National Institute of Economic and Social Research

Macroeconomic Effects of Increasing the Personal Allowance to the National Minimum Wage

National Institute of Economic and Social Research

NIESR Scenario Analysis

23rd February 2026

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This report was commissioned by The Green Britain Foundation. The scenarios reported have been generated using the National Institute Global Econometric Model (NiGEM) and represent an assessment of the economic effects of the "Green Energy for the Red Wall" proposal based on data provided by The Green Britain Foundation.

Contents

Executive Summary

- This report simulates the macroeconomic effects of lifting the Personal Allowance (PA) to the National Minimum Wage (NMW). The current PA is set to £12,570 a year, while the NMW is £24,785 a year.
- Real GDP rises 1.2 per cent from the baseline forecast in the first year, resulting from the large fiscal stimulus effect of the policy. However, over time this fades and the negative effects of increased government debt and the crowding out of private investment start to slow the economy.
- By 2050, the government debt-to-GDP ratio would effectively double. Real GDP would be 1.5 per cent lower than the baseline forecast at this point.
- In the short run, all income quintiles see an initial boost to their Real Personal Disposable Income (RPDI) resulting from reductions in their tax bill. However, this effect is spread out across income quintiles and is of only limited benefit to the bottom 20 per cent income group; after a certain point when raising the PA, the threshold is above their income and they do not benefit further as the increase does not affect them.
- In the medium to long term, the bottom 20 per cent benefit from the policy change in a more sustained fashion, as income that would have otherwise grown over the threshold becomes exempt. On average, their RPDI is increased by 5.2 per cent. However, for the other income groups, the benefits diminish as a slowing economy weighs on their incomes. By 2050, the top three income quintiles are worse off than the baseline forecast.
- Raising taxes on the top 20 per cent to ensure budget neutrality leads to a bigger negative impact on real GDP but sets the economy on a more sustainable footing and offsets some of the negative effects on private investment. Under certain assumptions, small increases in the PA can lead to an increase in private sector investment if budget neutrality is maintained.
- Raising the PA by 20 per cent can maximise the benefits to the bottom 20 per cent, while minimising the costs. Above this point, the benefits start to taper off as the PA is set above their income and has no further direct benefits to them. This can raise real GDP by 0.3 per cent if additional taxes are not raised on the highest earners to offset the change. If additional taxes are raised, there is a neutral impact on real GDP but this an persistently crowd in higher private sector investment.

Introduction

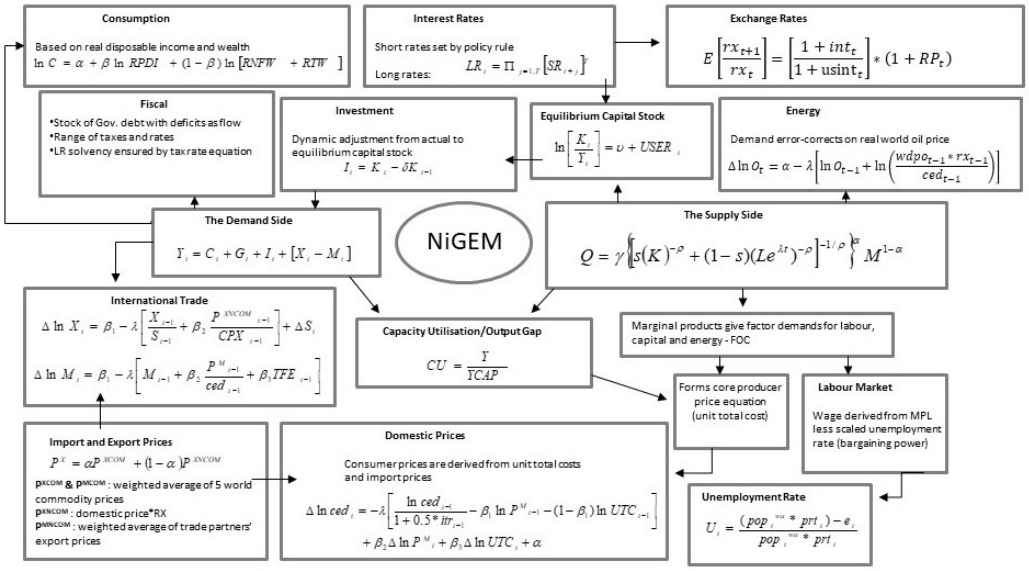
Methodology

National Institute Global Econometric Model (NiGEM)

NiGEM is a structural global macroeconometric model widely used by central banks, international organisations, and policy institutions for forecasting, scenario analysis, and policy evaluation. It provides a globally consistent framework in which major advanced and emerging economies are modelled individually, while smaller economies are represented through regional aggregates. Each country model incorporates both short- and long-run equilibrium relationships grounded in macroeconomic theory, featuring forward-looking behaviour by economic agents and policymakers alongside nominal rigidities that shape the adjustment to shocks.

In each country, short-term output dynamics are determined primarily by demand-side factors—consumption, investment, government spending, labour markets, prices, and international trade—while long-run output depends on supply-side fundamentals such as capital accumulation, labour input, productivity growth, and energy use. The model links economies through trade, competitiveness, and financial markets, allowing for the simulation of second-round and spillover effects of domestic and global shocks. summarises these interconnections across key macroeconomic sectors.

Figure 1: Main Macroeconomic Relationships in NiGEM.

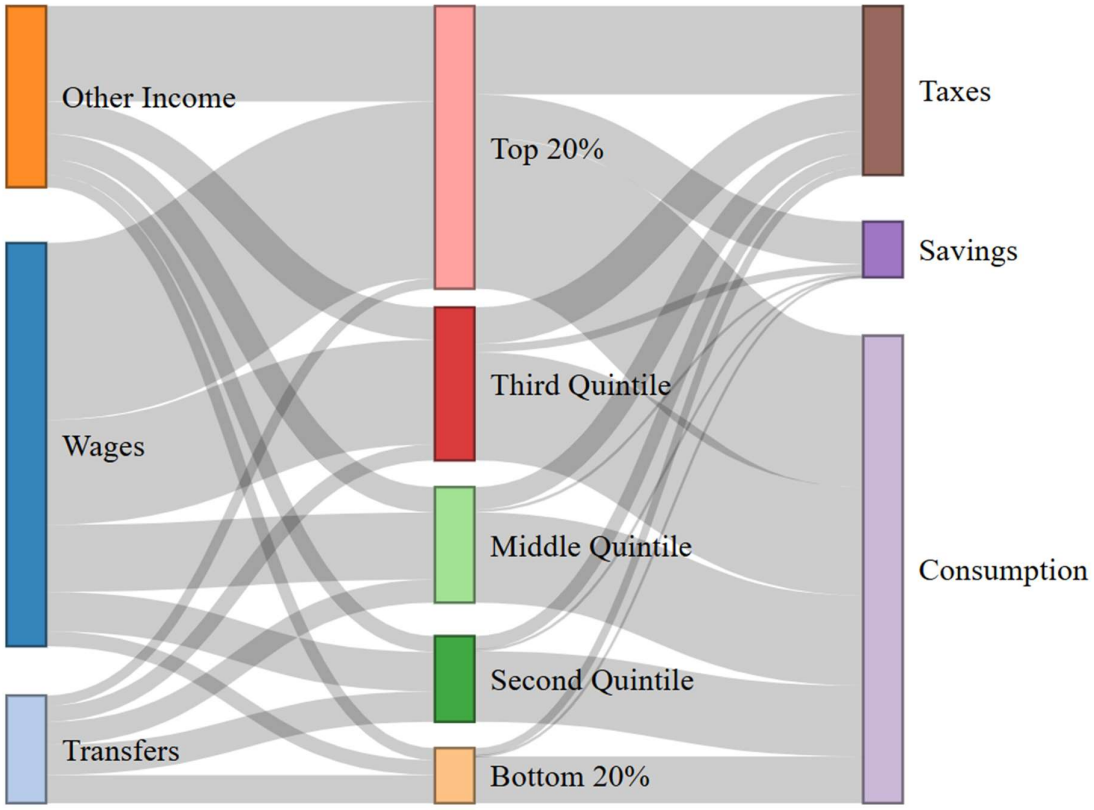


Source: NIESR

To introduce distributional analysis, we split aggregate income sources into quintiles representative of agents within those quintiles. Each quintile is assigned a share of the aggregate income source, based on historical data. They then spend this income based on

