

Modelling behavioural responses to changes in Welsh Rates of Income Tax

Written evidence submission to National Assembly for Wales' Finance Committee inquiry into 'Impact of variations in national and sub-national income tax'

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22 JANUARY 2019

1. This evidence submission draws upon relevant sections from our 2018 report, *The Welsh Tax Base: Risks and Opportunities after Fiscal Devolution*, with updated modelling results.¹ We focus on assessing the monetary impact on devolved income tax revenues of varying levels of tax rate divergence.
2. Our main findings are:
 - a. The extent and effects of behavioural change to be expected is highly uncertain, though it must be considered when setting income tax policy. High income earners are assumed to be the most responsive to income tax rate changes, because they have the largest incentive and the greatest means to change their behaviour in response to tax policy.
 - b. Since only a portion of income tax is devolved, the Welsh Government would be relatively shielded from the behavioural response of taxpayers if it decided to change income tax rates. For example, a 1p increase in the basic rate would raise around £190 million in revenue in the absence of a behavioural response; this additional revenue would reduce only marginally to £186 million even under an assumption of large behavioural responses to changes in marginal tax rates.
 - c. Taxpayers may also decide to migrate to and from Wales as a result differences in average income tax rates. There is some evidence that differences in tax rates within a country can encourage taxpayers to relocate or shift income between jurisdictions, though Wales' circumstances make it hard to draw conclusions from other countries. We therefore present estimates of the migration levels required for the revenue effect of a tax change to reverse (e.g. for inward migration of taxpayers to offset the cost of a tax cut). Migration by Additional Rate taxpayers (those earning over £150,000 a year) has the highest likelihood of materially affecting the revenue effects of Welsh Government tax rate changes.
 - d. It would take a substantial migration response from very high earners to have a material positive budgetary effect if the additional rate was cut by 5p in Wales. If 1,100 taxpayers relocated the cost of the tax cut would reduce to zero, while a doubling of Wales' share

¹ Ifan and Poole (2018), available at: https://www.cardiff.ac.uk/_data/assets/pdf_file/0008/1287008/The-Welsh-Tax-Base-WCPP-Final-180627.pdf

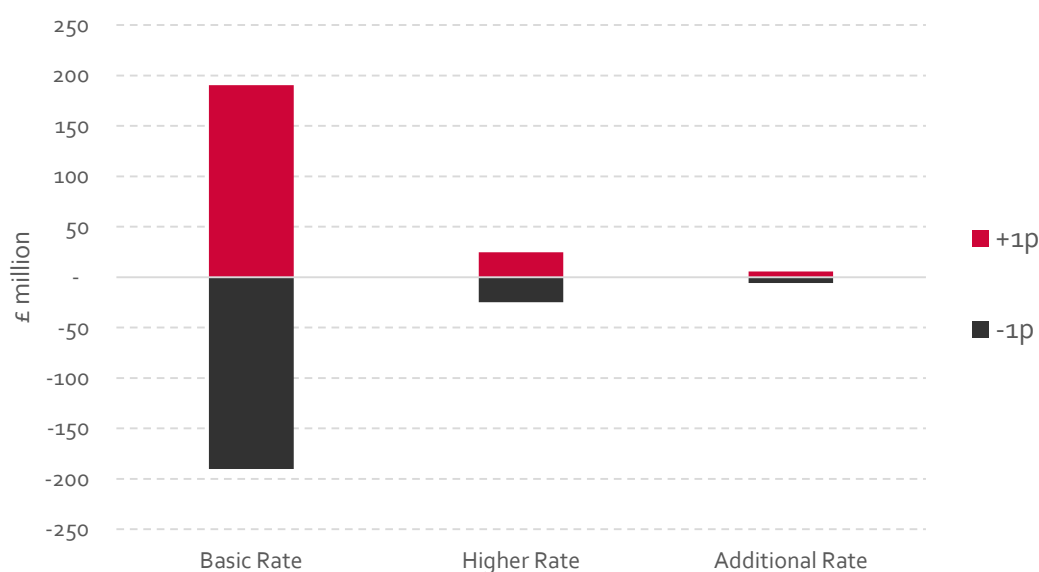
of UK additional rate taxpayers (with over 6,000 migrating) would boost the Welsh budget by approximately £129 million.

