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Universal Basic Income is affordable and feasible: evidence from UK economic microsimulation modelling

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Abstract: Critics of Universal Basic Income (UBI) have claimed that it would be either unaffordable or inadequate. This discussion paper tests this claim by examining the distributional impacts of three UBI schemes broadly designed to provide pathways to attainment of the Minimum Income Standard (MIS). We use microsimulation of data from the Family Resources Survey to outline the static distributional impacts and costs of the schemes. Our key finding is that even the fiscally neutral starter scheme would reduce child poverty to the lowest level achieved since 1961 and achieve more than the anti-poverty interventions of the New Labour Governments from 2000. The more generous schemes would make further inroads into the UK's high levels of poverty and inequality, but at greater cost. We conclude by assessing fiscal strategies to reduce the up-front deficit of higher schemes, providing a more positive assessment of affordability and impact than critics have assumed.

Key words: Universal Basic Income; microsimulation modelling; poverty; inequality; Minimum Income Standard

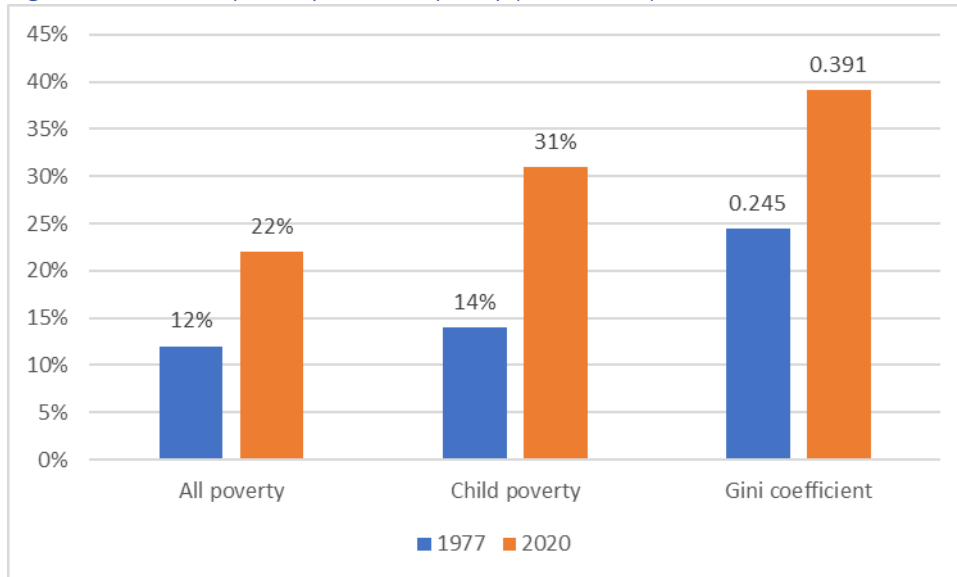
Introduction

The UK is a high poverty and high inequality country. Both have risen sharply since the post-1961 low point in the late 1970s (see Figure 1), with profound consequences for health and social outcomes, life chances and social resilience (Wilkinson & Pickett 2006; 2017, Lansley 2021, 209-31). As a result, there is now a growing debate about how to reform the system of social protection and create greater economic equality.

One of the key policies proposed is a Universal Basic Income (UBI). There are many different moral, economic and health justifications for UBI, but evidence on more complex impacts is uneven due to the absence of existing trials that are universal, unconditional and of a size sufficient to make a difference to lives within the UK (Johnson, Johnson & Webber 2020). However, the Welsh Government (Welsh Government 2022) has introduced a pilot of a basic income for Care Leavers at a level (£1,600 a month) capable of enabling individuals to live independently and securely without having to rely on employment or conditional welfare schemes. While, properly evaluated, this pilot ought significantly to enhance understanding of the effect of unconditional payments, it will not enable consistent generalisation due to its being paid to an extremely vulnerable and disadvantaged

cohort that is not representative of the UK population. Given the cluster of structural social weaknesses increasingly recognised, including by the Conservative Government (Secretary of State for Levelling Up, Housing and Communities 2022), and given the number of social, employment, health and environmental crises that call for simple, easy-to-administer policies capable of addressing multiple issues, there is genuine need among policymakers to evaluate the potential contribution of UBI schemes (Johnson et al. 2022b).