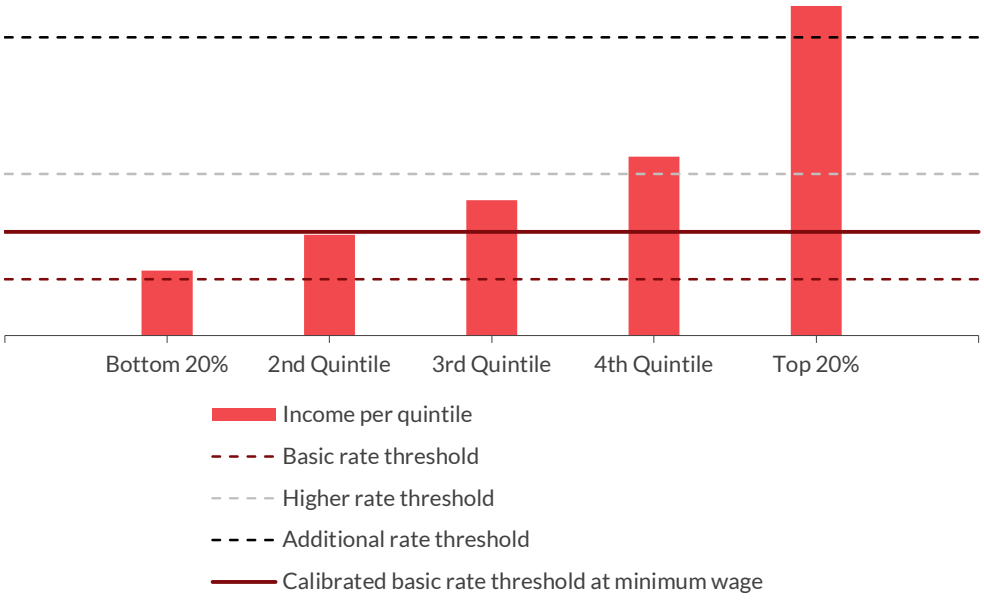
quintile-specific behavioural patterns and tax rates experienced. Figure 2 displays this representative relationship graphically.

Figure 2: Representative flows between aggregate income sources and expenditure



We calculate taxes using calibrated aggregate income thresholds, with quintiles paying taxes at 0, 20, 40, and 45 per cent rates based on them being above the PA, basic rate, higher rate, and additional rate thresholds, respectively. Figure 3 demonstrates how aggregate income crosses the various tax thresholds.

Figure 3: Aggregate income and tax thresholds



Because we use aggregate data, we calibrate the thresholds in the aggregate for each representative income quintile. We do this by calculating an average effective income tax rate taken from tax paid divided by taxable income. From this, we calculate how much of that income should be taxed at each rate to give a weighted average tax rate that is equal to the average effective income tax rate. For example, if income in the bottom quintile is £55 billion, and £3 billion is paid in income tax, the effective tax rate is around 5%. To get this from a weighted combination of 0% and the basic rate of 20%, approximately ¾ of their income must be below the basic rate threshold (that is, ¾ of 0% and ¼ of 20% gives an overall weighted average of 5%). From this, we infer that the threshold lies at ¾ of £55 billion, or £41.25 billion.

Furthermore, we calibrate behavioural responses to economic shifts for each quintile. Namely, behaviour relating to response of hours worked to changes in after-tax income, marginal propensity to consume, and savings rates. This ensures that there is a real economic effect when transferring income between groups. For example, as the bottom quintile has a lower savings rate than the top quintile, transferring income from the top to the bottom will induce higher consumption and lower savings.

To estimate propensities to consume out of disposable income, we use the 2022-23 Living Costs and Food Survey (LCFS). This is the most recent complete release. It avoids the pandemic-era distortions present in the 2020-21 data. As a robustness check, the analysis is replicated on the 2018-19 LCFS, the last pre-pandemic survey year, to assess the sensitivity of the calibrated parameters to the choice of period.

We estimate both a short-run response in consumption to a change in income, the Marginal Propensity to Consume (MPC), and the long run Average Propensity to Consume (APC). This models how consumption changes in the very short run, but also how much income is spent on

average in the long run. To calculate the APC, we use descriptives from the LCFS, i.e. the ratio of mean total expenditure to mean disposable income within each income quintile:

$$APC_q = \frac{Mean(C_q)}{Mean(Y_q)}$$

Estimating this parameter from cross-sectional data requires additional assumptions relative to the panel-data or natural-experiment approaches that dominate the modern literature (see Jappelli & Pistaferri, 2010, for a comprehensive review). The three main approaches in the literature are: (i) natural experiments exploiting exogenous income shocks such as tax rebates (Fagereng et al., 2021; Johnson et al., 2006), (ii) structural covariance-based methods decomposing income into permanent and transitory components in panel data(Blundell et al., 2008), and (iii) cross-sectional methods using the Engel curve slope, as in Fisher et al. (2020). Approaches (i) and (ii) are infeasible with the LCFS so (iii) is adopted as baseline.

While it is possible to run OLS on each income quintile, it inherently poses some problems. The main problem is that it would split the effective sample size into five subgroups within which income variation is limited by construction. The controls will absorb much of the remaining variation, which leaves the income coefficient to be poorly identified. This can make MPC profiles noisy and non-monotonic. To address this, we adopt a pooled Engel curve specification drawn from the demand systems literature. Following Banks, Blundell and Lewbel (1997), we model total household expenditure as a quadratic function of log income:

$$C = \alpha + \beta_1 \, ln(Y) + \beta_2 \, ln(Y)^2 + \sum_{q=2} \delta_q D_q + G' \, X + \epsilon$$

Where C household expenditure for the whole sample, and D is a quintile specific dummy variable. The implied short-run MPC (at any desired income level) is obtained by:

$$MPC(Y) = \frac{\partial C}{\partial Y} = \frac{(\beta_1 + 2\beta_2 ln(Y))}{Y}$$

This specification has several advantages over a quantile-by-quantile regression approach. First, it uses the full sample to estimate the income-consumption relationship, which exploits the full range of income variation. Second, the MPC is smooth, continuous function of income rather than a set of discrete point estimates. Third, the functional form is motivated by demand theory (specifically Banks, Blundell, and Lewbel (1997)).

The Short-run and Long-run Marginal Propensity to consume (MPC) measures from the LCFS are show in the table below:

Table 1: Short- and long-run MPC based on LCFS 22/23

Quintile	LR-MPC	SR-MPC
1	0.974	0.625
2	0.812	0.593
3	0.694	0.515
4	0.607	0.437
5	0.495	0.332

Both the short-run MPC and the long-run MPC decline monotonically with income, confirming that lower-income households consume a greater share of any additional income they receive. Importantly the differences in the MPCs will generate differential demand responses by the different quintiles. Specifically, the short-run MPC for the bottom quintile is around twice the MPC of the top quintile (0.63 compared to 0.33). The consequence of this is that a given transfer of income from higher to lower earners will generate a net increase in aggregate demand in the short run. However, because income is shifted from quintiles with high savings rates to quintiles that consume nearly all of their income, the aggregate savings rate falls. This in turn has an influence on the interest rate and investment resulting in a temporal trade-off. How the central bank and the treasury tackle this trade-off is as important as how the different quintiles are taxed. As such, we will also describe our assumptions pertaining to how the government reacts.

