Scottish Health Equity Research Unit

Insights, analysis and action on the socio-economic factors that shape health

A new model for economic inactivity in Scotland

Replicating alternative labour market projections

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The primary source for employment data in the UK has shown a general trend of decreasing employment rates over the past few years, even though tax data seems to show the opposite.

In November, the Resolution Foundation released a briefing looking at alternative ways of estimating employment rates [1]. The official source of data on employment, unemployment, and economic inactivity in the UK comes from the ONS Labour Force Survey (LFS), which has had significant issues with sample sizes and response rates in the last few years [2][3]. The result is that our primary source of labour market data has become less reliable.

A key issue until recently was that the total population size in the LFS did not match actual population projections and totals from population censuses. In December 2024, however, the LFS adjusted their survey weights going back to 2019 to better align with more recent projections. They also added some additional modelling to UK-wide population data to smooth the data, meaning that UK population estimates have been adjusted from 2011 onwards.

Updating the population size in the LFS did not change another key issue: the LFS has shown a general trend of decreasing employment rates over the past few years, even though tax data seems to show the opposite.

To understand what might actually happen with the UK labour market, the Resolution Foundation used administrative tax data, chiefly from HMRC Pay as You Earn Real Time information and statistics on the income of individuals with self-employment sources [4][5]. Their original publication predated the population re-weighting in the LFS, so they also used alternative population projections, although they have since released updated charts using LFS population data.

They found that employment rates based on administrative tax data closely followed labour market trends in the LFS between 2015 and 2021. Since then, however, administrative data has indicated that there are considerably more people in employment in the UK than the LFS-based labour market publications would suggest.

This led us to a question: is this trend reflected when looking at Scottish employment data on its own?

Employment is, after all, a key socioeconomic factor underpinning health inequality in Scotland [9]. Having a secure, good quality job has a significant role in determining an individual's physical and mental health. At the same time, health can affect peoples' ability to access and maintain work, which can have reverberations throughout the economy. Economic inactivity, wherein an individual is neither in work nor looking for work, is notably higher in Scotland than the UK average.

To understand this, we replicated the Resolution Foundation's model, using LFS population sizes and employment data from HMRC. Subnational population data in the LFS has the amended weighting, but not the additional modelling, meaning that there is some uncertainty to Scottish population sizes before 2019, when the weighting came into play. To correct for this, our model also smoothed the population data, applying an even growth rate to the population size between 2015 and 2019.

Key Findings

- There have been significant reliability issues with the Labour Force Survey (LFS), which is the primary data source for labour market data across the UK

- A recent paper from the Resolution Foundation using administrative data on taxable earnings found that the LFS is likely underestimating the number of people who are in employment, based on administrative tax data

- Applying the Resolution Foundation's model to Scottish data only, we find the same thing: the methodology suggests since 2022, the LFS has likely been largely underestimating the volume of people in employment. It follows that the LFS must be overestimating the volume of people who are unemployed or economically inactive (neither in work nor looking for work).

- Whilst administrative data indicates that inactivity rates are likely to have fallen, disability benefit caseloads have risen in England and Wales and Scotland alike since 2020. This is seemingly contradictory, as benefits are often thought to go to people who are unable to work. However, the Resolution Foundation suggested how these two trends could be reconciled, and we agree with their conclusion that improved data is required to understand the true state of the labour market.