Figure 1: Trends in poverty¹ and inequality (1977-2020)



Source: Institute for Fiscal Studies (2022)

In this discussion paper, we put forward an examination of the distributional impacts of three UBI schemes broadly designed to provide pathways to attainment of the Minimum Income Standard (MIS). This is the income needed by different types of households to reach a socially acceptable minimum living standard, as determined in part by the general public (Hirsch 2019, 4). The first is a starter scheme to provide an entry payment; the second an intermediate scheme; and the third a full MIS payment to which increases in less generous schemes could be aimed at over time. We use microsimulation of data from the Family Resources Survey to outline the static distributional impacts and costs of the schemes. We then present a series of fiscal options by which to pay for them.

The UK's crisis of poverty and inequality

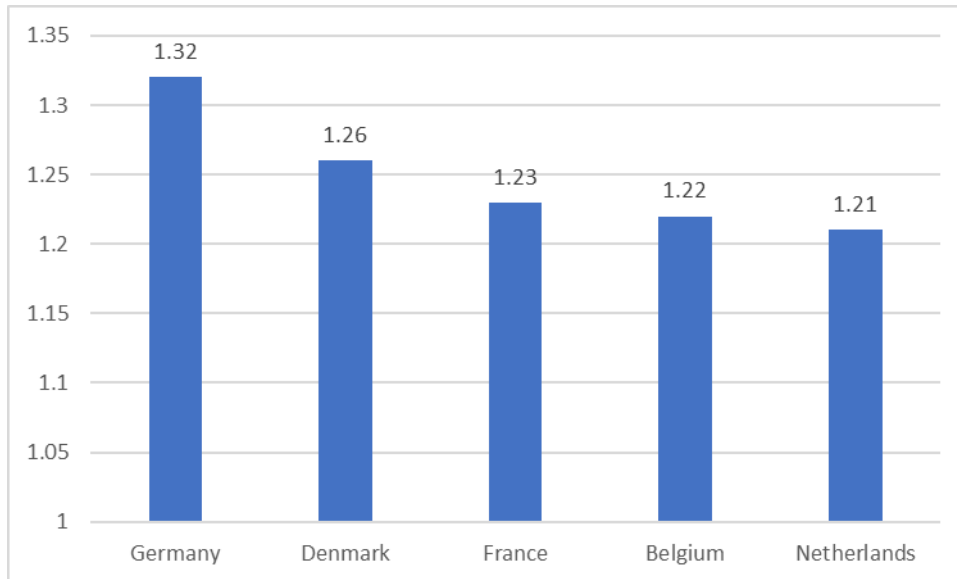
There is now a large body of evidence about the impact of today's heightened rates of inequality and poverty. Studies have shown that higher inequality has created brittle economies that are especially prone to turbulence and weak growth (Ostry, Berg & Tsangarides 2014). The UK has become a country with a built-in bias to inequality and a social support system that offers a weak level of protection. As a result, the negative impact of a series of rolling shocks – from rapid deindustrialisation, weak wage growth and the 2008 financial crisis to a decade of austerity and now COVID-19 – have been borne most heavily by low-income citizens in a way that has intensified this bias (Lansley, 2021, 209-38).

Because of the impact of inequality and the low level of benefits compared with comparable nations (OECD 2022), the poorest fifth of Britons are today much poorer than their counterparts in other,

¹ Poverty is relative poverty (measured as the proportion of individuals in households falling below 60% of median net household income) after housing costs. The Gini coefficient is a summary measure of inequality (where 0 is complete equality and 1 complete inequality). This is the Gini for household net income (after housing costs).

more equal nations. Germany's poorest fifth, for example, are a third better off on average than those in Britain (Figure 2).

Figure 2: Average incomes of poorest fifth in other countries compared with the UK, 2018, Ratio: UK=1



Source: Calculated by the authors from OECD (2018).

This lack of protection is particularly true for those of working age. Although conditional forms of welfare may have a role to play in supporting those with particular needs, today's 'hyper means-tested system' (Pt2 2020) requires complex and often intrusive and inefficient administration, imposes perverse incentives for inactivity (Johnson, Degerman & Geyer 2019; Johnson & Spring 2018) and has contributed to rising levels of personal stress (Johnson & Johnson 2019). It is ill-suited to today's economic model of extensive low pay and insecure and often intermittent work for a growing minority of the workforce. It fails to meet the principles of universalism and entitlement originally advanced by Sir William Beveridge in 1942 and implemented in the post-war reforms. Benefit levels are low compared with other rich countries (OECD 2022). The real level of child benefit has fallen by a quarter since 2010, while the main adult unemployment payment has been falling steadily as a share of average earnings (Brewer & Gardiner 2020). Working-age benefits come with an extreme level of conditionality and a greatly eroded principle of entitlement. In the middle years of the 2010s, five million sanctions were issued against benefit claimants (Webster 2018). Sanctions were suspended during lockdown but have now been reinstated and extended (Lansley 2022).

