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Future options for income tax devolution in Wales

Future options for income tax devolution in Wales: An independent report prepared by the Fraser of Allander Institute at the University of Strathclyde and Bangor University for the Welsh Government

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Views expressed in this report are those of the researcher and not necessarily those of the Welsh Government

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Executive Summary

Background

This research, undertaken in collaboration by the Fraser of Allander Institute (FAI) at the University of Strathclyde and Bangor University (BU), was commissioned by the Welsh Government to inform potential options for income tax devolution for Wales.

The current framework of income tax devolution in Wales is one of partial devolution. UK tax rates on non-savings, non-dividend (NSND) income in Wales are each reduced by 10 percentage points and the Welsh Government can set its own rate in each band. So far, the Welsh Rates of Income Tax (WRIT) have been set at 10p in each band, so Welsh taxpayers have faced the same overall tax rates as those in England and Northern Ireland. The impact on the Welsh Government budget also depends upon an adjustment to the block grant (the Block Grant Adjustment, or BGA) which reflects revenue forgone by the UK Government.

Potential models of devolution

Four models of NSND income tax devolution have been explored, all broadly within the current structure of devolution in the United Kingdom. These are:

A. Partial devolution of income tax rates (10p in each band) with the BGA calculated on a by-band basis. This is the current arrangement for Wales;
B. Partial devolution of income tax rates (10p in each band), with a single BGA;
C. Full devolution of income tax rates and thresholds, with a single BGA. This is the current arrangement for Scotland;
D. Full devolution of income tax rates and thresholds, with the BGA calculated on a by-band basis.

This leaves a number of potential avenues for further devolution which are beyond the scope of this paper. This includes the definition of income, the setting of the personal allowance (PA), the PA taper beyond £100,000 of income and the devolution of income tax on savings and dividend income.

These four models of income tax devolution are modelled in order to illustrate the sensitivity of the net tax position – defined as the difference between tax revenues kept by the Welsh Government and the BGA – to changes in earnings growth and UK

Government policy.[1] These are assessed against the baseline net positions in chart E.1, which assume consistent implementation of the BGA calculation since 2019-20.[2]

Chart E.1: Estimated baseline net position in 2026-27 assuming consistent BGA implementation since 2019-20
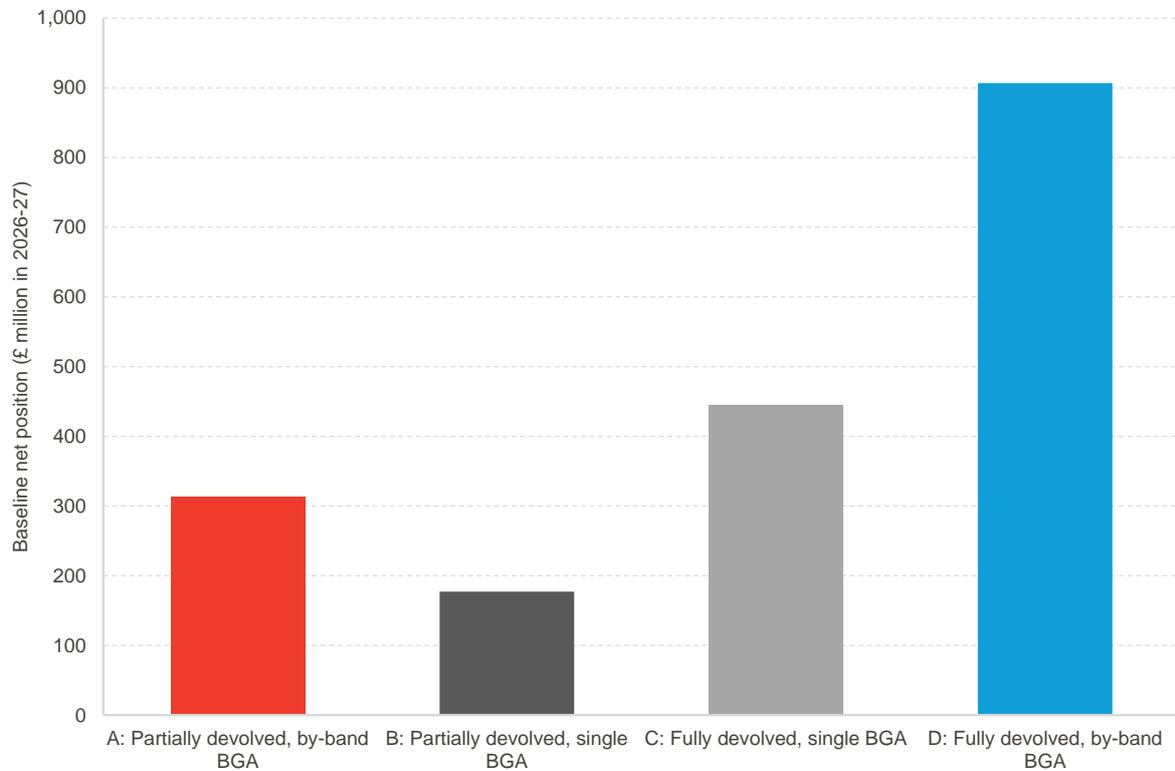
Source: FAI, BU calculations

[1] All scenarios were modelled using the comparable method for the calculation of the BGA. If the index per capita method were used instead, the effects would be more positive for the Welsh Government if the Welsh population were to grow at a slower rate than the population of England and Northern Ireland, as has generally been the case.
[2] Note that any future changes may or may not include these prior differences – that would depend on negotiations, but comparing them against separate bases is done in order to show the effects of BGA calculations as a result of their underlying characteristics, and therefore be generalisable.

Effects of differences in earnings growth

The main conclusion from the analysis is that there is trade-off between the level of risk borne by the Welsh Government and the level of control it can exert over the shape of the income tax system. All else equal, partially devolved systems (A and B) tend to have smaller effects on the net position, both in the baseline scenario (chart E.1) and as a result of changing earnings growth or UK Government policy parameters (charts E.2 and E.3).

Fully devolved systems (C and D) are on the whole riskier in terms of net position. They can lead to more positive net positions, but also more negative effects, particularly if wages grow more slowly in Wales than in England and Northern Ireland.

While for some earnings scenarios the by-band BGA systems (models A and D) are associated with larger swings in net position, in one of the most significant and important scenarios – differential growth in earnings between Wales and the comparator geography of England and Northern Ireland – the effect on the net position is smaller for by-band systems, as shown in chart E.2.

This is a factor of the higher share of additional rate taxpayers in England and Northern Ireland – particularly driven by London and the South East of England – which means that the income distribution in the comparator geography is more tax-rich to begin with. Faster growth in England and Northern Ireland would exacerbate this effect, and the single BGA systems (models B and C) have no counteracting mechanism to reduce the effect of these additional rate revenues. This mirrors what has happened in practice in Scotland, which operates model C, since 2017-18.

Chart E.2: Effect on the net position of the earnings scenarios
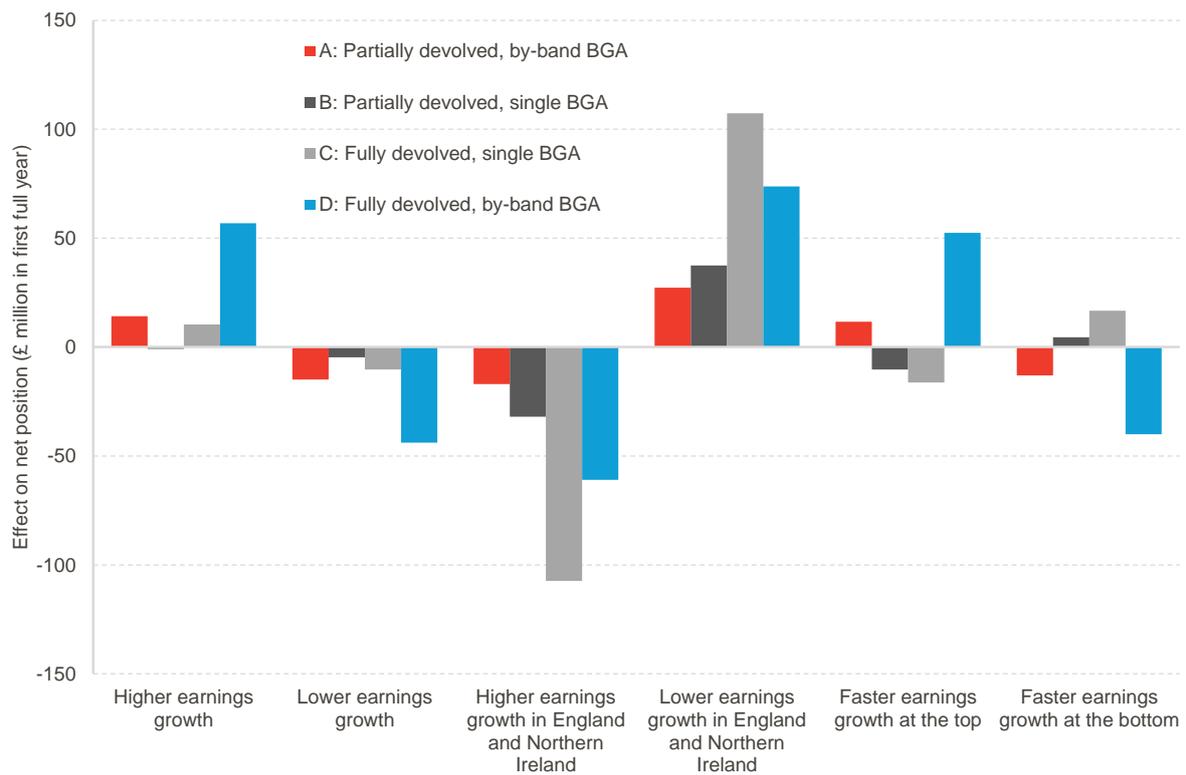
Source: FAI, BU calculations

Effect of UK Government policy

Chart E.3 shows that for changes in UK Government policy at the higher and additional rate thresholds, the by-band BGA systems have a larger effect on the net position than single BGA models. The scenario regarding the increase in the PA is the mirror image of the effect of the freezes in recent years, showing that all models are associated with large negative effects, but the single BGA models (B and C) lead to larger effects on the net position than their by-band BGA counterparts.

Chart E.3: Effect on the net position of the UK Government policy scenarios
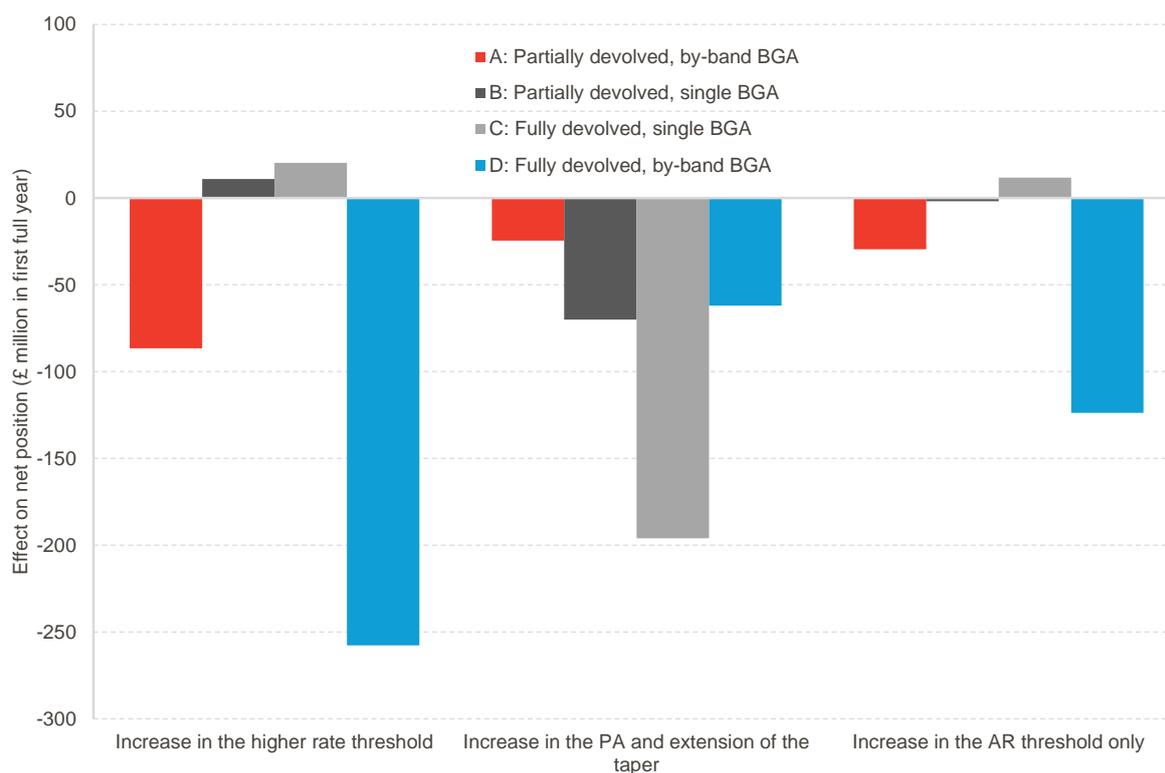
Source: FAI, BU calculations

It is important to consider the context of UK Government policy as well. Given the threshold freeze policy that has been in place since the early 2020s, the by-band systems (models A and D) consistently lead to an increased net position from all threshold freezes, which is not true for the single BGA systems (B and C).

