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Exploring the Distributional and Work Incentive Effects of Plausible Illustrative Basic Income Schemes

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Abstract

Among the many concerns about universal basic income (UBI or basic income), two of the most commonly expressed are that it would have undesirable distributional consequences (by failing adequately to compensate the recipients of withdrawn benefits) and that it would erode work incentives (via higher tax levels). This paper addresses these concerns, building on our previous working paper *The Fiscal and Distributional Implications of Alternative Universal Basic Income Schemes in the UK* in two main ways:

- By exploring the distributional consequences in greater depth
- By exploring outcomes of UBI schemes in relation to static financial work incentives

We examine three schemes, argued to be the most plausible of those modelled in the previous working paper, and pitched at three levels of generosity. These are:

- UBI set at the level of the tax saving implied by personal income tax allowance (PITA)
- UBI set at the level of existing benefits
- UBI set at the level of existing benefits with premiums for individuals determined as disabled or severely disabled

This report makes a number of original contributions to the literature. In terms of the distributional consequences of the schemes modelled here, we determine the proportions of households in different income and demographic groups that would expect to gain or lose out financially. The proportions of households gaining and losing from reform is important, as positive distributional effects **on aggregate** can mask significant losses for some households, including the most vulnerable. Another major contribution is that we analyse the schemes' distributional consequences with respect to the characteristics of disability status and gender at the individual and household levels, going beyond the 'standard' distributional categories presented in existing studies.

Our main findings suggest that when we pay for a UBI by withdrawing a large number of benefits and increasing payroll taxes, large numbers of households will inevitably experience significant losses of income. More significantly, despite the generally progressive character of the schemes modelled here, these losses are not concentrated among richer groups; on the contrary, they are proportionally larger for the bottom three income quintiles. While the specific patterns of winners and losers varies with the details of each scheme, when we eliminate the mainstay of means-tested support in line with the UBI payment, women lose out on aggregate compared to men – and disabled people lose out compared to non-disabled people unless additional premiums are paid on top of the uniform UBI. These are important concerns that anyone hoping to design ethically desirable and politically feasible UBI schemes need to address.

Turning to our contribution in relation to financial work incentives, we construct indicators of 'participation tax rates' (PTRs) and 'marginal effective tax rates' (METRs) which describe financial incentives to **work at all**, and financial incentives to **progress in work or increase work effort marginally**, respectively. We also construct indicators of the proportions of households facing improved, deteriorating or unchanged financial work incentives as a result of the reforms.

We find that on average, PTRs and METRs increase as a result of all three illustrative basic income schemes, a consequence of tax increases and the elimination of the personal allowance. However, this does not mean that the schemes modelled here would necessarily have negative consequences with respect to labour market participation. We find that the lower income quintiles, workless households, and households in receipt of at least one means-tested benefit

tend to contain larger proportions of households facing improved PTRs. It is highly plausible that the effects of stronger work incentives on particularly sensitive groups may outweigh the more generalised effect of weaker work incentives over the wider population.

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Introduction

In this second IPR microsimulation report, we extend the analysis carried out in Martinelli (2017) in two significant ways:

- By exploring in greater depth the distributional consequences of a subset of basic income schemes
- By introducing a number of new outcome variables relating to financial work incentives

Specifically, in relation to the first point, we construct a new set of dummy variables corresponding to whether and the extent to which households have gained or lost out financially as a result of the reforms. The proportions of households gaining and losing from reform is important, as positive distributional/poverty alleviation effects **on aggregate** can mask significant losses within specific households. For example, households in the lowest income quintile may gain on average and poverty rates may fall across the population, while at the same time a significant proportion of disadvantaged households fall further into poverty.

As well as constructing these new outcome variables, we provide a more detailed account of how the gains and losses are distributed across different groups. Specifically, we construct a set of new categorical grouping variables that correspond to characteristics of disability status and gender at the individual and household levels[1], and report outcomes by labour market status at a higher level of disaggregation than in the previous paper[2].

In relation to the second point, we report data for participation tax rates (PTRs) (imputing part-time employment patterns for instances in which individuals do not work) and marginal effective tax rates (METRs). For both of these measures, we distinguish between primary and second earners within families, by identifying the adult with the highest level of individual income within each benefit unit. Next, we construct variables indicating whether each individual faces improved, deteriorating or unchanged financial work incentives as a result of the reforms. Again, we examine these effects in relation to a number of categorical grouping variables noted above, but also based on household-level means-testing status, after constructing a categorical variable indicating recipiency of means-tested benefit.

The paper is structured as follows. In Section 2, we review theoretical literature regarding the distributional effects in relation to sex and disability, and the consequences of basic income for work incentives and labour market participation. In doing so we provide our justification for the present study in terms of our contribution to contemporary debates. In Section 3, we outline our method and approach to the research problems previously highlighted. We describe and justify our selection of basic income schemes before also describing the operationalisation of variables constructed for the present

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1. Disability and gender are recorded in the *Family Resources Survey* at the individual level, so we construct household-level variables denoting head of household by sex and disability status, households comprising at least one disabled adult, and households comprising at least one disabled child.

