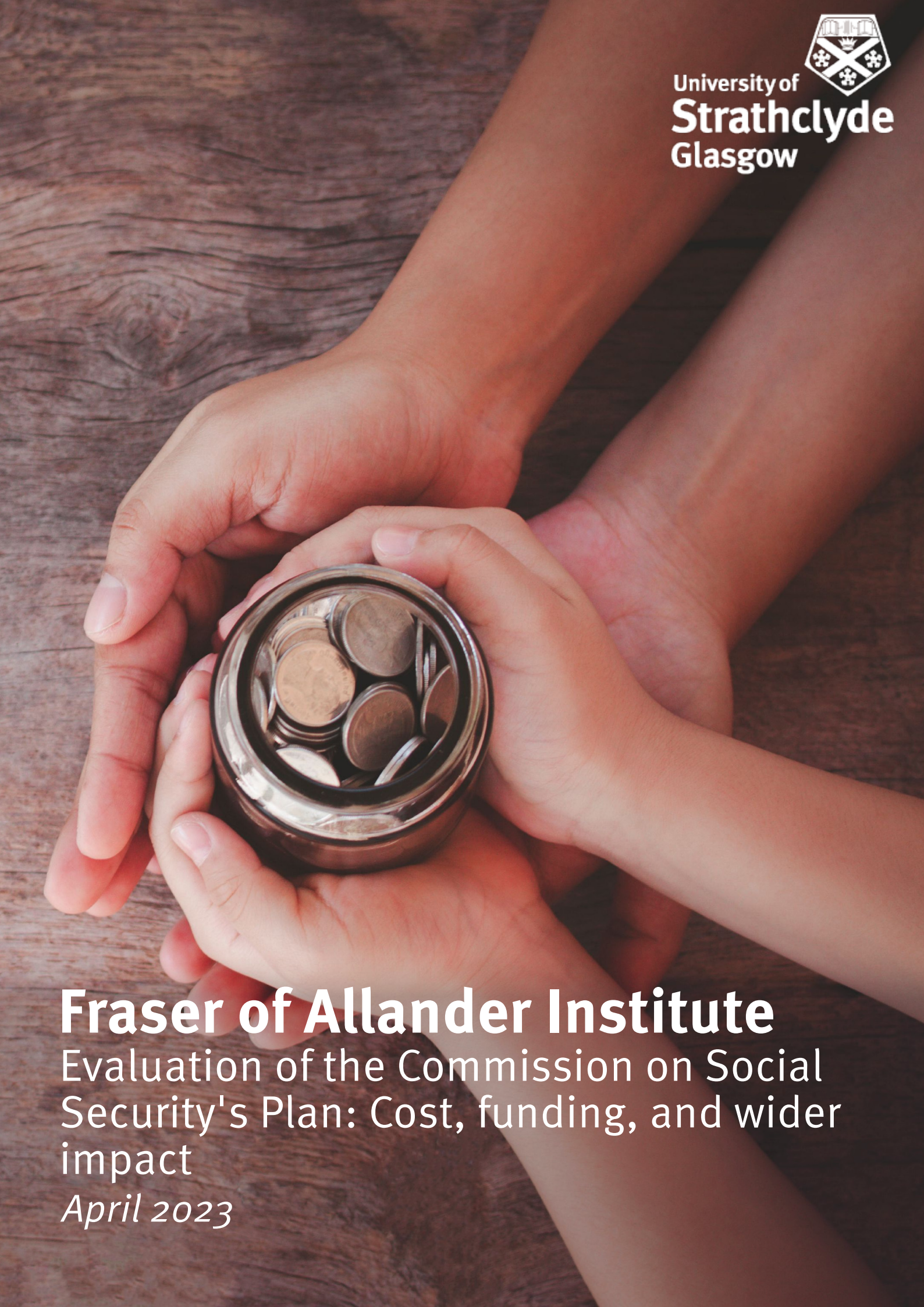

University of Strathclyde Glasgow

Fraser of Allander Institute

Evaluation of the Commission on Social Security's Plan: Cost, funding, and wider impact

April 2023

UNIVERSITY of STRATHCLYDE
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Disclaimer

The analysis in this report has been conducted by the Fraser of Allander Institute (FAI) at the University of Strathclyde with funding from Lloyds Bank Foundation for England & Wales. The FAI is a leading academic research centre focused on the Scottish economy.

The FAI is committed to providing the highest quality analytical advice and analysis. We are therefore happy to respond to requests for technical advice and analysis.

Executive Summary

Purpose

This report presents an estimate of the effects of proposals for a Guaranteed Decent Income and increased Child Benefit made by the Commission on Social Security in *The Plan for a Decent Social Security System* (Commission on Social Security 2022). Throughout the report, a base scenario representing the current social security system is compared to a reform scenario representing the proposals set out in *The Plan*. The discussion also includes the results of computable general equilibrium (CGE) modelling of the effects of *The Plan* under scenarios where the programme is unfunded, funded by an income tax, and funded by two alternative wealth taxes.

Key findings

- *The Plan* would significantly reduce the relative poverty rate by about 7 percentage points.
- The net cost of *The Plan* is about £70 billion per year. This cost could be met by an increase in taxation, which, given the scale of the revenue needed, would likely cause a significant behavioural response.
- Compared to other proposals for social security reform, *The Plan* has a cost per person lifted out of poverty of approximately £15,600 compared to about £12,200 for the JRF Essentials Guarantee and £58,600 (£51,900) for a low-cost (high-cost) Universal Basic Income evaluated for Scotland. Comparable figures for the Scottish Minimum Income Guarantee are not yet available.

Baseline analysis

The reform scenario we model is based on *The Plan*, a system of reforms to social security designed by the Commission on Social Security (2022). The reforms consist of a means-tested, individual (not household) Guaranteed Decent Income (GDI) set at 50% of the National Minimum Wage (NMW). The hourly rate of NMW will be £10.42 in 2023-24 (Low Pay Commission 2022), and all calculations in the reform scenario are based on this figure. We assume a 37.5-hour full-time equivalent.

GDI will replace Universal Credit (UC), Employment and Support Allowance (ESA), Jobseeker's Allowance (JSA), Income Support (IS), and Child and Working Tax Credits, and includes:

- A Single Householder Supplement of 19.5% of NMW;
- A work allowance of £680 per month (roughly 2.5 times the single-householder GDI rate) and a taper rate of 45%.

Reforms to Housing Benefit are not within the scope of this analysis, although this does not mean that the current system has no issues. For simplicity, we assume that Housing Benefit reverts to pre-UC roll-out (i.e., we reinstate this benefit for those who have moved onto housing support through UC). No other additional elements are included here, e.g., for housing, disability, or childcare.

GDI is made available to adults aged 18+ and non-dependent 16- and 17-year-olds, based on the current definition used in the social security system.

Additionally, Child Benefit is increased to £50 per child per week, with this amount disregarded in calculating GDI entitlement. Justifications for all monetary amounts are explained in Annex A, and the setup of the microsimulation model in UKMOD is described in Annex B.

In this initial set of results, we model the benefit changes in isolation, with no fiscal neutrality requirement (i.e., we are not assuming any change in taxation to pay for the policy). In later sections, we turn to the cumulative effects of *The Plan* plus funding it through either income or wealth taxes. This first scenario with no fiscal neutrality requirement is referred to elsewhere in this report as the 'unfunded' scenario.

The microsimulation results presented here are based on UKMOD version 3.5.1 using data from the Family Resources Survey 2019-20 (Department for Work and Pensions et al. 2021). UKMOD is maintained, developed, and managed by the Centre for Microsimulation and Policy Analysis at the Institute for Social and Economic Research, University of Essex (Richiardi et al. 2021). The results and their interpretation are the authors' sole responsibility.

Justifications for the parameters used to model *The Plan* are set out in Annex A, and a description of the model setup in UKMOD is given in Annex B. Annex C contains a further explanation of the CGE model used to estimate the macroeconomic effects of *The Plan*.

Fiscal overview

The total cost of GDI is estimated at £87.5 billion for 2023-24 (Table 1). The increase in Child Benefit costs an additional £19.6b. With the reduction in spend created by removing Universal Credit and all legacy means-tested benefits except Housing Benefit,[1] the total benefits bill is estimated to increase by £71.1b under GDI compared to the existing social security system.