Setting income tax rates in Wales

3. From April 2019, UK Government income tax rates for Welsh taxpayers decreased by 10p in the pound, allowing the Welsh Government to set its own income tax rates in each band. Varying tax rate away from 10p in each band will have a direct effect on the Welsh Government budget, as well as potentially changing the behaviour of Welsh taxpayers.
4. As can be seen from **Figure 1**, by far the largest revenue effect would result from a change in the basic rate in Wales; a 1p change in 2020-21 would increase or decrease the Welsh budget by approximately £190 million. Varying the higher and additional rates would result in a smaller increase or decrease in tax receipts and affect fewer taxpayers.

Figure 1

Revenue effect of changing each rate by 1p in the pound, with no behavioural response



Source: Office for Budget Responsibility (2019) and authors' calculations

5. The Welsh Government tax rates will apply to taxable earned income determined by UK Government allowances, thresholds and reliefs. This restriction limits some of the scope for innovative income tax policy, such as the significant restructuring of Scottish tax bands that came into force in April 2018.

Behavioural response to a tax rate change

6. Were the Welsh Government to change income tax rates in Wales, there would likely be some behavioural response from Welsh taxpayers. Possible behavioural responses include greater use of tax planning, tax avoidance or evasion, individuals seeking different jobs or changing the number of hours worked, and/or migration into and out of Wales. The extent and effects of behavioural change to be expected is highly uncertain, though it must be considered when setting income tax policy.
7. High-income earners are assumed to be the most responsive to income tax rate changes, because these taxpayers have the largest incentive and the greatest means to change their behaviour in response to tax policy. Although the Welsh tax base is less dependent on the incomes of high-earners compared with the rUK, such earners will account for a large share of the Welsh Government's income tax revenue. The top one per cent of taxpayers in Wales will contribute over 10% of devolved income tax revenue (more than the lowest-earning 40 per cent of taxpayers), and the top 10 per cent will contribute more than the lowest-earning 70 per cent (Ifan and Poole 2018: 22).
8. Although HM Treasury varied income tax rates on incomes over £150,000 in 2010 and 2012 (firstly from 40p to 50p, then to 45p), estimates of the revenue effects of these change are still highly uncertain, because of the significant forestalling of incomes in response to the changes being pre-announced. Forthcoming change in Scottish income tax rates may provide further evidence of taxpayer behavioural response in a devolved setting, though relevant detailed income tax data will not be available for some time.
9. In the academic literature, the extent of behavioural change in response to tax changes are often captured by estimated Taxable Income Elasticities (TIEs). TIEs are an estimate of the percentage change in total taxable incomes in response to a one per cent change in the net-of-tax rate (the share of income retained after tax). Available evidence suggests a very broad range of TIEs, which vary by income levels, time, type of policy change and country (see table 4.2 of Scottish Fiscal Commission 2018).
10. As an initial exploration of the Welsh Government's income tax policy options, **Figure 2** presents the revenue effect of changing each Welsh Government tax rate away from 10p in the pound in 2020-21, using a micro-simulation model outlined in Ifan and Poole (2018), updated for a later year. Our central estimate for the behavioural response of taxpayers uses a different assumed TIE for taxpayers at each marginal rate; namely 0.1 for basic rate taxpayers, 0.2 for higher rate taxpayers, and 0.5 for additional rate taxpayers. These closely match the assumed TIEs used by the Scottish Fiscal Commission (2018) in their income tax forecasts for Scotland. An alternative estimate assuming a larger behavioural response uses TIEs towards the upper end of estimate from available studies. These TIEs capture behavioural change in response to change in the **Marginal Effective Tax Rate** faced by the taxpayer (i.e. how much of a £1 rise in gross earnings is lost in tax).