While this is true given what has happened in recent years, it is important to be careful not to generalise benefits too widely – especially given that a fiscal framework is more permanent than tax rate and threshold decisions. For example, the higher rate threshold was increased by around £7,000 in a matter of years during the Chancellorships of George Osborne and Philip Hammond. Doing so now would lead to a severe worsening of the Welsh net tax position under the by-band BGA arrangements, but not with a single BGA.

A pattern that emerges from the scenarios modelled is that model D (full devolution of rates and thresholds using a by-band BGA) creates significantly more variation in outcomes in the net position except when looking at changes affecting the PA and where there is differential growth relative to England and Northern Ireland. This has varied effects. For example, it protects against the erosion of the net position due to faster growth in incomes at the top of the distribution, but it also exacerbates the cost to the Welsh Government of increases in the higher and additional rate threshold and the sensitivity to faster earnings growth at the bottom of the distribution.

Risk appetite and interdependence

Growth in tax revenue from the top of the distribution – associated with higher income growth at the top and interacting with the progressive nature of the tax system – has in the recent past often been higher, as has growth in incomes as a whole in the comparator geography for the BGA (England and Northern Ireland). This includes London and the South East of England, which have a much larger concentration of additional rate taxpayers than Wales, and model D might thus be viewed more favourably than model C. As chart E.2 shows, by-band BGA setups mean an improvement in the net position from higher growth at the top and a smaller worsening from higher growth in England and Northern Ireland when compared with single BGA systems. This mirrors what has happened in Scotland since full devolution of income tax, and if faster growth at the top of the distribution and/or faster growth in England and Northern Ireland are seen to be structural and therefore more likely to occur, the trade-off might be in favour of a by-band setup.

Full control of rates and bands would allow the Senedd and the Welsh Government greater control over the income tax system as a whole. It would create more flexibility in income tax policy in Wales, providing more scope to adjust policies to reflect the tax base and labour market in Wales.

At the moment, a change in UK tax rates needs no direct action to apply in Wales; WRIT is applied on top of UK rates, and a UK Government rate change would not affect the BGA and would therefore have little impact on the net position.

However, that further control under models C and D is not absolute. Changes in UK Government-set income tax would have a direct effect on the BGA and therefore the net position, which would worsen if UK Government tax rates were increased. This was a logical consequence of the fiscal framework which came to prominence in Scotland during the run-up to the 2025 Budget. All else equal, this would require action from the relevant devolved government by either changing tax rates to match the UK Government or adjusting spending to accommodate the change in the net position.

Income tax rates are therefore not set in a vacuum, even in a system in which a devolved government has full control over rates and thresholds. They are still being set relative to UK Government rates, even if more indirectly. But because the block grant adjustment mechanism is complex and at times can seem counterintuitive, having to adjust rates of spending as a result of UK Government measures can rightly be difficult to understand for the general public.

In theory, decisions about full control over rates and thresholds could happen independently of decisions about applying a single or by-band BGA setup. The actual form of any further devolution would depend on negotiation and agreement between the Welsh and UK Governments. In practice, however, it would depend on what is

acceptable to each government. It is worth noting, for example, that the version of fuller devolution in Scotland operates under a single BGA (model C).

Conclusion

This piece of analysis uses a set of scenarios covering both earnings and UK Government policy changes to illustrate the extent to which different models of devolution can affect the Welsh net income tax position. The models include partial devolution of income tax, the same model as currently in place, with both a by-band BGA (the current model) and a single BGA; and full devolution of income tax rates and thresholds, using a single BGA (the model currently operated in Scotland) and a by-band BGA.

There is trade-off between the level of risk borne by the Welsh Government and the level of control it can exert over the shape of the income tax system. Partially devolved systems allow for less control, but they also reduce the size of the exposure of the net position to changes outside the Welsh Government's control.

Single BGA systems are particularly associated with larger falls in the net position if growth in earnings in England and Northern Ireland is faster than in Wales, which mirrors the outcomes in Scotland since full devolution of income tax rates and thresholds, and reflects a more tax-rich income distribution particularly in London and the South East of England. By-band BGA systems, on the other hand, are associated with larger changes in relation to changes in the higher and additional rate thresholds at UK Government level. Although these have been beneficial to Wales since devolution, policy decisions similar to those taken in the 2010s would have significantly worsened the net position.

There is no single optimal system among the four we modelled – all have benefits and drawbacks. Any choice in terms of changes to the devolution of income tax in Wales would have to balance the appetite for risk of the Welsh Government and a realistic assessment of the more negative scenarios to materialise. It will also need to consider any potential vulnerabilities should the direction of UK Government policy change in the future, as well as the continued interaction with broader UK rates and thresholds that is a permanent feature of any devolved income tax system.

Contents

1. Introduction

This research, undertaken in collaboration by the Fraser of Allander Institute (FAI) at the University of Strathclyde and Bangor University (BU), was commissioned by the Welsh Government to inform potential future options for income tax devolution for Wales.

The current framework of income tax devolution in Wales is one of partial devolution. UK tax rates on non-savings, non-dividend (NSND) income in Wales are each reduced by 10 percentage points and the Welsh Government can set its own rate in each band. So far, the Welsh Rates of Income Tax (WRIT) have been set at 10p in each band, so Welsh taxpayers have faced the same overall tax rates as those in England and Northern Ireland. The impact on the Welsh Government budget also depends upon an adjustment to the block grant (the Block Grant Adjustment, or BGA) which reflects revenue forgone by the UK Government.

Four models of non-savings, non-dividend income tax devolution have been explored, all broadly within the current structure of devolution in the United Kingdom. These are:

A. Partial devolution of income tax rates (10p in each band, known as Welsh Rates of Income Tax, or WRIT), with the block grant adjustment calculated on a by-band basis. This is the current arrangement for Wales;
B. Partial devolution of income tax rates (10p in each band), with a single BGA;
C. Full devolution of income tax rates and thresholds, with a single BGA. This is the current arrangement for Scotland;
D. Full devolution of income tax rates and thresholds, with the BGA calculated on a by-band basis.

This leaves a number of potential avenues for further devolution which are beyond the scope of this paper. This includes the definition of income, the setting of the personal allowance (PA), the PA taper beyond £100,000 of income and the devolution of income tax on savings and dividend income.

These four models of income tax devolution are modelled in order to illustrate the sensitivity of the net tax position – defined as the difference between tax revenues kept by the Welsh Government and the BGA – to changes in earnings growth and UK

Government policy.[3] These are assessed against the baseline net positions in chart 1.1, which assume consistent implementation of the BGA calculation since 2019-20.[4]

Chart 1.1: Estimated baseline net position in 2026-27 assuming consistent BGA implementation since 2019-20
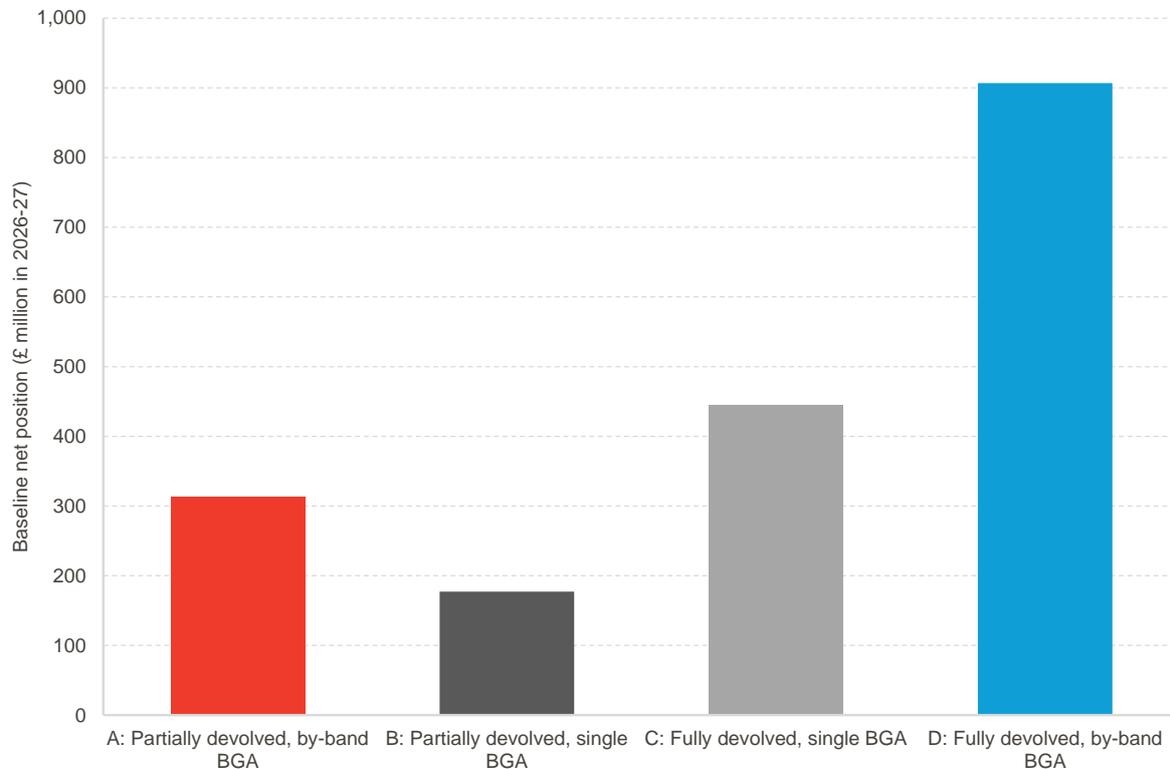
Source: FAI, BU calculations

The paper is structured as follows: chapter 2 presents the four models of income tax devolution considered in detail and chapter 3 summarises the scenarios modelled, the results and the emerging themes for the different models of devolution from the results. There are seven methodological annexes: annex A1 establishes the tax base and the underlying assumptions used to model the results up to 2029-30; A2 considers the block grant adjustment calculations and different models (IPC and comparable method); A3 establishes the baseline scenario results, against which the other scenarios are compared in A4; A5 sets out the limitations of the modelling; A6 presents the technical details of the BGA calculations; and A7 discusses the behavioural responses included in the income tax modelling.

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[3] All scenarios were modelled using the comparable method for the calculation of the BGA. If the index per capita method were used instead, the effects would be more positive for the Welsh Government if the Welsh population were to grow at a slower rate than the population of England and Northern Ireland, as has generally been the case.

[4] Note that any future changes may or may not include these prior differences – that would depend on negotiations, but comparing them against separate bases is done in order to show the effects of BGA calculations as a result of their underlying characteristics, and therefore be generalisable.

2. Models of fiscal devolution

The following sections detail the models of devolution considered in this research. We have explored four models of non-savings, non-dividend income tax devolution, all broadly within the current structure of devolution in the United Kingdom. These are:

A. Partial devolution of income tax rates (10p in each band, known as Welsh Rates of Income Tax, or WRIT), with the block grant adjustment (BGA) calculated on a by-band basis. This is the current arrangement for Wales;

B. Partial devolution of income tax rates (10p in each band), with a single BGA;

C. Full devolution of income tax rates and thresholds, with a single BGA. This is the current arrangement for Scotland;

D. Full devolution of income tax rates and thresholds, with the BGA calculated on a by-band basis.

2.1 Model A: Partial devolution with by-band BGAs (the current Welsh model)

This is referred to throughout as model A or option A, and represents the status quo.