Table 1: Fiscal overview, base vs. reform

Category	Base (£b)	Reform (£b)	Difference (£b)
Means-tested benefits	63.4	114.9	51.5
GDI	0	87.5	87.5
Universal Credit	50.5	0	(50.5)
Housing Benefit	4.5	18.1	13.7
Other legacy benefits	8.4	9.3	0.9
Non-means-tested benefits	57.8	77.5	19.6
Child Benefit	11.7	31.3	19.6
Total	222.6	293.7	71.1

Source: *Author calculations from UKMOD and FRS 2019-20.*

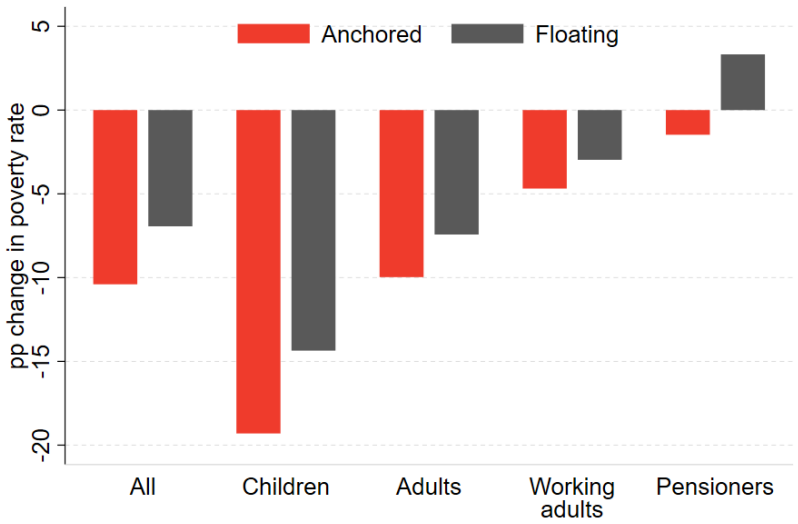
Poverty

Poverty rates fall for most groups under *The Plan*.[2] When the poverty line is held fixed, the overall poverty rate decreases by over 10 percentage points (pp) (Chart 1). Children particularly benefit from the combination of GDI plus the increase in Child Benefit, so that the child poverty rate decreases by about 19pp. Working adults and pensioners benefit less from *The Plan*, with reductions in poverty rates of about 6pp and 1.5pp, respectively. The overall rate for adults, however, decreases by over 8pp, demonstrating that working-age adults not in paid employment particularly benefit from *The Plan*.

When poverty is measured against a floating poverty line, the effects of GDI are reduced. The poverty line rises by about £29 per week reflecting a rise in median incomes due to the GDI. The pensioner poverty rate now rises by about 3pp due to a rise in the poverty line while incomes for this group do not change by much. Poverty rates for children still change the most, a decrease of over 14pp, compared to an average population decrease in poverty of nearly 7pp. Adult poverty falls by 7pp and working adult poverty by about 3pp, again highlighting that among working age adults, GDI particularly benefits those not in paid employment.

1 UKMOD also accounts for public savings from reduced Council Tax Reduction.
2 All poverty rates are measured based on a relative poverty line defined as 60% of median income after housing costs (AHC).

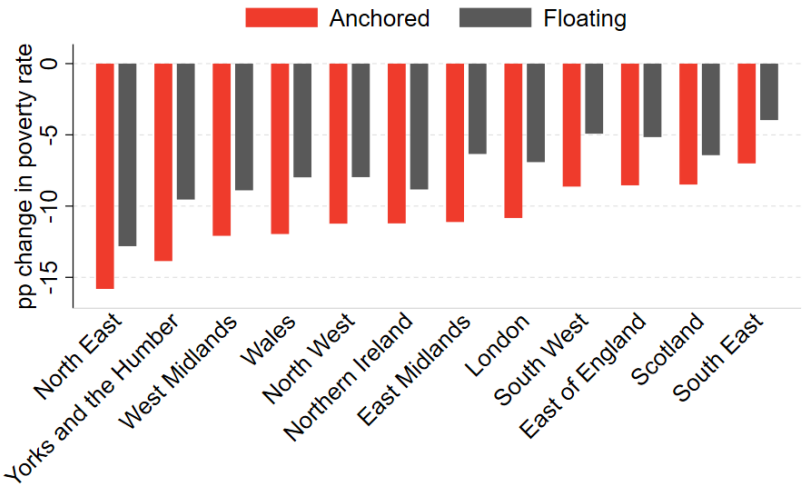
Chart 1: Change in poverty rates AHC, base vs. reform



Source: *Author calculations from UKMOD and FRS 2019-20*
Notes: *Measures are shown for the change in poverty rates when the poverty line is held fixed to the base scenario poverty line (anchored) and when it is allowed to change with disposable income in the reform scenario (floating).*

The Plan has a different effect on poverty rates in different regions (Chart 2). The North East of England and Yorkshire and the Humber have the largest reductions in poverty from GDI (by 15pp and 14pp with an anchored poverty line and 12pp and 10pp with a floating poverty line, respectively). Regions that have smaller changes in poverty rates compared to others are generally those that are wealthier and have lower poverty to begin with, such as the South East of England (a reduction of 4pp relative to a floating poverty line). The exception is Scotland, where base poverty is higher than some other regions but the existing Scottish Child Payment (£25 per week per child under 16) limits the effectiveness of a higher Child Benefit.

Chart 2: Change in overall poverty rate by region, base vs. reform



Source: *Author calculations from UKMOD and FRS 2019-20*
Notes: *Measures are shown for the change in poverty rates when the poverty line is held fixed to the base scenario poverty line (anchored) and when it is allowed to change with disposable income in the reform scenario (floating).*

Inequality

Table 2: Measures of inequality AHC, base vs. reform

	Base Gini	Reform Gini	Δ Gini	Base 80:20	Reform 80:20	Δ 80:20
Pre-tax income	0.48	0.48	0.00	11.97	9.10	-2.87
Post-tax income	0.45	0.45	0.00	10.23	7.89	-2.34
Post-tax income plus pension	0.39	0.39	0.00	7.95	5.61	-2.34
Disposable income	0.34	0.29	-0.05	6.11	4.55	-1.55

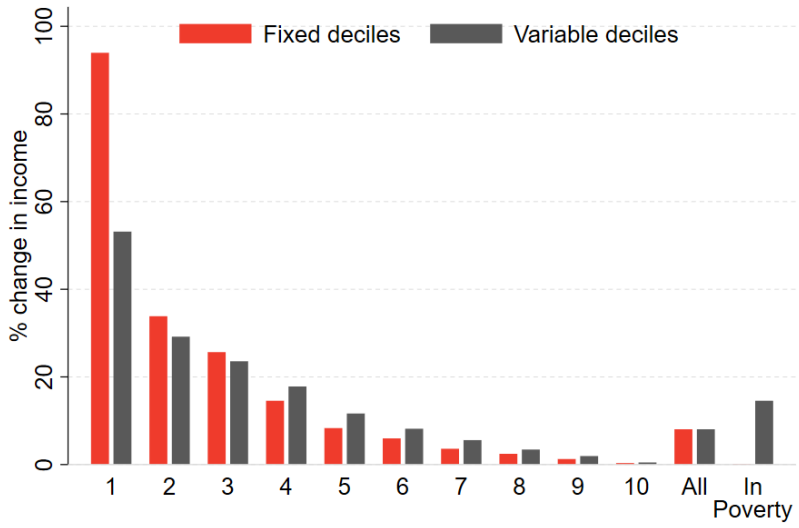
Source: *Author calculations from UKMOD and FRS 2019-20.*

The Plan generally has an equalising effect on the household income distribution (Table 2). The Gini ratio changes only when calculated for disposable income (total income including benefits less taxes and self-employed national insurance contributions) (a reduction of 0.05). The difference is more striking when inequality is measured using an 80:20 income ratio, which is smaller in the GDI scenario for all types of income. This indicates that the ratio of income at the 80th percentile to income at the 20th percentile is now smaller, in this case due to higher incomes at the lower end of the distribution.

Equivalised income distribution

Household income is higher across the income distribution under the GDI scenario compared to the base scenario (Chart 3). Differences are shown for cases in which each household's income decile is held fixed and when it is allowed to float. Under the fixed case, the differences in changes in income are more dramatic. For example, there is an increase in equivalised income of 94% for the first decile and 0.3% for the tenth decile in the fixed case compared to 53% and 0.4%, respectively, in the floating case.