Scenario design

Key assumptions the scenario uses include:

- The annual NMW is £24,785 (based on data for workers aged 21 and over earning £12.71 an hour, for an average work week of 37.5 hours).
- The PA is set at £12,570 annually and is currently frozen until April 2031.

The PA needs to increase by 97% (£12,215) to bring it up to the NMW. We can calibrate the model in two ways to create this shock. The first is to simply increase the current threshold in the model by 97%. The second is use the Treasury estimate of the cost of raising the tax threshold, scaled up to the size of the minimum wage increase, and increase the threshold in NiGEM until the tax revenue from the Treasury estimate is the same as the tax revenue from the NiGEM estimate.

The Treasury estimates that a 1% rise in the PA leads to a decrease in revenue by £1 billion in tax year 2026/2027 (HMRC, 2025). Assuming linearity, we would then assume that an increase in the tax threshold to the NMW should lead to a decrease in tax revenue by £97 billion. When we increase the PA threshold by 97% in NiGEM, tax revenue increases in tax year 2026/2027 by £118 billion.

As the NiGEM estimate is close, the choice of calibration does not have a significant impact on the results. For consistency with the Treasury, we use the second approach and calibrate our model to Treasury estimates. If we were to use the NiGEM estimate directly, we would assume that results would be slightly larger along all dimensions.

For the incremental increase, we adopt a similar practice, calibrating to the Treasury's estimate of the effect on tax revenue of a rise in the threshold by £1,000 increments at a time, forming eleven increments before hitting the NMW.

Modelling assumptions

In addition to the above shocks, we made the following assumptions regarding the fiscal and monetary policy responses:

- With respect to fiscal policy, each scenario is split into two simulations.

  - The first simulation examines the impact of a debt-based threshold increase, with taxes elsewhere not rising to compensate the threshold increase. This leads to an increase in government debt.
  - The second simulation examines how this would change if the threshold increase were balanced by higher taxes on the top income quintile. Government debt remains neutral.

- Monetary policy and financial markets endogenously react to the changes.
  - In particular, increasing government debt levels lead to an increase in the "risk premium" charged on government bonds. This leads to higher financing costs and a subsequent crowding out of investment.
- NIESR's Autumn 2025 forecast is used as the baseline for the simulation.
  - Although simulations are base independent for the majority of variables, this is not the case when it comes to thresholds. When thresholds are frozen until has an impact on the timing of the results of the simulation, as does the assumed growth rates for real incomes in the economy. However, the size and directionality of the results are robust and independent with respect to the base. Fiscal policy relating to the freezing of thresholds is correct, up to the publication date of the report.

Results

Scenario 1: Threshold increase to the NMW

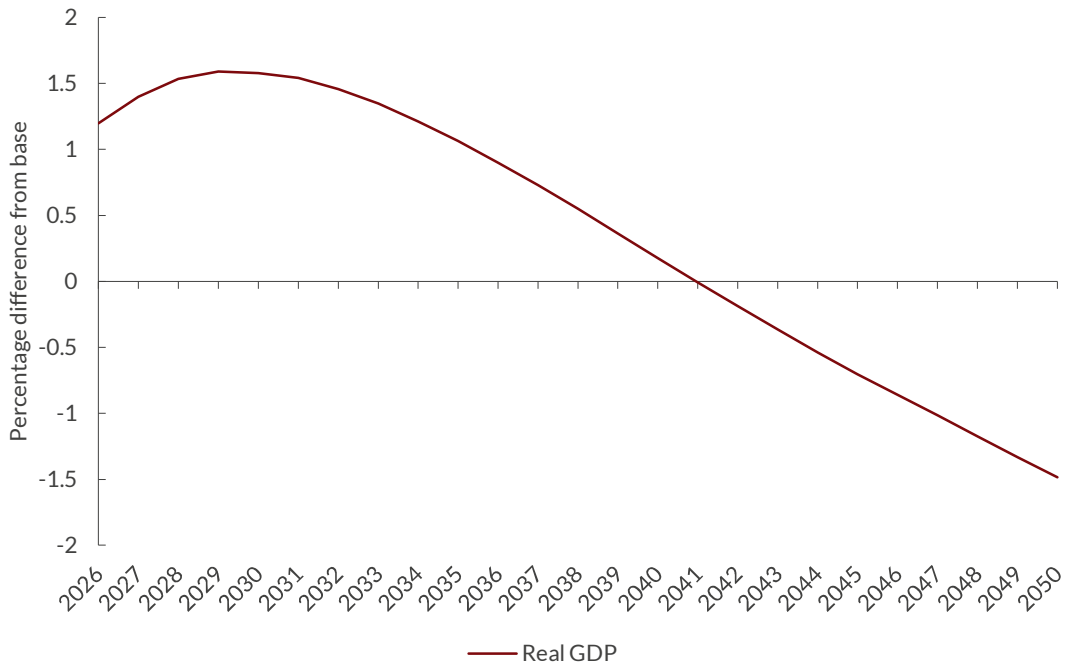
This section details the results of the first simulation, which examines the impact of raising the threshold of the PA up to the NMW. We first simulate a debt-based increase (that is, there is an effect on the government budget and taxes do not rise elsewhere to offset the increased cost).

Debt-based policy change

There is an initial positive impact on GDP, as a result of the fiscal stimulus from the tax. Real GDP increases by approximately 1.2 per cent in the first year (shown in Figure 4). This is largely drive by people having more disposable income and spending this into the economy, providing a sizeable demand boost.

This gives a multiplier of about 0.35 in the first year (that is, for every £1 spent, nominal GDP grows by £0.35). This is in line with estimates of fiscal multipliers used elsewhere. For example, the OBR (2015) estimate income taxes have an initial multiplier of 0.3, and Bhattarai and Trzeciakiewicz (2017, p. 29) estimate a 0.35 decrease in economic growth for a rise in labour income tax.