The current framework of devolution of income tax in Wales is one of partial devolution, governed by the Wales Acts 2014 and 2017. These make a provision for the introduction of a Welsh Rate of Income Tax (WRIT) on non-savings, non-dividend income, for which Welsh taxpayers are liable.

Under WRIT, each of the UK Government's basic, higher and additional income tax rates is reduced by 10 pence for Welsh taxpayers, and the Welsh Government sets corresponding Welsh rates for each band. The Welsh Government are allowed to set three rates, the Welsh basic, higher and additional rates (also known as the Welsh rates), that are applied to each respective band. The combined UK and Welsh rates determine the income tax paid by Welsh taxpayers on non-savings, non-dividend (NSND) income.[5] Since the devolution of WRIT, the rates have been set at 10 pence in the pound, so Welsh tax payers have paid the same tax as those in England and Northern Ireland.

The net impact on the Welsh Government budget is dependent on both revenue raised by WRIT and a deduction to the block grant (the Block Grant Adjustment (BGA)). The BGA reflects income tax revenues that the UK Government would have raised in Wales in the absence of devolution. In practice, the BGA is uprated over time using an

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[5] The UK Government announced a new property income tax rate in the 2025 Budget. Although this is a separate stream of income for which a separate rate can be introduced, it will form part of the NSND income over which Wales and Scotland have control. If agreed by the Welsh and UK governments, the Welsh Government will be able to set the Welsh rates for the property rates in addition to the existing Welsh rates.

indexation mechanism linked to changes in income tax revenues in England and Northern Ireland, meaning that the Welsh Government's budget position depends not only on the level of tax revenue raised in Wales, but also on how Welsh income tax revenues perform relative to the chosen comparator.

The BGA is determined using the comparable model. This takes into account:

- the change in the equivalent income tax revenues in England and Northern Ireland (10 pence in each band);
- a comparability factor which reflects tax per head in Wales as a proportion of the UK government tax per head at the point of devolution; and
- the population share.

For WRIT, the comparable model is applied on a by-band basis. This means that for each band a separate comparability factor is used to reflect the Welsh share of UK government tax per head at the point of devolution. The comparability factor applies a weight to each band which reflects the strength of the Welsh tax base for that band and adjusts the exposure to UK government tax growth accordingly.

The current comparability factors are:

- Basic rate – 81.9%
- Higher rate – 39%
- Additional rate – 11.4%

This means that any increase in England and Northern Ireland revenues at the basic rate result in a larger block grant adjustment (in this case a reduction) than an increase in revenues at the additional rate.

2.2 Model B: Partial devolution with a single BGA

Model B takes the WRIT setup of 10p on each band being set by the Welsh Government, and only adjusts BGA mechanism. The comparable method is still used for calculating the BGA, but the different bands are essentially weighted equally, and calculated as a single entity.

2.3 Model C: Full devolution with a single BGA (the current Scottish model)

Model C applies the same method for calculating the BGA as model B in terms of weighting, but considers the case of full devolution of rates and bands. This is model used for devolution of income tax in Scotland (Scottish Income Tax).

The main difference is that all NSND revenue in this case would flow to the Welsh Government, but the BGA would be larger, as it would be based on the whole of English and Northern Irish revenues rather than on a WRIT basis.

We consider a model where the revenues and powers are devolved, but no changes to rates and thresholds are made, and therefore Welsh bands and rates would remain aligned with England and Northern Ireland. Of course, in reality this might not be the case if these powers were devolve: for example, the Scottish tax system now has six bands, with tax rates ranging from 19% to 48%. But assessing the impact of subsequent changes to rates and bands is beyond the remit of the report.

2.4 Model D: Full devolution with a by-band BGA

Model D considers the scenario in which the full devolution of bands and rates in model C is combined with the by-band mechanism currently present in the Welsh system (model A). The comparability factors applied by band in this model are the same as in model A, just to the larger figure of full non-savings, non-dividend England and Northern Ireland income tax liabilities.

2.5 Considerations regarding alternative models and limitations of the analysis

Full control of rates and bands would allow the Senedd and the Welsh Government greater control over the income tax system as a whole. It would create more flexibility in income tax policy in Wales, providing more scope to adjust policies to reflect the tax base and labour market in Wales.

At the moment, a change in UK tax rates needs no direct action to apply in Wales; WRIT is applied on top of UK rates, and a UK Government rate change would not affect the BGA and would therefore have little impact on the net position.

However, that further control under models C and D is not absolute. Changes in UK Government-set income tax would have a direct effect on the BGA and therefore the net position, which would worsen if UK Government tax were increased. This was a logical consequence of the fiscal framework which came to prominence in Scotland during the run-up to the 2025 Budget. All else equal, this would require action from the relevant devolved government by either changing tax rates to match the UK Government or adjusting spending to accommodate the change in the net position.

Income tax rates are therefore not set in a vacuum, even in a system in which a devolved government has full control over rates and thresholds. They are still being set relative to UK Government rates, even if more indirectly. But because the block grant adjustment mechanism is complex and at times can seem counterintuitive, having to adjust rates of spending as a result of UK Government measures can rightly be difficult to understand by the general public.

In theory, decisions about full control over rates and threshold could happen independently of decisions about applying a single or by-band BGA setup. The actual

form of any further devolution would depend on negotiation and agreement between the Welsh and UK Governments. In practice, however, it would depend on what is acceptable to each government. It is worth noting, for example, that the version of fuller devolution in Scotland operates under a single BGA (model C).

There are a number of potential avenues for different models of devolution that are beyond the scope of this work. For example, the personal allowance is a reserved power, even in the case of full band and rate devolution,[6] but it could be devolved further. The definition of income is also reserved, as are any exemptions and reliefs, which could be devolved further but which we do not consider.[7] The same applies to devolution of savings and dividends income tax, as well as devolution of the operational aspect of collection of income tax. None of these are considered in this analysis, which is strictly limited to the four models (A-D) described earlier in this section.

All scenarios were modelled using the comparable method for the calculation of the BGA. If the index per capita method were used instead, the effects would be more positive for the Welsh Government if the Welsh population were to grow at a slower rate than the population of England and Northern Ireland, as has generally been the case.

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[6] This is the case with Scottish Income Tax. Theoretically, it would already be possible to increase the personal allowance (PA) by setting a nil-rate band above the UK Government-set PA, but not reduce it.
[7] A new, separate rate for property income will be introduced by the UK Government, with the Welsh Government having the power to vary it should it wish to do so. However, property income is currently treated within NSND income with no separate reporting, and this is how we account for it in this report.

3. Summary of results

3.1 Scenarios modelled

This report uses a total of nine scenarios to illustrate the effect of changes to earnings growth and UK Government policy decisions on the Welsh income tax net position.[8] These are described in detail in Methodological Annex 4, but are summarised below:

- Higher and lower earnings growth than the OBR's central forecast from March 2025;
- Higher and lower earnings growth in England and Northern Ireland than in Wales, the latter being calibrated using the OBR's central forecast from March 2025;
- Faster earnings growth at the top or bottom of the income distribution, with the middle half (25-75th percentile) growing at the OBR's central forecast from March 2025;
- UK Government policy scenarios in which the personal allowance (PA), higher rate threshold (HRT) and additional rate (AR) threshold are increased by 10%.[9]

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[8] All scenarios were modelled using the comparable method for the calculation of the BGA. If the index per capita method were used instead, the effects would be more positive for the Welsh Government if the Welsh population were to grow at a slower rate than the population of England and Northern Ireland, as has generally been the case.

[9] The increase of the PA by 10% is modelled jointly with a corresponding increase of the PA taper and of the additional rate threshold of twice that size to avoid unintended effects of misalignment of the taper and of the AR threshold.

3.2 Effects of changes to earnings growth on the Welsh net position

Chart 3.1 shows the full-year effect of the different earnings growth scenarios modelled on the Welsh income tax net position.

Chart 3.1: Effect on the net position of the earnings scenarios
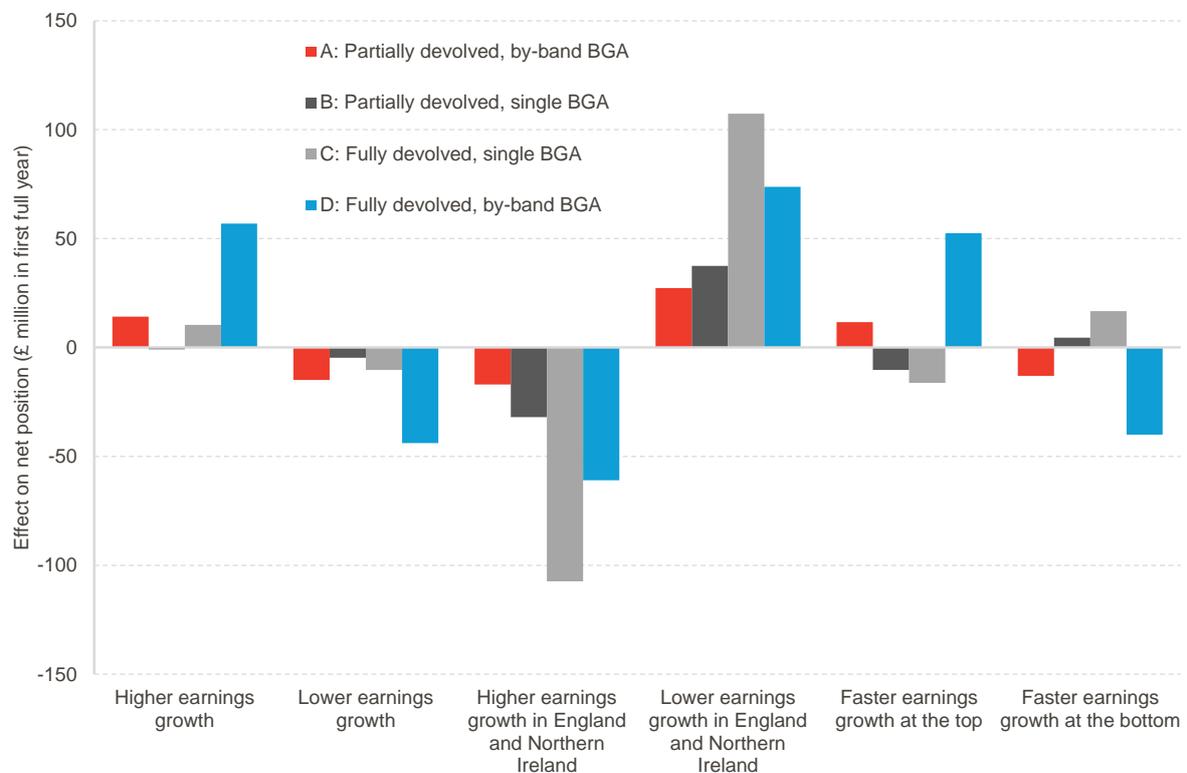
Source: FAI, BU calculations

The earnings scenarios illustrate the fact that the fully devolved systems (models C and D) are associated with larger changes in the net position. This is a logical consequence of the fact that the size of both retained revenue and of the BGA is larger, and therefore swings in the difference between those two larger figures are larger as well for any given change in earnings growth (see chart 1.1).

For scenarios in which growth is similar between Wales and the comparator geography (England and Northern Ireland), the by-band BGA systems (A and D) are generally associated with larger swings in the net position than their single BGA counterparts. This can be to the benefit of Wales if the direction of travel is positive (e.g. higher earnings growth) but to its detriment if shocks are negative (e.g. lower earnings growth). The interaction between this and full devolution means that the effect is particularly exacerbated for model D relative to model C.

But for one of the most significant scenarios – differential growth in earnings between Wales and England and Northern Ireland, the effect on the net position is smaller for by-band systems. This is driven by a higher share of additional rate taxpayers in the latter – particularly in London and the South East of England – which means that the income

distribution in the comparator geography is more tax-rich to begin with. Faster growth in England and Northern Ireland would exacerbate this effect, and the single BGA systems (models B and C) have no counteracting mechanism to reduce the effect of these additional rate revenues. This mirrors what has happened in practice in Scotland, which operates model C, since 2017-18.

