

Second Tackling Child Poverty Delivery Plan 2022-2026

Annex 4: Cumulative Impact Assessment

March 2022

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1. EXECUTIVE SUMMARY

This report assesses the cumulative impact of a package of Scottish Government policies on child poverty. The package includes a number of benefits which are already in place, along with the expected outcomes of policies in the Delivery Plan which are aimed at increasing income from employment over the coming years.

Using the latest data at the time of writing, the modelling indicates that around 17% of children will live in relative poverty in 2023/24. This would represent a reduction of around 9 percentage points compared to 2019/20, the latest year of official statistics. Our assessment shows that the policy package plays a significant role in driving this reduction. However, external factors also play a role, introducing a significant degree of uncertainty into our projections – particularly in the context of the cost of living crisis and increasing international instability. What is more, the impacts of these factors cannot be fully separated from the impacts of the policy package, due to the way that reserved and devolved policies interact and the fact that both are shaped by the wider economy.

These external factors are also not entirely positive. For example, the high rates of inflation which are expected to continue in the medium term will tend to reduce the relative measure of child poverty by triggering higher benefit payments, even if living standards deteriorate in practice. This mechanism is largely nullified on the absolute measure of child poverty, since the absolute poverty line is also uprated with inflation. Recent reserved decisions likewise appear to have less of an impact on absolute child poverty, since they target households which are in employment and thus have higher incomes. Consequently, we project that absolute child poverty will fall by 7 percentage points between 2019/20 and 2023/24, compared with a 9 percentage-point fall in relative child poverty, even though the impact of the policy package is broadly similar. Combined with the fact that the initial gap is wider on this measure, the result is that absolute child poverty is projected to be around 16% in 2023/24.

Beyond 2023/24, the scale of change will increasingly depend on the outcomes of the policies announced in the Delivery Plan, along with external factors. Based on the measures we have modelled, our projections indicate that child poverty will stay broadly constant by 2025/26. The remaining challenge would therefore be substantial: in the subsequent five years, relative child poverty would need to fall by a further 8 percentage points, and absolute child poverty by a further 12 percentage points, to meet the final targets.

All figures in this report should be treated as indicative. By definition, models purport to capture the features of the world which are most essential to the topic in question, while abstracting from its full complexity. The outputs of our model therefore come with a degree of uncertainty, particularly as we use survey data and project into the future. We have used the available tools and data to ensure our estimates are as robust as possible, but they remain estimates.

2. INTRODUCTION

The first Tackling Child Poverty Delivery Plan committed to produce a quantitative assessment of the impact of Scottish Government policies on child poverty, acknowledging that such analysis would be crucial to developing effective policies and ultimately to meeting the child poverty targets. To that end, this report models the impact of a package of policies which are either in place already or which will take effect over the life of this Delivery Plan. Taking these policies into account along with the wider range of factors which affect household incomes, the report presents a projection of child poverty in future years to gauge both our progress toward meeting the targets and the scale of the remaining challenge.

Our main tool for this analysis is UKMOD, a microsimulation model based on the same data which underlies the official poverty statistics, namely the Family Resources Survey (FRS). Microsimulation is a powerful technique which allows us to manipulate the data in order to estimate the impact of a given intervention, or set of interventions, on child poverty. **However, all modelling results rely on a range of assumptions and are subject to a degree of uncertainty, particularly when projecting into future years.** Further information on the model, along with a detailed description of our methodology, can be found in the final section of this report.

A list of policies included in the assessment is set out in Table 2.1. As shown in the table, we simulate these policies in three years, depending on when they come into effect: the latest year of official statistics at the time of writing (2019/20), the year of the interim targets (2023/24), and the final year covered by this Delivery Plan (2025/26). We do not explicitly model the intervening years, during which child poverty could fluctuate significantly, in particular due to the economic disruption caused by Covid-19 and other economic shocks. Nor do we model 2030/31, the year of the final targets. The latest version of UKMOD projects to 2025/26, and the underlying economic forecasts produced by the Office for Budget Responsibility extend to 2026/27. The degree of uncertainty involved in projecting beyond this horizon would be unduly large.

Table 2.1: Policies included in the Cumulative Impact Assessment

Policy included

Policy	2019/20	2023/24	2025/26
Free School Meals			
School Clothing Grant			
Council Tax Reduction, plus water and sewerage discount			
Discretionary Housing Payments (bedroom tax mitigation)			
Carers Allowance Supplement (with 6% uplift in 2022/23*)			
Best Start Grant (with 6% uplift in 2022/23*)			
Best Start Foods ¹			
Scottish Child Payment (£25 per child per week*)			
Discretionary Housing Payments (benefit cap mitigation*)			
Employability Offer to Parents ²			
Social Innovation Partnership ³			

* New commitment in Delivery Plan

A key feature of the modelling is that it is concerned with cumulative impacts. Due to interactions between the policies in the package, their cumulative impact may be more or less than the sum of their individual impacts, particularly given the way that poverty is measured. For example, if either Scottish Child Payment or Best Start Grant would be sufficient to lift a household out of poverty, the cumulative impact of the two policies would be less than the sum of their individual impacts, since the household would be counted as exiting poverty when assessing the impacts of either policy. For another household, neither policy may be sufficient to lift the household out of poverty in isolation, but the household may rise above the poverty line if it receives both benefits. In that case, the cumulative impact of the two policies would be greater than the sum of the individual impacts. Given that we are ultimately concerned with the lived reality of households in poverty, it is the cumulative impacts of our policies that are most significant, noting that binary measures of poverty do not capture the full complexity of that lived experience.

The policy package is not exhaustive, however. Notably, it does not include:

- **Disability benefits.** Disability benefits are included in the background of the model as per their reported amounts in the FRS, although no distinction is made between the reserved disability benefits which are reported in the latest data and the devolved benefits which are replacing them. However, these benefits are significantly underreported, and simulating eligibility is problematic when it involves a disability assessment. We therefore do not attempt to assess the impacts of these policies by including them in the policy package.

¹ We do not model Best Start Foods in 2019/20 as it was launched halfway through the financial year and only £3m was awarded that year.

² This policy will begin to take effect from 2022/23 and will therefore have some impact in 2023/24, however we only model its accumulated impacts in 2025/26.

³ This policy will begin to take effect from 2022/23 and will therefore have some impact in 2023/24, however we only model its accumulated impacts in 2025/26.

- **Heating-related benefits.** These are reserved, depend on the weather, are targeted at pensioners, or are linked to disability benefits. Winter Fuel Payments are included in the background of the model as per the FRS, and Child Winter Heating Assistance is simulated based on reported receipt of disability benefits, but neither are included in the policy package.
- **Carers Allowance.** This is currently administered by DWP and the details of Scottish Carers Assistance had not been fixed at the time of writing. Carers Allowance is included in the background of the model as per the FRS, but not in the policy package.
- **Existing employment-related policies.** It is too early to assess the impact of the expansion of funded Early Learning and Childcare to 1,140 hours, which was suspended to August 2021 due to Covid-19. Meanwhile, employability policies such as Fair Start Scotland have not yet generated the levels of parental employment required for us to incorporate them into our model. However, we do model the expected outcomes of the employability programmes as outlined in the Delivery Plan.
- **Other policies in the Delivery Plan.** To model the impact of a given policy on child poverty, we must be able to quantify the extent to which it will impact household incomes or housing costs. This is not to say that other policies will not have an impact, only that there is insufficient information to estimate that impact.

We model two of the four statutory measures of child poverty, namely relative and absolute child poverty. The other two measures are more challenging to model: persistent poverty involves the additional dimension of time, while combined low income and material deprivation depends on the ability to afford specific items of expenditure. However, all of the measures are important, and may not necessarily move in tandem; indeed, as the report will show, this is true even for the two measures of poverty which are modelled.

3. METHODOLOGY

Our modelling results are based on comparing two scenarios in each year of analysis:

1. **The counterfactual scenario**, which estimates the child poverty rate in the absence of the policy package;
2. **The policy scenario**, which estimates the child poverty rate with the policy package included.

The policy scenario represents our best estimate of the child poverty rate on the current trajectory, starting with the official statistics in 2019/20. We then assess the contribution of the policy package by comparing this scenario to the counterfactual scenario in each year of analysis. Note that the two scenarios already diverged in 2019/20, because many of the policies in the package were already in place that year. The two scenarios would have only converged some years prior to 2019/20, before any of the policies in the package had been implemented.