Figure 4: Impact of threshold increase on real GDP

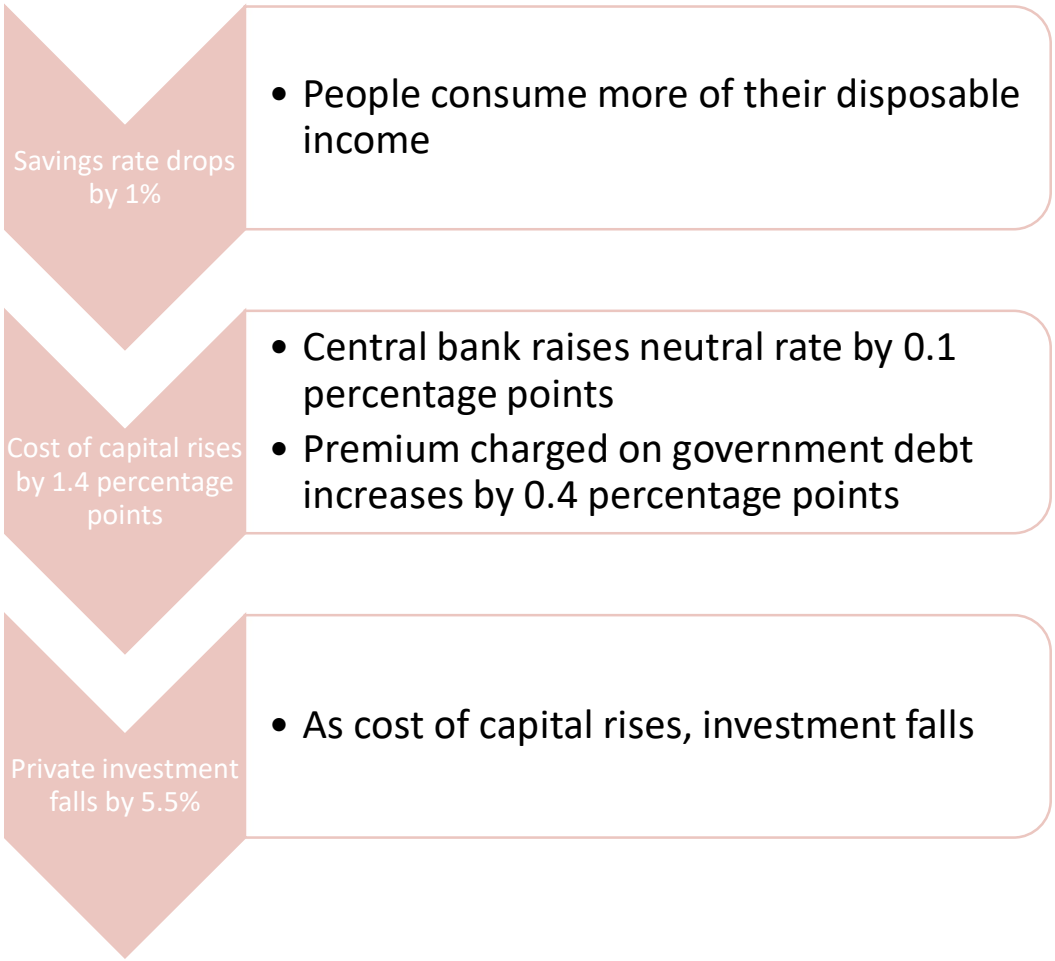


The positive impact on GDP lasts for about 10-15 years after the initial shock, but after this point the impact on real GDP becomes negative. This is as a result of several factors.

Firstly, as government debt increases, an additional premium is charged on it (as a result of the perceived risk). There is a spillover from this that weighs on financial markets and pushes up borrowing costs in general, crowding out private sector investment. Secondly, as less income is

taxed away, disposable income rises and consumption increases. In the absence of offsetting fiscal adjustments, government saving declines, leading to a deterioration in national saving. Lower national saving relative to investment demand places upward pressure on the equilibrium real interest rate. As stronger aggregate demand generates inflationary pressure, the Bank of England raises its policy rate to stabilise inflation, consistent with the higher equilibrium real rate. Higher borrowing costs then dampen private sector investment. The causality of this flow can be seen in Figure 5.

Figure 5: Average flow of impacts leading to a reduction in investment



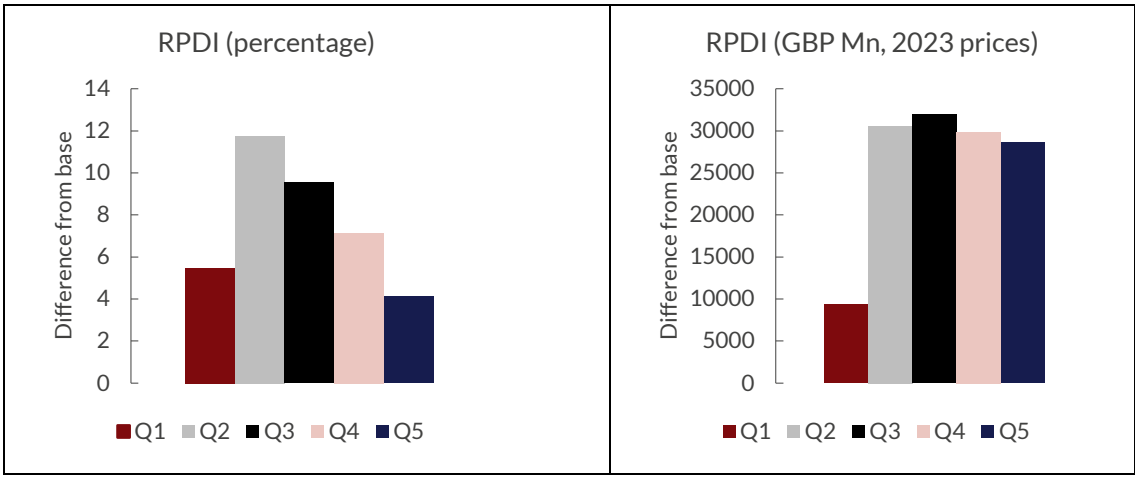
It is important to note that, because the tax change reduces distortions to the labour supply at the intensive margin (the disincentive to work is removed, so people choose to work more hours), there is an increase in effective labour input and a rise potential output. The marginal returns to capital effectively increases, and businesses respond by raising investment. This partially offsets the negative investment impacts, but it is not enough to fully overcome the effect caused by the rising cost in capital.

Another important consideration is how trade balances and exchange rates react. Rising interest rates appreciate the pound against the dollar. Exports become more expensive and less competitive in international markets, leading to a decline in exports. Simultaneously, the cost of imports decreases, helping to mitigate some of the initial inflationary impact of the policy

change. However, with imports costing less and domestic demand rising, imports increase and the current account balance (as a per cent of GDP) decreases by 2.5 percentage points. This offsets some of the boost to real GDP as some of the gains are "leaked" abroad.

The effect on RPDI varies across the different income groups. In absolute and percentage terms, the impact is smallest on the lowest quintile, especially in the first year. This is because the PA threshold rises above the income they earn; once it has risen past a certain point, raising it further will have no impact on them. For the other income groups, the increase in absolute terms is broadly the same. Essentially, a fixed amount of their aggregate income is captured by the tax threshold and released when it is raised. In terms of percentage of current income, the second quintile benefits the most. As they have lower incomes, the raise in absolute terms is proportionally larger for them in percentage terms. The impacts in the first year are shown in Figure 6.

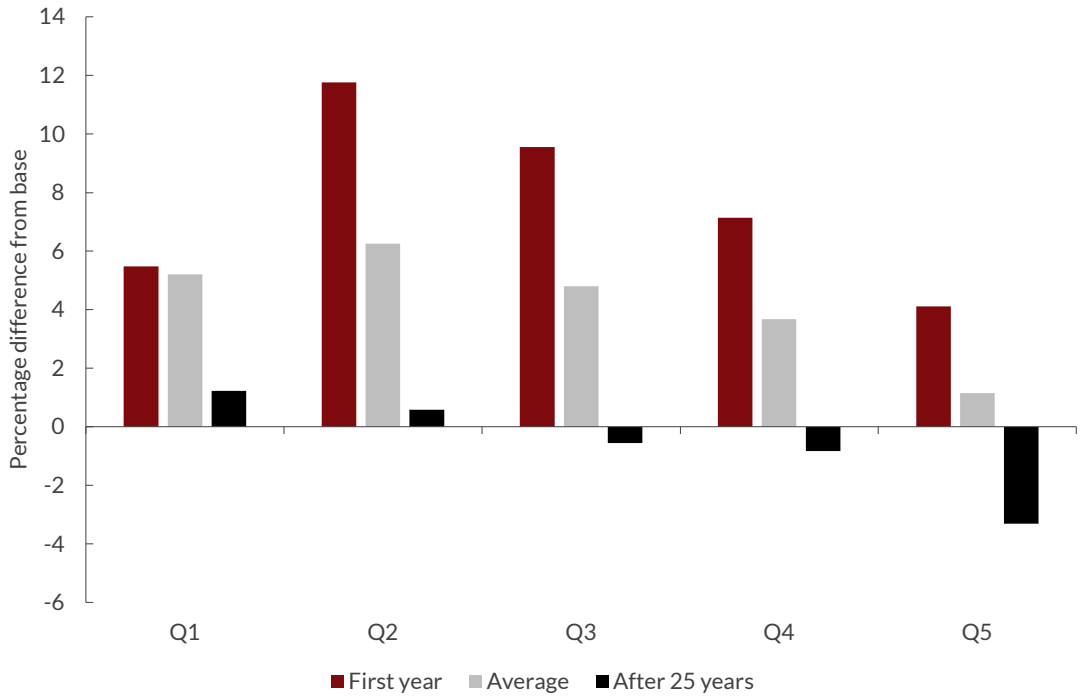
Figure 6: Effect on RPDI in first year



Across the entire simulation period, the impact is mixed. As real incomes increase, the bottom 20%'s RPDI stays high relative to the baseline, as higher income that would have otherwise been captured by the threshold becomes exempt. As time goes on, and their income increases further in the baseline, this effect grows.