Labour market findings

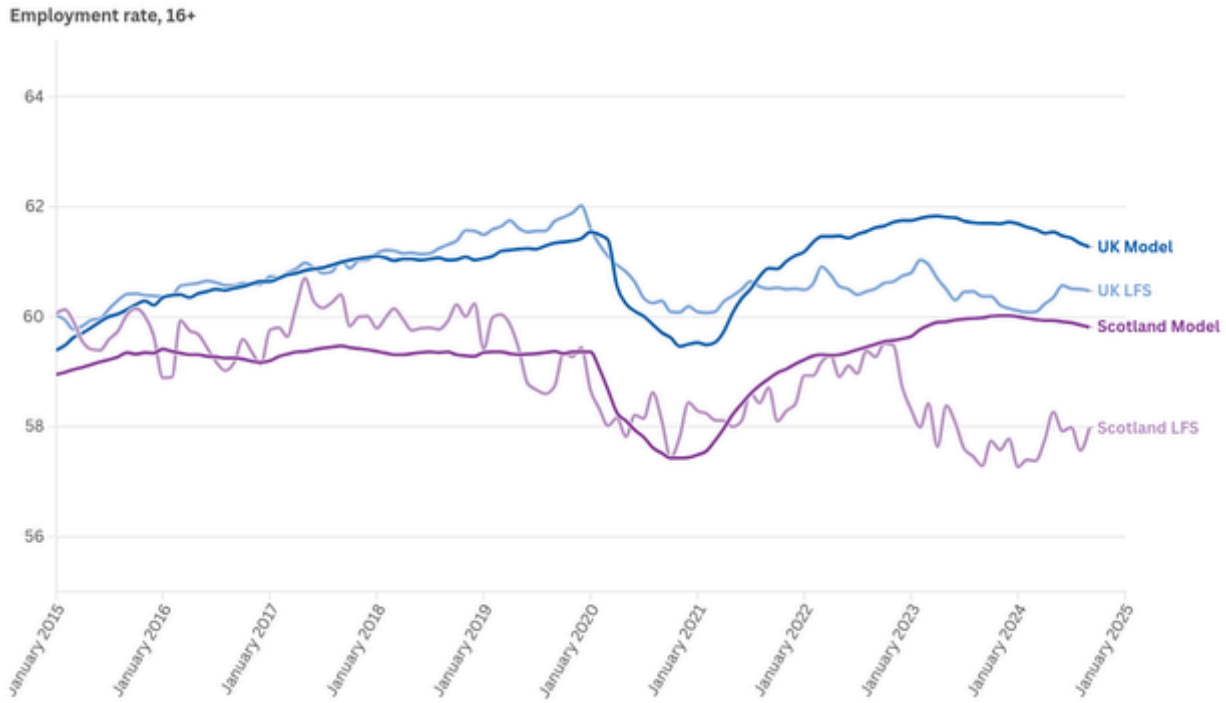
Employment trends

The Resolution Foundation modelling draws as far as possible on administrative sources to provide an alternative to the LFS. We have looked at the more limited administrative data available for Scotland to provide a modelled estimate that gives sense of the potential size of the error in the LFS estimates in Scotland.

The limited nature of some of the available administrative data for Scotland on self-employment means that we think our replicated estimate underplays the potential divergence in employment figures in the administrative data compared to the LFS throughout the timeseries compared to the method the Resolution Foundation used for their UK analysis. However, overall, our replication of the Resolution Foundation analysis using Scottish data comes to similar conclusions.

Like in the UK, administrative employment data for Scotland tracks somewhat closely to LFS employment rates (albeit with more volatility) and then diverges sharply. LFS data for August-October 2024 estimates that there were 2,605,000 adults over 16 in employment in Scotland; administrative data indicates that there were over 100,000 more adults in employment during that period.

Figure 1: Modelled and LFS reported employment rates for adults aged 16 and over in Scotland (SHERU replicated modelled estimate) and the UK (Resolution Foundation modelled estimate)



Sources: SHERU analysis of HMRC data [4][5][6] and Labour Force Survey population data [7][8]

One key difference between the UK and Scottish modelled estimates is that employment rates diverge later for Scotland compared to the UK. In the UK, LFS and administrative data begin to diverge around August 2021, while in Scotland, while in Scotland, they diverge after November 2022.

The difference between the Labour Force Survey and administrative data is also much larger in Scotland compared to the UK as a whole (which as previously mentioned, may already be underplaying the extent of self-employment compared to the Resolution Foundation's UK analysis). In January 2024, when the difference between administrative and LFS employment rate peaked, the modelled employment rate in the UK was 1.6 percentage points higher than the LFS. In Scotland, the modelled employment rate was 2.7 percentage points higher – a considerable difference. One possible reason for the difference could be the larger proportion of payrolled employees in the public sector in Scotland where the administrative data indicates growth has been most pronounced [10].

Implications for unemployment and inactivity

As the Resolution Foundation explain, if employment is higher than the LFS implies, it follows that the LFS must be overestimating unemployment or inactivity (or both).