While the counterfactual allows us to assess the impacts of the policy package in each year of analysis, it is impossible to fully isolate these impacts from external factors such as macroeconomic changes and UK Government policies. This is not just a methodological issue: in reality, most devolved benefits are linked to reserved benefits, and both are sensitive to wider changes in the economy. In addition, reserved and devolved policies interact in how they affect a household's poverty status in the same way that the policies within the package interact. Due to the interactions between the policies in the package, it is also impossible to disaggregate the impacts of the package into the impacts of individual policies.

The final section of this report explains these interdependencies in more detail, but the upshot is that changes in poverty over time cannot be disaggregated into the impacts of Scottish Government policies and the impact of other factors. Rather, when it comes to poverty rates, our methodology allows us to estimate strictly three pieces of information:

1. The impact of the policy package in each year of analysis, including any impacts on household incomes which work through the policy package;
2. The impacts in each year which are independent of the policy package; and
3. How these two sets of impacts, when combined, translate into actual changes in the number of children living in poverty.

In general, the nature of our methodology means that we can be more confident in assessing the impacts of specific policies (i.e. 1 and 2) than in projecting actual outcomes (i.e. 3), because most sources of error will be held constant when isolating the difference between two scenarios.⁴ **However, all results are modelled estimates and as such are subject to a degree of uncertainty.**

⁴ <https://microsimulation.pub/articles/00088>

4. RESULTS

4.1 Relative poverty

The latest official statistics indicate that 26% of children in Scotland lived in relative poverty in 2019/20.⁵ With the policies in the Delivery Plan included, we project that the child poverty rate will fall to around 17% by 2023/24. Meanwhile, we estimate that the counterfactual poverty rate was 28% in 2019/20, falling to 27% by 2023/24. Taking the difference between these scenarios, we estimate that the child poverty rate would have been 2 percentage points higher in 2019/20 if the policy package had not been in place, with 20,000 more children living in poverty. This impact is projected to increase to 10 percentage points by 2023/24, meaning that Scottish Government policies will be keeping around 90,000 children out of poverty.

A large part of the increase in impact between 2019/20 and 2023/24 is due to the introduction and doubling of the Scottish Child Payment, followed by the further increase to £25 per child per week set out in the Delivery Plan. A number of other policies also come into effect, including mitigation of the Benefit Cap through Discretionary Housing Payments, the introduction of Best Start Foods along with the removal of income limits, the increase in minimum levels of School Clothing Grant, and the extension of universal Free School Meals to all primary school children. The interactions between the policies in the package will also contribute to the cumulative impact.

The impact of the policy package is also determined by external factors which increase the caseloads and payment amounts of the policies in the package, and which interact with these policies to lift Scottish households out of poverty. For example, high rates of forecasted inflation will trigger higher payment levels for some Scottish benefits. Meanwhile, inflationary uplifts to reserved benefits and recent reforms which increase the amount that households can earn before losing their Universal Credit award – namely the increase in work allowances and the reduction in the taper rate – will make more people eligible for those Scottish policies which use Universal Credit as a qualifying benefit.

External factors are also responsible for the steady reduction in the counterfactual poverty rate. Recent reforms to Universal Credit are likely have a particularly strong impact on measured levels of relative child poverty because they are targeted at households with children and only affect households in employment, which are likely to be closer to the poverty line than households which have no earnings. Uprating of reserved benefits can also have a significant impact on relative child poverty, particularly when inflation is high. Finally, after a slump in 2020/21, wage growth is projected to stay above trend for the subsequent three years.

A final factor which acts to drive down the child poverty rate in both scenarios is changes in the relative poverty line, which is based on median UK income. In particular, recent decisions around Income Tax (freezing the Personal Allowance) and National Insurance Contributions (the introduction of the Health and Social Care Levy) will have a greater impact on households in the middle of the income

⁵ <https://www.gov.scot/collections/poverty-and-income-inequality-statistics/>

distribution than on low-income households. This will cause the poverty line to rise at a slower rate, causing more households to cross the poverty line as their incomes increase.

It is clear from this discussion that reductions in measured levels of relative poverty should be treated with caution – not only because they rely on macroeconomic forecasts and are sensitive to changes in the income distribution, both of which are uncertain, but also because they do not necessarily reflect improvements in living standards. While high rates of inflation will trigger an increase in benefit payments, in practice they will erode the living standards of many low-income households, particularly in the short term as most benefit rates are only uprated once per year based on the previous year's inflation rate. These effects will not necessarily be reflected in the relative measure of poverty, which is primarily based on nominal income.⁶ Similarly, the lived experience of households in poverty may not materially improve if they exit poverty through a marginal increase in income which happens to nudge them over the poverty line, or indeed through changes elsewhere in the income distribution which shift the poverty line.

By 2025/26, the child poverty rate continues to fall in the counterfactual scenario to reach 26%, but remains broadly constant at 17% in the policy scenario. As a result, the impact of the policy package falls to 9 percentage points. This could reflect a number of factors. For example, as inflation returns to trend, relative poverty rates may be determined less by benefit income and more by wages, with some households who would have previously required benefits to stay out of poverty now staying out of poverty by virtue of their earnings. In any case, these results will depend heavily on the impacts of the Delivery Plan as well as changes in reserved policies and the wider economy.

Figure 4.1 and Table 4.1 summarise the headline results of our analysis in terms of the relative child poverty rate.

⁶ Inflationary increases in housing costs will tend to increase relative poverty, but these will be partly offset by corresponding increases in housing-related benefit payments, depending on the household's location, tenure type, composition, and housing costs, among other factors.

Figure 4.1: Relative child poverty after housing costs

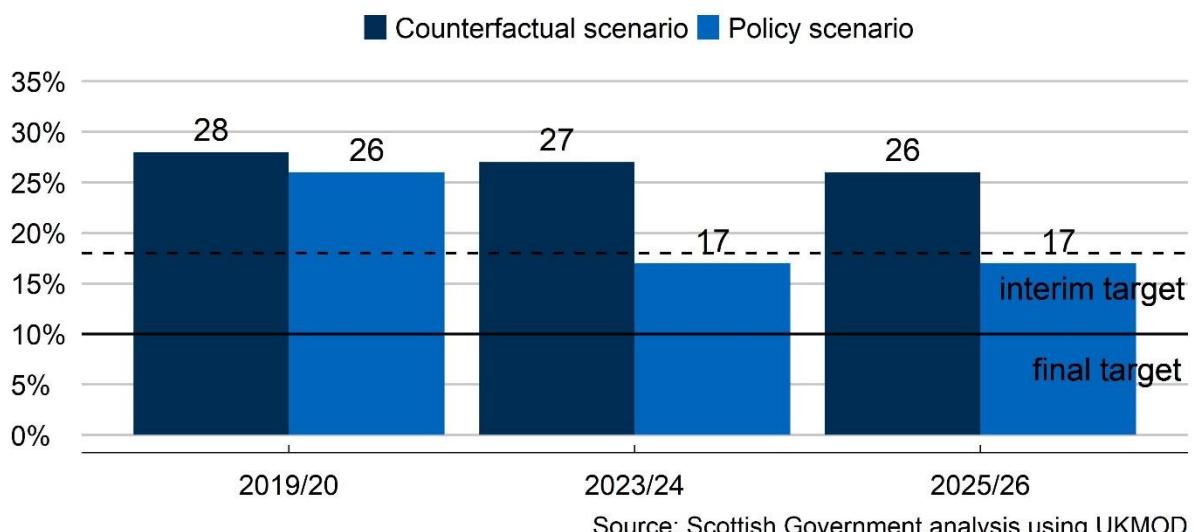


Table 4.1: Relative child poverty after housing costs

	2019/20	2023/24	2025/26	Change
Counterfactual scenario	28%	27%	26%	- 2 ppts
Policy scenario	26%	17%	17%	- 9 ppts
Impact of policy package	- 2 ppts	- 10 ppts	- 9 ppts	- 7 ppts

4.2 Absolute poverty

The latest statistics indicate that 23% of children in Scotland lived in absolute poverty in 2019/20.⁷ Using the latest data at the time of writing, the modelling indicates that the child poverty rate will fall to around 16% by 2023/24. Meanwhile, we estimate that the counterfactual poverty rate was 25% in 2019/20, rising to 26% by 2023/24. Taking the difference between these scenarios, we can estimate that the child poverty rate would have been 2 percentage points higher in 2019/20 if the policy package had not been in place, with 30,000 more children living in absolute poverty. This impact is projected to increase to 10 percentage points by 2023/24, meaning that Scottish Government policies will be keeping around 90,000 children out of absolute poverty each year.