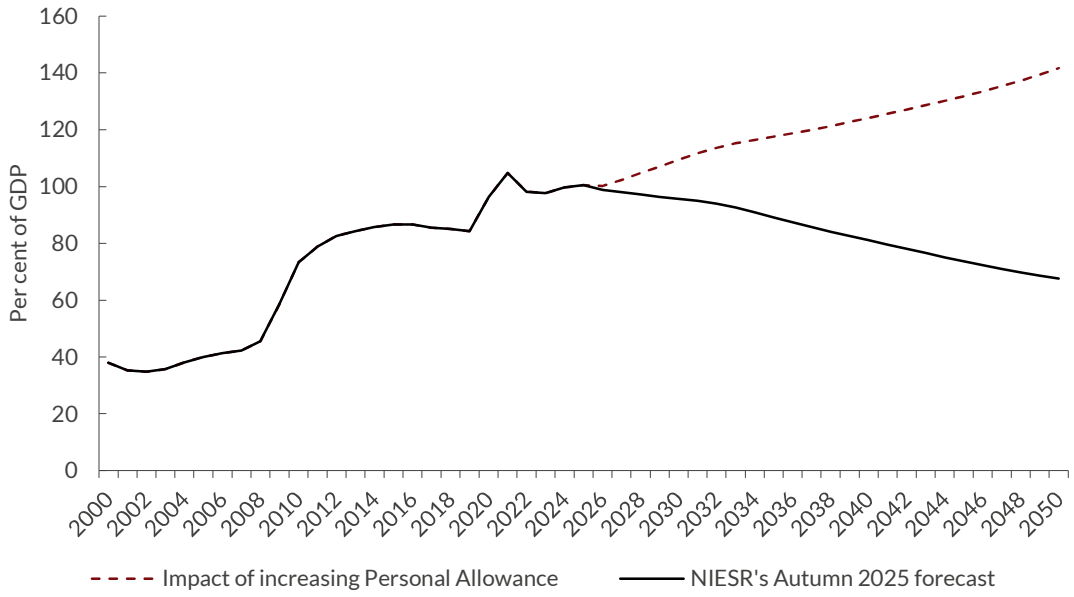
However, the slowdown in real GDP starts to hit the incomes of the other quintiles; therefore, as time goes on, the average effect on their RPDI decreases. This is especially true of the top 20% of earners, as a lot of their income comes from wealth and investment returns. As investment costs more and profits shrink, the top 20% are hit proportionally more. The lower income quintiles are not immune to this effect, but it is softened by government transfer policy. After 25 years, the end of our simulation period, the bottom two quintiles are the only ones with RPDI above the baseline forecast.

Figure 7: Change in RPDI across quintiles throughout simulation period



The impact on government debt is significant, raising the debt-to-GDP ratio by 74 percentage points by the end of the simulation period and effectively doubling it from the forecast baseline.

Figure 8: Impact on debt-to-GDP ratio

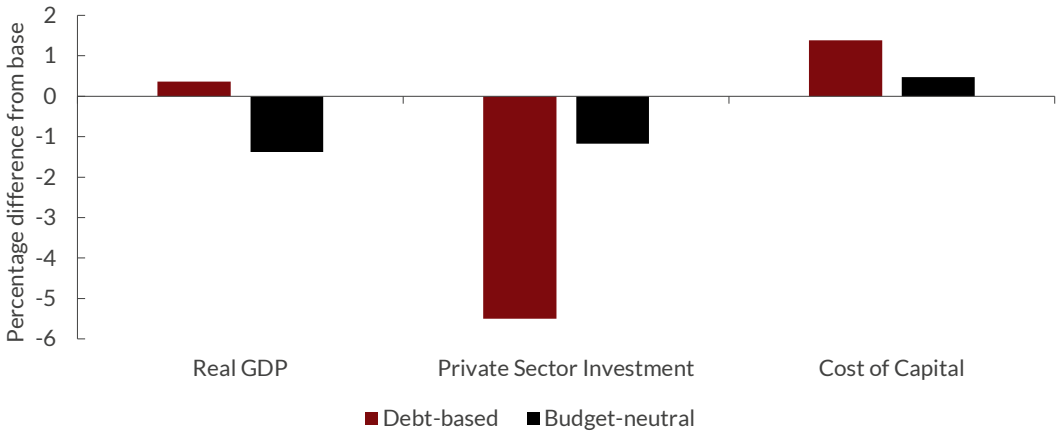


Budget-neutral policy change

We now simulate the same scenario but assume that it is budget neutral, resulting from a tax that solely targets the top 20%. The debt and deficit-to-GDP ratios remain neutral.

There is a larger, more negative effect on GDP overall. This is because the tax on the top 20% causes a persistent demand-side drag on the economy. However, private sector investment decreases much less under the budget neutral scenario. Investment is not crowded out by as much – the cost of capital does not rise by as much in this scenario because budget neutrality offsets much of the negative effects on financial markets. Government savings do not change and there is no "risk" effect from higher government debt. Nonetheless, national savings do decrease slightly, because a transfer of income from the top income quintiles to other income quintiles transfers incomes from quintiles with a low propensity to consume to a higher one. As a result, the cost of capital still rises, but not by as much as it would in the debt-based scenario.

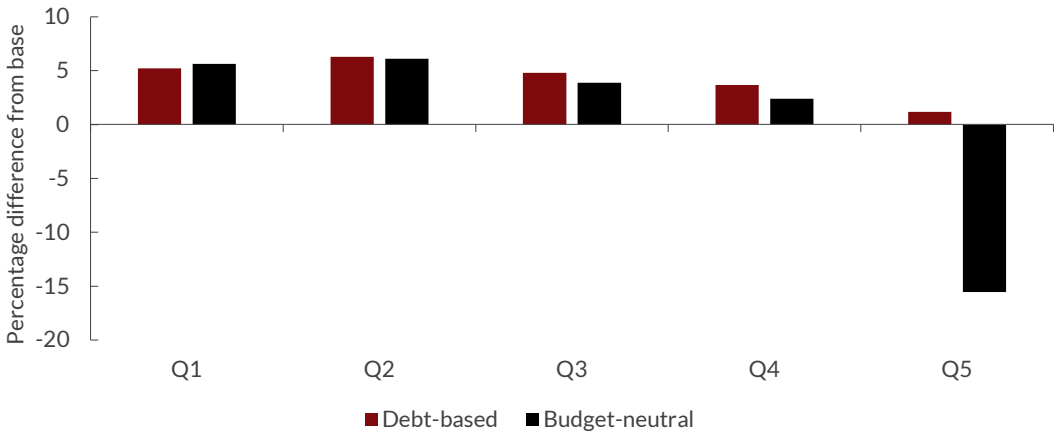
Figure 9: Average effect on GDP and investment conditions, debt-based compared to budget-neutral



Although the economy looks worse in terms of real GDP, it is in a more robust and sustainable position if the budget neutral approach is taken.