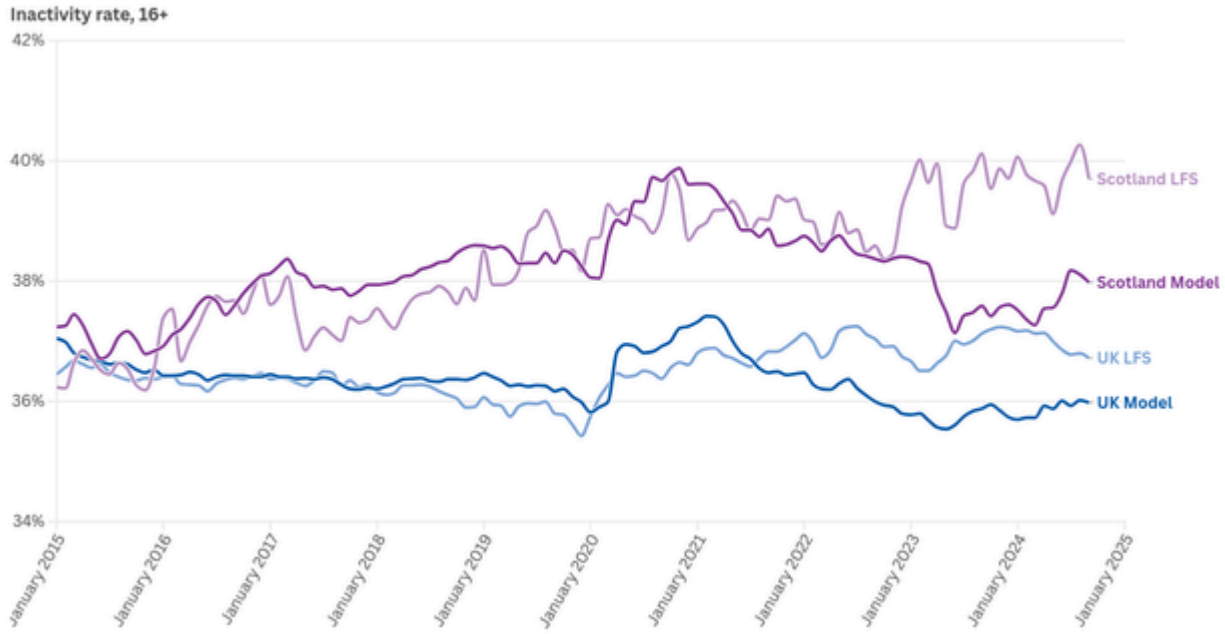
The modelled administrative data can't tell us anything about inactivity or unemployment, and in the absence of better information, the Resolution Foundation assume that the ratio of unemployment to inactivity in the LFS is correct.

There are far more people inactive than unemployed, and therefore applying these ratios to the modelled estimate means that the changes in inactivity look the most significant.

The LFS suggests that, between August 2023 and August 2024, an average of 39.8% of the adult population was neither in work nor looking for work, and that inactivity has generally trended upward over the past decade. Modelled data shows a very different picture, indicating that inactivity has generally trended downwards, with around 84,000 fewer economically inactive people in August 2024 than the LFS reports. In fact, both UK and Scottish inactivity rates show that the inactivity trend is lower than pre-pandemic trends: a stark contrast to the LFS, which has shown generally increasing inactivity rates since 2020.

The reasons for and implications behind economic inactivity are furthermore important to understand from a policy perspective. According to the LFS, on average, 34% of all economically inactive working age adults were inactive due to either a temporary or long-term illness or condition across 2023 and 2024. This amounts to around 270,000 adults – or 1 in 12.5 – between age 16 and 64 that are unable to work due to a health condition.

Figure 2: Comparison between modelled and LFS-reported economic inactivity rates for working-aged adults in Scotland



Sources: SHERU analysis of HMRC data [4][5][6] and Labour Force Survey population data [7][8]

Whilst administrative data indicates that inactivity rates have fallen, awarded disability benefits have risen dramatically in England and Wales and Scotland alike since 2020 [11]. Therefore, can we reconcile the modelled estimate of a fall in inactivity with a rise in people claiming benefits due to illness and disability?