The reason that absolute poverty is not projected to fall as rapidly as relative poverty is not because the policy package has less of an impact on this measure. In fact, the measured impacts on the two measures are similar. The variance in outcomes is instead explained by the counterfactual scenario, in which child poverty is expected to rise on the absolute measure even while falling on the relative measure. This points to differences in the way that external factors feed through to measured levels of child poverty.

⁷ <https://www.gov.scot/collections/poverty-and-income-inequality-statistics/>

For example, the effects of income tax and national insurance on curbing the relative poverty line do not apply to absolute poverty, which is not sensitive to median income. The absolute poverty line is instead uprated by inflation, which also means that inflationary increases in benefits are offset on this measure. Indeed, we project that the absolute poverty line will rise by 10% between 2019/20 and 2023/24, whereas the relative poverty line will only rise by 4%, causing the difference between the two measures to narrow. Furthermore, recent changes to Universal Credit are likely to have less of an impact on absolute poverty since they only affect households in employment, which tend to have higher incomes.

As with relative child poverty, the outlook beyond 2023/24 becomes increasingly uncertain. Our modelling indicates that absolute child poverty will fall back to 25% in the counterfactual scenario, while the projected child poverty rate will remain broadly constant at 16% in the policy scenario. As a result, the impact of the policy package reduces to 9 percentage points. This could again reflect an increasing contribution of wage growth relative to price levels as inflation returns to trend.

Figure 4.2 and Table 4.2 summarise our analysis on absolute child poverty.

Figure 4.2: Absolute child poverty after housing costs

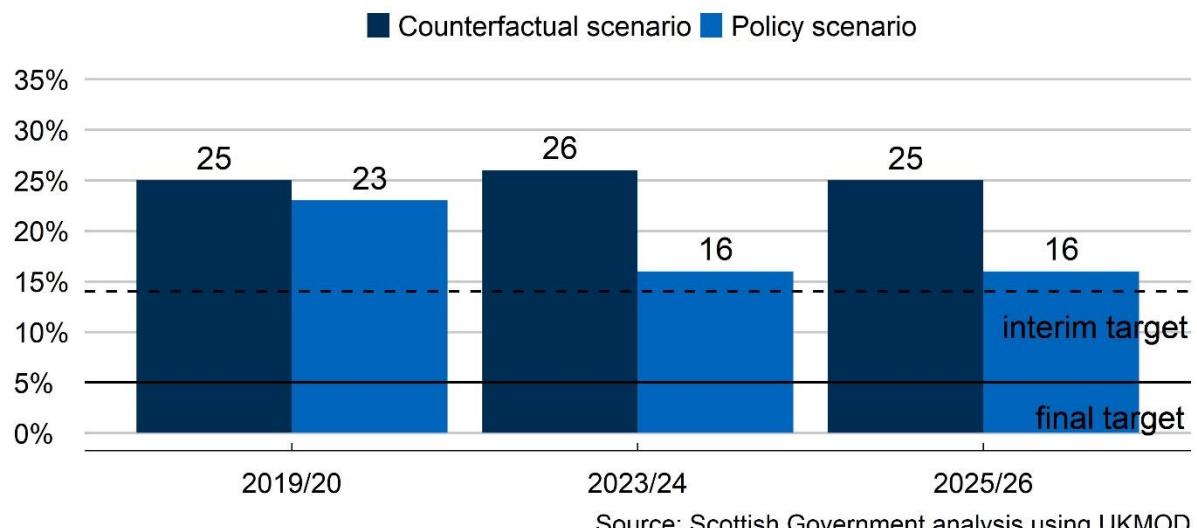


Table 4.2: Absolute child poverty, Scotland

	2019/20	2023/24	2025/26	Change
Counterfactual scenario	25%	26%	25%	0 ppts
Policy scenario	23%	16%	16%	- 7 ppts
Impact of policy package	- 2 ppts	- 10 ppts	- 9 ppts	- 7 ppts

4.3 Distributional impacts

In addition to considering aggregate poverty rates, we can assess how the policy package impacts different groups. Figure 4.3 shows the number of children affected by the policy package, with these children grouped into ten equally sized groups

(deciles) of the overall population based on household income. The figure shows that more children are affected in lower-income households. Over time, an increasing number of children are affected in households across the income distribution.

However, a number of children are still not reached even in the lowest deciles. This reflects the partial take-up of benefits, including those in the policy package as well as the reserved benefits which act as qualifying benefits, underscoring the importance of maximising income for households in poverty. Note the precise results of this analysis will be sensitive to the assumptions made around take-up, as set out in the final section of this report.

Figure 4.3: Number of children affected in each income decile

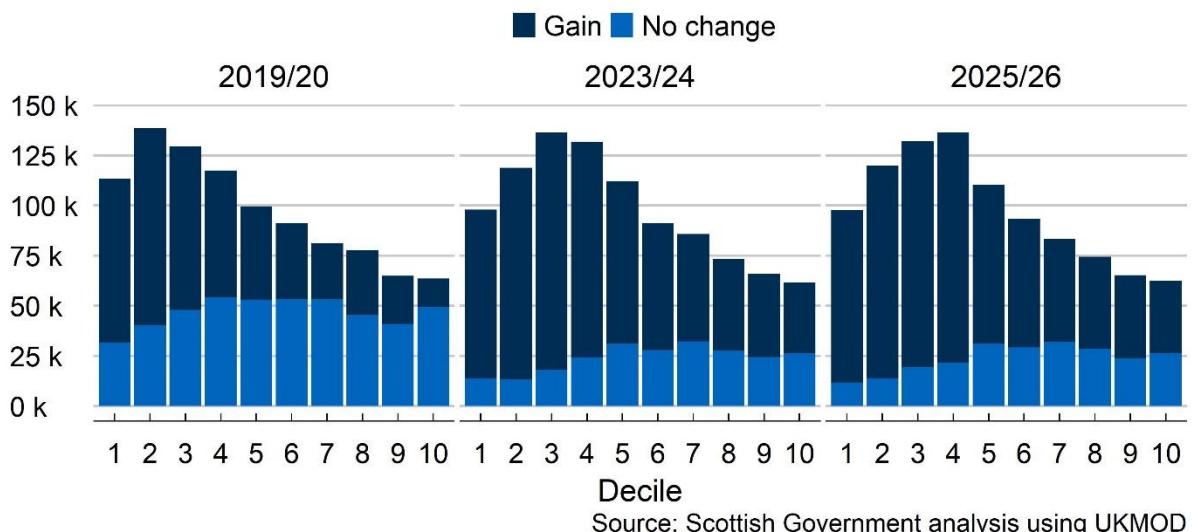
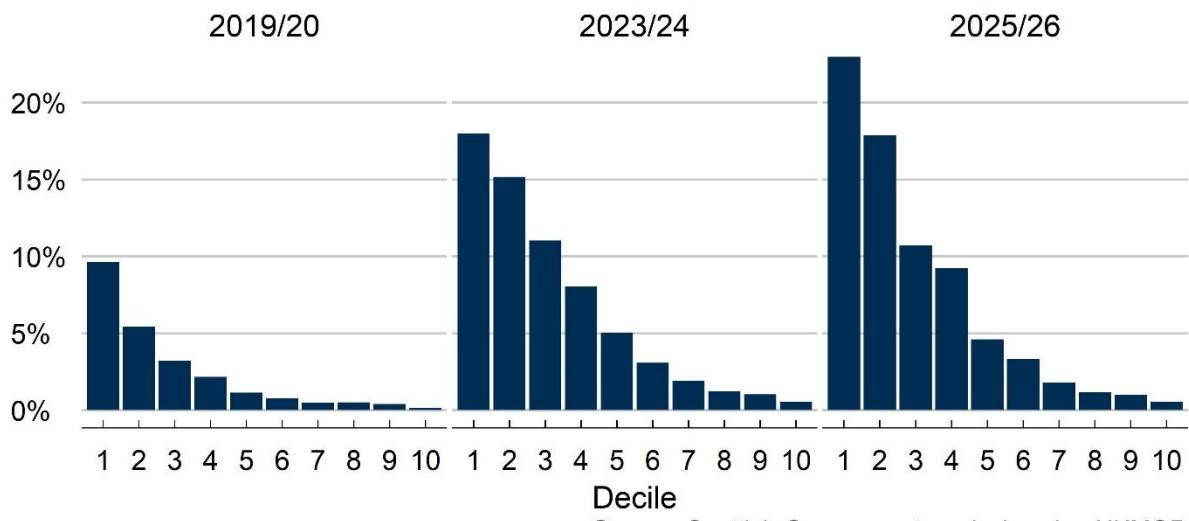


Figure 4.4 shows the average change in income among households with children, with households grouped into the same deciles as in Figure 4.3. The figure shows that households with lower incomes gain proportionately more on average, with these impacts increasing over time. For example, in 2019/20, households with children in the second decile experienced an average gain of around 5%; by 2023/24 this will increase to around 15%. However, these figures should be treated with caution, as the data on households which report very low incomes may not always be reliable.⁸

⁸ <http://repository.essex.ac.uk/14894/1/Brewer et al-2017-The Economic Journal.pdf>.