Because of these faults, there have been calls, eighty years on from his original report, for a new Beveridge plan (see e.g., The Guardian 2022). Public attitudes towards benefit recipients have become more sympathetic (British Social Attitudes 2020). The soft-right think tank, Bright Blue, has set up a Commission to review the existing social security system, while another, ResPublica, launched a 'Conservative anti-poverty month' in June 2021 (Bright Blue 2021).

An important effect of the pandemic, and then the cost-of-living crisis, has been a significant increase in state intervention to provide financial support to business and individuals, a move widely interpreted as a weakening of the anti-state, neoliberal rule book. However, the Job Retention Scheme, colloquially known as furlough, and other forms of support to employers and the self-employed were granted with low levels of conditionality and were expressly vulnerable to fraud (HM Treasury 2022a). Those payments also paid people *not* to work. As the post-pandemic cost of living crisis worsened, the Government then sought to grant support to around 80% of households through the Energy Bills Rebate (HM Treasury 2022b). While these interventions, along with the

Levelling Up agenda, are signs of a partial ideological shift, we argue that the logical conclusion of that shift goes beyond minor revisions of the existing system.

A guaranteed, non-means-tested Universal Basic Income

The transformative politics of change initiated by the Labour Government of 1945 helped to achieve peak equality and a low point for poverty in the late 1970s. This was aided by a number of equality-promoting instruments, including a more comprehensive system of social insurance, free health care, family allowances (later merged into child benefit) and a progressive tax system.

Tackling today's heightened levels of inequality and poverty requires new equality-promoting instruments. Here we test the anti-poverty and pro-equality potential of UBI. This universal and largely unconditional² payment, benefiting those in and out of work, would embrace the principle of an entitlement to a 'national minimum of civilised life' promoted by Beatrice and Sidney Webb before the First World War (Royal Commission on the Poor Laws and the Relief of Distress 1909) and the 1942 Beveridge proposals (Beveridge 1942). Depending on its level, it would replace some existing benefits, though parts of the existing system would remain, even in more generous schemes, in order to support needs associated with disability, maternity and housing (Stirling & Arnold 2019). All legal UK residents would be entitled, with legal migrants eligible after an agreed minimum number of years of residence.

While it has mostly stayed marginal to the social policy debate, interest in the idea has been rising on the UK social and political agenda in just a few years. The reasons for this include people's recognition of the impacts of poverty, inequality and insecurity in their lives (Nettle et al. 2021; Johnson, Johnson & Nettle 2022) and increasing awareness of a number of trials around the globe. In the UK, 40 citizen-led local UBI advocacy hubs have been formed and 30 local councils have declared interest in running pilots. More than 500 leading public figures called for an emergency basic income as a response to the COVID-19 crisis (The Independent 2020), the *Financial Times* has called for a national debate on its merits (Financial Times 2020) and even former critics, such as the Joseph Rowntree Foundation, are now taking a more sympathetic approach (Joseph Rowntree Foundation 2021). While UBI is backed by the Green Party, the Liberal Democrats, and, at least in principle, the SNP, it has yet to gain support from the present Westminster government and Labour's current leadership.

However, the Welsh pilot basic income scheme may have begun to shift assessment of political viability. This is the first such pilot of unconditional payments for adults in the UK and has honed interest among policymakers in the practical implications of the policy. It is being used as a pilot for universal roll out of the scheme.

One of the key criticisms of UBI is that it is unaffordable. This has been supported by Martinelli's (2017) assessment of five UBI schemes, each of which have payments significantly below those we set out in this paper, which build on levels we identified as having the potential to promote health (Johnson et al. 2021). The schemes examined by Martinelli ranged from £42.19 per week for all adults and children (total annual cost of £140bn) to £115.29 for working age adults, £197.79 for pensioners (65+ for men and 62+ for women) and £109.20 for under 18s (total annual cost of £427bn). Martinelli (2017, 74) concluded that the lower scheme has too low a payment to provide the benefits noted above compared with the current system, while a more generous scheme would be too expensive. He believes that an intermediate scheme may 'represent the worst of both

² In some formulations, there may be conditions attached based on relatively extreme conditions. For example, if someone commits serious crime and is imprisoned, it can be argued both that their needs are being met financially by the state already and that basic income must be accompanied by very basic good citizenly behaviour.

worlds: ... unable to ‘piggyback’ on existing systems and institutions, requiring brand new ones operating alongside those that already exist’ and representing ‘greater rather than reduced administrative complexity and cost’ (Martinelli 2017, 74).