In terms of the impacts across quintiles, the RPDI of the bottom 20% is actually slightly higher when budget neutrality is pursued. However, the other quintiles are slightly worse off. The top 20% are substantially worse off, with their RPDI decreasing by 16% on average across the simulation period.

Figure 10: Average effect on RPDI, debt-based compared to budget-neutral



It is important to note that we do not specify how the tax is raised on specifically the top 20%, but it is unlikely that a rise in the additional rate alone would be enough to ensure budget neutrality. We estimate that the tax base for the additional rate is about £100 billion (that is, the amount of total income above the additional rate threshold). Of this, 45% is already taxed, leaving only £55 billion available. Even if the additional rate were raised to 100% - and assuming no behavioural change to avoid the tax - it would not be possible to fund the Treasury estimated £90 billion cost of increasing the PA threshold through the additional rate alone, even allowing for a very large margin for error in the estimates. The additional rate threshold would have to lower substantially, or the higher rate would have to rise, or an additional tax measure and base would need to be found to ensure this change were budget neutral.

It is also possible that, if the tax rate on the top earners were high enough, avoidance and evasion would set a limit on the amount that could be raised. In the proceeding analysis, we have assumed that enough could be raised from the highest earners to offset the additional debt of the policy, to focus on what would happen to the macroeconomy if the tax were collected from this income group. However, we do not evaluate the possibility of this. If necessary – that is, if tax could not be raised from the top 20% - the tax would need to be raised by an increase in the basic rate. Under this scenario, the demand effects would be dampened even further, and much more of the policy's GDP impact would be offset.

Scenario 2: Incremental increases

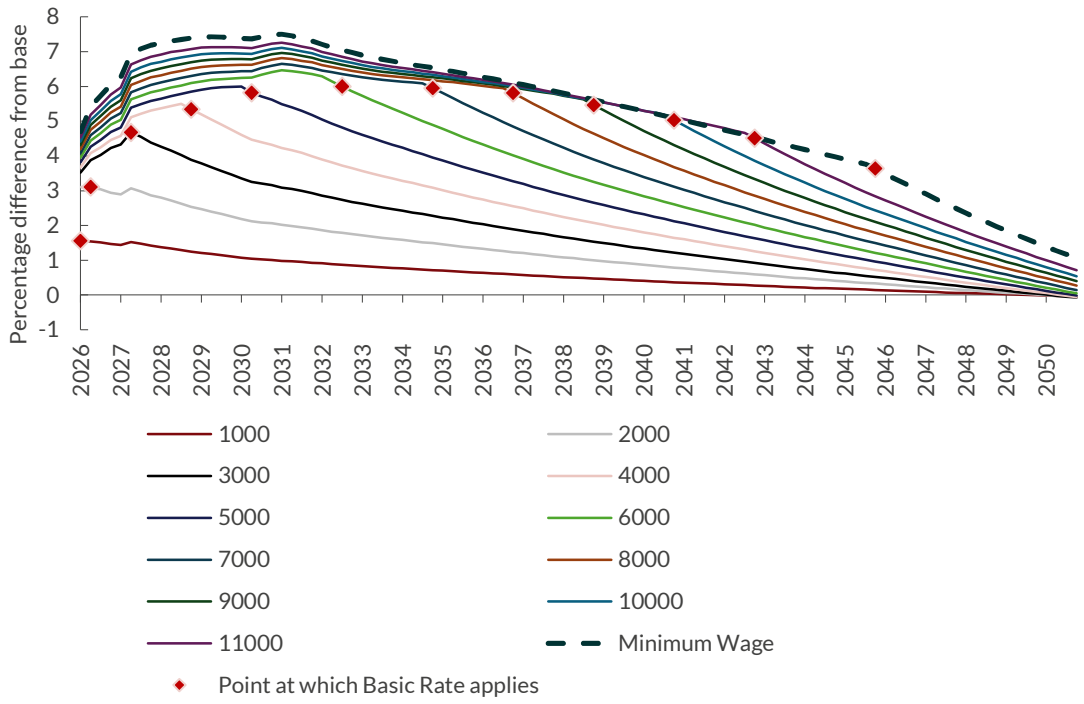
Debt-based policy change

This section simulates an incremental increase to the PA, raising it by £1,000 at a time before reaching the NMW threshold as simulated in the previous section.

Figure 11 demonstrates the incremental impact on RPDI for the bottom 20%. The first two increases substantially raise the RPDI of those on the lowest incomes in the first couple of years, as they benefit from reduced taxes. However, beyond these increases the benefits are less pronounced. This is because, at this point, the threshold is now above their income so any further increases in it does not benefit them further. They still benefit from demand-led GDP growth, as a result of the increased expenditure from the other quintiles, so their RPDI still rises slightly as the threshold increases, but not by such an extent.

Another key point to mention is that there is an inflection point, caused by their RPDI hitting the tax threshold in the future. That is, as the threshold increases, the point at which they start paying basic rate income tax is moved further and further back in time, based on baseline income growth. For example, if the personal threshold is raised by £5,000 the bottom 20% will not pay income tax at the basic rate until 2030. If it is raised by £10,000, the bottom 20% will not pay income tax at the basic rate until 2040, all things being equal.

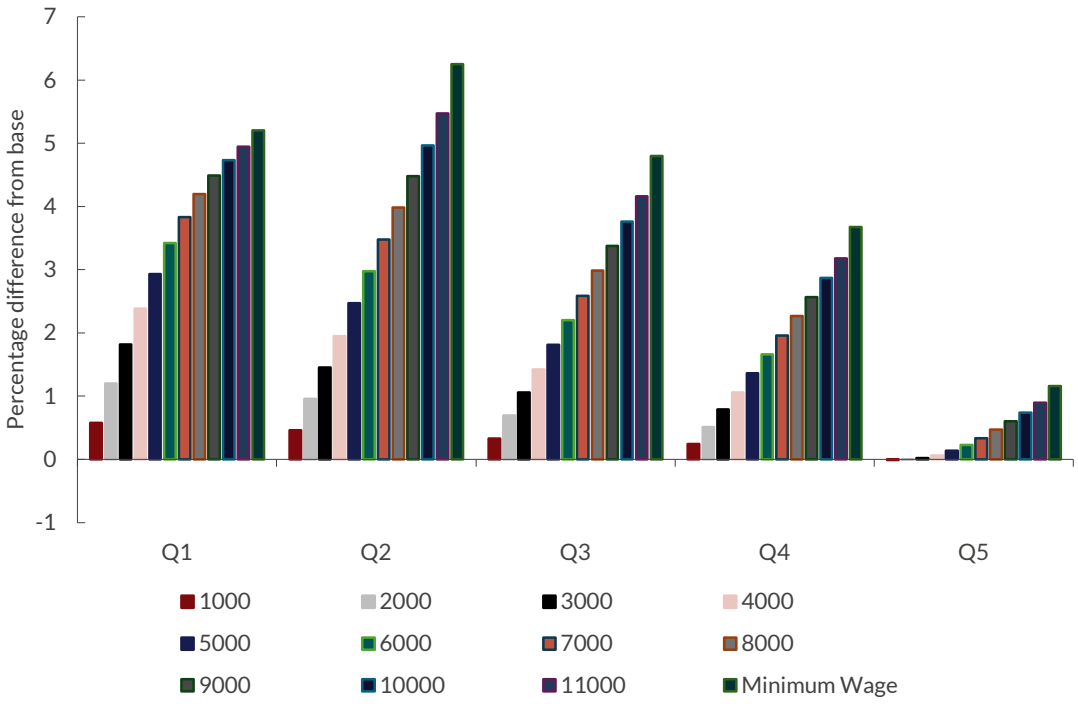
Figure 11: Incremental impact on RPDI of bottom 20%



The average impact across all income groups is shown in Figure 12, as a percentage difference from their baseline income. There are some interesting trends to point out. Firstly, average RPDI increases, in general, as the personal threshold increases. The effect decreases as we move up income quintiles. This is driven by the fact that the amount of the RPDI increase, although similar in absolute terms for the top 4 quintiles, becomes smaller as a percentage of their original income if their original income is large.