Figure 4.4: Average change in income for households with children



Source: Scottish Government analysis using UKMOD

Table 4.3 presents a range of additional analysis on the impacts of the policy package. The table shows that most of the children kept out of relative poverty each year are in at least one of the priority groups, reflecting the fact that the priority groups collectively contain the majority of children in poverty. The table also shows that around half of the children kept out of poverty each year are in households with at least one adult in employment. This is somewhat lower than the proportion of children in poverty who fall within this group, which is around two-thirds.⁹ Finally, measuring the impact on severe poverty allows us to assess how the policy package is affecting children in deeper poverty. The table shows that this impact increases over time, but not as much as the impacts on the headline measures. This could reflect the added penalty of incomplete take-up when new benefits are introduced, or existing benefits increased, which are conditional on taking up other benefits.

Table 4.3: Percentage-point impacts of the policy package

	2019/20	2023/24	2025/26
Impact on relative child poverty rate (below 60% of UK median household income after housing costs)	2 ppts (20,000 children)	10 ppts (90,000 children)	9 ppts (90,000 children)
Impact on priority child poverty rate (relative child poverty among priority group households)	4 ppts (20,000 children)	12 ppts (80,000 children)	13 ppts (80,000 children)
Impact on working child poverty rate (relative child poverty among households in employment)	1 ppts (10,000 children)	6 ppts (50,000 children)	6 ppts (50,000 children)
Impact on absolute child poverty rate (below 60% of 2010/11 UK median household income after housing costs)	2 ppts (30,000 children)	10 ppts (90,000 children)	9 ppts (90,000 children)
Impact on severe child poverty rate (below 50% of UK median household income after housing costs)	4 ppts (30,000 children)	7 ppts (70,000 children)	7 ppts (70,000 children)

⁹ <https://www.gov.scot/publications/poverty-and-income-inequality-in-scotland-2017-20/>

4.4 Targeting

The extent to which the policy package is targeted at children in poverty can help us assess its cost effectiveness. This is not completely straightforward, however. One limitation is that we do not have full information on which households take up benefits. Most of the modelling here assumes that all eligible households are equally likely to take up a given benefit, but in reality take-up may be higher among households in greater need. As a result, we may underestimate the extent to which households in poverty are reached by a given policy. A second limitation is that poverty is a relatively strict criterion for assessing cost effectiveness. Most of the policies in the package are targeted at low-income households by design, and therefore help households maintain a decent standard of living in addition to helping households move out of poverty as defined by the targets.

Table 4.4 provides breakdowns of expenditure on the policy package, with separate analysis for policies which are specifically targeted at children. This expenditure includes the modelled cost of benefit transfers, but not the associated administration costs. For employment policies, the total cost is spread equally across recipients. Because we model the cumulative impacts of these policies in 2025/26, we also include the cumulative cost rather than only the cost in that year. All expenditure figures are in nominal terms, so increases over time are to be expected in the total figures. Households in poverty include households which are kept out of poverty by the policies being measured.

In 2019/20, we estimate that around half of total expenditure on all policies in the policy package will go to households with children. With the introduction of Scottish Child Payment and Best Start Foods, the extension of universal Free School Meals to all primary students, and other changes in the policy package, this proportion increases to nearly three-quarters by 2023/24. The proportion of spend which is received by households with children in poverty also increases over this time period, but by a lower proportion, reflecting a mixture of means-tested and universal policies as well as the reduction in the counterfactual poverty rate. In terms of their poverty impacts, the cost-effectiveness of these policies is projected to improve between 2019/20 and 2023/24, with the cost per child kept out of poverty reducing from £26,000 to £14,000 per year.

Policies which are targeted at households with children include Scottish Child Payment, Best Start Grant, Best Start Foods, Free School Meals, School Clothing Grant, and the employment policies in the Delivery Plan. We estimate that around one-third of expenditure on these policies each year will go to households with children in poverty, with this proportion falling slightly in 2023/24. This reflects the fact that the new benefits (Best Start Foods and Scottish Child Payment) have similar eligibility criteria as existing benefits while other changes in the policy package (particularly the extension of universal Free School Meals) reduce the extent to which the package is targeted at low-income households. The cost effectiveness of these policies is projected to remain roughly equal over this time period, at around £10,000 per year for every child kept out of poverty.

By 2025/26, a further increase in the proportion of expenditure received by households with children is generated by the employment policies in the Delivery

Plan. A particularly large increase is observed in the proportion received by households with children in poverty; among the policies targeted at children, this proportion exceeds 50%. However, these results reflect the assumptions of the model and in practice will depend on how well the policies are targeted. The flipside is that the cost per child lifted out of poverty increases, reflecting the higher per-capita cost of these policies. However, these policies may actually be more cost-effective in the long run. Whereas benefit payments represent recurring costs, the outcomes of employment policies will persist beyond the years in which costs are incurred. Furthermore, the model does not include the costs of administration for benefit payments.

Table 4.4: Expenditure on the policy package

	2019/20	2023/24	2025/26
All policies			
Proportion of expenditure received by households with children	49%	73%	80%
Proportion of expenditure received by households with children in relative poverty	24%	30%	49%
Expenditure required to keep each child out of relative poverty	£26,000	£14,000	£20,000
Policies targeted at children			
Proportion of expenditure received by households with children ¹⁰	99%	100%	100%
Proportion of expenditure received by households with children in relative poverty	39%	34%	59%
Expenditure required to keep each child out of relative poverty	£11,000	£10,000	£17,000

4.5 Work incentives

UKMOD is a static model, meaning it assumes people will not change their behaviour in response to a change in policy. However, as households receive more in means-tested benefits, they stand to lose more if their earnings increase, and this could affect their behaviour. This is important because paid work is the most sustainable way to escape poverty for many families, although work-related decisions will be determined by a wide range of factors in addition to the direct financial rewards, including the costs of transport and childcare, the conditionality attached to benefit payments, and the availability of alternative employment

¹⁰ These figures may be less than 100% because Free School Meals are available to 16-18 year olds who claim benefits in their own right and are therefore not counted as children.

opportunities. The impact on work incentives can be particularly strong when it comes to benefits which are conditional on receipt of other benefits, or which have fixed income thresholds, as is the case with a number of the policies in the package. This is because recipients can face a ‘cliff edge’, whereby their entitlement for a given benefit can be fully withdrawn once their earnings exceed a certain level.¹¹

Table 4.5 presents high-level analysis on the impact of the policy package on work incentives. To measure work incentives, we use Marginal Effective Tax Rates (METRs), defined as the proportion of additional gross earnings which are lost due to an increased tax liability and/or a reduction in benefit entitlement. For example, if a parent earns an additional £100 per week, but as a result their tax bill increases by £20 and their benefit award reduces by £55, their net gain is only £25 (£100 - £20 - £55). The METR is therefore 75% $((£100 - £25) / £100)$ as from the perspective of the parent 75% of the additional earnings are effectively lost. Accordingly, a higher METR indicates a lower incentive to increase earnings.

Here we assume that parents in employment take up their full benefit entitlements and then increase their gross earnings by 10%. We exclude self-employed workers and those who move into work as a result of the policy package, and do not model the incentive to enter employment in the first place. The analysis uses the UKMOD METR tool, which calculates METRs for each individual in employment on the basis of the change in household income which would occur if that individual increased their earnings. As above, poverty is defined in the counterfactual scenario, so it includes parents who are kept out of (relative) poverty by the policy package.