Can a rise in health-related benefit claims be consistent with a fall in inactivity?

The Resolution Foundation point out two reasons why a rise in benefits data does not discount a modelled estimate showing a decrease in economic inactivity.

1. Being in receipt of disability benefits does not necessarily mean that people are not in paid work. This can be the case even for people on means tested benefits, wherein people are deemed to have a health condition that prevents them from working or preparing for work
2. People who have started to claim these benefits may already have been out of work for other reasons, such as caring responsibilities or due to early retirement. For this group, the primary factor inactivity may have switched, whilst overall inactivity remains unchanged.

Both reasons provide a rationale as to why the rise in benefit claims may not have led to a similar rise in economic inactivity.

We must echo the Resolution Foundation's significant caveat that we cannot claim that the modelled estimates will be fully accurate. The data available for Scotland means we are even less certain about the validity of our replicated modelled estimates.

However, this doesn't take away from fact that the LFS data is incorrect (which the ONS also admit). The method used by the Resolution Foundation, and replicated here for Scotland, provides a guide to the scale of the problem but can't provide conclusive answers. We agree with the Resolution Foundation's call for the ONS to resolve these issues quickly.

Reflections

This model reinforces the Resolution Foundation's findings that the Labour Force Survey is likely to be underestimating the number of people that are in work, and it follows that it is therefore overestimating the number of people that are economically inactive.

That said, the model has room for improvement: there are not open sources of administrative data on people who may be considered employed but are not included in tax data, nor are there quality Scottish self-employment figures both of which are picked up in the LFS survey methodology.

Nevertheless, these findings are significant from an employment policy perspective, especially in Scotland, where economic inactivity is significantly higher than the UK average. Employment and economic inactivity are important determinants of health. Having a job – and the quality of that job – play a critical role in determining an individual's physical and mental health. At the same time, health can affect peoples' ability to access and maintain work, which can have reverberations throughout the economy.

Unsurprisingly, employment and inactivity are key policy areas for Scotland, which historically has had high levels of inactivity due to ill health and a wide range of health inequality. While our modelled estimate indicates that economic inactivity is substantial in Scotland, this analysis suggests that it has improved since 2023.

Furthermore, the suggestion that inactivity has largely declined since 2023 raises important questions: if inactivity has, in fact, dropped off, why? What implications would a lower rate of economic inactivity mean for policy, and what might it tell us about the policies we currently have in place?

These questions are not possible to answer currently. Better data is crucial: currently, the ONS is working on delivering the Transformed Labour Force survey (TLFS), which aims to improve falling response rates through a shorter survey and online questionnaire. This is in contrast to the LFS, which is administered by interviewers, and has been plagued by non-completion and falling response rates in recent years [12]. These findings illustrate how important it is to either have more complete administrative data, and how vital future improvements to the LFS are.

Technical annex

Employment rate methodology

Our model methodology broadly followed the Resolution Foundation work. The model consisted of the following data:

Table 1: Data sources and indicators used in the model

Data source	Indicators used
LFS data [7][8]	People aged 16 and over
	Unemployed population (aged 16+)
	Economically inactive population (aged 16+)
HMRC's Income of individuals with self-employment sources [5]	Number of individuals with self-employment income
	Number of individuals with employment income
HMRC's Income and tax by country and region [6]	Total number of individuals with self-employment income
	Number of individuals in Scotland with self-employment income
HMRC's Earnings and employment from Pay As You Earn Real Time Information (Seasonally adjusted) (PAYE RTI) [4]	Payrolled employee counts

The core of the model is to understand the number and proportion of adults who are in work. This relies on three data points: the number of payrolled employees, the number of self-employed workers, and the size of the adult population.

The number of payrolled employees

This is available through PAYE RTI data [4], which reports how many people received employment wages in a month, and which is available for both Scotland and the UK.

The number of self-employed workers

This figure has more uncertainty. The Resolution Foundation used HMRC's income of individuals who received self-employment income [5], which shows how many people received self-employment income and how many people received self-employment income and traditional employment income. Subtracting the latter population from the former allows us to isolate people who only received self-employment income, thus avoiding a situation where we double-count that group.