We have argued elsewhere (Johnson et al. 2021) that Martinelli fails to recognise the shift in public perception of deficits following the pandemic and that his static microsimulation (which considers only up-front impact on public finances) fails to account for the range of dynamic social gains, for example, on health, which would reduce the initial gross cost of schemes. Here, although we look at static microsimulation, we set out potential means of covering the costs of schemes up-front. We have also provided elsewhere (Johnson et al. 2022a) preliminary modelling of the scale of health savings that could be achieved from the schemes based only on two conditions (anxiety and depression) among 14- to 24-year-olds.

Testing three possible schemes

Here, we put Martinelli’s claim to the test with analysis of three schemes (and an additional two variations) that stretch from an updated version of an entry-level starter scheme (Lansley & Reed 2019) up to a full Minimum Income Standard payment (MIS). This is because our model of impact indicates that meeting basic needs has the potential affect health positively and MIS is a measure of the costs needed to meet basic needs. However, we acknowledge that lower schemes may be able to impact health partially via this pathway or via other pathways. As such, and given discussions around affordability, it was important to provide options on a trajectory to MIS. We used the Landman Economics Tax-Transfer Model (TTM) to microsimulate the impacts of the schemes and compare against the present UK tax-benefit system baseline. The model (see Reed et al, 2022) was originally developed for the Institute for Public Policy Research and is also used by the Resolution Foundation and the Joseph Rowntree Foundation. We modelled: gross costings of each scheme; direct taxes, NICs and benefits; distributional impacts on income deciles; percentage of gainers and losers; impact on inequality of disposable incomes and poverty rates. The figures are corrected for non-take-up of Universal Credit and other means-tested payments (take-up of UBI is assumed to be universal, by definition). They do not include dynamic impacts in health, economic activity, etc., though all the schemes would offer improved health gains, in a way that would lower existing health inequalities, especially in the more generous schemes.

Each scheme is intended to meet the following conditions. That it would: be paid to all eligible citizens, without condition; raise the incomes of lower income groups; reduce the percentage gap between the top and bottom through fiscal reform; be high enough to make a material difference to people’s lives; raise the level of universality in the social security system, thus reducing reliance on means-testing; minimise losses for low-income households; minimise the amount of disruption involved in moving to a new system of income support; and enjoy broad public support. Affordability was a consideration, with up-front fiscally neutral options included in all formulations. However, affordability can be defined in a number of ways, with up-front borrowing during both the pandemic and cost-of-living crisis accepted by both main parties as a reasonable approach. We have tested such schemes among critical ‘red wall’ voters and have found evidence that the schemes enjoy support (Johnson, Johnson & Nettle 2022). The payments for the three schemes are shown in Table 1, and more details about payments, eligibility as well as proposed scheme-specific taxation changes are provided in the following tables. We do not address, here, how such payments would be administered as it does not have a direct impact on economic modelling. However, we have indicated elsewhere that payments should be made to individuals where possible in order, for example, to promote autonomy and avoid embedding existing power dynamics (Johnson, Johnson & Webber 2020). For under-18s, there would need to be further examination as to when young people should receive the full or partial payment, or whether it should go to the parent/guardian.

Table 1: Universal Basic Income payments by household type for scheme 1, 2, 2a, 3 and 3a

Period	Scheme 1		Scheme 2		Scheme 2a		Scheme 3		Scheme 3a	
	Week	Year	Week	Year	Week	Year	Week	Year	Week	Year
Under 18	£41	£2,132	£63	£3,276	£41	£2,132	£95	£4,940	£41	£2,132
Single adult under 65	£63	£3,276	£145	£7,540	£145	£7,540	£230	£11,960	£230	£11,960
Single adult aged 65+	£190	£9,880	£190	£9,880	£190	£9,880	£230	£11,960	£230	£11,960
Couple under 65	£126	£6,552	£290	£15,080	£290	£15,080	£460	£23,920	£460	£23,920
Couple + one child	£167	£8,684	£353	£18,356	£331	£17,212	£555	£28,860	£501	£26,052
Couple + two children	£208	£10,816	£416	£21,632	£372	£19,344	£650	£33,800	£542	£28,184
Personal income tax allowance (per year)	£750									
Basic income tax rate³	23%		40%		48.2%		40%		65%	
Higher income tax rate	43%		60%		68.2%		60%		85%	
Additional income tax rate	48%		70%		78.2%		70%		95%	