The table shows that a higher proportion of employed parents in poverty experience a deterioration in work incentives than employed parents overall. In 2025/26, over one-third of employed parents in poverty experience higher METRs as a result of the policy package, compared to 8% of employed parents overall. This reflects the fact that parents with lower household incomes are more likely to be eligible for means-tested benefits. On the other hand, among parents who experience a deterioration in work incentives, the average impact is lower for employed parents who are in poverty than it is for employed parents overall.¹² This is likely because, among employed parents who do experience a reduction in work incentives, those who are not in poverty are more likely to be close to a cliff edge, since their earnings are likely to be higher.¹³

¹¹ Even if the ‘passporting’ benefit decreases with earnings in a gradual manner, as per the Universal Credit taper rate, once the benefit tapers to zero the household will fully lose eligibility for the ‘passported’ benefit. In addition, the UC taper rate can have perverse effects on work incentives for households close to the cliff edge. A lower taper rate means that households on UC will lose less of their benefit income as they earn more, thus lowering their METRs. However, it will also mean that some households who previously earned too much to be eligible for UC will now be eligible. These households could experience an increase in METRs since they are now subject to the taper rate, even though their income is now higher.

¹² These average impacts would likely be higher for both groups if averages were calculated as means instead of medians, since METRs will be especially high for households crossing a cliff edge and in some cases will exceed 100%.

¹³ Note that average METRs among affected parents fall in the counterfactual scenario between 2019/20 and 2023/24, reflecting the reduction in the Universal Credit taper rate and the increase in work allowances, i.e. the amounts that households can earn before the taper is applied. However, this impact appears to be lower for parents in poverty, likely because a larger proportion of their earnings

Table 4.5: Impact of the policy package on work incentives

		2019/20	2023/24	2025/26
All employed parents	Proportion experiencing higher METRs in the policy scenario	7%	8%	8%
	Among these, median METR in the counterfactual scenario	73%	63%	63%
	Among these, median METR in the policy scenario	79%	83%	81%
	Difference in median METRs between the two scenarios	6 ppts	20 ppts	18 ppts
Employed parents in poverty	Proportion experiencing higher METRs in the policy scenario	29%	31%	34%
	Among these, median METR in the counterfactual scenario	75%	70%	69%
	Among these, median METR in the policy scenario	82%	83%	80%
	Difference in median METRs between the two scenarios	7 ppts	13 ppts	11 ppts

were already covered by the work allowance and were therefore not subject to the taper in the first place.

5. CONCLUSIONS

Our modelling demonstrates that Scottish Government policies are having significant impacts on child poverty. These impacts are concentrated on children in the priority groups, reflecting the preponderance of these groups among children in poverty. The impacts appear to be less proportional for children in working households, and the policy package reduces work incentives for some parents in poverty. Partial take-up of benefits is also an issue, while on the other hand a considerable proportion of expenditure reaches households which do not have children or are not in poverty. Nevertheless, in large part as a result of the policy package, relative child poverty is projected to fall to around 17% by 2023/24.

This result may be surprising given that several modelling publications have previously projected that the interim target will be missed. However, this report is not directly comparable to previous analyses, for several reasons. First, most of the modelling to date was conducted before a number of key policies were introduced, including recent changes to reserved taxes and benefits in addition to increases in the Scottish Child Payment, and before inflation forecasts were pushed up by the ongoing cost of living crisis. Second, our modelling incorporates a number of Scottish Government policies which are not usually included in microsimulation models but which nevertheless affect household incomes. While none of these policies will achieve the necessary reductions in child poverty in isolation, they contribute to the cumulative impact of the policy package.

Ultimately, all modelling results are estimates, relying on a range of methodological choices and assumptions. We have used the available data and tools to ensure our estimates are as robust as possible, but different models will naturally produce different results, all of which should be interpreted with caution. While our projections indicate that relative child poverty will fall to around 17% by 2023/24, the outcome is sensitive to factors which cannot be modelled with complete precision or predicted with complete certainty.

In any case, our projections also indicate that absolute child poverty will not fall as steeply, reaching a projected level of around 16% by 2023/24. This variance in outcomes mainly stems from differences in how the two measures of poverty modelled in this report respond to external factors, such as recent reserved decisions and expected changes in the wider economy, particularly inflation. These differential results underscore the importance of considering the full basket of measures, including those not modelled in this report.

External factors also represent a key source of uncertainty in our results. To project inflation, earnings growth, and other key variables into the future, our modelling relies on forecasts by the Office for Budget Responsibility (OBR). The latest set of OBR forecasts available at the time of writing were produced in October 2021. However, OBR are due to publish a new set of forecasts in March 2022, which could differ markedly from the October forecasts given the volatility currently affecting the economy. The latest FRS data were also due to be published in March, covering the first year of Covid-19, but these will no longer be published in full due to the impact of the pandemic on the data collection process.

Because these sources of uncertainty multiply as we project further into the future, we have not modelled child poverty in 2030/31, the year of the final targets. However, it is clear from this report that meeting the targets will require an unprecedented reduction in child poverty. According to our projections, relative child poverty will need to fall by an additional 8 percentage points between 2025/26 and 2030/31, while absolute child poverty will need to fall by an additional 12 percentage points. Such a reduction is unlikely to occur without considerable changes to the drivers of poverty.

6. DETAILED METHODOLOGY

6.1 Microsimulation model

UKMOD is a microsimulation model which is maintained, developed, and managed by the Centre for Microsimulation and Policy Analysis (CeMPA) at the University of Essex. The model applies the rules of the tax and benefit system to a set of microdata based on three years of the Family Resources Survey (FRS), in this case 2017/18, 2018/19, and 2019/20. UKMOD is a static model; it does not take into account demographic changes which occur over time or behavioural changes which result from policy interventions. The results presented here are based on UKMOD version A3.0+. The results and their interpretation are the sole responsibility of Scottish Government.

UKMOD uprates income components and other monetary variables from each year of data to each year of analysis using a range of sources, primarily the OBR's Economic and Fiscal Forecasts.¹⁴ We assume that benefit rates which are currently frozen, such as the benefit cap and Local Housing Allowances, remain frozen over the period of the projections. A full list of uprating indices, along with further information on the model, can be found in the UKMOD Country Report.¹⁵ These forecasts take into account the range of factors which determine macroeconomic outcomes, but no specific adjustments are made to reflect demographic change or the changes in the labour market. Previous Scottish Government analysis using UKMOD has applied an unemployment shock to reflect the impacts of Covid-19, but the latest data and forecasts indicate that higher unemployment will not be a lasting legacy of Covid-19, although there remains a concern that labour-market participation will remain lower with older workers retiring early.¹⁶

UKMOD models the transition to Universal Credit (UC) by setting a target for the proportion of all claimants projected by the OBR to be on UC in each year of analysis and randomly selecting individuals to transition based on this target.¹⁷ For those individuals who meet the eligibility criteria for both legacy benefits and UC, published take-up rates are used for the legacy benefits in question. For individuals who are only eligible for UC, the take-up rate for Income Support for people without children is used. Again, take-up is based on random selection.

6.2 Interpretation of results

Our methodology is based on comparing two scenarios: one in which the package is included and one in which it is excluded. However, assessing the impact of the policy package is complicated by the fact that Scottish Government benefits are linked both to reserved benefits and to wider economic factors.

For example, recent reforms to Universal Credit (UC) have the effect of increasing the UC caseload, which will tend to reduce the child poverty rate in both the

¹⁴ <https://obr.uk/efo/economic-and-fiscal-outlook-october-2021/>

¹⁵ <https://www.microsimulation.ac.uk/publications/publication-526325/>

¹⁶ <https://economy2030.resolutionfoundation.org/reports/begin-again/>

¹⁷ <https://obr.uk/wtr/welfare-trends-report-march-2021/>

counterfactual scenario and the policy scenario. However, since UC acts as a qualifying benefit for a number of Scottish benefits, the caseload of these benefits will also increase. As a result, the child poverty rate may fall more in the policy scenario than in the counterfactual scenario, meaning the impact of the policy package will increase as a result of the UC reforms.

Similar dynamics pertain to inflation, which will trigger an increase in UC rates. This will not only impact household incomes directly, but will also make more people eligible for UC, with spillover effects on devolved benefits for which receipt of UC is an eligibility criterion. Scottish benefit rates which are linked to inflation will also increase. Changes in real incomes and demography will have similar effects, although the latter is not modelled in UKMOD.

The policies in the package also interact with external factors through the way that poverty is measured, in a similar way that the policies within the package interact with each other. For example, if we attempted to separate the impacts of the recent changes to UC and the impacts of the introduction of Scottish Child Payment, we would face a predicament when considering households which received both benefits – particularly those which required both policies to cross the poverty line or which would have exited poverty through either policy.

The outcome of this discussion is that we cannot disaggregate a temporal change in poverty levels into the impact of Scottish Government policies and the impact of other factors. To do so, we would need to either introduce policies into our model sequentially, even if they were actually concurrent, or to simulate a scenario in which the exact same people received the exact same amount of Scottish benefits in each year of analysis. Neither approach would reflect reality. Instead, our estimate of the impact of the policy package includes any impacts on household incomes which are the result of interactions with the policies in the package, even if they are not the result of substantive changes in those policies.