11. The estimate presented in **Figure 2** demonstrate that the Welsh Government would be relatively shielded from the behavioural response of Welsh taxpayers if it decided to change income tax rates. Note that the 'mechanical' effect of a tax rate change (with no behavioural change) are relatively close to the revenue effects that assume a behavioural response. For instance, a 1p increase at the basic rate would raise around £190 million in revenue in the absence of a behavioural response; these receipts would reduce only marginally to £186 million even under an assumption of large income elasticities.
12. While the Welsh Government would bear all the mechanical effect of a tax rate change, it would largely be insulated from much of the behavioural response, since only a portion of income tax is devolved. Any change in earned income because of a Welsh Government tax rate change would have a greater effect on UK government reserved revenue from income tax and national insurance contributions. For example, lowering the additional rate in Wales by 5p in the pound would cost the Welsh Government approximately £28 million (assuming no behavioural response). But any positive effect on the taxable earned income of high earners would primarily go to the UK government through higher income tax and NICs. Even assuming a high TIE, the estimate cost for the Welsh Government would still be around £26 million.
13. However, as well as responding to change in their marginal effective tax rates, taxpayers may also respond to changes in their average effective tax rate (the proportion of a taxpayer's total income which is paid in tax). This type of behavioural response includes leaving or entering employment, and importantly in Wales' case, **migration** to another tax jurisdiction. **Figure 2** also presents the change in tax liability for an average taxpayer at each marginal rate resulting from a Welsh Government tax change. The subsequent column shows how many taxpayers would need to migrate from Wales to the rUK (or vice versa) for the revenue effect of a given tax rate change to reverse.²
14. For example, a 5p increase in the higher rate of income tax would cost the average higher rate taxpayer in Wales £1,067, and it would take over 17,000 higher rate taxpayers in Wales to leave Wales to offset the additional £118 million raised by the tax change. Any change in the additional rate in Wales would have the largest effect on a taxpayers' average effective tax rate and hence present the largest incentive for migration for higher income earners. The required level of migration to offset the revenue effect of an additional tax rate increase is relatively small, but still significant in the context of the number of additional rate taxpayers in Wales.
15. In contrast to Scotland's devolved tax system, a distinctive feature of the Welsh model is that the UK government will not be able to respond in kind to a decision to cut income tax by the Welsh Government. Because any UK government tax cut will also apply in Wales (to the reserved portion of income tax), any differential between income tax rate in Wales and the rUK cannot close unless the Welsh Government so chooses.

² It should be noted that the average tax rate faced by higher and additional rate taxpayers are also influenced by changes in the basic rate. Therefore, the migration effect to a basic rate cut could include taxpayers who are on higher marginal rates.

16. There is some evidence that differences in tax rate within a country can encourage taxpayers to relocate or shift their income between jurisdictions (as explored in other evidence submissions). However, migration responses are likely to be very context-specific, and Wales' particular circumstances make it hard to draw conclusions from other countries and tax jurisdictions.

Figure 2

Revenue effect of devolved income tax policy options in 2020-21

Welsh Government tax policy - change from 10p	Basic rate					Higher rate					Additional rate				
	Mechanical effect (£m)	With behavioural response (£m)		Difference in tax for average basic rate earner (£)	Migration required for revenue effect to be reversed	Mechanical effect (£m)	With behavioural response (£m)		Difference in tax for average higher rate earner (£)	Migration required for revenue effect to be reversed	Mechanical effect (£m)	With behavioural response (£m)		Difference in tax for average basic rate earner (£)	Migration required for revenue effect to be reversed
		Central TIE=0.1	High TIE=0.2				Central TIE=0.2	High TIE=0.4				Central TIE=0.5	High TIE=0.75		
+5p	951	936	919	566	551,439	123	118	113	1,067	17,018	28	24	21	4,810	830
+4p	761	749	737	453	473,185	99	95	91	854	14,088	23	20	17	3,848	694
+3p	571	563	555	339	382,892	74	71	69	640	10,939	17	15	13	2,886	544
+2p	381	376	371	226	276,787	49	48	46	427	7,563	11	10	9	1,924	380
+1p	190	188	186	113	151,391	25	24	23	213	3,921	6	5	5	962	199
No change	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-1p	-190	-188	-186	-110	189,582	-25	-24	-23	-281	3,998	-6	-5	-5	-2,104	153
-2p	-381	-377	-374	-221	426,560	-49	-48	-47	-563	8,403	-11	-11	-10	-4,209	330
-3p	-571	-566	-559	-331	732,585	-74	-73	-71	-844	13,295	-17	-16	-15	-6,313	536
-4p	-761	-756	-748	-442	1,140,618	-99	-97	-95	-1,126	18,753	-23	-21	-21	-8,418	777
-5p	-951	-946	-938	-552	1,712,990	-123	-122	-120	-1,407	24,856	-28	-27	-26	-10,522	1,062

Note: average earnings for taxpayers in Wales used for tax increase calculations; average earnings for taxpayers in rUK used for tax decrease calculations. Changes from Table 4.1 in Ifan and Poole (2018:67) reflect latest data (Survey of Personal Income 2015-16) and changes in modelled tax thresholds.