The year-by-year breakdowns are also summarised in table 3.1.

Table 3.1: Year-by-year breakdown of the effect on the net position of the earnings scenarios

£m	2026-27	2027-28	2028-29	2029-30
Earnings scenario 1: higher earnings growth				
Model A	14	29	49	72
Model B	-1	-2	-1	0
Model C	10	22	34	45
Model D	57	120	191	272
Earnings scenario 2: lower earnings growth				
Model A	-15	-26	-42	-56
Model B	-5	-6	-11	-13
Model C	-10	-21	-31	-40
Model D	-44	-88	-136	-185
Earnings scenario 3: higher earnings growth in England and Northern Ireland				
Model A	-17	-34	-51	-64
Model B	-32	-66	-100	-136
Model C	-107	-221	-341	-469
Model D	-61	-123	-184	-242
Earnings scenario 4: lower earnings growth in England and Northern Ireland				
Model A	27	56	85	115
Model B	37	76	116	158
Model C	107	218	332	452
Model D	74	151	228	307
Earnings scenario 5: faster earnings growth at the top of the income distribution				
Model A	12	24	41	61
Model B	-10	-22	-30	-40
Model C	-16	-33	-51	-70
Model D	52	110	177	255
Earnings scenario 6: faster earnings growth at the bottom of the income distribution				
Model A	-13	-22	-37	-50
Model B	5	13	18	26
Model C	17	35	54	75
Model D	-40	-80	-125	-173

Source: FAI, BU calculations

3.3 Effects of UK Government policy on the Welsh net position

Chart 3.2 shows the full-year effect of the different UK Government policy scenarios modelled on the Welsh income tax net position.

Chart 3.2: Effect on the net position of the UK Government policy scenarios
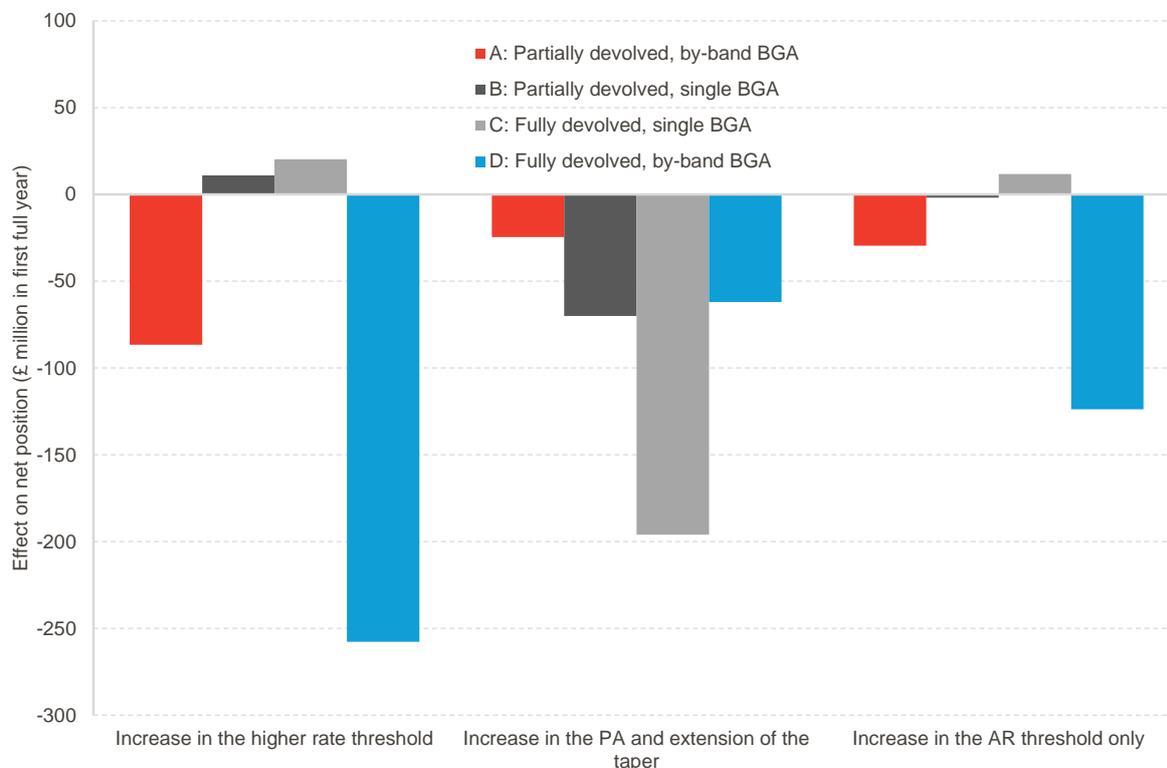
Source: FAI, BU calculations

In all these scenarios, the changes to thresholds are assumed to apply to Wales as well, although initiated by changes to UK Government policy. At the moment, they apply automatically in Wales, but under models C and D it would be an option for the Welsh Government as it is for the Scottish Government at the moment (model C). Assuming application in Wales makes the effects of the different models of devolution more comparable, although the flexibility in models C and D is part of their point.

These are mostly mirror policies to what has happened in recent years, with the UK Government deciding to freeze thresholds throughout. With threshold freezes, model A has meant increases in the Welsh net position. This would have happened to an even greater extent with model D, but it is more broadly a product of the by-band approach.

However, it is important to be careful when generalising the benefits of the by-band system more widely – especially given that a fiscal framework is more permanent than tax rate and threshold decisions. Models A and D are more beneficial to Wales given the current higher and additional rate threshold freeze policy. But the flipside of this is that increases in these thresholds would be severely costly to the Welsh Government were

they to be implemented, and much more so under the by-band systems (models A and D) than in the single BGA systems.

It is worth noting that the higher rate threshold was increased by around £7,000 in a matter of years during the Chancellorships of George Osborne and Philip Hammond. Doing so now would lead to a severe worsening of the Welsh net tax position under the by-band BGA arrangements, but not with a single BGA. If there were increases in the PA of the type carried out during the 2010s, on the other hand, models B and C (single BGA under partial and full devolution, respectively) would worsen the Welsh Government's funding more than their by-band counterparts.

Table 3.2: Year-by-year breakdown of the effect on the net position of the UK Government policy scenarios

£m	2026-27	2027-28	2028-29	2029-30
Policy scenario 1: 10% increase in the higher rate threshold				
Model A	-87	-88	-92	-95
Model B	11	14	13	14
Model C	20	19	20	21
Model D	-258	-273	-279	-290
Policy scenario 2: 10% increase in the personal allowance and extension of the taper				
Model A	-25	-27	-28	-29
Model B	-70	-73	-75	-78
Model C	-196	-203	-208	-216
Model D	-62	-67	-69	-73
Policy scenario 3: 10% increase in the additional rate threshold				
Model A	-30	-31	-33	-35
Model B	-2	-2	-2	-2
Model C	12	12	13	14
Model D	-124	-130	-137	-146

Source: FAI, BU calculations

3.4 Emerging themes from the scenario results

There are a number of themes that emerge from combining all the scenarios across earnings and UK Government policy.

The main one is that there is trade-off between the level of risk borne by the Welsh Government and the level of control it can exert over the shape of the income tax system. All else equal, partially devolved systems (A and B) tend to have smaller effects on the net position.

Fully devolved systems (C and D) are on the whole riskier in terms of net position. They can lead to more significantly improvements on the net position, but also more negative positions, particularly if wages grow more slowly in Wales than in England and Northern Ireland.

Another clear pattern that emerges from the scenarios modelled is that model D (full devolution of rates and thresholds using a by-band BGA) creates significantly more variation in outcomes in the net position. This has varied effects. For example, it protects against the erosion of the net position due to faster growth in incomes at the top of the distribution, but it also exacerbates the cost to the Welsh Government of increases in the higher and additional rate thresholds and the sensitivity to faster earnings growth at the bottom of the distribution.

Growth in tax revenue from the top of the distribution – associated with higher income growth at the top and interacting with the progressive nature of the tax system – has in the recent past often been higher. Given that the comparator geography (England and Northern Ireland) includes London and the South East of England, which have a much larger concentration of additional rate taxpayers than Wales, model D might be viewed more favourably than model C. As chart 3.1 shows, by-band BGA setups mean an improvement to the net position in that scenario, whereas single-BGA setups would be associated with a worsening of the net position. This mirrors what has happened in Scotland since full devolution of income tax, and if faster growth at the top of the distribution is seen to be more likely, than the trade-off might be in favour of a by-band setup.

3.5 Conclusion

This piece of analysis uses a set of scenarios covering both earnings and UK Government policy changes to illustrate the extent to which different models of devolution can affect the Welsh net income tax position. The models include partial devolution of income tax, the same model as currently in place, with both a by-band BGA (the current model) and a single BGA; and full devolution of income tax rates and thresholds, using a single BGA (the model currently operated in Scotland) and a by-band BGA.

There is trade-off between the level of risk borne by the Welsh Government and the level of control it can exert over the shape of the income tax system. Partially devolved systems allow for less control, but they also reduce the size of the exposure of the net position to changes outside the Welsh Government's control.

Single BGA systems are particularly associated with larger falls in the net position if growth in earnings in England and Northern Ireland is faster than in Wales, which mirrors the outcomes in Scotland since full devolution of income tax rates and thresholds, and reflects a more tax-rich income distribution particularly in London and the South East of England. By-band BGA systems, on the other hand, are associated with larger changes in relation to changes in thresholds at UK Government level. Although these have been beneficial to Wales since devolution, policy decisions similar to those taken in the 2010s would have significantly worsened the net position.

There is no single optimal system among the four we modelled – all have benefits and drawbacks. Any choice in terms of changes to the devolution of income tax in Wales would have to balance the appetite for risk of the Welsh Government and a realistic assessment of the more negative scenarios to materialise. It will also need to consider any potential vulnerabilities should the direction of UK Government policy change in the future, as well as the continued interaction with broader UK rates and thresholds that is a permanent feature of any devolved income tax system.

Future options for income tax devolution in Wales

Methodological annexes

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Contents

A1. Methodological Annex 1: Establishing the tax base

To forecast Welsh income tax revenues up to 2029-30, we first establish the tax base. This is done by updating an existing model – based on the FAI Scottish income tax model – to accurately reflect both the current and future Welsh tax system, population, and earnings patterns. We created a similar model for income tax revenues in England and Northern Ireland for the block grant adjustment (BGA) calculations.

A1.1 Population and demographic changes

We update the model to incorporate the latest ONS National Population Projections (NPPs), based on the mid-2022 estimates. These projections allow the models to capture expected demographic trends over the forecast horizon. Population growth is applied separately to ten-year age cohorts, enabling the model to reflect changes in the size and composition of the working-age population relative to non-working-age groups, which is an important driver of the future tax base.

A1.2 Income growth assumptions

We account for income growth across countries by growing earnings from a 2022 baseline using the UK earnings growth rates published in the Office for Budget Responsibility's (OBR) March 2025 Economic and Fiscal Outlook (EFO). For pension income and other non-earnings income, we apply the same growth rates assumed for Scotland, using projections from the Scottish Fiscal Commission's (SFC) May 2025 Scotland's Economic and Fiscal Forecast.

A1.3 Tax rates and thresholds

The model incorporates the income tax rates and thresholds announced in the UK Autumn Budget (Oct 2024)[1]. These include the continued freeze to thresholds up to 2028-29, followed by annual uprating in line with the assumed 2% inflation rate.

Table A1.1 summarises the thresholds used in the model, while Table A1.2 presents the tax rates, including the division of liabilities between the Welsh Government – via the Welsh Rates of Income Tax (WRIT) – and the UK Government.

A1.4 Calibration to taxpayer data

Finally, we recalibrate model weights to reflect the characteristics and income distribution of Welsh taxpayers for the Welsh model. For our English and Northern Irish tax model we recalibrate to English and Northern Irish taxpayers. For 2022-23, weights are adjusted by tax band to match outturn income tax receipts. For later years (2023-24

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[1] This was the most recent publication available at the time of analysis.

to 2029-30), weights are updated in line with the OBR's band-level revenue forecasts from the [March 2025 EFO](#).