6.3 Sensitivity testing

To demonstrate the uncertainty surrounding our estimates, we can repeat our analysis after varying one or more factors and then compare with the original results. Given the salience of inflation in the current economic climate, we repeat our analysis while assuming that a Consumer Price Inflation rate of 6.7%, the rate forecasted by the Bank of England for the third quarter of 2022 in its latest Monetary Policy Report, continues over the forecasted horizon.¹⁸ Benefit rates, housing costs, tax rates, and a number of other parameters increase as a result; although any parameters which are currently frozen remain frozen in the sensitivity test. This is purely an illustrative exercise, with the purpose of testing the sensitivity of our projections with respect to a particular variable – it does not represent an alternative projection.

The results of the sensitivity test are shown in Figures 5.1 and 5.2 for relative and absolute child poverty respectively. A number of insights can be drawn by comparing these results to our projections in Figures 4.1 and 4.2. Firstly, the projections are

¹⁸ <https://www.bankofengland.co.uk/monetary-policy-report/2022/february-2022>

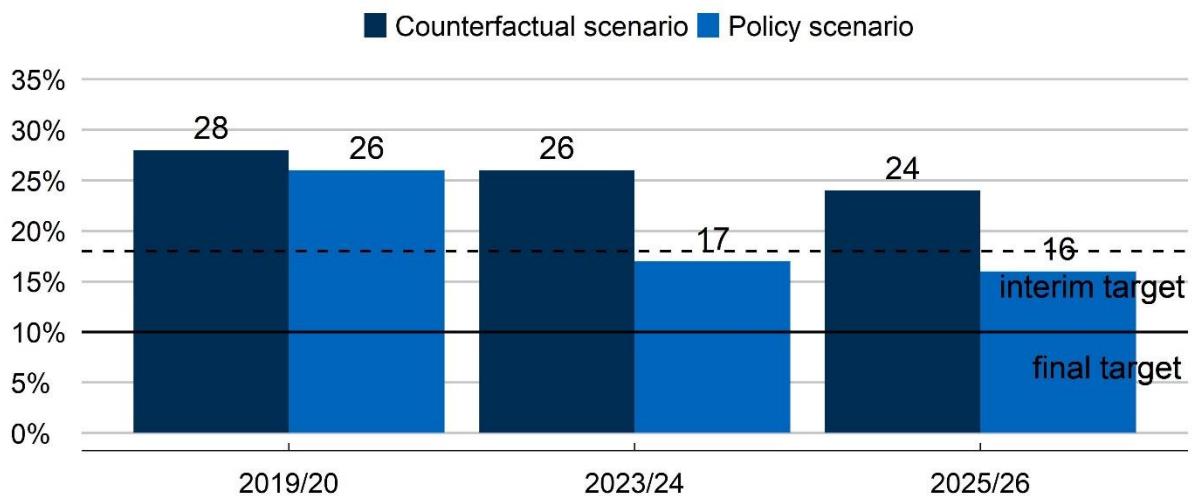
sensitive to changes in inflation, to a greater or lesser degree. Although the variation in poverty rates does not exceed 2 percentage points, inflation is one of many factors which generate uncertainty. Furthermore, the results also demonstrate that the variation increases over time as the inflation rates in our projections and those in the sensitivity test diverge, in particular due to the compound nature of inflation. On the relative measure of child poverty, there is no change to the projected rate in 2023/24, but by 2025/26 the rate falls by 1 percentage point relative our original projections. On the absolute measure the impacts are evident earlier, with the child poverty rate increasing by 1 percentage point in both 2023/24 and 2025/26.

A second observation, which was discussed in the body of this report, is that increases in inflation tend to have differential effects on the two measures of poverty: relative poverty tends to fall, largely due to increases in benefit income, whereas absolute poverty tends to rise, largely due to increases in the poverty line. In fact, the magnitude of the sensitivity test is such that the two measures of poverty converge by 2023/24, with the absolute poverty line actually overtaking the relative poverty line thereafter. By 2025/26, the relative child poverty rate falls to 16% in the sensitivity test, compared to 17% in our projection. By contrast, the absolute child poverty rate only falls to 17%, compared to 16% in our projection.

The impact of the policy package exhibits similar changes on both measures of poverty when inflation is increased, with the difference between the policy and counterfactual scenarios falling from 10 to 9 percentage points in 2023/24 and from 9 to 8 percentage points in 2025/26 on both measures. However, for relative child poverty, it is primarily the counterfactual scenario which is affected: the poverty rate in this scenario falls considerably more steeply when inflation is higher, reaching 24% in 2025/26 compared to 26% in our projection. The poverty rate also reduces in the policy scenario, but not to the same degree. Meanwhile, the opposite is true for absolute poverty, with the poverty rate increasing in the policy scenario but remaining broadly unchanged in the counterfactual scenario.

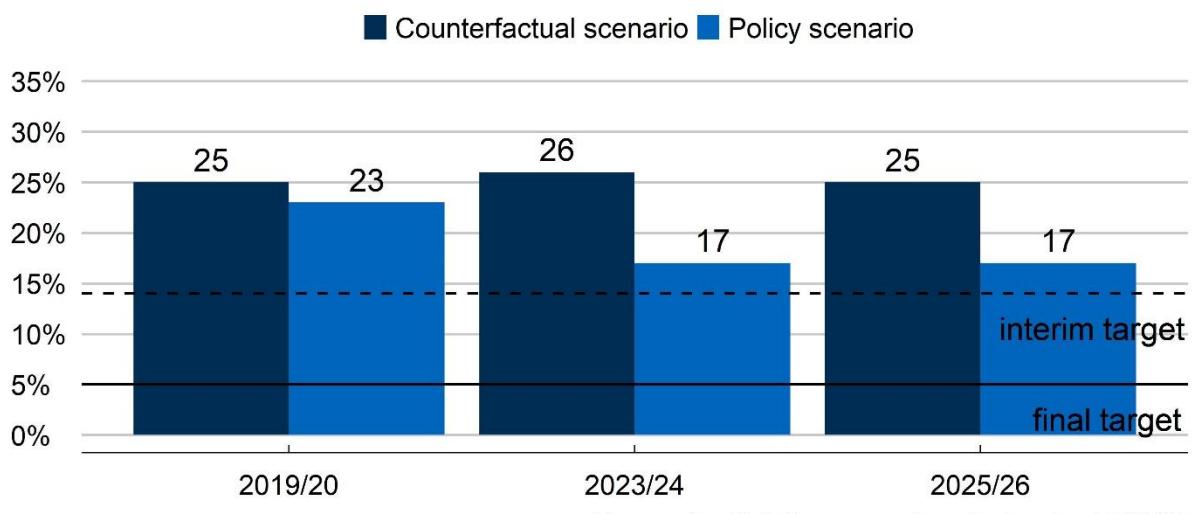
This implies that the impacts of inflation on absolute child poverty largely depend on the policy package, whereas on the relative measure the impacts are largely independent of the policy package. In other words, absolute child poverty is more sensitive to inflation when the policy package is in place, likely because more children are clustered around the rising poverty line. Conversely, relative child poverty is less sensitive to inflation when the policy package is in place, indicating the diminishing impacts of further increases to benefit rates on moving children over the poverty line.

Figure 5.1: Relative child poverty - sensitivity test



Source: Scottish Government analysis using UKMOD

Figure 5.2: Absolute child poverty - sensitivity test



Source: Scottish Government analysis using UKMOD

6.4 Poverty calculations

In each year of analysis, we run the policy scenario at the UK level to calculate the relative poverty line as 60% of median net (disposable) equivalised household income after housing costs. We then hold the poverty line constant when comparing to the counterfactual scenario. In reality, the policy package could have an effect on median UK income, and thus on the poverty line, but any such effect would be minor. Absolute poverty is estimated by performing a simulation at the UK level for 2010/11, calculating the poverty line as 60% of median net equivalent household income, and uprating the poverty line by CPI in each subsequent year.

Note that all child poverty rates are rounded to the nearest percentage point and numbers of children are rounded to the nearest 10,000. This is in line with the presentation of the official poverty statistics, which are themselves subject to a

degree of uncertainty and sit within a confidence interval of around 2 percentage points.¹⁹ Further information on the definitions of income and poverty can also be found in the official statistics publication.²⁰

UKMOD generally simulates lower poverty rates than the official statistics, primarily because it corrects for the under-reporting of benefit income which is known to affect the FRS.²¹ We therefore need to calibrate our results so that, as far as possible, they are consistent with the statistics which will be used to determine whether or not the targets have been met. This introduces an additional layer of uncertainty into our estimates.