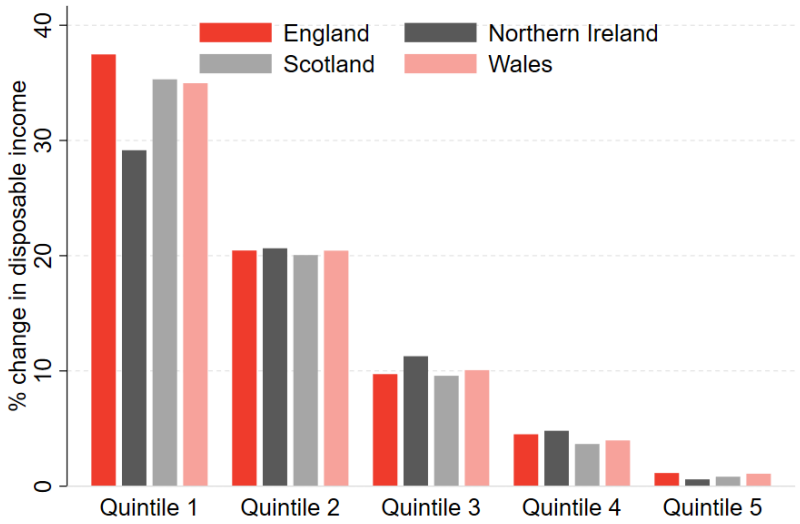
Chart 3: Changes in income by decile, base vs. reform



Source: *Author calculations from UKMOD and FRS 2019-20*
Notes: *Measures are shown for the change in income when deciles are held fixed to the household's decile in the base case (fixed) and when they are allowed to change (variable).*

The average increase in equivalised income for all households is about 8%. The income of those in poverty does not change significantly when deciles are held fixed but rises by over 14% when they are allowed to float.

Chart 4: Percentage changes in income by fixed quintile and region, base vs. reform



Source: *Author calculations from UKMOD and FRS 2019-20*
Notes: *Measures are shown for the change in income when quintiles are based on disposable income in the reform scenario (floating).*

There are some differences in changes in income by nation (Chart 4). England has the largest percentage-point increase in income in the first quintile (37pp), and Northern Ireland has the lowest (29pp). The changes are more even for the other quintiles, with about 20-21pp higher income in the second quintile and 9-11pp in the third quintile under *The Plan* compared to the base scenario in all nations.

Income gains and losses by household type

Table 3: Gainers and losers from *The Plan* (AHC)

Household type	% with ≥1% gain	% with ≥5% gain	% with ≥1% loss	% with ≥5% loss	# households
All	34.1	28.4	1.9	1.5	28,023,812
With pensioners	8.1	7.6	0.2	0.1	8,702,016
With children	85.4	65.2	2.2	1.6	7,814,218
With no earners	26.4	26.3	0.6	0.6	9,651,182
With one earner	36.0	33.8	2.9	2.5	8,093,806
With two earners	39.7	26.0	2.3	1.6	10,278,823
With 3+ children	88.8	86.7	2.5	1.8	1,220,515
With lone parents	93.8	87.4	4.1	3.4	1,816,327
With young mothers	96.8	86.1	2.4	1.6	305,428
With disabled person	52.2	50.4	0.7	0.5	3,531,626

Source: *Author calculations from UKMOD and FRS 2019-20.*

Notes: Percentages are calculated out of the number of sample households of each type. Households may be classed as one or more type.

Most households gain from the introduction of *The Plan*, but some types of households have lower proportions of households winning or higher proportions losing from the policies in *The Plan* (Table 3). For all households, over a third (34%) gain at least 1% in income from *The Plan*, and 28% gain at least

5%. 1.9% have a loss of more than 1%, and 1.5% have a loss of more than 5% of income. However, it is important to note that this is in the fiscally-neutral base scenario; depending on how *The Plan* is funded, these figures will change.

Several types of households are more likely to have an increase in disposable income of at least 1% from *The Plan* than the average for all households, particularly households with children or young mothers, lone parent households, and households with one or more disabled people.[3] A large part of these losses arise from the take-up adjustment implemented in UKMOD using estimates of the propensity to take up a given type of benefit. If the GDI take-up rate were higher than for UC, for instance, the proportion of households losing from the switch to GDI would be smaller.

A lower proportion of households with no earners gain from *The Plan* compared to the overall average, while pensioner households are both less likely to gain and less likely to lose from *The Plan*. The latter is because *The Plan* primarily targets working-age adults, so pensioner incomes do not change much between the base and reform scenarios. In contrast, a higher proportion than average of households with one earner or lone parents lose at least 1% of disposable income under *The Plan*.

It should be noted that analysis of households with one or more disabled people is limited by the information on these households available in the FRS data. Not all of these households will be captured by the survey. Furthermore, it is not always possible to tell which household member(s) has or have a disability, or how that may limit their activities. A long-term supplement to GDI may help to offset the additional costs of disability, but we are unable to model such a supplement due to the lack of information on length of benefits receipt in the FRS.

Table 4: Composition of households with disabled people

Household type	With disabled adult (%)	With disabled child (%)	With both (%)
With children	18.8	--	--
With 3+ children	2.6	30.5	28.2
With lone parents	7.3	35.4	47.7
With young mothers	1.2	2.0	7.0
Number of earners	0.5	1.3	0.5
# sample households	1670	273	71

Source: Author calculations from UKMOD and FRS 2019-20.

Notes: Percentages are calculated out of the number of sample households of each type. Households may be classed as one or more type.

Looking at households with one or more disabled people in more detail, several patterns in composition arise. 19% of households with a disabled adult have at least one child, and 3% have three or more children (Table 4). Households with a disabled adult or both a disabled adult and a disabled child have less than one earner each on average, while households with only a disabled child have more than one earner on average.

A large proportion of households with a disabled child are lone parents – 35% of households with a disabled child and nearly half of households reporting both disabled children and disabled adults. A similar pattern appears for young mums, although the proportions are much smaller (2% and 7%, respectively). As has been noted, further analysis of these households is limited by what is available in the FRS data.

3 Earlier versions of this analysis concluded that households with disabled persons lost disproportionately from *The Plan* compared to the current social security system. This was the result of a UKMOD modelling issue where households qualifying for disability benefits under Universal Credit did not always meet the criteria for receiving GDI.

Macroeconomic effects

Changes to the social security system also have macroeconomic effects through government borrowing, changes in consumer spending, and other channels. We model these effects using a computable general equilibrium (CGE) model. First, we model a scenario in which *The Plan* is unfunded. In the next section, we consider the macroeconomic effects of funding *The Plan* through an income or wealth tax.

We use a Computable General Equilibrium (CGE) mode calibrated to the 2017 UK IOT table aggregated to 18 economic sectors. The model is based on the AMOS family of CGE models with three internal institutions – household, firms, and government – in addition to the 18 economic sectors and one external actor: the Rest of the World (ROW). Transactors are assumed to have no future foresight of prices, and thus react to only the immediate changes at each discrete time period. The UK is treated as a small open economy so that ROW prices are fixed. There is assumed to be a fixed labour force with no migration. Commodity markets are assumed to be competitive. Financial flows are not explicitly modelled, and the interest rate is assumed to be exogenous.

When unfunded and holding prices fixed, *The Plan* results in a 2.4% increase in GDP per capita (Table 5). Employment rises by 2.1%. Consumption also rises, with an average increase of 6%. The largest increases in consumption are at the lowest income quintile (by 13.7%) and the smallest increase at the highest income quintile (2.8%).

Table 5: Economy-wide impacts of *The Plan*, externally funded (CGE estimates)

Measure	Unfunded, prices fixed (%)	Unfunded, prices variable (%)
GDP per capita	2.4	1.1
Consumption	6.0	5.7
Employment	2.1	0.7
Consumption		
Quintile 1	13.7	13.2
Quintile 2	10.5	10.1
Quintile 3	6.5	6.1
Quintile 4	4.5	4.3
Quintile 5	2.8	2.6

Source: *Author calculations from CGE model, UKMOD and FRS 2019-20.*

A more realistic case is a model in which prices are allowed to vary in response to other changes in the economy. In this case, most of the effects of *The Plan* are reduced from the fixed-price case. The increase in household consumption drives upward GDP per capita rises by only 1.1%, consumption by 5.7%, and employment by 0.7%. Consumption still increases at all quintiles, but by slightly less than in the fixed-price case. This effect is due to upward pressure on consumer prices, which reduces domestic consumer spending power and UK exports.