17. An obvious factor will be the already large migration and commuting flows across the Welsh-English border outlined in section 3.4 of Ifan and Poole (2018). It is possible that the decisions of those already planning on moving may be influenced by income tax differentials. With several large English cities within commutable distance of the Welsh border, individuals who do not have to change jobs after moving may have a greater incentive to migrate to Wales to take advantage of lower tax rates. There are also a significant number of second homes in Wales and England which are owned by residents of the other country. Changing their primary residence to these addresses may allow some taxpayers to take advantage of lower income tax rate, without incurring the costs of relocation. These decisions would also be influenced by the second-home council tax premiums charged by some local authorities in Wales.
18. Converting income between dividend income (still taxed at the UK government rate) and earned income will also be an additional behavioural response available to some taxpayers. Taxpayers with total incomes over the additional rate threshold in Wales received around £200 million of dividend income in 2014-15. Tax-motivated incorporations have been increasing in recent years, and any income tax rate change in Wales may affect the relative trend in incorporations.

Modelled effect of an additional rate cut in Wales

19. The estimates presented in Figure 2 suggests that any migration response from Additional Rate taxpayers will have a high likelihood of materially affecting the revenue effects of Welsh Government tax rate change. Since the UK government could not respond to a Welsh Government tax cut, it is worthwhile to consider the incentive the Welsh Government will have to abolish the additional rate in Wales, by implementing a 5p cut. While it is impossible to accurately predict the resulting migratory response, we can crudely calculate the revenue effect of a given hypothetical migratory response.
20. There are an estimated 435,000 additional rate taxpayers in the UK.³ Only around 6,000 (1.4 per cent) of these taxpayers currently live in Wales. A third live in London, while another third live in the South East of England and the East of England. Around 66,000 are resident in the three regions of England which have borders with Wales, and around 78 per cent of the population of these regions live within 50 miles of the Welsh border.
21. We estimate that The average NS-ND income of taxpayers earning over £150,000 will be approximately £360,000 in 2020-21. The average additional rate taxpayer would therefore save over £10,500 per year through migrating in response to a Welsh Government tax cut. Assuming an offsetting positive behavioural response outlined above, our modelling suggests that reducing the additional rate in Wales would incur a budget cost to the Welsh Government of

³ HMRC (2019) Table 2.2 Number of income taxpayers, by country, Available at:

<https://www.gov.uk/government/statistics/number-of-individual-income-taxpayers-by-marginal-rate-gender-and-age-by-country#history>

approximately £27 million in 2020-21. The cost of maintaining this tax cut would grow slowly over time as taxable income over the fixed additional rate threshold of £150,000 grows.

22. **Figure 3** presents projections of different levels of migration of additional rate taxpayers, and the estimated effect these would have on the Welsh Government budget. If around 407 taxpayers (0.1 per cent of rUK taxpayers with incomes over £150,000) migrate to Wales, the cost of the tax cut would fall to £17 million. If 1,100 average additional rate taxpayers migrated, the cost of the tax cut would reduce to zero, while a stronger migratory response would provide a boost for the Welsh Government budget. A substantial effect on the Welsh Government budget however would require a very strong migratory response. For example, if over 6,000 additional rate taxpayers migrated, then the Welsh Government budget would increase by £129 million. This would amount to a doubling of the share of UK additional rate taxpayers living in Wales.

Figure 3

Modelling a 5p cut in the additional rate in Wales: revenue effects of varying migratory responses from additional rate (AR) taxpayers from the rest of the UK

Share of rUK AR taxpayers migrating to Wales	Number of AR taxpayers migrating to Wales	Number of AR taxpayers in Wales	Welsh share of all UK AR taxpayers	Budget effect of migratory response (£ million)	Budget change after tax cut (£ million)
0.0%	0	6,000	1.4%	0	-27
0.1%	407	6,407	1.5%	10	-17
0.5%	2,035	8,035	1.8%	52	25
1.0%	4,070	10,070	2.3%	104	77
1.5%	6,105	12,105	2.8%	156	129
2.0%	8,140	14,140	3.3%	208	181
2.5%	10,175	16,175	3.7%	260	233
3.0%	12,210	18,210	4.2%	312	285

Note: Changes from Table 4.2 in Ifan and Poole (2018) reflect updated estimates of Additional Rate taxpayers and their incomes.



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