Table A1.1: Income tax thresholds used in modelling

	2023-24 – 2027-28	**2028-29**	**2029-30**
Personal Allowance	Up to £12,570	Up to £ 12,820	Up to £13,080
Basic rate tax	£12,571 - £50,270	£ 12,821 - £51,275	£13,081 - £ 52,301
Higher rate tax	£50,271- £125,140*	£51,276 - £125,640*	£52,302 - £126,160*
Additional rate tax	Over £125,141	Over £125,641 *	Over £126,161 *

*An additional rate taper is applied to incomes over £100,00. For each £2 earned above £100,000, there is a £1 reduction in the tax-free personal allowance, e.g. £12,570 in 2025-26. The personal allowance is zero once adjusted net income reaches £100,000 + 2 times the personal allowance, e.g. £125,140 or more in 2025-26.
Source: [UK Autumn Budget](#) (Oct 2024) and FAI calculations[2]

Table A1.2: Income tax rates used in model

	Total rate of income tax	**WRIT rate**	**Tax rate for UK Government**
Personal Allowance	0%	0%	0%
Basic rate tax	20%	10%	10%
Higher rate tax	40%	10%	30%
Additional rate tax	45%	10%	35%

Source: [UK Autumn Budget](#) (Oct 2024) and FAI calculations

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[2] Note that the modelling for this paper was done before the publication of the 2025 Budget, which made some changes to the threshold policy beyond 2028-29. This would slightly changes the results, but the broad magnitudes and direction of changes in net position are not affected.

A2. Methodological Annex 2: Block Grant Adjustment

This section sets out the methodology used to calculate the net budgetary impact of changes in Welsh Rates of Income Tax (WRIT) under alternative Block Grant Adjustment (BGA) mechanisms. The analysis focuses on how different indexation approaches affect the Welsh Government's budget position, given a set of tax revenue forecasts.

Under the Welsh fiscal framework, the block grant adjustment reflects the revenues forgone by the UK Government as a result of income tax devolution. As described in Section 2, there are several different models for the BGA, with different approaches implying different levels of fiscal risk and reward for the Welsh Government.

This analysis applies four variants of BGA models.

Full devolution of revenues, rates and bands

- Single BGA (the current Scottish model)
- By-band BGA

Partial devolution

- Single BGA
- By-band BGA (the current Welsh approach)

In addition to these core approaches to the BGA, there are also different approaches to taking on board population growth.

A2.1 Index Per Capita (IPC)

Under the index per capita approach, the Welsh block grant adjustment would be uprated in line with growth in income tax revenues in England and Northern Ireland, adjusted for relative population growth between Wales and the comparator area.

In practical terms, the index per capita method assumes that, in the absence of devolution, Welsh income tax revenues would have evolved in line with revenues in England and Northern Ireland on a per-capita basis. Any divergence between Welsh revenues and this counterfactual path therefore translates into a gain or loss for the Welsh Government's budget. As a result, the method provides a population-adjusted benchmark against which to assess the budgetary consequences of differential revenue growth following devolution.

Two variants can be separately identified:

- IPC (single BGA), where revenues are indexed at the overall level.
- IPC (BGA by band), where revenues in each income tax band are indexed separately before being aggregated.

Although the Index per Capita (IPC) method is currently used in Scotland, it is not modelled in this report. The Institute for Fiscal Studies notes that IPC can be calculated using alternative formulations, and this methodological variability justifies its exclusion in order to preserve consistency across the model specifications adopted here.[3]

A2.2 Comparable Model[4]

Under the comparable model, the Welsh block grant adjustment is uprated in line with growth in the income tax base in England and Northern Ireland, adjusted for comparability.

As with IPC, two variants are can be identified:

- Comparable (single BGA).
- Comparable (BGA by band).

These two variants of the comparable model are used throughout to calculate the results in the report.

A2.3 The modelling approach and trade-offs

While both approaches index the block grant adjustment to developments in England and Northern Ireland, the index per capita method provides a population-adjusted revenue benchmark, whereas the comparable model links the adjustment more directly to changes in the underlying income tax base and its distribution. Consequently, the two methods imply different exposures to population growth, leading to divergent budgetary outcomes over time.

All scenarios were modelled using the comparable method for the calculation of the BGA. If the index per capita method were used instead, the effects would be more positive for the Welsh Government if the Welsh population were to grow at a slower rate than the population of England and Northern Ireland, as has generally been the case.

A key methodological choice in this analysis concerns whether indexation is applied at the aggregate level or separately by income tax band. When calculations are performed by band, the growth rates applicable to basic, higher, and additional rate taxpayers are applied separately and then summed to obtain the total BGA.

This distinction matters because changes in the distribution of taxpayers across income bands can affect overall revenue growth. As a result, the single BGA and band-level

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[3] See https://ifs.org.uk/publications/wales-dont-always-see-scotland-adjusting-welsh-block-grant-after-tax-devolution
[4] The term "comparable model" is applied to a range of related but not identical methodologies for estimating block grant adjustments.

variants of the same indexation method may produce different results, even when based on identical total revenues.

Both approaches are presented in order to provide a fuller picture of how alternative indexation mechanisms operate in practice. The single BGA results offer a simplified view suitable for headline reporting, while the band-level results provide additional insight into the sources of divergence across methods.

See Methodological Annex 6 for further information on the calculations performed.

A3. Methodological Annex 3: Static baseline results

Our model produces a set of baseline revenue estimates based on the population and earnings growth assumptions, and the income tax rates and thresholds presented in Methodological Annex 1. These are considered our central scenario. Results from alternative scenarios – adjusting key assumptions – are presented in Methodological Annex 4.

Table A3.1reports the total baseline income tax revenue forecast by band and shows how these revenues are split between the Welsh Government (through WRIT) and the UK Government.

In 2026-27, total income tax revenues are forecast to reach £9 billion, with around 70% raised from the basic rate band. Of this, approximately £4 billion is expected to accrue to the Welsh Government, and £5 billion to the UK Government. By 2029-30, total revenues are forecast to rise to £10 billion, with around £4 billion accruing to the Welsh Government and £6 billion to the UK Government.

Table A3.1: Total Tax revenue from baseline scenario and revenues accruing to the Welsh Government and the UK Government

All figures in £million	**Basic rate tax revenue**	**Higher rate tax revenue**	**Additional rate tax revenue**	**Total Tax Revenue**
Total tax revenue				
2026-27	6,186	2,127	581	8,894
2027-28	6,417	2,262	616	9,294
2028-29	6,638	2,307	650	9,595
2029-30	6,888	2,371	687	9,946
WRIT revenue				
2026-27	3,093	532	129	3,754
2027-28	3,208	565	137	3,911
2028-29	3,319	577	144	4,040
2029-30	3,444	593	153	4,189
UK Government tax revenue				
2026-27	3,093	1,595	452	5,140
2027-28	3,208	1,696	479	5,384
2028-29	3,319	1,730	506	5,555
2029-30	3,444	1,779	535	5,757

Source: FAI calculations. Note figures may not sum due to rounding

Table A3.2: Net impact on Welsh Government's fiscal position relative to no devolution

All figures in £m	Model A: Partial devolution, by-band BGA	Model B: Partial devolution, single BGA	Model C: Full devolution, single BGA	Model D: Full devolution, by-band BGA
2026-27	313	177	445	907
2027-28	353	203	513	1,023
2028-29	368	210	525	1,066
2029-30	382	214	528	1,109

Source: BU calculations

Table A3.2 presents the estimated difference between Welsh income tax revenues and the block grant adjustment under the partially devolved model and a fully devolved model, relative to a scenario with no devolution of income tax. Results are shown on both a single BGA and a by-band BGA basis. Under the partially devolved model, the single BGA net effect increases from £177 million in 2026-27 to £214 million by 2029-30, while the corresponding by-band estimates rise from £313 million to £382 million over the same period. Under the fully devolved model, the single BGA net effect increases from £445 million in 2026-27 to £528 million by 2029-30. The by-band estimates are substantially larger throughout the forecast horizon, increasing from £907 million to £1,109 million over the same period.

The results presented here show consistently larger net effects under the by-band methodology than under the single BGA approach, and materially higher impacts under full devolution than under the partially devolved model. However, the profile over time is relatively stable, with incremental increases reflecting gradual changes in the underlying tax base as well as the larger effect from the threshold freezes included in the baseline.

A4. Methodological Annex 4: Scenario analysis

We have conducted a number of scenarios to assess the sensitivity of income tax revenues to changes in earnings growth and to alternative income tax policies. The first four scenarios examine different earnings growth rates – both across the whole distribution and at specific points within it. We then model three policy scenarios in which tax rate thresholds are increased across each tax band.

All scenarios are constructed by varying a single parameter while holding all other assumptions constant relative to the baseline. All results presented in this chapter show the difference in tax revenues raised in Wales – after accounting for behavioural responses – compared with the baseline scenario. See Methodological Annex 7 for further information on behavioural assumptions and methodology.

A4.1 Average earnings growth

We model the effect of higher and lower average earning growth rates on income tax revenues raised in Wales. Our model captures the impact of changing these growth rates on Wales earnings. The two scenarios we model are:

- **Earnings scenario 1:** higher earnings growth across the income distribution
- **Earnings scenario 2:** lower earnings growth across the income distribution

Table A4.1 summarises the assumptions used for these scenarios. The baseline scenario uses the OBR's UK average earnings growth forecast, as presented in Methodological Annex 3.

Table A4.1: Average earnings growth rate assumptions used in scenario analysis

	2026-27	2027-28	2028-29	2029-30
Baseline scenario	2.2%	2.1%	2.3%	2.5%
Higher average earnings growth	3.2%	3.1%	3.3%	3.5%
Lower average earnings growth	1.2%	1.1%	1.3%	1.5%

A4.1.1 Earnings scenario 1: Higher average earnings growth across the income distribution

Results from the higher average earnings growth scenario are shown in Tables A4.2 and A4.3 below. Higher average earnings growth results in a positive revenue effect increases over the forecast horizon. Around 70% of the additional revenue over the period is generated by higher rate tax revenues, as more taxpayers move into the higher tax band due to increased wages from faster growth.

Table A4.2: Difference in post-behavioural total tax revenue and Welsh and UK Government tax revenues from earnings scenario 1: higher earnings growth

All figures in £m	Basic rate tax revenue	Higher rate tax revenue	Additional rate tax revenue	Total Tax Revenue
WRIT revenue				
2026-27	4	23	4	31
2027-28	8	48	8	64
2028-29	16	70	14	100
2029-30	20	99	18	136
England and Northern Ireland NSND Income Tax (WRIT basis)				
2026-27	93	546	301	940
2027-28	191	1,092	650	1,934
2028-29	255	1,624	1,074	2,953
2029-30	237	2,187	1,573	3,997

Source: FAI calculations. Note figures may not sum due to rounding

Table A4.3: Effect on the Welsh Government's net position from scenario 1 relative to baseline

All figures in £m	Model A: partial devolution, by-band BGA	Model B: partial devolution, single BGA	Model C: full devolution, single BGA	Model D: full devolution, by-band BGA
2026-27	14	-1	10	57
2027-28	29	-3	22	120
2028-29	50	0	33	191
2029-30	71	0	44	272

Source: BU calculations

Under scenario 1, the post-behavioural net impact on the Welsh Government's fiscal position differs markedly across modelling approaches and evolves over time. For the partially devolved model, the single BGA post-behavioural effect is small throughout the forecast period, ranging from −£3 million to £0 million between 2026-27 and 2029-30. By contrast, the by-band estimates are positive in each year, rising from £14 million in 2026-27 to £71 million by 2029-30. A similar pattern is observed under the fully devolved model, although the scale of the effects is larger. The single BGA post-behavioural impact increases from £10 million in 2026-27 to £44 million in 2029-30, while the by-band estimates rise from £57 million to £272 million over the same period. The widening gap reflects both full revenue exposure and fiscal drag, where taxpayers are drawn into higher tax bands which have a lower weighting under the by-band BGA.

A4.1.2 Earnings scenario 2: Lower average earnings growth across the income distribution

Tables A4.4 and A4.5 present the results for the lower average earnings growth scenario. In this case, total revenues fall over the forecast period. Unlike the previous scenario,

around 60% of the revenue loss over the period is from basic rate tax revenues, with 30% coming from higher rate revenue losses.