It also includes people who are considered self-employed but may not be liable to tax for whatever reason. This additional population is important, as they would be picked up in LFS employment figures. Unfortunately, this figure is not available for Scotland, as [5] is only a UK-wide publication.

An alternative publication is HMRC's Income and tax by country and region [6], which gives us the number of people that are self-employed in Scotland, but only includes people that are liable to tax – meaning that this population is smaller than the LFS would suggest, and the total number of self-employed people does not add up to those in [5].

Our solution to this was to take the proportion of people in Scotland found in [6] and apply it to the total number of self-employed individuals in [5].

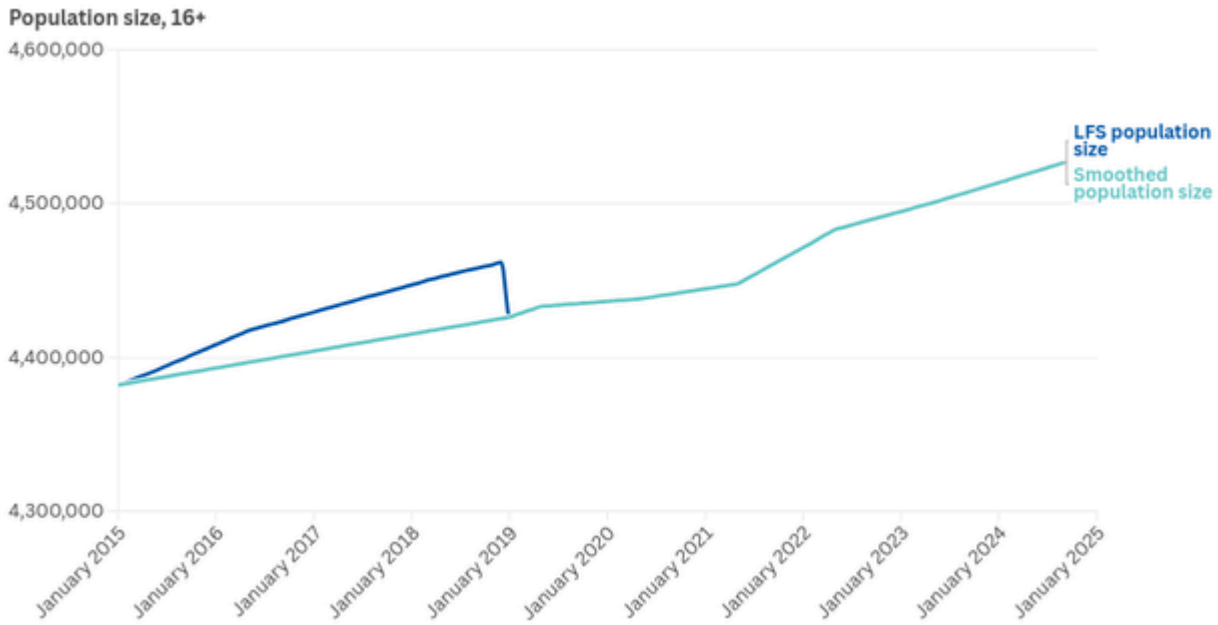
These publications are annual, with the most recent data from 2021/22. This required an additional assumption: that self-employment has a consistent growth rate throughout the year, and that rates of self-employment have stayed consistent since then. This is not an unreasonable assumption, however, as rates of self-employment have been relatively stable – fluctuating between 242,000 and 246,000 – since 2018/19.

The size of the adult population

We took the number of adults aged 16+ from the LFS [7]. Again, there is some uncertainty around this figure. LFS reweighted Scottish population figures beginning in 2019, which means that there is a large step-change in the data between 2018 and 2019. This step-change is not present in UK data, as the LFS team applied modelling to adjust the population size going back to 2011.

In our modelling, we opted to smooth the Scottish population using an even growth rate between 2015, when our analysis starts, and 2019, when the re-weighting kicks in.