Scheme 1 is a modest ‘lower level’ scheme with payments of £41 per child and £63 per adult under 65. As illustrated in Table 2, it has been designed so that it is very close to being fiscally neutral in static terms in order to address Martinelli’s affordability and adequacy question. The scheme involves no additional calls on public finances: the cost of the extra payments would be exactly offset by the extra revenue from internal changes in tax rates and National Insurance Contributions (NICs).

Scheme 2 is an intermediate scheme set at the mid-point between the lower and upper levels. As Table 3 illustrates, other changes are the same as in Scheme 1. Scheme 2a includes the lower £41 payment to children that is consistent with a Minimum Income Standard (MIS) payment level for children and is still almost twice the 2021/22 Child Benefit payment for the first child.

Scheme 3 is a higher-level scheme with payments high enough to ensure that all families reach the MIS. Table 4 sets out funding formulation. Scheme 3a includes the lower MIS £41 payment for children.

³ Income tax rates refer to those in England, Wales and Northern Ireland. See tables 2, 3 and 4 for further information on Scotland.

Table 2: Tax-benefit formula for Scheme 1

Changes to existing benefit system	An unconditional, guaranteed UBI of £41 per child; £63 per adult between 18 and 64; £190 per adult aged 65+.
	A conditional system that assesses people's needs (disability, unemployment, housing etc.) and means (savings, wealth, etc.) to supplement UBI payments through Universal Credit and disability related benefits (Personal Independence Payment, Disability Living Allowance etc.) as well as locally assessed costs (rent, Council Tax, childcare, school dinners etc.).
	For each benefit unit ⁴ , part of the UBI is disregarded for the purposes of calculating means-tested support (Universal Credit, Pension Credit and any other legacy benefits). The value of the disregard is £20 times the number of people in the benefit unit. So for a single adult with no children the disregard is £20, whereas for a couple with 3 children it is £100. This ensures that adults and children in low-income families gain something from the introduction of the UBI.
	The payment above this disregard is counted as income for the calculation of other benefits. The effect of the disregard is to raise lower net incomes by more than without it. If the whole of the payment was counted as income for means-tested benefits, the net cost would fall and the income gains at the bottom would be lower.
	Child benefit and existing state pension are abolished.
	The existing state pension of £185.15 per week is converted into an unconditional flat rate 'citizens' pension' of £190 per week.
	With the new pension scheme abolished, eligibility for the state pension would become automatic for citizens above the state pension age, rather than conditional on an adequate contributions record as at present. This would raise the income of those with incomplete contribution records, mostly women, and the group most vulnerable to pensioner poverty.
Changes to existing tax system	Income tax personal allowance is reduced to £750 per year. Retaining a small allowance ensures that those undertaking small one-off jobs don't have to fill out a tax form.
	Current income tax higher-rate threshold stays at £50,270 gross income.
	Existing income tax rates are raised by 3p taking them, in England, to 23p (basic rate), 43p (higher) and 48p (additional).
	The employee NICs primary threshold is reduced to £20 a week (so NICs are payable on all earnings) and the rate of employee NICs is set at 13.25% for all earnings above the primary threshold. NICs for the self-employed are equalised with employees at 13.25% (currently 9%).

⁴ A benefit unit refers to a subset of a household, consisting of a single adult or a married or cohabiting couple and any dependent children.

Table 3: Tax-benefit formula for Scheme 2 and 2a

Changes to benefit system beyond Scheme 1	UBI payments of £63 per child; £145 per adult aged 18-64; £190 per adult aged 65+.
Changes to tax system beyond Scheme 1	For each member of a benefit unit, £10 of the UBI is disregarded for the purposes of calculating means-tested support.
	Employee and self-employed NICs are abolished with employer NICs retained at their current levels.
	Existing income tax rates are raised, in England, to 40p (basic), 60p (higher) and 70p (additional).
	These tax and NI changes are intended to reduce complexity, regressive impacts and disincentives to employment.
	For the fiscally neutral version (Scheme 2a), income-tax rates are raised in England, Wales and Northern Ireland to 48.2p (basic), 68.2p (higher) and 78.2p (additional) to compensate for the abolition of employee and self-employed NICs. For Scotland, the structure is slightly more complex, reflecting the differences in the current income tax system for Scotland compared to England: the lowest rate of income tax is 47.2p, rising to a top rate of 79.2p.
	The fiscally neutral scheme funds additional cost up front.