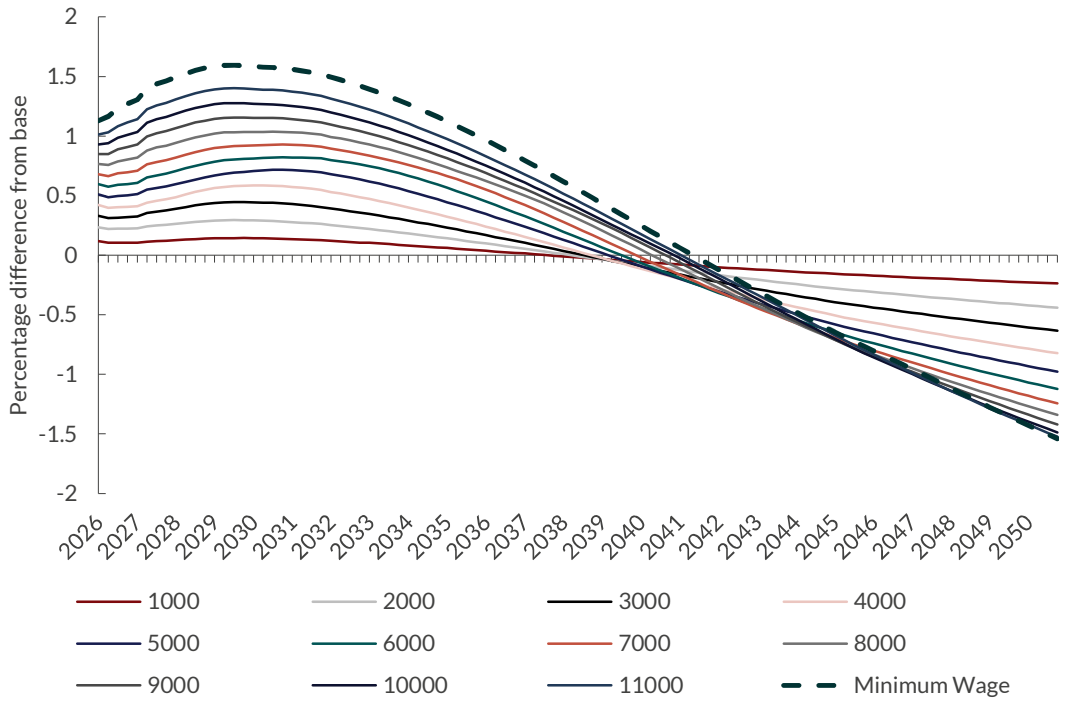
Importantly, RPDI for the bottom income quintile increases at a slower rate, producing a slightly convex curve, due to the effects outlined above. For the top quintile, a minor increase in the PA threshold actually has a negative (albeit small) average impact on their RPDI. This is because the negative effects on the rest of the economy (higher interest rates, for example) offset any of the gains they would otherwise make.

Figure 12: Incremental impact on RPDI across all income quintiles, scenario average



The impact on real GDP shows a balance between short-run gains and long-run losses. The higher the GDP is in the short run, the more of a negative impact it will have further out. Raising the PA to the NMW increases real GDP in the first year by about 1.2 per cent. A third of this boost comes from raising it by £3,000. This is related to how it initially boosts the RPDI of the lowest earners, then has a smaller impact on them beyond this. As the lowest earners have a higher propensity to consume out of their disposable income, they provide much of the demand boost.

Figure 13: Incremental impact on real GDP

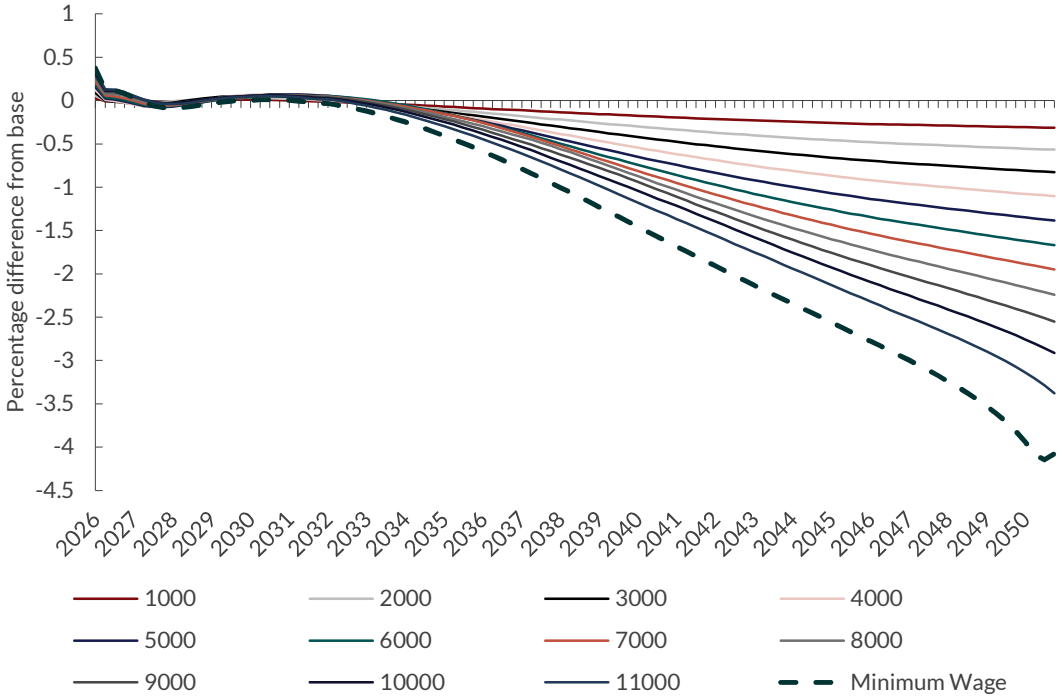


Budget-neutral policy change

This section simulates the incremental increases in the PA threshold, but this time raising taxes on the top 20% to ensure budget neutrality (that is, the effect on the debt-to-GDP ratio is minimised and financial markets do not charge an additional risk premium on government debt as a result).