Table A4.4: Difference in post-behavioural total tax revenue and Welsh and UK Government tax revenues from earnings scenario 2: lower earnings growth

All figures in £m	Basic rate tax revenue	Higher rate tax revenue	Additional rate tax revenue	Total Tax Revenue
WRIT revenue				
2026-27	-26	-13	-3	-42
2027-28	-47	-29	-7	-82
2028-29	-74	-43	-9	-127
2029-30	-100	-57	-15	-171
England and Northern Ireland NSND Income Tax (WRIT basis)				
2026-27	-421	-350	-330	-1,100
2027-28	-888	-687	-673	-2,248
2028-29	-1,330	-1,037	-1,049	-3,417
2029-30	-1,830	-1,347	-1,482	-4,659

Source: FAI calculations. Note figures may not sum due to rounding

Table A4.5: Effect on the Welsh Government's net position from scenario 2

All figures in £m	Model A: partial devolution, by-band BGA	Model B: partial devolution, single BGA	Model C: full devolution, single BGA	Model D: full devolution, by-band BGA
2026-27	-15	-4	-11	-44
2027-28	-26	-6	-21	-88
2028-29	-42	-10	-31	-135
2029-30	-56	-13	-40	-185

Source: BU calculations

Under scenario 2, the post-behavioural net impact on the Welsh Government's fiscal position is negative across all modelling approaches and throughout the forecast period, with the magnitude of the effect increasing steadily over time. For the partially devolved model, the single BGA post-behavioural effect is modest but consistently negative, worsening from −£4 million in 2026-27 to −£13 million by 2029-30. The corresponding by-band estimates are larger in absolute terms, declining from −£15 million to −£56 million over the same period, indicating that behavioural and distributional responses amplify the fiscal impact relative to single BGA estimates. A similar but more pronounced pattern is observed under the fully devolved model. The single BGA post-behavioural net effect falls from −£11 million in 2026-27 to −£40 million by 2029-30, while the by-band estimates deteriorate more sharply, reaching −£185 million by the end of the forecast horizon. The divergence between single BGA and by-band estimates reflects lower fiscal drag compared to the baseline, so a higher amount of tax being paid at the basic rate which has a higher weight under the by-band BGA.

A4.2 Different rates of earnings growth in Wales and England and Northern Ireland

Next, we examine how changes in earnings growth in Wales relative to and England and Northern Ireland affect income tax revenues. We model two scenarios:

- **Earnings scenario 3**: assuming higher earnings growth in England and Northern Ireland relative to Wales.
- **Earnings scenario 4**: assuming lower earnings growth in England and Northern Ireland relative to Wales.

We use the same growth rates presented in A4.1 for England and Northern Ireland, relative to the baseline rates for Wales. Tables A4.6 through A4.9 present the results of these scenarios. In both scenarios, the revenues from WRIT are unchanged relative to the base scenario, with only higher (scenario 3) or lower (scenario 4) revenues in England and Northern Ireland.

Table A4.6: Difference in post-behavioural total tax revenue and Welsh and UK Government tax revenues from earnings scenario 3: higher earnings growth in England and Northern Ireland

All figures in £m	Basic rate tax revenue	Higher rate tax revenue	Additional rate tax revenue	Total Tax Revenue
WRIT revenue				
2026-27	0	0	0	0
2027-28	0	0	0	0
2028-29	0	0	0	0
2029-30	0	0	0	0
England and Northern Ireland NSND Income Tax (WRIT basis)				
2026-27	93	546	301	940
2027-28	191	1,092	650	1,934
2028-29	255	1,624	1,074	2,953
2029-30	237	2,187	1,573	3,997

Source: FAI calculations. Note figures may not sum due to rounding

Table A4.7: Effect on the Welsh Government's net position from earnings scenario 3

All figures in £m	Model A: partial devolution, by-band BGA	Model B: partial devolution, single BGA	Model C: full devolution, single BGA	Model D: full devolution, by-band BGA
2026-27	-17	-32	-107	-61
2027-28	-34	-66	-221	-123
2028-29	-51	-100	-341	-184
2029-30	-64	-136	-469	-242

Source: BU calculations

Under earnings scenario 3, the post-behavioural net impact on the Welsh Government's fiscal position is negative across all models of devolution, with increasingly negative

values over the forecast horizon. Under the current model of devolution (model A, with a by-band BGA), the impact is -£17 million in 2026-27, rising to £64 million in 2029-30. Model B (single BGA) is associated with a negative impact that is roughly twice as large (-£32 million in 2026-27, rising to -£136 million in 2029-30). The same pattern is reflected under full devolution, with model D (by-band) worsening the net position by £61 million in 2026-27 (rising to £242 million by 2029-30), compared with model C's (single BGA) -£107 million in 2026-27 and -£469 million by 2029-30. The large effect on the single BGA models reflects the higher tax-richness of incomes in England and Northern Ireland, which is particularly driven by high incomes in London and the South East of England. The by-band BGA systems limit the extent to which this feeds through to the Welsh net position, unlike the single BGA systems.

Table A4.8: Difference in post-behavioural total tax revenue and Welsh and UK Government tax revenues from earnings scenario 4: lower earnings growth in England and Northern Ireland

All figures in £m	Basic rate tax revenue	Higher rate tax revenue	Additional rate tax revenue	Total Tax Revenue
WRIT revenue				
2026-27	0	0	0	0
2027-28	0	0	0	0
2028-29	0	0	0	0
2029-30	0	0	0	0
England and Northern Ireland NSND Income Tax (WRIT basis)				
2026-27	-421	-350	-330	-1,100
2027-28	-888	-687	-673	-2,248
2028-29	-1,330	-1,037	-1,049	-3,417
2029-30	-1,830	-1,347	-1,482	-4,659

Source: FAI calculations. Note figures may not sum due to rounding

Table A4.9: Effect on the Welsh Government's net position from earnings scenario 4

All figures in £m	Model A: partial devolution, by-band BGA	Model B: partial devolution, single BGA	Model C: full devolution, single BGA	Model D: full devolution, by-band BGA
2026-27	27	37	107	74
2027-28	56	76	218	151
2028-29	85	116	332	228
2029-30	115	158	452	307

Source: BU calculations

Earnings scenario 4 is close to the reverse of earnings scenario 3. The Welsh Government's post-behavioural net position is improved across all models of devolution, with larger increases coming from single BGA systems (models B and C). In model B sees an improved net position by £37 million in 2026-27, rising to £158 million by 2029-30. By comparison, the by-band partial devolution system (model A) is associated with an improvement of only £27 million in 2026-27 and £115 million by

2029-30. For full devolution systems, the increase in the net position in model C (single BGA) is £107 million in 2026-27 and £452 million, compared with £74 million in 2026-27 and £307 million by 2029-30 for model D (by-band BGA).

The difference between single and by-band BGAs is smaller in relative terms in earnings scenario 4 (lower earnings growth in England and Northern Ireland) than in scenario 3 (higher growth). This is because the by-band BGA system applies a lower weight to growth at the top end of the income distribution and so protects against higher earnings growth. In contrast, lower earnings growth means that earnings are concentrated in bands with higher weights leading to a less positive result from the by-band system.

A4.3 Different rates of earnings growth at the top and bottom of the income distribution

We next examine how changes in the relative earnings growth of low- and high-income earners affect income tax revenues. We model two scenarios:

- **Earnings scenario 5**: assuming faster growth at the top of the income distribution and slower growth at the bottom of the income distribution
- **Earnings scenario 6**: assuming slower growth at the top of the income distribution and faster growth at the bottom of the income distribution.

We definite the bottom and top of the distribution as below the 25th percentile and above the 75th percentile of the income distribution in 2022, as reported in the Annual Survey of Hours and Earnings. This corresponds to earnings below £17,850 (bottom 25%) and above £37,702 (top 25%). Individuals are assigned to percentiles based on their 2022-23 income. All incomes are uprated by the same growth rate from 2022-23 to 2025-26 and are then uprated by the growth rates appropriate for their percentile from 2026-27 onwards.

Table A4.10 below outlines our percentile-based growth rate assumptions for these two scenarios. The baseline again uses OBR UK-wide earnings growth rates, as presented in Methodological Annex 3.

Table A4.10: Average earnings growth rate assumptions by income percentile used in scenario analysis

		2026-27	2027-28	2028-29	2029-30
Baseline scenario		2.2%	2.1%	2.3%	2.5%
Earnings scenario 5	**Top 25%**	3.2%	3.1%	3.3%	3.5%
	Middle 50%	2.2%	2.1%	2.3%	2.5%
	Bottom 25%	1.1%	1.2%	1.3%	1.5%
Earnings scenario 6	**Top 25%**	1.1%	1.2%	1.3%	1.5%
	Middle 50%	2.2%	2.1%	2.3%	2.5%
	Bottom 25%	3.2%	3.1%	3.3%	3.5%

A4.3.1 Earnings scenario 5: Faster growth at the top of the income distribution and slower growth at the bottom of the income distribution

Table A4.11: Difference in post-behavioural total tax revenue and Welsh and UK Government tax revenues from earnings scenario 5: faster earnings growth at the top of the income distribution and slower growth at the bottom of the income distribution

All figures in £m	Basic rate tax revenue	Higher rate tax revenue	Additional rate tax revenue	Total Tax Revenue
WRIT revenue				
2026-27	-33	23	4	-7
2027-28	-71	47	8	-15
2028-29	-105	69	14	-22
2029-30	-147	97	18	-33
England and Northern Ireland NSND Income Tax (WRIT basis)				
2026-27	-715	519	302	107
2027-28	-1,494	1,030	653	189
2028-29	-2,354	1,516	1,079	241
2029-30	-3,378	2,018	1,579	220

Source: FAI calculations. Note figures may not sum due to rounding

Table A4.11 presents results for scenario 5: faster earnings growth for higher earners and slower growth for lower earners. Welsh government revenues are estimated to fall by £7 million in 2026-27, increasing to £33 million by 2029-30 due to losses in basic rate tax revenue outweighing increases in higher and additional rate tax revenues.

Table A4.12 present the net effect on the net position of the Welsh Government. In this scenario, both the by-band models (A and D) are associated with increases in the net position, while single BGA systems (B and C) are associated with falls in the net position. This is due to England and Northern Ireland revenues growing strongly in the additional rate – the by-band BGA systems mitigate against this, but the single BGA systems do not.

Table A4.12: Effect on the Welsh Government's net position from scenario 5

All figures in £m	Model A: partial devolution, by-band BGA	Model B: partial devolution, single BGA	Model C: full devolution, single BGA	Model D: full devolution, by-band BGA
2026-27	12	-10	-17	52
2027-28	24	-22	-33	111
2028-29	42	-30	-51	177
2029-30	61	-41	-71	254

Source: BU calculations

A4.3.2 Earnings scenario 6: Slower growth at the top of the income distribution and faster growth at the bottom of the income distribution

Table A4.13: Difference in post-behavioural total tax revenue and Welsh and UK Government tax revenues from earnings scenario 6: faster earnings growth at the bottom of the income distribution and slower growth at the top of the income distribution

All figures in £m	Basic rate tax revenue	Higher rate tax revenue	Additional rate tax revenue	Total Tax Revenue
WRIT revenue				
2026-27	11	-12	-3	-4
2027-28	31	-28	-7	-4
2028-29	46	-42	-9	-6
2029-30	66	-56	-15	-5
England and Northern Ireland NSND Income Tax (WRIT basis)				
2026-27	408	-338	-330	-260
2027-28	837	-658	-672	-493
2028-29	1,342	-997	-1,048	-703
2029-30	1,868	-1,288	-1,481	-902

Source: FAI calculations. Note figures may not sum due to rounding

The results from the opposite scenario of faster earnings growth for lower earners and slower growth for higher earners are shown in Table A4.13. Under this scenario revenue is estimated to fall by £4-5 million for the Welsh government across the forecast horizon.

Table A4.14: Effect on the Welsh Government's net position from scenario 6

All figures in £m	Model A: partial devolution, by-band BGA	Model B: partial devolution, single BGA	Model C: full devolution, single BGA	Model D: full devolution, by-band BGA
2026-27	-13	5	16	-40
2027-28	-22	13	35	-80
2028-29	-37	18	53	-125
2029-30	-50	26	75	-173

Source: BU calculations.