Table 4: tax-benefit formula for Scheme 3 and 3a

Changes to existing benefit system beyond Scheme 2	UBI payments of £95 per child; £230 per adult aged 18-64; £230 per adult aged 65+
	Most means-tested benefits and transfer payments (Universal Credit living costs payments, legacy benefits, Pension Credits) are eliminated except for housing costs (Universal Credit housing and childcare elements and Housing Benefit for pensioners are maintained)
	Universal Credit disability additions are maintained where the total amount paid to disabled claimants is higher than the UBI level.
	There is no UBI disregard as a result of the changes above
	Disability Living Allowance, Personal Independence Payment, Attendance Allowance are maintained (as in the other two schemes)
	Carers' Allowance, contributory Jobseeker's Allowance and contributory Employment and Support Allowance are also abolished. Any legacy benefits and tax credits equivalent to Universal Credit are also abolished (except for disability additions where the total amount paid to disabled claimants is higher than the UBI level).
	Other income tax allowances are abolished (e.g., dividends, savings, transferable allowance for married couples).
Changes to tax system beyond Scheme 2	Income tax rates are equalised for all personal forms of income (dividends etc.), in England, at 40p (basic), 60p (higher) and 70p (additional).
	In the fiscally neutral version, income-tax rates are raised in England, Wales and Northern Ireland to 65p (basic), 85p (higher) and 95p (additional) to compensate for the abolition of employee and self-employed NICs. Scottish income tax raised in similar fashion.

Inequality and costings

We designed the schemes with a series of progressive taxation reforms that yielded sufficient revenue to ensure fiscal neutrality. These reforms have the effect of creating a more progressive income tax system, including the clawing back of the payments to those on the highest income. Each scheme, for example, involves the reduction of the personal tax allowance to £750 per year. The personal allowance above this level currently costs £91bn but is of less benefit to those with earning below the threshold (currently £12,570). They are unable to take full advantage of this tax-free amount, while those who pay the higher rate effectively benefit twice compared with basic rate payers. For higher rate taxpayers, some of their income is brought into the 20% rate that would

otherwise fall in the 40% rate and some is brought into the 20% rate that would otherwise fall in the 40% rate. A reform to reduce the personal allowance would be highly progressive in its own right if the revenue savings were used to fund a flat-rate payment as even those with no income currently would benefit.

We achieved fiscal neutrality for Scheme 1 but produced both fiscally neutral and non-neutral versions of schemes 2, 2a, 3 and 3a. For our purposes, overall fiscal balance is achieved when the cost of the additional benefits are fully met by the additional revenue from tax changes. As illustrated in Table 5, the non-fiscally neutral versions of these schemes leave large budgetary deficits ranging from £76.8bn in 2a to £284.3bn for the full MIS scheme. By way of illustration, to achieve fiscal neutrality solely through reform of marginal income tax rates, an increase to 48.2p, 68.2p and 78.2p is required for Scheme 2 (Table 3) and 65p, 85p and 95p for Scheme 3 (Table 4).

Table 5: Costings of schemes (£bn)

	Baseline	Scheme 1	Scheme 2		Scheme 2a		Scheme 3		Scheme 3a	
Fiscally neutral?		Y	N	Y	N	Y	N	Y	N	Y
Expenditures:										
Universal Basic Income	0.0	274.4	464.3	464.3	448.7	448.7	677.5	677.5	639.2	639.2
Means-tested benefits	77.8	70.5	38.9	40.2	38.9	39.9	19.7	21.2	19.7	21.0
Non-means-tested benefits	133.0	25.8	25.8	25.8	25.8	25.8	22.6	22.6	22.6	22.6
Total expenditure	210.9	370.6	529.0	530.2	513.4	514.4	719.9	721.3	681.5	682.8
Income:										
income tax	197.6	303.2	501.5	595.4	501.5	579.4	500.4	786.2	500.4	747.3
Employee/self-employed NICs	78.2	132.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Employer NICs	102.3	102.3	102.3	102.3	102.3	102.3	102.3	102.3	102.3	102.3
Total income	378.1	538.1	603.8	697.7	603.8	681.7	602.8	888.5	602.8	849.7
Fiscal balance (= income-expenditure)	167.2	167.5	74.8	167.5	90.4	167.3	-117.1	167.2	-78.8	166.9
Net cost		-0.3	92.4	-0.3	76.8	-0.1	284.3	0.0	246.0	0.3

The distributional impacts of the schemes are significantly progressive. As Table 6 shows, even Scheme 1 achieves a significant average increase in income for the lowest (139.5%) and a smaller increase for the second lowest (8.2%) decile.