Figure 3: Comparison of Scotland's LFS population size and the smoothed population size used in modelling

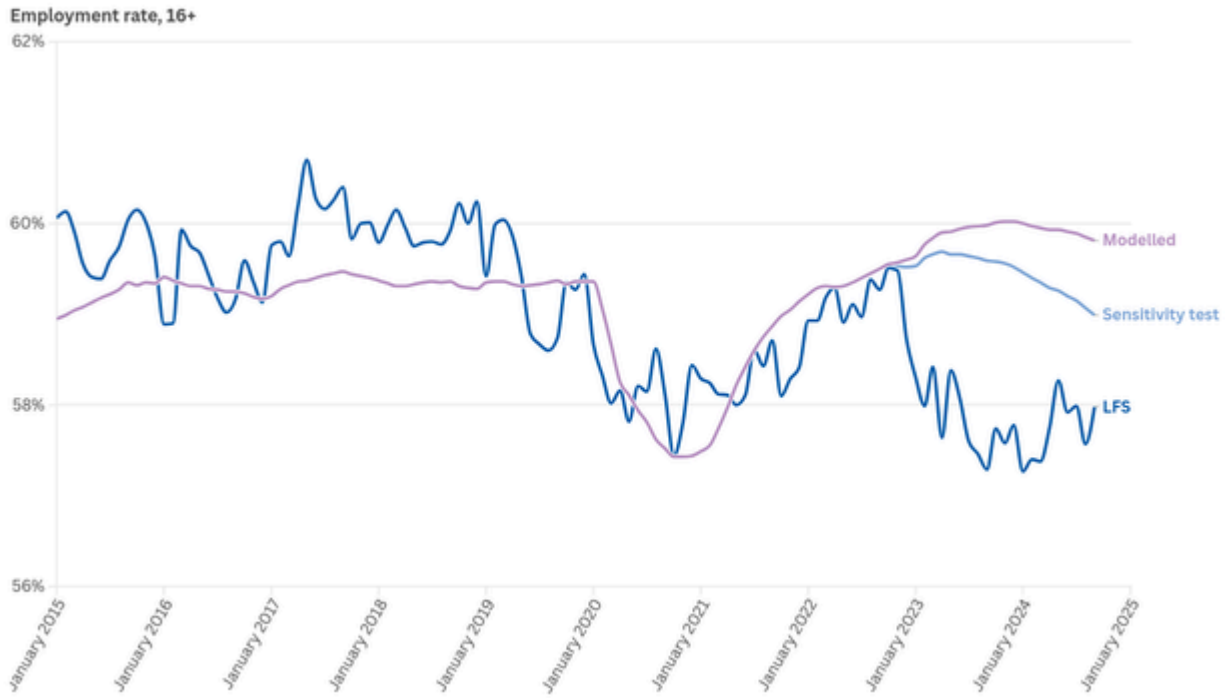


Source: SHERU analysis of Labour Force Survey population data [7]

To test the sensitivity of their modelled employment results, the Resolution Foundation applied a sensitivity check to the employment rates, examining an arbitrary situation where the total population grew by 100,000 more people and the employed population shrank by 200,000 people between 2021 (when the UK model and the LFS begin to diverge) and 2024. Their finding was that, even with this adjustment, the trend remains the same: that the LFS is likely underestimating the employment rate.

Using a similar scenario for Scotland yields the same outcome. We looked at an arbitrary situation where the population grew by 20,000 people and the employed population shrank by 25,000 people between October 2022 – when LFS and administrative data begins to diverge for Scotland – and our last data point in September 2024.

Figure 4: Modelled and LFS employment rates, age 16+, with a sensitivity test



Sources: SHERU analysis of HMRC data [4][5][6] and Labour Force Survey population data [7]

Economic inactivity methodology

The next step in the model was to determine economic inactivity and unemployment rates. Subtracting modelled employment figures from LFS population figures provides the number of people who are not in employment, but there is not an administrative data source for either figure. Our model therefore assumed that the ratio between the number of people who are unemployed and economically inactive is consistent with the ratio reported in the LFS.

Again, to understand the sensitivity of these results, we replicated a scenario given by the Resolution Foundation wherein the difference between the number of people who are not employed in the LFS and our model is split evenly between unemployed and inactive populations.