For relative child poverty, we firstly calculate the difference between the simulated poverty rate and the official poverty rate in the latest year of official statistics, i.e. 2019/20. We use the single-year statistic because UKMOD simulates a single year, even though the input data pools three years of FRS data. Specifically, the simulated poverty rate in 2019/20 is 24%, compared to the official poverty rate of 26%. This yields a difference of two percentage points, which we then apply to all other simulations for relative poverty. Thus, in 2025/26, our simulated projection is 15%, which increases to 17% after the calibration is applied.

For absolute child poverty, we firstly compare the difference between the simulated relative and absolute poverty rates with the difference between the official relative and absolute poverty rates, again in 2019/20. The difference between the simulated rates in that year is 6 percentage points, whereas the difference between the official rates is 3 percentage points, giving a ratio of 2. We then ensure that this ratio is held constant in all other simulations for absolute poverty, using the calibrated relative poverty rate as the reference point in each year of analysis. For example, in 2025/26, the difference between the simulated rates is 2 percentage points, with relative child poverty at 15% and absolute poverty at 13%. Dividing this difference by the ratio of 2 yields a calibration term of 1 percentage point to subtract from the calibrated relative poverty rate of 17%, giving a calibrated absolute poverty rate of 16%.

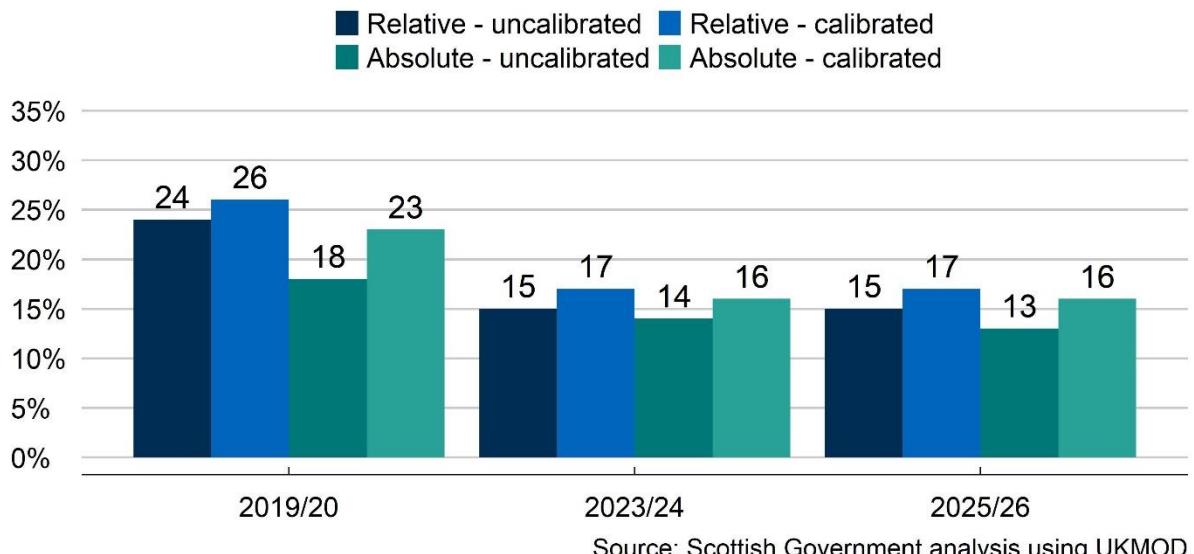
Figure 5.3 sets out the calibrated and uncalibrated child poverty rates on both measures, in each year of the policy scenario.

¹⁹ <https://data.gov.scot/poverty/uncertainty.html>

²⁰ <https://www.gov.scot/publications/poverty-and-income-inequality-in-scotland-2017-20/>

²¹ <https://www.gov.uk/government/statistics/family-resources-survey-financial-year-2019-to-2020/family-resources-survey-background-information-and-methodology>

Figure 5.3: Child poverty calibration



The same calibration terms are applied to the counterfactual scenarios and policy scenarios in each year of analysis. Thus, in 2025/26, the uncalibrated relative poverty rate is 24% in the counterfactual scenario, which becomes 26% when the calibration term of 2 percentage points is applied. The absolute poverty rate is then calibrated by subtracting the calibration term of 1 percentage point from the calibrated relative poverty rate, coming to 25%. This method allows us to preserve the percentage-point difference between the policy and counterfactual scenarios – i.e. the number of children kept out of poverty by the policy package – as simulated by the model. This is important because, as noted previously, estimates of policy impacts are likely to be more robust than estimates of observable outcomes.

The reason we do not use the same method for absolute poverty as we do for relative poverty – i.e. taking the difference between the simulated and official poverty rates in 2019/20 and applying this difference to all other simulations – is that this method would result in absolute child poverty being higher than relative child poverty even though the absolute poverty line is modelled to be lower. This is because the difference between the simulated and official rates is significantly narrower on the relative measure. For the same reason, we use relative child poverty as the reference point rather than absolute poverty. Our method therefore attempts to adjust for the difference between the simulated and official poverty rates while also preserving the relationship between the absolute and relative poverty measures, which changes over time.

We also experimented with a more granular approach to calibration, which is also used in the literature on poverty simulation.²² Instead of comparing aggregate poverty rates, this approach compares the income of each household in the latest FRS data to its income in the simulation for that year, and corrects for the difference in all subsequent simulations. This approach to calibration can result in some households having negative incomes before housing costs, which is not possible in

²² <https://www.ifs.org.uk/comms/comm121.pdf>

reality and introduces analytical complications. In addition, the official poverty statistics are based on the secure version of the FRS, whereas UKMOD (like other microsimulation models) is based on the end-user version. Technical developments may allow us to improve our calibration method in the future.

6.5 Benefit policies

We model the total impacts of the benefit policies in the policy package, including those which have counterparts in the rest of the UK. For example, we measure the impact of Best Start Grant by comparing to a scenario in which the Grant was not awarded at all, rather than to a scenario in which the UK Government's Sure Start Grant was implemented instead.

For all benefit policies, our approach to modelling partial take-up is as follows:

1. For policies which are taken directly from the FRS rather than simulated based on eligibility, or which are fully dependent on policies which have already been adjusted for take-up, there is no need to adjust for partial take-up since this is already taken into account. This includes Carers Allowance Supplement and Discretionary Housing Payments.
2. For policies which are simulated based on eligibility, we apply published take-up rates or equivalents where available. Policies in this category include Best Start Foods, Best Start Grant, Scottish Child Payment, and Council Tax Reduction.
3. For policies which are simulated based on eligibility but do not have published take-up rates or equivalents, we do not apply a take-up adjustment. Policies in this category include Free School Meals and School Clothing Grant.

To validate this approach, we compare the simulated caseload and expenditure with the outturn caseload and expenditure for each benefit in 2019/20, provided the benefit was in place for the duration of the year. The simulated figures are within 10% of the outturn figures for all benefits except Carers Allowance Supplement, for which they are within 15%.

We model **Best Start Grant** according to the eligibility criteria of the policy. We do not model pregnancies for the Pregnancy and Baby Payment as this information is not recorded in the FRS. For the Early Learning Payment, we do not include children who are over 2 years old, even though children are eligible up to the age of 3 and one half. This is because the FRS only contains the age of children in whole numbers. The payments are increased by 6% in 2022/23 and held constant thereafter. We use the take-up rates estimated in the Scottish Government's Benefit Take-up Strategy and hold these constant when projecting to future years.²³ We additionally disaggregate take-up of the Pregnancy and Baby Payment for first and subsequent births.²⁴

²³ <https://www.gov.scot/publications/social-security-scotland-act-2018-benefit-take-up-strategy-october-2021/documents/>

²⁴ <https://www.gov.scot/publications/social-security-scotland-act-2018-benefit-take-up-strategy-october-2021-approach-measuring-take-up-low-income-benefits/>

We model **Best Start Foods** according to the eligibility criteria of the policy, with the income limits assumed to be removed by 2023/24. The payment amounts are increased in 2021 from £4.25 per week to £4.50 for children aged 1 to 2 and from £8.50 to £9.00 for children under 1, and held constant thereafter. We use the take-up rates estimated in the Scottish Government's Benefit Take-up Strategy and hold these constant when projecting to future years. We do not model the policy in 2019/20 as it was only launched in September 2019.