Under scenario 6, fiscal outcomes diverge materially depending on whether the BGA is calculated on a single BGA basis or by income band. With partial devolution, the single BGA approach shows a modest and rising positive net impact, from £5 million in 2026-27 to £26 million by 2029-30. However, the by-band BGA produces a consistently negative position, widening from −£13 million to −£50 million. The difference arises because the by-band methodology applies differential weighting across income bands. The divergence is more pronounced under full devolution. Using a single BGA, the net effect increases from £16 million to £75 million over the period. In contrast, the by-band specification yields a substantial and worsening negative impact, reaching −£173 million by 2029-30.

Put together, scenarios 5 and 6 illustrate the fact that the by-band models (A and D) protect the Welsh net position against higher growth at the top of the income distribution, while increasing the exposure to stronger earnings growth at the bottom.

A4.4 Increasing different tax band thresholds by 10%

We also model three policy scenarios to assess the impact on income tax revenues of increasing different income tax thresholds by 10%. These scenarios illustrate how shifting the points at which individuals move between tax bands affects overall receipts and how those changes are distributed between the Welsh and UK Governments. The scenarios are:

- **Policy scenario 1**: increasing the higher rate threshold by 10%
- **Policy scenario 2**: increasing the personal allowance by 10% and increasing the additional rate threshold to extend the PA taper
- **Policy scenario 3**: increasing the additional rate threshold by 10%

Table A4.15 summarises the thresholds used in each scenario.

Table A4.15: Threshold assumptions used in scenario analysis

		2026-27	2027-28	2028-29	2029-30
Baseline scenario	Personal Allowance	£12,570	£12,570	£12,820	£13,080
	Higher Rate Threshold	£50,270	£50,270	£51,275	£52,301
	Additional Rate Threshold	£125,140	£125,140	£125,640	£126,160
Policy scenario 1 – increase higher rate threshold by 10%	Personal Allowance	£12,570	£12,570	£12,820	£13,080
	Higher Rate Threshold	***£55,297***	***£55,297***	***£56,403***	***£57,531***
	Additional Rate Threshold	£125,140	£125,140	£125,640	£126,160
Policy scenario 2 – increase personal allowance by 10% and extending the personal allowance taper	***Personal Allowance***	***£13,827***	***£13,827***	***£14,102***	***£14,388***
	Higher Rate Threshold	£50,270	£50,270	£51,275	£52,301
	Additional Rate Threshold	***£127,654***	***£127,654***	***£128,204***	***£128,776***
Policy scenario 3 – increase additional rate threshold by 10%	Personal Allowance	£12,570	£12,570	£12,820	£13,080
	Higher Rate Threshold	£50,270	£50,270	£51,275	£52,301
	Additional Rate Threshold	***£137,654***	***£137,654***	***£138,204***	***£138,776***

Source: FAI calculations. Note figures may not sum due to rounding

A4.4.1 Policy scenario 1: Increasing the higher rate threshold by 10%

Table A4.16 presents the estimated impacts of policy scenario 1, under which the higher rate income tax threshold is increased by 10 per cent. Increasing the threshold shifts a larger proportion of taxable income from the higher rate to the basic rate, thereby reducing tax liabilities for higher- and additional-rate taxpayers.

Overall, WRIT revenues are forecast to increase by around £60-70 million per year following the threshold increase. Basic rate receipts increase as more income is taxed at the lower rate, which offsets the reduction in higher rate revenues. There is a small increase in additional rate receipts, reflecting behavioural responses to lower marginal tax rates, which are assumed to increase work activity among some additional-rate taxpayers.

Table A4.16: Difference in post-behavioural total tax revenue and Welsh and UK Government tax revenues from policy scenario 1: increasing the higher rate threshold by 10%

All figures in £m	Basic rate tax revenue	Higher rate tax revenue	Additional rate tax revenue	Total Tax Revenue
WRIT revenue				
2026-27	173	-115	0	58
2027-28	188	-124	0	64
2028-29	189	-126	0	64
2029-30	197	-131	0	67
England and Northern Ireland NSND Income Tax (WRIT basis)				
2026-27	5,036	-3,455	-192	1,390
2027-28	5,299	-3,620	-201	1,478
2028-29	5,410	-3,704	-213	1,492
2029-30	5,620	-3,836	-229	1,555

Source: FAI calculations. Note figures may not sum due to rounding

Table A4.17: Effect on the Welsh Government's net position from policy scenario 1

All figures in £m	Model A: partial devolution, by-band BGA	Model B: partial devolution, single BGA	Model C: full devolution, single BGA	Model D: full devolution, by-band BGA
2026-27	-86	11	20	-258
2027-28	-88	14	19	-272
2028-29	-91	13	20	-279
2029-30	-95	14	21	-290

Source: BU calculations

Under partial devolution, the single BGA specification shows a small and stable positive net impact of around £11–14 million per year. This reflects the structure of WRIT as a flat-rate adjustment: threshold changes generate only limited overall revenue effects when assessed using a single comparability factor. However, when the BGA is calculated by income band, the fiscal position becomes consistently negative, reaching

around −£95 million by 2029-30. This is driven by the weighting inherent in the by-band approach. The basic rate band has a higher weight so as the size of this band increases, more revenue falls within it producing a negative net impact relative to the single BGA. The divergence is greater under full devolution. With a single BGA, the net effect remains modestly positive at around £20 million per year. Under the by-band specification, however, the net position becomes substantially negative, approaching −£290 million by the end of the forecast period. Fully devolved revenues are more exposed to band-level adjustments, meaning distributional effects interact more strongly with the BGA mechanism.

A4.4.2 Policy scenario 2: Increasing the personal allowance by 10% and increasing the additional rate threshold to extend the PA taper

Table A4.18 sets out the results for policy scenario 2, under which the personal allowance is increased by 10%, and the additional rate threshold is increased to extend the personal allowance taper. Raising the personal allowance means that a larger share of income is no longer taxed, reducing tax liabilities for all taxpayers. Increasing the additional rate threshold to extend the personal allowance taper will also reduce the amount of tax paid at the additional rate for high earners. This scenario will have the biggest revenue impact as it affects all taxpayers, not just those in the higher two tax bands.

WRIT revenues are estimated to fall by £261 million in 2026-27, increasing to £287 million in 2029-30.

The main driver behind this revenue loss is driven by basic rate taxpayers, as the increased personal allowance reduces the amount of income taxed at the basic rate across the entire population. There is also a small reallocation between higher an additional rate revenues, and some small behavioural effects.

Table A4.18: Difference in post-behavioural total tax revenue and Welsh and UK Government tax revenues from policy scenario 2: increasing the personal allowance by 10% and extending the personal allowance taper

All figures in £m	Basic rate tax revenue	Higher rate tax revenue	Additional rate tax revenue	Total Tax Revenue
WRIT revenue				
2026-27	-261	5	-5	-261
2027-28	-270	5	-5	-269
2028-29	-278	6	-5	-277
2029-30	-287	6	-6	-287
England and Northern Ireland NSND Income Tax (WRIT basis)				
2026-27	-5,675	422	-402	-5,654
2027-28	-5,792	445	-422	-5,769
2028-29	-5,970	474	-451	-5,947
2029-30	-6,176	512	-488	-6,152

Source: FAI calculations. Note figures may not sum due to rounding

Table A4.19: Effect on the Welsh Government's net position from policy scenario 2

All figures in £m	Model A: partial devolution, by-band BGA	Model B: partial devolution, single BGA	Model C: full devolution, single BGA	Model D: full devolution, by-band BGA
2026-27	-25	-70	-196	-62
2027-28	-27	-73	-203	-67
2028-29	-28	-75	-208	-69
2029-30	-29	-78	-216	-73

Source: BU calculations

Policy scenario 2 produces a negative fiscal impact across all model specifications. With partial devolution, the by-band BGA shows a moderate loss, ranging from -£25 million to -£29 million per year. When the BGA is calculated a single figure, however, this rises from -£70 million to -£78 million a year. A similar pattern occurs for fully devolved models, for which the annual cost of the policy in terms of the Welsh net position is around three times as large with a single BGA (£196 million in 2026-27, rising to £216 million by 2029-30) compared with a by-band BGA (£62 million in 2026-27, rising to £73 million by 2029-30).

The difference in net positions is driven by the fact that the by-band BGA gives more weight basic rate revenues, for which there is very little difference between the relative effect in Wales and England and Northern Ireland. Total revenues on a WRIT-basis, however, fall by less in England and Northern Ireland relative to Wales because of a more tax-rich distribution – meaning that the personal allowance has less of an effect. When a single BGA is implemented, this is reflected in a larger fall in revenues in WRIT than in the WRIT-basis for England and Northern Ireland, and therefore causes a larger worsening of the Welsh net position.

A4.4.3 Policy scenario 3: Increasing the additional rate threshold by 10%

Table A4.20 presents the results for policy scenario 3, which increases the additional rate threshold by 10%. This raises the income level at which the additional rate (45%) applies, meaning that less income is taxed at the additional rate and more is taxed at the higher rate (40%).

The Welsh Government experiences only a marginal net impact on revenues, as revenue impacts are nearly entirely offset between the higher rate and additional tax rate revenues. This is because the Welsh government still receives the first 10p of tax on each pound for incomes that are now taxed at the higher rate (40%) instead of the additional rate (45%). It is the UK Government that will face the loss in tax revenue from the remaining tax moving to 30p, from 35p, due to the threshold increase. The only effect on Welsh Government tax revenues is due to behavioural effects, which are small.

Table A4.20: Difference in post-behavioural total tax revenue and Welsh and UK Government tax revenues from policy scenario 3: increasing the additional rate threshold by 10%

All figures in £m	**Basic rate tax revenue**	**Higher rate tax revenue**	**Additional rate tax revenue**	**Total Tax Revenue**
WRIT revenue				
2026-27	0	25	-23	2
2027-28	0	27	-25	2
2028-29	0	28	-26	2
2029-30	0	30	-28	2
England and Northern Ireland NSND Income Tax (WRIT basis)				
2026-27	0	2,103	-1,999	103
2027-28	0	2,214	-2,103	111
2028-29	0	2,322	-2,211	111
2029-30	0	2,471	-2,355	116

Source: FAI calculations. Note figures may not sum due to rounding

Table A4.21: Effect on the Welsh Government's net position from policy scenario 3

All figures in £m	**Model A: partial devolution, by-band BGA**	**Model B: partial devolution, single BGA**	**Model C: full devolution, single BGA**	**Model D: full devolution, by-band BGA**
2026-27	-29	-2	11	-124
2027-28	-31	-3	12	-130
2028-29	-32	-2	13	-137
2029-30	-35	-2	14	-146

Source: BU calculations

Policy scenario 3 produces a comparatively small fiscal effect under partial devolution but a more material divergence once full devolution and by-band BGA treatment are applied. With partial devolution, the single BGA specification yields a near-neutral position, fluctuating between −£2 million and −£3 million per year. This reflects the fact

that WRIT is a flat-rate tax. When the BGA is calculated by income tax band, the net position becomes moderately negative, reaching around −£35 million by 2029-30. As in the previous scenarios, band-specific weighting increases sensitivity to changes in the size of tax bands relative to the single BGA approach. Under full devolution, the single BGA produces a modest positive impact, rising gradually from £11 million to £14 million across the forecast horizon. However, once the BGA is calculated by band, the outcome becomes substantially negative, reaching −£146 million by 2029-30. The combination of full revenue exposure and a higher weight applying to a wider band leads to a larger net impact.

A5. Methodological Annex 5: Limitations

A5.1 BGA Modelling

A key limitation arises from the choice of indexation method itself. Different approaches imply different exposures to relative population change and income growth between Wales and the comparator area, and can therefore generate different budgetary outcomes even when underlying tax revenues are identical. The results presented in this report should be interpreted as illustrating the sensitivity of the Welsh Government's budget position to alternative indexation mechanisms rather than as precise forecasts of future budget impacts. The modelling also assumes that the comparator area for income tax devolution remains England and Northern Ireland, in line with the current fiscal framework, and any future changes to the structure of devolution or to the design of the fiscal framework would require the BGA methodology to be reconsidered and could alter the budgetary implications of income tax devolution.