To give a concrete example of this, in 2024, the model reported an 82,500 fewer people who were not in work compared to the LFS. This amount was subtracted from the LFS unemployment and inactivity figures using LFS proportions.

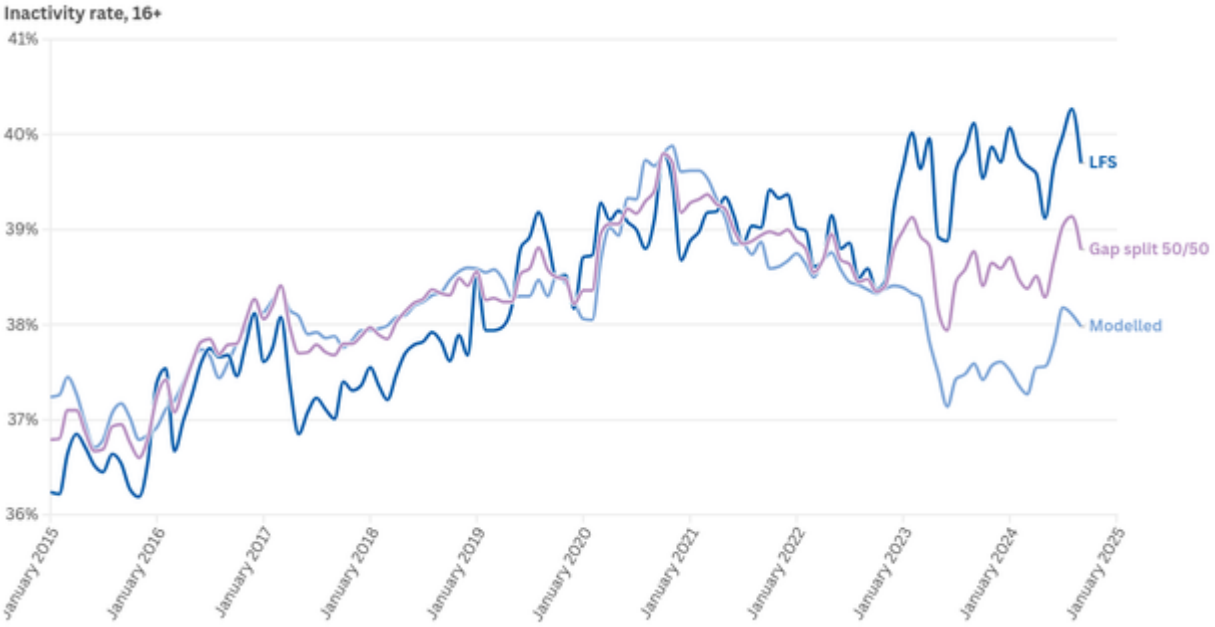
This sensitivity test looked at a scenario where the 82,500 fewer people were instead removed evenly from the inactive and unemployed populations. The result is consistent with the Resolution Foundations findings: that inactivity is still overestimated by the LFS, and that – if the ratio between unemployment and inactivity were split more evenly – unemployment would be unreasonably low, at under 2.5%.

Table 2: Example of a 50/50 split between unemployed and inactivity figures using September to November 2024 data

	LFS	**Modelled using LFS ratio**	***Difference between LFS and model***
Unemployed	104,700	100,200	*4,500*
Inactive	1,797,300	1,719,300	*78,000*
Total not in work	1,902,000	1,819,500	*82,500*

	LFS	**Modelled using 50/50 split**	***Difference between LFS and model***
Unemployed	104,700	63,450	*41,250*
Inactive	1,797,300	1,756,050	*41,250*
Total not in work	1,902,000	1,819,500	*82,500*

Figure 5: Comparison between modelled and LFS-reported economic inactivity rates for adults age 16+



Sources: SHERU analysis of HMRC data [4][5][6] and Labour Force Survey population data [7]

Figure 6: Comparison between modelled and LFS-reported unemployment rates for adults age 16+

Sources: SHERU analysis of HMRC data [4][5][6] and Labour Force Survey population data [7]

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Citation

Catalano, A. (2025) A New Model for Economic Inactivity in Scotland: Replicating alternative labour market projections. The Scottish Health Equity Research Unit (SHERU).

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