC's performance as an Independent Fiscal Institution. The OECD has carried out many such reviews. In reaching its conclusions, the OECD canvassed opinions from a wide range of stakeholder groups. It concluded that *"The SFC has become a voice of authority, and is credited with enriching the fiscal policy debate in Scotland. It has significant engagement with the Scottish Parliament and receives broad media coverage. Stakeholders across the board praise the clarity and accessibility of its reports."* (S7, p. 2)

5. Sources to corroborate the impact

S1. Letter from the Chief Executive of SFC

S2. Letter from the Chair of SFC

S3. SFC *Fiscal Update*, Sept 2020

S4. SFC *Scotland's Economic and Fiscal Forecasts*, Dec 2018

S5. SFC *Scotland's Economic and Fiscal Forecasts*, May 2019

S6. SFC *The Distribution of Income and Growth in Income Tax Revenue*, Oct 2020

S7. *OECD Independent Fiscal Institutes Review: Scottish Fiscal Commission*, 2019