A5.2 Income tax modelling

The estimates in this report provide projections of future income tax revenues under a range of earnings growth and policy scenarios. There are several limitations with this modelling, which mean the revenue forecasts should be taken as an indication of the potential scale of tax revenue, rather than a certain prediction.

A5.2.1 Model assumptions

A central limitation of this analysis relates to the assumptions underpinning the Welsh and the England and Northern Ireland income tax models.

One key assumption concerns earnings growth. In both models, earnings are grown forward from 2022 baseline incomes using Office for Budget Responsibility (OBR) earnings growth rates for earned income, and Scottish Fiscal Commission (SFC) growth rates for pension and other income. The analysis assumes that these growth rates apply uniformly to Wales and to England and Northern Ireland as a combined region. If earnings growth in these areas were to diverge materially from the assumed rates, future income tax revenues could differ from those presented in this report.

The analysis also assumes that population growth in each country follows the Office for National Statistics (ONS) population projections used in the models. Future changes in migration patterns or demographic composition, particularly if concentrated among the working-age population, could have a material impact on the income tax base and therefore on revenues raised.

A further limitation relates to the calibration of model weights from 2023-24 onwards to the OBR's band-level revenue forecasts. This calibration assumes that the distribution of taxpayers and revenues across tax bands evolves broadly in line with these forecasts.

If there were a significant economic shock that altered the composition of tax bands or the distribution of income tax liabilities, revenues in future years could diverge from the modelled projections.

A5.2.2 Policy assumptions

The income tax forecasts presented in this report are based on income tax policy as it stood at the time of modelling. The baseline scenario therefore reflects existing rates, thresholds, and policy parameters at that point in time. Any future changes to income tax policy would alter the baseline against which scenario impacts are measured and would affect the estimated revenues.

This risk has already materialised to some extent. The modelling is based on the income tax policy announced in the Autumn Budget in October 2024. Since then, income tax policy has been updated in the Autumn Budget in November 2025, extending the freeze on thresholds from 2028-29 to 2030-31. As the model does not incorporate this later policy change, baseline thresholds in the final years of the forecast period are higher than they would be under the November 2025 policy. As a result, the revenue impacts of scenarios in the final years of the forecast are likely to be smaller than would be estimated using the updated policy assumptions.

A5.2.3 Behavioural responses

Another source of uncertainty relates to assumptions about behavioural responses to changes in earnings growth or tax policy. The modelling incorporates assumptions about both intensive and extensive margin responses, assuming a variety of income elasticity estimates at different income levels.

These parameters are subject to judgement, and there is no guarantee that the behavioural responses assumed in the model fully capture how individuals will respond in practice. If actual behavioural responses are stronger or weaker than assumed, the income tax revenues raised could differ from those presented in this analysis.

A6. Methodological Annex 6 : Technical BGA calculations

This appendix provides the calculations used to derive the block grant adjustment (BGA) and the resulting net budget impact of Welsh Rates of Income Tax (WRIT) under alternative indexation mechanisms.

A6.1 Definitions and notation

The following notation is used to describe the calculations:

- R^W_t: Welsh non-savings, non-dividend income tax revenues in year t
- R^{ENI}_t: Income tax revenues in England and Northern Ireland in year t
- P^W_t: Population of Wales in year t
- P^{ENI}_t: Population of England and Northern Ireland in year t
- BGA_t: Block grant adjustment in year t
- TB^{ENI}_t: Comparable income total income tax revenue in England and Northern Ireland in year t
- $t-1$: The previous financial year

A6.2 Index Per Capita (IPC) method

Under the index per capita approach, the block grant adjustment is uprated over time in line with growth in income tax revenues in England and Northern Ireland, adjusted to account for relative population change between Wales and the comparator area. This reflects the structure of the Welsh fiscal framework, under which England and Northern Ireland form the relevant non-devolved comparator for income tax.

Formally, the BGA under the IPC method can be expressed as:

$$BGA_t = BGA_{t-1} \times \left(\frac{R^{ENI}_t / P^{ENI}_t}{R^{ENI}_{t-1} / P^{ENI}_{t-1}} \right) \times \left(\frac{P^W_t}{P^W_{t-1}} \right)$$

This formulation uprates the previous year's block grant adjustment by the growth rate of per-capita income tax revenues in England and Northern Ireland, while scaling the result by population growth in Wales.

In the single BGA variant of the IPC method, this calculation is applied to total income tax revenues. In the by-band variant, the same approach is applied separately to each income tax band (basic, higher, and additional rates), with the resulting band-level BGAs subsequently aggregated. Differences between single BGA and by-band results arise from changes in the distribution of taxpayers and income across bands over time.

Although the Index per Capita (IPC) method is currently used in Scotland, it is not modelled in this report. The Institute for Fiscal Studies notes that IPC can be calculated

using alternative formulations, and this methodological variability justifies its exclusion in order to preserve consistency across the model specifications adopted here.[5]

A6.3 Comparable model method

Under the comparable model, the block grant adjustment is uprated in line with growth in the underlying total income tax revenue in England and Northern Ireland, adjusted for comparability. This approach links the evolution of the BGA more directly to changes in taxable income rather than to population-adjusted revenue growth.

Formally, the comparable model can be represented as:

$$BGA_t = BGA_{t-1} \times \frac{TB_t^{ENI}}{TB_{t-1}^{ENI}}$$

This formulation assumes that, in the absence of devolution, Welsh income tax revenues would have evolved in line with the growth of the comparable total income tax revenue in England and Northern Ireland. As a result, divergence between Welsh revenues and the uprated BGA reflects differences in the performance and composition of the Welsh total income tax revenue relative to the comparator area.

As with the index per capita method, two variants of the comparable model are applied. In the single BGA variant, the calculation is applied to the total income tax revenue. In the by-band variant, the calculation is applied separately to each income tax band before aggregation, allowing changes in the distribution of income across tax bands to influence the overall BGA.

A6.4 Net budget impact

For each year and indexation variant, the net budget impact of Welsh Rates of Income Tax is calculated as the difference between Welsh income tax revenues and the corresponding block grant adjustment:

$$Net\ impact = R_t^W - BGA_t$$

This measure represents the effect of income tax devolution on the Welsh Government's budget under the specified indexation mechanism. Positive values indicate that Welsh revenues exceed the block grant adjustment, while negative values indicate the opposite.

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[5] See https://ifs.org.uk/publications/wales-dont-always-see-scotland-adjusting-welsh-block-grant-after-tax-devolution

A7. Methodological Annex 7: Behavioural response and estimated post-behavioural revenue

We incorporate behavioural responses into the model to capture how individuals adjust their labour supply and taxable income in response to changes in income tax policy. Behavioural effects are applied in two stages, summarised in Table A7.1

Table A7.1: Behavioural responses to income tax

	What is it?	**Impact on tax revenue**
Intensive margin	Individuals adjust the level of work in response to changes in the marginal effective tax rate (METR). The METR measures the tax paid on the next pound earned. Adjustments may include changes in hours worked or contributions to salary sacrifice schemes.	Typically reduces the revenue gain from tax rises (as individuals earn less) and reduces the revenue cost of tax cuts (as individuals earn more).
Extensive margin	Individuals choose whether to enter or exit the labour market in response to changes in the average effective tax rate (AETR). The AETR measures the share of total income paid in tax. Adjustments may include retiring earlier, leaving employment, or moving to another region with different tax policy.	Typically reduces the revenue gain from tax rises (as fewer individuals participate in the labour market) and reduces the revenue cost of tax cuts (as more individuals enter work).

A7.1 Intensive margin behavioural response

At the intensive margin, we assume individuals change their level of work in response to changes in the marginal retention rate (MRR) – the proportion of an additional pound of income an individual keeps after tax (1 minus the marginal tax rate).

We further assume that responses vary by income level. We assign taxable income elasticities (TIE), shown in Table A7.2, to different income groups. The elasticities are all positive as an increase in the retention rate leads individuals to increase their labour supply and taxable income.

Overall, elasticities rise with income, as individuals become more responsive to changes in their METR as income is higher. This is because the monetary value related to the percentage change in MRR is larger. In addition, their income sources are more flexible, making it easier and more worthwhile to adjust behaviour. They also have better access to tax planning and can change work, investment, or income-shifting decisions more readily than lower-income individuals.

Table A7.2: Taxable income elasticities for intensive margin response

Income	Taxable income elasticities
£0 to basic rate threshold	0.015
Basic threshold to £80,000	0.1
£80,000 to £150,000	0.2
£150,000 to £300,000	0.35
£300,000 to £500,000	0.55
Above £500,000	0.75

Source: FAI calculations

A7.1.1 Calculating the intensive margin adjustment

We use both the percentage change in MRR and elasticity to calculate the change in taxable income. This is calculated as:

$$\% \ Change \ in \ Taxable \ Income \ = \ \% \ Change \ in \ MRR \ \times \ Elasticity$$

The percentage change in taxable income is then used to calculate the new taxable income after the first behavioural response. This is calculated using the following formula:

$$Adjusted \ taxable \ income \ (behaviour \ 1) \\ = \ (1 + \% \ Change \ in \ Taxable \ Income) \times \ NSND \ taxable \ income$$

The tax liability is calculated using the adjusted taxable income instead of previous non-savings non-dividend (NSND) taxable income.

The behavioural adjustment typically reduces the revenue gain from tax increases (as people earn less) or reduces the revenue cost of tax cuts (as people earn more), compared to static estimates that assume no behavioural response.

A7.2 Extensive margin behavioural response

The extensive margin captures changes in the decision to work at all. This second stage incorporates the effects of the intensive margin, as extensive-margin responses are applied to the updated post-behaviour-1 tax liabilities.

A7.2.1 Calculating the extensive margin adjustment

Following the intensive margin adjustment, taxpayers are reclassified into tax bands based on their updated taxable income and liability.

We then calculate each taxpayer's tax liability below their marginal rate. This represents the AETR base – the amount of tax paid before reaching the current marginal band. This is the cumulative tax paid in all bands below the taxpayer's current marginal rate band.

Next, we calculate the change in tax liability following the first behavioural responses as:

$$Behaviour\ 1\ change\ in\ liability$$
$$= behaviour\ 1\ liabilities\ below\ marginal\ tax\ rate$$
$$- baseline\ liabilities\ below\ marginal\ tax\ rate$$

This captures how much the inframarginal tax burden has changed – i.e., the change in AETR burden between baseline and behaviour 1.

We assume individuals will also respond differently at different income levels at the extensive margin response. We apply a separate set of income elasticities that capture how sensitive individuals are to changes in their AETR based on their income level. Table A7.3 below presents the income elasticities for extensive margin behavioural responses.

Table A7.3: Taxable income elasticities for extensive margin response

Income	Taxable income elasticities
£0 to basic rate threshold	0
Basic threshold to £150,000	-0.06
Above £150,000	-0.25

Source: Scottish Fiscal Commission

These elasticities are negative, reflecting that higher tax rates reduce the financial reward from entering work. High-income individuals show the largest responsiveness due to the larger absolute tax changes they face and their greater flexibility in adjusting labour supply or income reporting. Individuals earning below the basic tax threshold have no response, as they do not pay tax, so changes in AETR do not affect their take-home pay.

We apply these elasticities to calculate the extensive margin change in tax liability. The intensive margin change in liability is multiplied by the (negative) elasticity as outlines in the formula below:

$$Behaviour\ 2\ change\ in\ liability\ =\ behaviour\ 1\ change\ in\ liability * elasticity$$

We convert the change in tax liability into a change in taxable income. This is calculated by dividing the extensive margin change in tax liability by the marginal tax rate to determine how much income must change to generate that liability change.

$$Change\ in\ income\ (behaviour\ 2) = \frac{behaviour\ 2\ change\ in\ liability}{marginal\ tax\ rate}$$

Finally, we calculate the post-behavioural taxable income by adjusting the taxable income after behaviour 1 by the change in income after behaviour 2. The calculation is shown in the following formula:

$$Post\ behvaioural\ taxable\ income$$
$$= adjusted\ taxable\ income\ (behaviour\ 1)$$
$$+ change\ in\ income\ (behaviour\ 2)$$

This two-stage process captures both within-employment responses (hours, effort, income shifting) and participation responses (entering or exiting work), allowing us to estimate post-behavioural revenues.