We model **Scottish Child Payment** according to the eligibility criteria of the policy. The model incorporates the increase of the payment to £25 in 2023/24 and uprates the payment by inflation each year, as per the policy regulations. We do not model bridging payments as these will only be paid in 2021 and 2022. Take-up rates for 0-to-6 year olds and 7-to-15 year olds are both taken from the Scottish Fiscal Commission's forecasts, with an increase of 1 percentage point in each take-up rate to reflect a possible increase in take-up as the benefit increases.²⁵

We model **Council Tax Reduction** according to the eligibility criteria of the policy. For 2023/24 and 2025/26, we incorporate the changes to the scheme which are planned from 2022 to equalise treatment of cases on Universal Credit and legacy benefits.²⁶ Due to missing information in the FRS, council tax is imputed based on average amount by region, band and household type.²⁷ Twenty-five percent of the council tax bill is then assumed to be water and sewerage charges, which are discounted at 25% of the proportion of the remaining council tax bill which is reduced through CTR, with this discount rising to 35% from 2022/23.²⁸ Additional discounts, for example for single-person households, are not included. To model partial take-up, we apply the default take-up rates for this policy in UKMOD, which vary by tenure.

We model **Free School Meals** according to the eligibility criteria of the policy, with income limits uprated by inflation when projecting to future years. We exclude students in private or tertiary education, define each stage of education using the most common age group, and model the extension of universal eligibility to all primary school students for 2023/24 and 2025/26. We do not model Free School Meals for children in funded childcare. Children in special schools are included in the model but not modelled separately. We translate meals into monetary amounts using the cost per meal for primary and secondary schools in 2019/20 as reported in the Local Government Finance Statistics, multiplied by the number of days which children spend in school each year.²⁹ These amounts are uprated for inflation when projecting to future years. We do not model holiday meals and no take-up adjustments are made.

²⁵ <https://www.fiscalcommission.scot/publications/scotlands-economic-and-fiscal-forecasts-december-2021/>

²⁶ <https://digitalpublications.parliament.scot/ResearchBriefings/Report/2021/9/24/5b21ec2a-3136-440c-abb5-43f220c8a65f>

²⁷ We use the UKMOD variable 'tmu01' for council tax as this aligns most closely with average council tax rates in Scotland.

²⁸ <https://www.legislation.gov.uk/ssi/2006/72/made>

²⁹ <https://www.gov.scot/publications/scottish-local-government-finance-statistics-slgfs-2019-20-workbooks/>

For **School Clothing Grant**, eligibility criteria and payment amounts both vary by local authority. We apply the same eligibility criteria as Free School Meals and use the average grant amount as reported in the Local Government Finance Statistics for 2019/20.³⁰ In subsequent years, we assume that local authorities offer the new minimum amounts, i.e. £120 for primary school students and £150 for secondary school students. No take-up adjustments are made.

For **Discretionary Housing Payments**, we model a benefit which fully mitigates the Removal of the Spare Room Subsidy from Universal Credit and Housing Benefit, also known as the bedroom tax. Exemptions from the bedroom tax are not modelled by default in UKMOD due to a lack of requisite information in the FRS. To ensure that we do not overestimate the impacts of DHPs, we therefore stipulate that any household with someone receiving disability benefits is exempted from the bedroom tax. Benefit cap mitigation is added in a similar manner, with the condition that a capped household can only be mitigated up to the level of their eligible rent (if on Housing Benefit) or housing element (if on Universal Credit). We do not incorporate the partial mitigation of the benefit cap which currently occurs through DHPs.

We model **Carers Allowance Supplement** by allocating the supplement to those who report receiving Carers Allowance. This information is taken directly from the FRS, since there is insufficient data to simulate eligibility for the benefit. The amount of the supplement is uprated by 6% in 2022/23, as per the commitment in the Delivery Plan, and thereafter by the specific uprating mechanism for this policy which is based on Jobseekers' Allowance. We do not model the temporary doubling of the payment in summer 2020 and winter 2021.

6.6 Employment policies

We model two policies from the Delivery Plan which aim to increase income from employment, namely the Employability Offer to Parents and the Social Innovation Partnership. Although these policies may have an impact in 2023/24, we only model their cumulative impacts up to and including 2025/26. The modelled outcomes are taken to be additional (i.e. over and above those which would have occurred in the absence of the policy, for example due to the natural churn of the labour market) and sustained (i.e. excluding cases in which employment status or earnings only change temporarily).

Table 5.1 outlines the number of parents which we target in our model to experience outcomes by 2025/26, along with the indicative costs. Note that the numbers of parents which we model to experience outcomes are somewhat lower than these targets. This is because we use survey data, in which each record is weighted to represent multiple individuals. We therefore select parents iteratively until the point at which selecting any additional parents would cause the total, weighted number of selected parents to exceed these targets. Note also that these outcomes are lower than the outcomes presented elsewhere in the TCPDP. This is because the numbers presented here reflect the outcomes that could be achieved up to and including

³⁰ <https://www.gov.scot/publications/scottish-local-government-finance-statistics-slgfs-2019-20-workbooks/>

2025/26, as opposed to the ultimate potential outcomes. The modelling does not include the stretch aim of moving 12,000 parents into sustained employment.

Table 5.1: Target numbers of parents to experience outcomes by 2025/26

	Employability Offer to Parents	Social Innovation Partnership	Total
Move into work	6,225	610	6,835
Increase earnings	2,160	-	2,160
Cost	£455,640,000	£46,250,000	£501,890,000

For the **Employability Offer to Parents**, the numbers of parents modelled to experience outcomes are based on the policy reaching an anticipated 86,000 parents by 2025/26, with 51,600 supported through out-of-work support and 34,400 through in-work support. Conversion rates of 20% and 10% from reach to sustained outcomes are then applied to out-of-work and in-work participants respectively, reflecting possible improvements over the conversion rates of 8-16% observed in Fair Start Scotland for out-of-work participants and the conversion rate of 6% implied in the Work Programme Evaluation for in-work participants.³¹³² A lag of one year (for both in and out of work support) and an attrition rate of 1 percentage point per year (for out of work outcomes only) is also assumed. These are assumptions, and the rate at which the outcomes are achieved, or the period over which they are realised, may vary. Furthermore, the impacts as they appear in the FRS will depend on which of the parents who move into employment are sampled and at what point throughout the year.

We model movements into employment through the Employability Offer to Parents by first running a logit regression on the input data to predict employment status, with the data subsetted to individuals in the UK who are of working age and are not students, retired, self-employed, or receiving Carers Allowance or Employment Support Allowance. We then select non-employed parents in Scotland who are in poverty, are in at least one of the priority groups, and are predicted to have the highest probabilities of being employed until the target number is met. In reality, the policy may reach other parents, such as those who are not in poverty. For parents who move into employment, we allocate them the average working hours and wages of Fair Start Scotland participants between 2018 and 2020, with wages deflated to the price levels of each year of FRS data.³³ The modified input data are then run through UKMOD to ensure that changes in benefit eligibility and tax liability are taken into account. Similar methods have been used with UKMOD in the existing literature.³⁴

We perform a similar procedure to model the in-work component of the Employability Offer to Parents. First we run a linear regression at the UK level to predict (log) earnings and assume that employees with the largest differences between actual earnings and predicted earnings are most likely to experience an increase in

³¹ <https://www.gov.scot/publications/scotlands-devolved-employment-services-statistical-summary-13/>

³² <https://www.gov.uk/government/publications/the-work-programme-impact-assessment>

³³ <https://www.gov.scot/publications/economic-evaluation-fair-start-scotland/pages/6/>

³⁴ <https://www.euromod.ac.uk/sites/default/files/working-papers/em7-17.pdf>

earnings. We then select parents in Scotland with the largest differences who are earning less than the median for their occupation and industry, are in poverty, and are in at least one of the priority groups. For those selected to experience an increase in earnings, we assign them the median level of earnings for their occupation and industry. The modified input data is then run through UKMOD.

For the **Social Innovation Partnership**, numbers of parents modelled to move into employment by 2025/26 are based on analysis of project-level data and the profile of projected costs. We use an assumed conversion rate of 20%, as per the Employability Offer to Parents, and select parents to move into employment using the same method. Parents selected to move into employment through the Social Innovation Partnership are modelled to work for 15 hours per week at the Real Living Wage. We will monitor employability conversion rates alongside the many other positive outcomes anticipated from the SIP and refine modelling as required.



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Any enquiries regarding this publication should be sent to us at

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