Funding *The Plan* through taxes

In this section, we turn to how funding for *The Plan* might be raised. We consider both income tax increases and the imposition of an annual wealth tax.

Income tax

The first possibility for funding *The Plan* is to increase income tax rates. We assume that any increases to income tax imposed by the UK Government lead to equivalent revenues from Scotland through the operation of the Fiscal Framework. For simplicity, we assume that the UK income tax rises are mirrored by increases to rates in Scotland rather than the Scottish Government reducing spend elsewhere in response to the block grant adjustment.[4]

Estimates from UKMOD and the Survey of Personal Incomes (SPI) suggest that income tax rates would need to rise by 8-9pp for each tax band to raise the £71.1 billion required to fund *The Plan*. Increasing by the same amount at each tax band maintains the progressivity of income tax, so that those at the upper end of the income distribution fund relatively more of *The Plan*.

However, it should be noted that these methods use static models; that is, behaviour is held fixed when analysing the effects of policies. Therefore, any behavioural responses to income tax policy changes are not modelled by UKMOD or in models using the SPI. The efficacy of raising income tax rates to pay for *The Plan* is likely to be limited to some extent by a countervailing behavioural response, as higher tax rates disincentivise work. As a result, the tax rate increases needed to pay for *The Plan* would likely need to be higher than modelled here.

The rise in income tax was also modelled using the CGE model, which considers the behavioural response of workers to the tax increases. In the model, workers bargain their wages up to negate some of the personal impact of the rises in income tax. The CGE model estimates that income tax rates would need to rise by 7.30pp to fund the GDI programs, which is in line with the UKMOD and SPI modelling if rounded up to the nearest percentage point increase.

Wealth tax

Arguments for a wealth tax over other forms of raising revenue include the fact that wealth taxes are plausibly less distortionary than, for example, income taxes; that they are more progressive in the sense that those who are able to pay more do so; and that they directly redistribute wealth in a way that addresses rising inequality (Adam and Miller 2021). On the other hand, wealth taxes may disincentivise saving if they are not well-designed.

We model the revenue that would be raised by an annual wealth tax using the Wealth and Assets Survey (WAS) 2019-20. As with estimates of income tax revenue using UKMOD and SPI, our estimates do not account for behavioural changes.

The WAS contains information on household assets, including property, physical, financial, and private pension wealth. We exclude physical wealth from consideration, since taxing this wealth is difficult in a practical sense and at the very least would require implementation of personal allowance thresholds.

4 The amount raised in Scotland from equivalent rates may differ from the assumed amount, depending on impacts on the tax base relative to England. The changes made and the implications of this for the Block Grant Adjustment would likely precipitate negotiations between the UK and Scottish Government under the principle of no detriment. It is beyond the scope of this paper to model possible outcomes.

We consider two wealth tax scenarios. The first consists of a flat annual tax on all wealth excluding physical wealth, with no personal allowance or other exclusions. This scenario is for simplicity.

The second scenario is a flat annual tax on all wealth excluding physical wealth, with a £500,000 personal allowance and excluding the value of the household's main residence.[5] This scenario is motivated by a 2020 survey finding that there was broader support for this design over other wealth tax structures (Rowlingson, Sood, and Tu 2021).[6]

Under the first scenario, taxing wealth at 0.5% annually would raise £69b, approximately the amount needed to fund *The Plan* (Table 6).[7] Adding a personal allowance and excluding primary residences in the second scenario necessitates raising the rate to 1.75%, which raises about £72b.

Table 6: Mean household tax bills and revenue by quintile from alternative wealth tax scenarios

Quintile	Scenario 1		Scenario 2	
	Mean household tax bill (£)	Revenue (£b)	Mean household tax bill (£)	Revenue (£b)
1	769.91	4.1	227.54	1.2
2	1328.55	7.0	498.51	2.6
3	2199.07	11.7	1404.08	7.5
4	2936.80	15.4	2608.41	13.7
5	5888.31	31.1	8900.86	47.0
Total (£b)	--	69.2	--	71.9

Source: *Author calculations from WAS 2019-20, UKMOD and FRS 2019-20.*

Notes: *Amounts are expressed annually. Quintiles are based on household income after housing costs.*

Because higher-income households also generally hold more wealth, the mean tax bill is significantly higher at the upper end of the income distribution than at the lower end. This is particularly true in the second scenario, where many households do not fall above the £500,000 personal allowance threshold and do not own more than one residence. There are still some households in the first quintiles that pay wealth tax (about 3% of households in this quintile), for example pensioners with relatively low income but greater wealth.

Table 7: Weekly average GDI received vs. wealth tax paid, household level

Quintile	GDI received	Wealth tax paid	
		Scenario 1	Scenario 2
1	91.76	14.81	4.38
2	86.29	25.55	9.59
3	63.09	42.29	27.00
4	35.80	56.48	50.16
5	22.32	113.24	171.17

Source: *Author calculations from WAS 2019-20, UKMOD and FRS 2019-20.*

Notes: *Income quintiles are based on the base scenario income distribution at the household level.*

The average household in the first quintile pays less than £800 (£250) per year for the tax in the first (second) scenario, which amounts to under £15 (£5) per week. In contrast, households in the first quintile gain about £70 per week under *The Plan* (Table 7).

5 Others have proposed alternative designs for a wealth tax, several of which could also be used to fund *The Plan*. See, for instance, Advani, Chamberlain, and Summers (2020) and Tax Justice UK (2023).

6 We do not consider issues relating to valuation of assets or administrative costs in these simulations. These issues are discussed in detail in Burgherr (2021), Advani, Hughson, and Tarrant (2021), and Daly, Hughson, and Loutzenhiser (2021).

7 Assuming relatively round numbers are preferred, the 0.5% tax yields revenue closest to the amount needed to fund GDI (compared to £55.4b from a 0.4% tax and £83.1b from a 0.6% tax).

Households in the fifth quintile pay nearly £6,000 (£9,000) in wealth tax per year under the first (second) scenario, or about £115 (£170) per week, but gain only £13 per week on average from *The Plan*. Under both scenarios, households in the first three income quintiles are on average net gainers from GDI, while the largest share of the revenue generated from the wealth tax comes from the highest-earning quintile.

Macroeconomic effects

We again use a CGE model to estimate the macroeconomic effects of *The Plan* plus the taxes used to fund it. If funded by income taxes, workers try to bargain their wages up to negate some of the tax rises, resulting in price increases for goods and services. These reduce GDP per capita by 5.3% and mean consumption by 2.7% leading to a decrease in employment of 5.9% (Table 8).

As is expected due to the focus of *The Plan*, consumption increases at the lower end of the income distribution while falling at the higher end (due to the tax increases outweighing the GDI income). Those in the first quintile spend 11% more, and those in the second quintile spend 5.2% more. The consumption effects are close to neutral at the third quintile, and the fourth and fifth quintiles decrease consumption by 3.8% and 10.7%, respectively.

The macroeconomic effects of *The Plan* when funded by a wealth tax are starkly different from when funded by income tax. Under the wealth tax scenarios, we find an increase in GDP of 0.11% and 0.12%, respectively. The increase in GDP is driven by an increase in aggregate household consumption of 0.31% (Scenario 1) and 0.17% (Scenario 2).

Table 8: Economy-wide impacts of *The Plan*, funded through taxes (CGE estimates)

Measure	Funded by income tax (%)	Wealth tax - Scenario 1 (%)	Wealth tax - Scenario 2 (%)
GDP per capita	-5.3	0.12	0.11
Consumption	-2.7	0.31	0.17
Employment	-5.9	0.02	-0.01
Consumption			
Quintile 1	11.0	10.35	12.41
Quintile 2	5.2	5.96	8.33
Quintile 3	0.2	1.45	2.90
Quintile 4	-3.8	-0.88	-0.48
Quintile 5	-10.7	-4.68	-7.86

Source: *Author calculations from UKMOD and FRS 2019-20.*

Notes: *Both scenarios allow prices to vary.*

Unlike the case where *The Plan* is funded by income tax, we do not have rigorous evidence of the behavioural impacts of wealth taxes that we can add to the CGE model. Therefore, the income tax and wealth tax cannot be compared on a like-for-like basis.