Table 6: Percentage point distributional impacts of schemes on benefit unit incomes by deciles

Fiscal neutrality?	Scheme 1	Scheme 2		Scheme 2a		Scheme 3		Scheme 3a	
	Y	N	Y	N	Y	N	Y	N	Y
Decile 1 (poorest)	139.5	324.2	319.5	323.5	319.5	533.6	519.9	531.8	519.9
Decile 2	8.2	22.7	19.2	22.2	19.3	50.1	39.6	49.0	39.9
Decile 3	3.8	15.1	10.4	14.6	10.7	36.3	21.7	34.9	22.3
Decile 4	4.1	14.7	9.2	13.3	6.3	34.1	17.1	30.7	16.0
Decile 5	3.2	11.5	5.6	10.1	5.9	29.5	11.4	26.2	10.5
Decile 6	3.6	12.2	5.8	10.0	3.9	31.7	11.9	26.8	9.6
Decile 7	2.5	11.6	4.3	9.4	4.5	31.4	8.7	25.8	6.3
Decile 8	-0.1	10.6	2.0	8.6	1.5	30.0	3.4	25.1	2.1
Decile 9	-2.4	6.5	-3.4	5.0	-3.2	23.0	-7.1	19.3	-6.8
Decile 10 (richest)	-7.0	-5.2	-16.8	-6.2	-15.9	5.0	-30.5	2.5	-28.2

There are several key household effects from Scheme 1 compared with the base system. Child poverty falls by more than half, from 27.3% to 12.5%. This takes the level of child poverty to below the level of 14.0% in 1977 shown in Figure 1. Working-age poverty falls by just over a quarter, from 19.4% to 14.9%, while pensioner poverty falls by 54%, from 16.7 to 7.7%, well below the lowest post-1961 rate of 14% in the early 1980s. Overall, 49.4% of benefit units gain, while 50.6% lose. Importantly, the Gini coefficient summary measure of inequality falls by 12.5%, taking it back towards the peak equality level achieved in 1977.

The gains are concentrated among the poorest and the losses among higher income groups. Middle income benefit units in deciles 4-7 gain small amounts on average. There are no losers among the poorest tenth, but 32.7% among the second decile and 49% amongst the third decile. About half of the losers lose less than 5%. The losses in these deciles are driven by income tax and NIC increases. It would be possible to avoid losses completely for benefit units in the lowest three deciles in the short run by including a package of transitional protection alongside the UBI scheme, whereby any low-income benefit unit losing out from the introduction of UBI receives a compensation payment so that it is no worse off than in the baseline scenario. In 2022-23, a transitional protection package for the bottom three deciles would cost around £2.4bn. As such, Scheme 1 shows that it is possible to design a UBI scheme that is affordable and highly progressive. The scheme achieves significant reductions in poverty through redistribution from higher income groups, reduces inequality, and would also eliminate the negative effects of the current punitive system of conditionality. In this way the scheme would increase the redistributive power of the tax-benefit system – which has been eroded over recent decades – while adding a guaranteed minimum.

As Table 7 demonstrates, schemes 2 and 3 achieve much greater reductions in means-testing (despite retention of some disability and housing payments), complexity and inequality. The schemes are significantly more redistributive, with more winners and fewer losers, even with the significant increases in marginal income tax rates in the fiscally neutral formulations. Importantly, a much larger proportion of the working population benefits, with only the top two deciles losing in fiscally neutral formulations. This leads to increased approval by voters (Johnson, Johnson & Nettle 2022). Scheme 3 almost eliminates poverty overall, with those remaining in poverty still significantly increasing their income to MIS level. Some recipients notionally remain in poverty because the relative poverty level is increased radically. In this context, the relevance of the relative poverty measure may need to be re-evaluated. This meets a robust adequacy criterion, enabling people to satisfy their needs for a minimally decent life through the payment. The payment for adults is higher than any modelled by Martinelli.