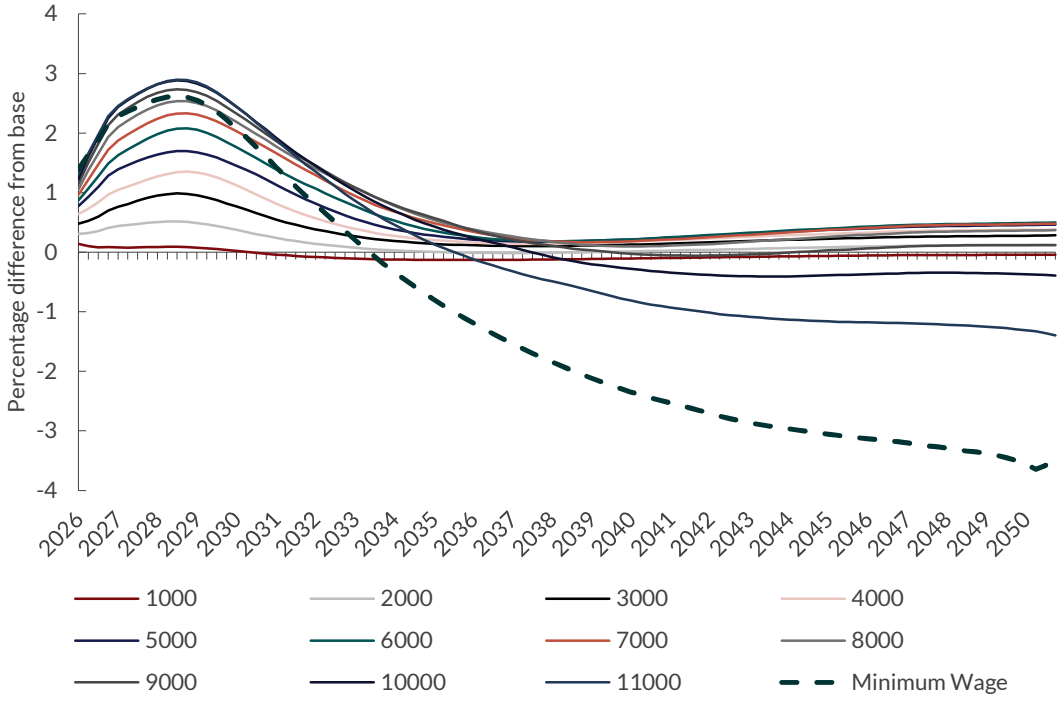
As Figure 14 shows, the impact on real GDP is similar in the very short term. As additional income is transferred across income groups, the lower income groups spend more while the top 20% spends less. As the lower income quintiles spend more of their disposable income than the top 20%, there is a slightly bigger impact on GDP the more the PA is raised by, but the effect is small as the two forces largely offset each other.

Figure 14: Incremental impact on real GDP, assuming budget neutrality



However, there is a much bigger long-term impact. As the transfer between income groups effectively lowers savings rates, long-term interest rates rise in response and crowd out private investment and slow down growth. This effect, shown in Figure 15, grows in intensity in the medium-to-long term as it is largely supply-side driven. However, under small increases in the PA, private sector investment increases – the extra productivity boost from individuals being more incentivised to work offset any interest rate effects. Nonetheless, once the transfer is big enough, the net effect turns from positive to negative as the cost of capital grows too large.

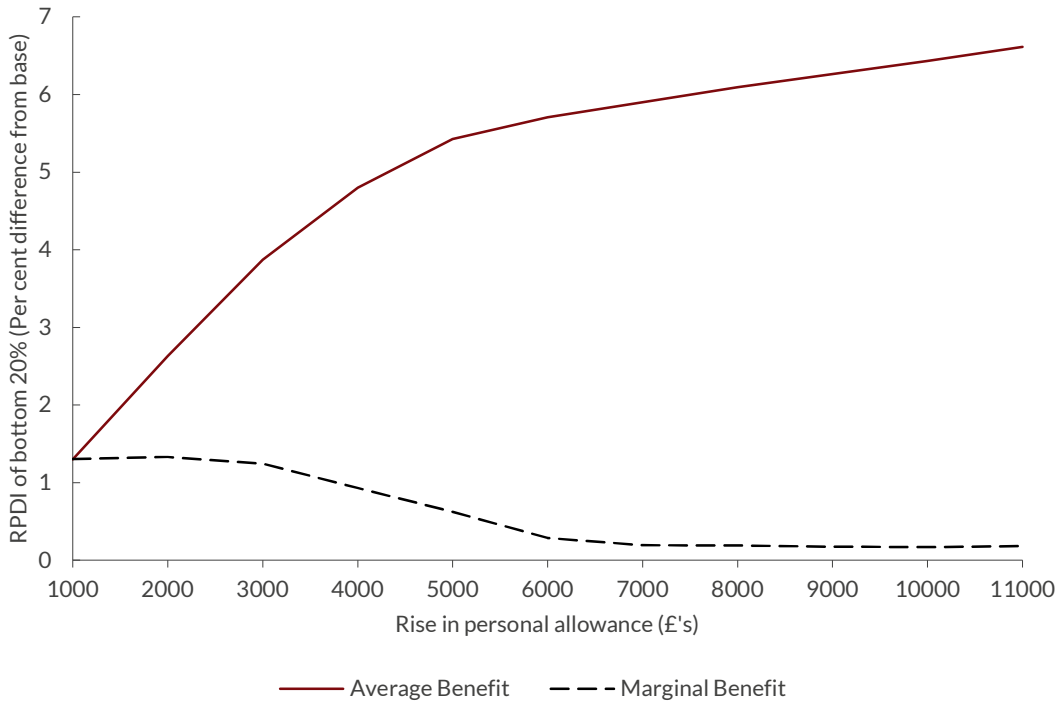
Figure 15: Incremental impact on private sector investment, assuming budget neutrality



Optimal policy

The results so far indicate that there is an amount to raise the PA by which maximises the benefits while minimising the costs. This amount is found by raising the threshold by about 20 per cent (roughly the level if it would have been at had it not been frozen in 21/22, if even slightly below), costing the government about £20 billion. This is where the marginal benefit to the lowest income quintile is highest (that is, the additional benefit from increasing the threshold an extra £1,000), as demonstrated in Figure 16. Above this, the direct benefit reduces substantially, as any income earned lies below the threshold. Any further increases only indirectly impact the bottom quintile as a result of additional spending and growth from the higher income quintiles. If this change is not accompanied by additional taxes, this can raise real GDP by about 0.3 per cent in the first year.

Figure 16: Marginal and average benefits in first five years, for debt-based scenarios



Assuming that this change is accompanied by taxation on the higher income groups, there is a possibility that this can crowd in private sector investment. The extra incentives on labour supply and the resulting productivity implications can dominate harmful effects from lower savings rates and possible monetary policy responses. Therefore, the net effect on private sector investment is positive; raising the threshold much further above this point switches which effect dominates and thus leads to a net negative effect on private sector investment. However, by taxing higher income groups also reduces the positive initial boost to GDP – additional expenditure by the lowest income groups is offset by reduced expenditure by the highest income groups who are taxed.

It is important to note that this is the average benefit for a representative agent in the bottom quintile based on aggregate data. Household composition will matter a lot for the lived effects, and there may be some circumstances in which, on an individual basis, the optimal policy point is above or below what we have outlined above.

Conclusion

This report explores the potential macroeconomic impact of raising the PA to the NMW.

There is an immediate and positive increase in real GDP by 1.2 per cent following the demand-side stimulus, reflecting the short-run boost to aggregate demand. Over time, however, this effect gradually dissipates as the rise in government debt and the associated crowding out of private investment begin to weigh on economic activity, slowing the pace of growth.

In the short run, all income quintiles experience an initial rise in RPDI as a result of lower tax liabilities. That said, the gains in absolute terms are distributed relatively evenly across income groups and provide only limited additional benefit to the bottom 20 per cent. At a certain point, because the PA threshold then lies above their income level, further increases in it do not generate additional gains for this group. This suggests that the optimal amount to raise the PA by is about 20 per cent, which produces the highest marginal gains for the bottom 20 per cent.

Over the medium to long term, the bottom income quintile does benefit from the reform, as income that would otherwise have risen above the tax threshold is instead exempt. This allows their disposable income to grow more strongly over time than it would have without the PA increase.

Raising taxes on the highest income group to maintain budget neutrality would exert a larger negative effect on real GDP. However, this approach would retain fiscal sustainability and place the economy on a more stable long-term path through its impact on private investment, which decreases by a significantly smaller amount if budget neutrality is maintained. Nonetheless, the ability to do this through taxing just the top 20 per cent is questionable, given the size of the tax base and the potential for tax avoidance.

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Appendix 1: Sensitivity of results to alternate calibrations

As the chart below shows, the impact on real GDP is not significantly different whether we calibrate the PA increase based on Treasury estimates or use estimates directly from NiGEM.

Figure 17: Comparison between Treasury and NiGEM estimates of shock size