Thus, the only change that we can model is that resulting from a reduction in consumption of goods and services. In reality, households are likely to adapt their behaviour to offset some of the reductions in income (similar to workers in the income tax scenario). For example, they may reduce savings, increase work hours, or migrate. Advani, Hughson, and Tarrant (2021) outline the difficulties in trying to predict behavioural responses to a UK wealth tax. Incorporating behavioural change into the wealth tax scenarios would likely reduce (and possibly reverse) the positive impacts of the tax on macroeconomic measures like GDP per capita. Although we assume a wealth tax would have a less pronounced impact

on behaviour than income tax, and hence a lower adverse economic impact, we do not have the evidence which we would require to model these behavioural adjustments.

Our analysis, based on the assumption of no behavioural impacts, shows that a wealth tax leads higher-income households to reduce consumption of goods and services as anticipated due to the net reduction in their incomes. For both wealth tax scenarios there is, in essence, a fiscal transfer from higher income households through the tax to lower income households through GDI. An additional multiplier comes from the fact that lower-income households have a smaller propensity to save, meaning that the income transfers lead to an increase in total household consumption of goods and services.

In the first wealth tax scenario where the tax burden is more evenly distributed across quintiles, there is an increase in employment of 0.02%. In the case when the higher income households bear a larger share of tax liabilities, there is a reduction in employment of 0.01%. This stems from the different types of goods and services consumed, with higher income households having a higher proportion of spending on labour intensive industries.

Wider impact of *The Plan*

Decent incomes over the life course are likely to result in a variety of welfare improvements for recipients. Results from the CGE model show the expected effects of *The Plan* on the macroeconomy, but they cannot fully capture the social impact of the Commission on Social Security's proposals.

Whilst many attempts at trying to quantify such wider benefits exist, in both the academic and grey literature, to describe wider impacts of social security policies, much of this evidence is based on theoretical or hypothesised estimates of the impact and is not based on robust empirical estimates that would meet the standard, and consensus, required for conclusive quantitative estimates. That is not to say that reports outwith that standard do not produce useful insights, but they are likely to be less reliable when generalised to situations beyond the particular context in which they were originally produced. This is particularly true of reports to estimate the cost of poverty which are then often generalised to make a calculation of savings from poverty reduction; a cost associated with poverty may not disappear if poverty was reduced, or at least not in the immediate term (and indeed the authors of this type of report do not try and claim that this is the case).

In future, investment in longitudinal analysis (either based on existing studies or new study design) could help to bolster the evidence base that would allow more confidence in estimating wider impacts. However, this is resource intensive and, particularly when attempting analysis on a retrospective basis using existing longitudinal data, it can be difficult to isolate the impact of specific policies relative to other changes also going on around the same time. There are ways that policy makers can design policy to aid evaluation, such as staggered roll-out that can overcome these challenges, although this can be problematic for other reasons. However, we believe it is incumbent on policy makers to consider how policies can be evaluated to gauge wider societal impacts. Funders of social policy analysis may also wish to consider how they can facilitate investment in the skills and resources required to conduct this analysis outside of government.

In this section we outline some of the academic and grey literature that points to an associated wider impact of GDI, and where possible, we have made comments on how these estimates should be interpreted in light of our understanding of the context in which they were derived.

Work and employment

Financial incentives

One concern about a social security system like *The Plan* is that higher replacement rates (the ratio of out-of-work income to in-work income) reduce work incentives for those receiving the benefit.

Much of this stems from work on optimal tax theory (Ramsey 1927; Mirrlees 1971) but more recent work has considered the social security system within this same framework. Studies consider impacts along the intensive margin (how many hours to work) and the extensive margin (whether to work at all) and it can be difficult to design an ‘optimum’ social security system which maximises incentives for both.

For example, Saez (2002) theorized that a large ‘guaranteed income’ followed by a long taper period where that income is reduced as earnings increase is optimal on the intensive margin, but this guaranteed income increases ‘out-of-work’ income and thus dampens incentives to participate in the workforce at all.

The consensus from evidence gathered from empirical studies that look at the impact of a tax or benefit change on employment is that there is a negative response overall, but the effects are not large (Keane and Rogerson 2015). A study by Adam and Phillips (2013) at the Institute for Fiscal Studies estimated, *ex ante*, potential impacts of contemporary welfare reforms on Welsh labour market participation and hours worked. Their work was subsequently adapted and used by the Fraser of Allander Institute on a report that looked at the impact of a Universal Basic Income (Connolly et al. 2020).

Adam and Phillips produced 85 different elasticities that measure the responsiveness of labour market participation and hours worked to higher benefits for distinct groups, based on income, age and family characteristic. Across the board, studies find that women, and particularly women with children, reduce labour supply and participation more in response to greater disposable income (Blundell, Duncan and Meghir 1998; Eissa and Hoynes 2004).

Cost of working

There are significant costs to working that *The Plan* could help overcome, principally in relation to high-cost activities such as placing children in formal childcare and commuting long distances (see, for example, the Centre for Social Justice (2009) for commentary on this). These will differ from family to family, but theoretically a guaranteed decent income could provide enough compensation to make these 'costs of work' affordable. We are not aware of any studies that produce estimates on this, perhaps understandably given it will differ significantly by household.

Sanctions

International evidence across dozens of studies shows positive impacts of sanctions on employment, but negative impacts on job quality and long-term stability and increased transition to unemployment or inactivity (Pattaro et al. 2022). Evidence shows that sanctions also lead to greater hardship and increasing health problems for the individual under sanction, including greater anxiety and depression (Williams 2020), and are associated with increased mistreatment and reduced welfare for children in the household (Pattaro et al. 2022, Dwyer 2018). They may impact particularly harshly on the homeless, although there is little direct evidence available on this point (Beatty et al. 2015).

Alternative incentives besides sanctions may also have unintended consequences. Research on the UK benefits system shows that although work-search requirements effectively reduce employment benefit claims, they do not produce fiscal savings because many qualifying individuals substitute to incapacity and disability benefits (Codreanu and Waters 2023). Furthermore, they have been found to result in worse mental health outcomes for lone mothers, although other parents were not studied (Katikireddi et al. 2018).

Disabled people

Disabled people may be eligible for both additional cost benefits (e.g. Personal Independence Payment) and income replacement benefits due to barriers to work. The part of *The Plan* that this report analyses would only impact on the level of the latter. References to 'disability benefits' in this section refer to income replacement benefits that are paid to disabled people.

Overall, the evidence on the impact of levels of out-of-work income replacement benefits for disabled people can be summarised as inconclusive.

Not all disabled people will be able to work, but there may be a group of people who are disabled but not in work due to a range of barriers. For this group of people, the level of out-of-work benefits may impact on the decisions made by individuals in some circumstances.

There is some evidence of a correlation between higher benefit levels and reduced employment for income replacement disability benefit recipients (Barr et al. 2010), but there is insufficient high-quality evidence to say this conclusively. Research from Spain suggests that reductions in employment from receipt of disability benefits are driven by those with the lowest barriers to participation in paid employment (Frutos and Castello 2015).

There is also evidence that reducing income replacement disability benefits may exacerbate issues with employment (Bentley et al. 2022). Supporting this, a meta-analysis of seventeen studies from OECD countries from 1990-2018 found little evidence that stricter eligibility criteria for disability benefits increased employment, raising concerns that these criteria simply increase the rate of poverty among disabled people (McHale et al. 2020).

Health

Because it improves both the amount and stability of household income, GDI may improve health outcomes and reduce spending on health and social care.

Descriptive evidence shows a strong correlation between income and children's health, so that low-income children are more likely to have chronic and more severe conditions (Apouey and Geoffard 2013). There is a range of evidence that higher income improves children's health and cognitive and socio-behavioural development, as well as maternal mental health (Cooper and Stewart 2021). Child health improvements are small, however, and may be limited to subjective child health (Kuehnle 2014).

These effects are indirect, primarily through improvements in parents' behaviours and mental health (Propper, Riggs, and Burgess 2007). There are few, if any, studies on long-term health outcomes.