Table 7: The impact of introducing schemes 1, 2 and 3: winners and losers, changes in poverty, inequality and means-testing levels, as at 2022/3

	Changes to benefit units	Scheme 1	Scheme 2	Scheme 3
Decile 1 (poorest)	Gaining	100.0%	100.0%	100.0%
	Gaining more than 5%	99.8%	99.9%	100.0%
Decile 2 (second poorest)	Gaining	67.3%	86.1%	96.4%
	Losing	32.7%	13.9%	3.6%
	Gaining more than 5%	55.0%	71.3%	86.4%
	Losing more than 5%	18.1%	9.5%	1.8%
Impact on poverty compared with 2022/3 levels	Child poverty (base: 27.3%)	12.5%	8.1%	3.8%
	Working-age adult poverty (base: 19.4%)	14.9%	10.3%	5.7%
	Pensioner poverty (base: 16.7%) ³	7.7%	9.8%	4.0%
Inequality (Gini coefficient)	Base: 0.346	0.303	0.253	0.186
Proportion of households claiming means-tested benefits	Base: 19.9%	19.7%	15.4%	9.5%

If MIS represents a threshold for adequacy, there is at least *prima facie* reason for sympathy with Martinelli's claim of unaffordability for both schemes 2 and 3. Policies aimed at cutting inequality and poverty through stronger state redistributive measures would incur additional revenue costs, and therefore higher taxes on higher income groups.

Although only representative trials, such as those involving whole populations of towns, can provide the evidence on the scale of impact, it is important to recognise that the potential dynamic gains of UBI would mitigate these upfront costs over time, especially through the potential gains in improvements in public health. We have suggested elsewhere that hundreds of billions of pounds are lost to caring for avoidable ill-health (Johnson et al. 2021). Our work on the social gradient in health – 'whereby people who are less advantaged in terms of socioeconomic position have worse health (and shorter lives) than those who are more advantaged' (Donkin 2014) – indicates that this would provide significant health gains capable of reducing health and social care burdens on public budgets. Preliminary modelling findings focusing only on anxiety and depression among 14- to 24-year-olds indicate that tens of thousands of clinical cases could be avoided or delayed through the introduction of the schemes (Johnson et al. 2022a, 17-18) with resulting savings in the tens of millions of pounds.

It should also be noted that, given the potential social gains, there are alternative ways of meeting the up-front costs of more generous schemes, and achieving fiscal neutrality, other than through the modelled rises in income tax rates which carry risks to labour market incentives. The Demos calculator, which is based on the Landman TTM, estimates that, in 2020: charging Capital Gains Tax at current Income Tax rates would raise £10bn per year; a tax on private wealth, which currently stands at some £14.6tr (Office for National Statistics 2019), levied at 1% per year above £1m on financial wealth would raise £3bn per year; replacing Inheritance Tax with a Lifetime Receipts Tax on gifts worth more than £100,000 to the recipient (across total lifetime) would raise £8bn per year; and applying VAT to private school fees and private medical care would raise £6bn per year. Raising the rate of corporation tax by 1p raises £2.6–2.8bn (KAI Indirect Taxes, Customs and Coordination 2018). A range of further, costed possibilities are outlined in Lansley and Reed (2019).

Conclusion

These results provide a substantive response to those who claim that UBI is either unaffordable or inadequate. In fact, a modest UBI scheme along the lines of Scheme 1 would be affordable, feasible

and highly progressive. It could be implemented within the lifetime of a single parliament (or in stages over a longer time period) and, significantly, would take poverty rates for children and pensioners to below their post-1961 low points. This would be a significant historic achievement. It would constitute a pro-equality measure of a similar degree of radicalism to those adopted by the Labour Government of 1945 and would deliver more on poverty reduction than New Labour's post-2000 programme. There would also be important, if limited, long-term social gains in areas like health and criminal justice, though these would be greater with more generous payments (see Johnson et al. 2020, for theoretical discussion of this).

While significantly more costly, modelling of Scheme 3 demonstrates that it would be possible in principle to build a society where nobody falls below MIS, with inequality (as measured by the Gini coefficient) at an all-time low. In a static model, potentially politically challenging changes to the tax-benefit system would be required, including through higher marginal tax rates on incomes. However, as we have shown elsewhere, public perception may not be correlated with up-front cost, with support in red wall constituencies standing at 49% for Scheme 1, 62% for Scheme 2 and 57% for Scheme 3 (Johnson, Johnson & Nettle 2022). In part, this is because schemes 2 and 3 explicitly benefit a much broader body of voters, especially those in work. Managing these dynamics adds an additional complexity to assessment of feasibility.

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