Higher income also improves health for adults. Stable income is associated with better health, while volatile income worsens health outcomes, particularly in low-income households (Akanni, Lenhart, and Morton 2022). Evidence suggests higher social security payments to pensioners also improves mental health for women, although not for men (Golberstein 2015).

GDI may also reduce costs for households by reducing their need to rely on debt for core costs. Higher debt correlates with poorer mental health and greater mental health service usage (Gunasinghe et al. 2018); this relationship reduces as debt falls (Hojman, Miranda, and Ruiz-Tagle 2016). If mental health improves when debt is reduced, there may also be savings in mental healthcare and publicly provided mental health services.

Education

GDI also has the potential to improve educational outcomes for children in recipient households, which may improve intergenerational occupational and earnings mobility and reduce inequality.

Evidence from the US suggests that greater pre-tax household income increases the likelihood that children complete high school and further education, as well as their likelihood of being employed and their earnings as an adult (Bastian and Michelmore 2018). Another US study finds that greater income stability is correlated with more consistent school attendance in the US (Gennetian et al. 2018).

The effect of income on educational attainment is supported in the UK as well, where one study shows that persistent changes to income have a larger effect (Blanden and Gregg 2004). Chevalier et al. (2013) find that permanent increases to income (like those provided by a guaranteed decent income) are more effective than one-off transfers in affecting school completion.

Preventative spend

Poverty

Poverty reduction implies significant direct savings for public expenditures that are correlated with higher poverty. A report by the Joseph Rowntree Foundation (JRF) estimates the cost of poverty at £78b in 2015, about £69b from direct public service costs and £8.7b in knock-on costs like reduction of the future tax base (Bramley et al. 2016). Using similar methods, Hirsch (2013) estimates that child poverty alone cost £29b in 2013.

These estimates are hypothetical rather than based on evidence linking past changes in poverty to changes in demand for public services.

Some of the changes are intuitively more likely to happen. For example, further reduction in public service expenditures would likely also occur if *The Plan* reduces homelessness. One study for England estimated a cost of homelessness per person of over £34,000 annually, or about £1.38b total (Pleace and Culhane 2016). Because we do not model the effects of *The Plan* on homelessness, we cannot make any direct conclusions about the relative costs and benefits of *The Plan* versus other interventions (e.g., Housing First; see Pleace 2015).

Other 'direct' savings may come from a reduced need for discretionary or crisis payments by local authorities.

However, savings in areas such as health spending may not occur in the short-term given that health conditions present now may be due to past periods spent living in poverty.

Therefore, while we cannot conclude that reducing poverty would lead to a like-for-like fall in these expenditures (in the short-term at least), it is likely that these costs would fall with demand for services as households gain income. The estimates by Bramley et al. (2016) and Hirsch (2013) are likely to be higher bounds.

The poverty premium

The money spent on *The Plan* would also reduce costs at the household level by reducing the extent to which households are exposed to the poverty premium. Researchers at the University of Bristol estimated the average poverty premium at £490 per household in 2016 (Davies and Finney 2020; Davies, Finney, and Hartfree 2016), and another study estimated between £256-£490 (Keohane and Corfe 2018). Reducing exposure to the poverty premium would also reduce geographic inequality, as the premium is higher in areas of greater deprivation (Evans and Davies 2022). In that sense, the money spent on *The Plan* would both increase household income and reduce costs of consumption.

Comparison to other proposals

The Plan has a high annual cost, but a wealth of both direct and indirect benefits including reductions in poverty and inequality and improvements in health, educational attainment, and welfare for those on low incomes.

How does *The Plan* compare to other proposed reforms to the social security system?

Table 9: Comparing *The Plan* to other proposals

	UK-wide		Scotland only		
	The Plan	**Essentials Guarantee**	*The Plan*	**Universal Basic Income (UBI)***	**IPPR Scotland Minimum Income Guarantee (MIG)****
Year	2023-24	2023-24	2023-24	2019-20	2022-23
Total net cost (£b)	71.1	22	6.3	Low: 16.4 High: 47.2	7
Amount per household (per week, £)	Single: 269.58 Couple: 386.76	Single: 120 Couple: 200	Single: 269.58 Couple: 386.76	Low: 73.10 High: 213.59 (single person, age 25-64)	Single: 182.27 Couple: 286.29
Estimated reduction in total poverty (pp)	6.9	Approx. 3 (1.8m people)	6.4	Low: 5.4 High: 17.3	--
Estimated reduction in child poverty (pp)	14.4	Approx. 4 (600k children)	12.7	Low: 9 High: 25	--
Approx. annual cost per person lifted out of poverty (£)	15,600	12,200	18,300	Low: 58,600 High: 51,900	--

Source: *Author calculations from UKMOD and FRS 2019-20.*
Notes: Percentages are calculated out of the number of sample households of each type. Households may be classed as one or more type.
* The UBI proposal models two scenarios, a "low-cost" and a "high-cost" option. We calculate a net cost based on the gross cost less the savings from benefit and state pension reductions. Amounts are also specified for those aged 0-15, 16-19, 20-24, and 65+. See Fraser of Allander (2020) for details.
** MIG estimates of cost are based on full take-up. Some additional elements are named but an amount is not specified. The report states that the MIG proposal would effectively eliminate poverty among working-age adults and children, but does not model these outcomes explicitly.

We compare *The Plan* to three other proposed systems of reforms to social security (Table 9). The JRF Essentials Guarantee analyses reforms for the whole of the UK, while a Universal Basic Income (UBI) proposal and IPPR Scotland's Minimum Income Guarantee cover only Scotland. We compare *The Plan* to these other proposals based on net cost, estimated reduction in poverty, and estimated cost per person lifted out of poverty.

The JRF Essentials Guarantee defines a list of essential goods and services and collects information on costs from focus groups to measure the minimum required (Bannister et al. 2023). In this system, UC payments would be required to meet at least the costs of these essentials, estimated at £120 per week for a single person and £200 per week for a couple.

These figures are significantly lower than those in *The Plan* (£270 and £387 per week, respectively), and as such the Essentials Guarantee is estimated to cost about £22b more than the current system compared to *The Plan*'s net cost of £71.1b. Since GDI is more generous, a greater proportion of households benefit from the reforms (e.g., 85% of households with children versus about 50% from the Essentials Guarantee). JRF estimates that the Essentials Guarantee would lift about 1.8 million people

out of poverty, including 600,000 children, whereas for GDI those figures are approximately 4.5 million and 2 million, respectively. The cost per person lifted out of poverty is higher for *The Plan* but still comparable, about £15,600 versus £12,200 for the Essentials Guarantee.

We also compare *The Plan* to two proposed reforms that apply to Scotland only. A team of researchers from the Fraser of Allander Institute at the University of Strathclyde, Manchester Metropolitan University, and the Institute for Public Policy Research (IPPR) Scotland conducted an analysis of the costs and effects of a UBI system in Scotland (Connolly et al. 2021; Fraser of Allander 2020). They estimate that for Scotland alone, UBI for 2019-20 would have a net cost £16.4b in a low-level form and £47.2b in a higher-level form.[8] In contrast, the net cost of *The Plan* in Scotland in 2023-24 is estimated to be about £6.3b.

The reductions in poverty that we model from *The Plan* for Scotland are slightly higher than those estimated for a low-cost UBI system, about 7pp overall. This is partially because the UBI analysis assumes that Child Benefit is set to zero and removes the income tax personal allowance to help pay for the system. The per-person cost of poverty reduction, however, is more than three times lower under *The Plan* than under UBI.

The Institute for Public Policy Research (IPPR) Scotland has proposed a social security system based on the Minimum Income Guarantee (MIG), which, like JRF's Essentials Guarantee, is based on public consensus regarding what is needed to maintain a minimum standard of living (Statham, Parkes, and Gunson 2021). As with UBI, this has only been modelled for Scotland. The cost is similar to *The Plan*, about £7b per year for 2022-23 beyond current spending assuming full take-up. No analysis of the effects of MIG on poverty rates or its cost-effectiveness is available for comparison at this time.

Another proposed system of reform is the alternative to Universal Credit (UC) proposed by the Trades Union Congress (TUC) (Klair 2022). The most relevant points of their proposal are:

- A reduced taper rate (from the current rate of 55%);
- An increase in the basic rate of UC to at least 80% of the national living wage (NLW);
- Additional action to ensure that recipients of disability benefits are not receiving less than they would have under legacy benefits;
- Removal of sanctions and in-work conditionality for all UC recipients and of the Minimum Income Floor (MIF) for self-employed UC recipients.

The remaining reforms primarily deal with details of the transition to UC, the complexity of the benefits claim system, and how benefits are paid, a system which would be replaced under *The Plan*. These recommendations are substantially similar to *The Plan*. The exception is that *The Plan* is based on a basic rate of 50% of the NLW, with a supplement for single householders. Our analysis of *The Plan* can therefore serve as an estimate of a lower bound for the cost of the TUC proposal.

It is also possible to compare the costs and effects of *The Plan* to a proposal aimed at reducing child poverty in Scotland (Gunson 2018). Our estimates for *The Plan* show that it reduces child poverty by about 60%, bringing the rate to just above 8%. The authors estimate a cost of £3.8b per year in additional benefits to reduce the child poverty rate to 10%, compared to a cost of £6.3b for *The Plan* in Scotland. *The Plan* is thus a more expensive way of targeting child poverty since it increases benefits to many households without children.

8 We calculate a net cost of UBI using the Fraser of Allander report, Table 2.4 (2021). We take net cost to be the gross cost less the savings from benefit and state pension reductions, but not including changes to tax policy to fund the system.

Conclusion

This report has evaluated a proposed system of reforms to the social security system. *The Plan* would replace Universal Credit with a guaranteed decent income, increase Child Benefit, and reinstate full Housing Benefit in its current form.

The Plan results in a reduction in overall relative poverty of about 7 percentage points, as well as large improvements in household incomes and inequality.

These improvements come at a high cost. We estimate a net cost of £71.1b for 2023-24.

We model several simplified tax scenarios to illustrate the magnitude of tax rates needed to meet the cost of *The Plan*. Income tax rates would have to be increased by 7.3pp on each band to raise enough. Alternatively, taxing all wealth except physical wealth at 0.5% with no personal allowance or 1.75% with a personal allowance of £500,000 would also raise about the right amount.

Computable General Equilibrium (CGE) modelling of the macroeconomy shows that funding *The Plan* through increases to income tax rates would reduce GDP per capita, consumption, and employment.

Similar modelling for the wealth tax scenarios shows small increases in GDP per capita and consumption from the combined effect of *The Plan* plus the wealth tax, as well as mixed effects on employment.

Of the three tax options modelled, we are only able to incorporate behavioural responses for income taxes. These results are therefore most accurate for income tax increases, while there is likely a mediating behavioural response to a wealth tax that is not reflected in this report. Therefore, we cannot conclude that implementing *The Plan* and funding it through a wealth tax would have categorically positive effects.

Of course, these estimates do not include the value of wider benefits arising from giving households a guaranteed decent income. These benefits are extremely difficult to value, but likely include gains in health, education, welfare, and life satisfaction, as well as decreases to demand for public spending on poverty and other failures of the social security system.

The Plan compares favourably to other proposed reforms to the social security system in terms of outcomes like poverty reduction. The cost of poverty reduction per person lifted out of poverty is approximately £15,700 per year for *The Plan*, compared to about £12,200 for JRF's Essentials Guarantee and £139,000 (£87,000) for a low-cost (high-cost) Universal Basic Income evaluated for Scotland. A comparison figure for the Scottish Minimum Income Guarantee is not yet available.

However, it is difficult to compare proposals on a like-for-like basis given that most do not model ways of funding the suggested reforms or the macroeconomic impact. This report highlights the need for such modelling where possible when evaluating the effects of reforms to social security so that the feasibility of such reforms can be properly assessed.

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Annex A: Motivation for amounts in *The Plan*

The Plan as published by the Commission on Social Security (2022a) has set amounts for each element, but these amounts are to be adjusted over time. The scenarios analysed in this report are based on updated amounts for *The Plan*. This annex describes how these amounts were calculated and links to base data where possible.

GDI amounts

The primary base for the monetary amounts in *The Plan* is the national minimum wage (NMW), which is specified to apply to all ages. The figures published in the original Plan in 2022 were based on an NMW of £8.72 (the case for 2019-20). We update the NMW to £10.42 for 2023-24 as announced in the Autumn Budget in November 2022 (HM Treasury 2022). This figure is based on recommendations from the Low Pay Commission (2022), which publishes updated recommendations at least once a year. The original calculation in *The Plan* is intended to meet the standards set by the Joseph Rowntree Foundation's Minimum Income Standard (MIS) (Davis et al. 2022).

Both *The Plan* and our analysis assume full-time work at 37.5 hours per week. Therefore, the GDI amount of 50% of weekly income for someone earning the NMW is equivalent to £193.38. The single-householder supplement is an additional 19.5% of the weekly GDI amount, or £76.20. This compares to amounts of £163.50 and £63.77 in the original Plan, respectively.

The monthly work allowance for GDI is roughly 2.5 times the weekly GDI amount for a single householder. In 2019-20, this was £512; for 2023-24, it is about £680. The taper rate does not change over time, but remains at 45% as specified in *The Plan*.

Child Benefit

Child Benefit in the UK currently stands at £21.80 for the first child per week, plus £14.45 per week for any additional children. *The Plan* proposes an increase in Child Benefit to £50 per child, per week, with no distinction between the first and subsequent children.

The amount of Child Benefit is based on data from MIS, provided by the Centre for Research in Social Policy at Loughborough University, regarding minimum weekly budgets for the additional costs of a child. Additional costs are calculated for four age groups. The Child Benefit rate is calculated as the average of the additional costs of a child across the different age groups and then split in half, recognising responsibility to support children that is shared between parents and government. In further years, this amount can be updated according to subsequent MIS calculations.

Annex B: UKMOD setup

This section goes over the setup of analysis of *The Plan* in UKMOD. We include screenshots to enable replication of and building on our results.

Parameters

First, we set the main parameters for *The Plan*, consisting of set amounts for GDI and updating the amount of Child Benefit. These parameters are added to UKMOD in the ConstDef_uk section near the top of the spine.

Chart B1: GDI parameters in UKMOD

	Policy	...	UK_2023	UK_2023_GDI_adj	Comment
3.19	fx DefConst		n/a	on	Define constants: Decent Guaranteed Income (main)
3.19.1	$DGImain		n/a	195.38#w	DGI main payment (50% NMW)
3.19.2	$DGIsingle		n/a	76.20#w	DGI single householder payment (19.5% NMW)
3.19.3	$DGIworkallowance		n/a	680#m	DGI work allowance (About 2.5 times single-householder total GDI payment per month)
3.19.4	$DGItaper	1	n/a	0.45	DGI withdrawal rate (45%)

Notes: *Explanations of monetary amounts can be found in Annex A.*

The main GDI amount and the single-householder supplement are specified as weekly amounts, and the work allowance is expressed monthly (Chart B1). The taper rate is set at 45%.

Chart B2: Child Benefit parameters in UKMOD

	Policy	...	UK_2023	UK_2023_GDI_adj	Comment
3.4	fx DefConst		on	on	Define constants: income tax
3.5	fx DefConst		on	on	Define constants: NICs
3.6	fx DefConst		on	on	Define constants: Non-means-tested benefits
3.6.1	$CBFirst		21.85#w	50#w	Child benefit rate for the first/only child
3.6.2	$CBOther		14.45#w	50#w	Child benefit rate for the second or any other child

Notes: *Explanations of monetary amounts can be found in Annex A.*

Child Benefit is also increased to £50 for each child (Chart B2). Child Benefit is increased but the assignment mechanism stays the same, so there are no modifications made to the conditions or eligibility for the benefit.

Design of GDI policy

A new benefit is created in UKMOD to assign GDI to eligible households and add the correct amount to their benefit income. The system is added after Universal Credit (UC) and all other benefits. First, an income list is created that captures whether or not the benefit unit is eligible to receive any qualifying benefits (Chart B3). GDI will be calculated for the benefit unit if any other qualifying benefit is received by the household.

However, since the full legacy benefits assumption is applied to the GDI system, UC receipt is not evaluated. There are some households (including a number of households with disabled persons) on UC that are not modelled as receiving legacy benefits in UKMOD, so we also include the disability

criteria from UC as qualifying criteria to receive GDI. If anyone in the household is identified as having a disability, the household is evaluated for GDI, although the work allowance and taper rate still apply.

Adults (and non-dependent 16- and 17-year-olds) in the qualifying benefit unit then receive the main GDI amount. Single adults receive a single-householder supplement. The disability supplement is not defined at the baseline, but anyone in a qualifying benefit unit with a disability that prevents them from working or that severely impacts daily activities qualifies to receive the amount set by the disability parameter.

Chart B3: GDI policy setup in UKMOD

bsagi_uk		off	on	BEN: Guaranteed Decent Income
fx Deffl		n/a	on	
Name		n/a	il_bsagi	Creates income list for the benefit eligibility condition
bfamt_s		n/a	+	CTC (Child tax credit)
bwkmt_s		n/a	+	WTC (Working tax credit)
bsa_s		n/a	+	IS
bunmt_s		n/a	+	JSA IB
bsadi_s		n/a	+	ESA IB
bsauc_s		n/a	+	UC
fx Elig		n/a	on	
Elig_Cond		n/a	(il_bsagi>0) | ((IsDepChild) & ((bdisc#1 > 0) | (bdmb#1 >0) | (bdiscwa#1 > 0) | (bdimbwa#1 >0))) | (!(IsDepChild) & ((ddipd#1=3) | (ddipd00#1=3))) & (((is_earns< (16*amount#2)) | (bdioa#1>0) | (bdisc#1>0) | (bdmb#1>0) | (bdiscwa#1>0) | (bdimbwa#1>0))) & (i_care#1=0)) | (!(IsDepChild) & ((((ddipd#1>0) & !(ddipd#1=3))) | ((ddipd00#1>0) & !(ddipd00#1=3))) & (((is_earns< (16*amount#2)) | (bdioa#1>0) | (bdisc#1>0) | (bdmb#1>0) | (bdiscwa#1>0) | (bdimbwa#1>0))) & (i_care#1=0))	BU receives any qualifying benefit (or qualifies for disability, for when LBA is turned off)
#_Level	1	n/a	tu_individual_uk	
#_Amount	2	n/a	$NLWrate	
TAX_UNIT		n/a	tu_bu_uk	
fx BenCalc		n/a	on	
Who_Must_Be_Elig		n/a	one	
Comp_Cond	1	n/a	IsHeadOfTu	First adult
Comp_perElig	1	n/a	$DGIMain	50% national minimum wage
Comp_Cond	2	n/a	IsPartner	Second adult
Comp_perElig	2	n/a	$DGImain	50% national minimum wage
Comp_Cond	3	n/a	!(IsWithPartner) & !IsDepChild & dag>15	Is single and not a non-dependent child (i.e not living in the same household as mother or father)
Comp_perElig	3	n/a	$DGIsingle	Single person addition
Withdraw_Base	5	n/a	yem+yse	yem = earned income. yds = disposible. yem+yse = employment plus self-employed
Withdraw_Rate	5	n/a	$DGItaper	Taper rate
Withdraw_Start	5	n/a	$DGIworkallowance	Work allowance amount
Output_Var		n/a	bsagi_s	Income list for output
TAX_UNIT		n/a	tu_bu_uk	

Notes: *The setup of GDI in The Plan is described at the beginning of this report.*

The withdrawal of GDI benefits is calculated based on earned income, with the taper rate and work allowance set as parameters. UKMOD then outputs an income list, bsagi_uk, and assigns it to the benefit unit.

Other adjustments

Several other small adjustments are required to properly model *The Plan*. First, the income from GDI (bsagi_s) should be added to other means-tested benefits (ils_benmt) for inclusion in benefit unit income (Chart B4). Second, the benefit cap (bcap_uk) should be left on for the base system but turned off for *The Plan*. Third, minimum wage figures for all age groups should be changed in line 3.3 to match those announced (or recommended) for the analysis year.

Chart B4: Means-tested benefits income list

	Policy	Grp...	UK_2023	UK_2023_GDI_adj	Comment
6.5	fx DefIl		on	on	Means-tested Benefits (ils_benmt)
6.5.1	name		ils_benmt	ils_benmt	
6.5.2	bwkmt_s		+	+	Working Tax Credit
6.5.3	bfamt_s		+	+	Child Tax Credit
6.5.4	bsa_s		+	+	Income support
6.5.5	bsadi_s		+	+	Income related ESA
6.5.6	boamt_s		+	+	Pension Credit
6.5.7	bho_s		+	+	housing benefit
6.5.8	bmu_s		+	+	Council Tax benefit
6.5.9	bunmt_s		+	+	Income based JSA
6.5.10	brd_s		-	-	Benefit cap (reducing HB)
6.5.11	bsauc_s		+	+	Universal Credit
6.5.12	brduc_s		-	-	Benefit cap (reducing UC)
6.5.13	bmamt_s		+	+	Sure Start Maternity Grant
6.5.14	bmascmt_s		+	+	Best Start Grant (Scotland)
6.5.15	bchmt_s		+	+	Scottish Child Payment
6.5.16	bsagi_s		+	+	Decent Guaranteed Income

Running UKMOD for GDI

When running the base vs. reform analysis in UKMOD, the options BTA and LBA should be checked in the View/Filter/Add-ons tab. BTA (benefit take-up adjustments) should be turned on for both the base and reform systems; LBA (full legacy benefits assumption) should be turned off for the base system and on for the reform system. The base system used in this analysis is the UK_2023 system provided by the UKMOD installation.

Annex C: The macroeconomic framework

The first step in setting up the CGE model is to develop a baseline, which provides a detailed, abstract mathematical representation of an economy at a certain point in time (in this case, 2017). The computational nature of the model captures complex economic interactions, for example, between different types of households, industries, and labour markets.

To make this model representative of the UK economy, we use up-to-date data on, among other things, the household income distribution and UK input-output (IO) tables – that is, tables of the goods and services used as input and produced as output by each industry in UK. Examples of the outputs generated by the CGE model are:

- GDP, employment, unemployment, capital stock, population, real wages, and the consumer prices index (CPI);
- Consumption across income quintiles;
- Gross output, intermediate inputs, value-added, employment and capital stocks, and prices for each sector;
- Public expenditure and tax revenues.

We then simulate a counterfactual view of the UK economy under a modified tax-benefit system by feeding into this model counterfactual data from the microsimulation. Comparing the reform view of the UK economy against the baseline shows the wider economic impact of the simulated change to the tax-benefit system. For example, increasing the generosity of a benefit might alter patterns in consumption across households, affect GDP, and/or change the level of employment.

Both the baseline and simulated scenarios provide *long-run* representations of the UK economy.[9] That is, they show the equilibrium values of key economic variables, at which it may take many years for the economy to arrive.

An illustrative example of this long-run adjustment is the path of "capital stocks" – the stock of buildings, equipment, machinery, etc. Initially these capital stocks are fixed; however, investment expenditures may change as a result of a change to the tax-benefit system, which then results in a change in investment and thus in capital stocks. This occurs in each period until a new long-run equilibrium is established in which overall investment is just sufficient to maintain existing capital stocks. As a result, any long-run effects we report are not realised immediately, but some years after the implementation of a change to the tax-benefit system.

There are two main channels through which macroeconomic effects are realised in our simulations: those on the demand side and those drive by supply-side changes. We treat both the benefits described in *The Plan* and changes to income from paying wealth taxes as demand-side impacts. These changes affect household disposable income and hence their consumption, which in turn changes firms' requirement for labour and capital. A key feature of this model is that households are disaggregated by quintile, allowing for analysis of the impacts and interactions between different groups.

Supply-side responses often reflect changes to workers' willingness to supply their labour. In our income tax simulation, we capture these individual responses through a wage bargaining process – a process by which individuals bid up their wages in response to any alterations to the tax-benefit system. These mechanisms combine to create complex feedback loops in the model.

9 The model can also identify short-run impacts and the adjustment from short- to long-run changes.

Underpinning these responses are a set of behavioural and/or economic mechanisms that give way to eventual changes in headline economic indicators like GDP, the level of consumption or the employment rate. For example, the way in which increases in benefits affect consumption is determined in part by assumptions regarding the responsiveness of consumption to changes in income. Similarly, the hiring and firing decisions of firms are determined by firms seeking to minimise the costs of production. In general, the demand for labour depends on the real wage and the cost of capital, since firms produce output using both labour and capital.

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