2. Previously, distinction was only made between working and workless households; here, we distinguish between different combinations of full and part-time work, and between different causes of inactivity.

study. Sections 4-6 present and provide discussion of our findings. Section 4 looks at the distributional implications of the three schemes in terms of the proportions of households gaining and losing income, disaggregated by income quintile, family type and (detailed) labour market status. Section 5 presents distributional implications based on the two additional categorical grouping variables not examined in our previous working paper: sex and disability. Section 6 examines the effects on (static) financial work incentives, disaggregating effects by breadwinner status, income quintile, labour market status and means-testing status. Section 7 concludes with a summary of our key findings and further discussion of their policy implications.

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Theoretical Context and the Contribution of the Present Study

This paper examines the distributional and work incentive effects – summarised above and described in more depth below – with respect to three alternative levels of basic income analysed in our previous working paper. First, we examine the existing literature to justify and frame the contribution of the present study. The first part of this section explores the rationale for expanding our previous analysis of the distributional effects of basic income, particularly with respect to the characteristics of disability and sex, while the second part reviews the literature on basic income, work incentives and labour market participation.

Distributional Concerns with Respect to Basic Income Design

Now that basic income has achieved a level of prominence in the public debate and is being taken seriously as a realistic policy option, scrutiny of its implications has increased dramatically. This includes questions over the 'affordability' of proposals. But what does affordability really mean? As Van Parijs (2004: 18) observes, the question 'is basic income affordable?' is underspecified[1]: it depends upon the details of the scheme and what is meant by 'affordable'. In the broadest sense, affordability simply implies that expenditure on basic income must not exceed available sources of revenue[2] in the long term (although more radical proposals, e.g. Crocker (2015), view deficit financing as feasible and indeed desirable). Assuming that new taxes can be introduced, rates of existing taxes can be varied, and revenues can be reallocated from other purposes to pay for a basic income, the very concept of 'affordability' may be quite malleable. For example, Van Parijs (1991) argues in favour of a basic income set at the 'highest sustainable level', determined by

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1. He notes: "Phrased in this very general way, the question makes no sense. Let us bear in mind that it is not part of the definition of a basic income that it should be sufficient to satisfy the beneficiaries' basic needs: consistently with its definition, the level of the basic income could be more and it could be less. Nor is it part of the definition of a basic income that it should replace all other cash benefits: a universal benefit need not be a single benefit. A meaningful answer can only start being given to the question of affordability if one specifies the level at which the basic income is to be pitched and stipulates which benefits, if any, it is to replace. Under some specifications—for example, "abolish all existing benefits and redistribute the corresponding revenues in the form of an equal low benefit for all"—the answer is trivially yes. Under other specifications—for example, "keep all existing benefits and supplement them with an equal benefit for all citizens at a level sufficient for a single person to live comfortably"—the answer is obviously no. Each of these absurd extreme proposals is sometimes equated, by definition, with basic income. But neither has, to my knowledge, been proposed by anyone. Every serious proposal lies somewhere in-between, and whether some basic income proposal is affordable must therefore be assessed case by case."

2. Most practical proposals assume that a basic income would be funded through tax revenues, potential sources of which include taxes on income, wealth, consumption goods (e.g. VAT), environmental pollution (e.g. a carbon tax) and financial transactions. As Torry (2016a) notes, alternative sources of funding include dividends on publically-owned assets ('sovereign wealth funds'). A number of scholars (e.g. Farley, 2016) have recently emphasised the benefits of funding a basic income through a land value tax – which, since supply of land is fixed, would avoid distortionary effects on production; such a tax would also be highly progressive, due to the concentrated nature of land ownership. However, irrespective of these arguments, concrete 'costed' proposals assume that schemes would be funded through taxes on employment income, at least partly because tax/benefit microsimulation require comprehensive, representative data on the tax base, such as that provided through e.g. the *Family Resources Survey* for employment income; data allowing equivalent analysis of the distributional consequences of wealth taxes are not available.

practical limits on the scope for increasing tax revenues. For example, limits may arise as a result of behavioural change (such as reductions in work effort due to higher income taxes or changes in consumption habits due to taxes on luxury goods) as well as tax avoidance and evasion, the incentives for which increase in line with tax rates[3]. Turning to a more restrictive perception of affordability, accounting for concerns about public perceptions and political feasibility, Torry (2016a: 53) argues that to raise income tax rates "by more than say 3% would probably make a scheme impossible to implement".

Although the figure of 3% itself is somewhat arbitrary, the point is that the political feasibility of basic income – in relation to tax rises and **perceptions** of affordability – is crucially important. The problem for serious proponents of basic income is that – as explored in our previous working paper – there is a trade-off between the three goals of meeting need, controlling cost, and eliminating means-testing. In essence, the received wisdom among a number of commentators is that an affordable basic income would be inadequate and an adequate basic income would be unaffordable. The dilemma is partially mitigated by the possibility of retaining the existing structure of means-tested benefits, as in Torry (2016b) and Reed and Lansley (2016), which ensure minimal household losses at the point of implementation – but, as discussed in our previous working paper, would retain the attendant problems of means-testing: bureaucratic complexity and dampened work incentives.

In our previous working paper (Martinelli, 2017) we examined the distributional consequences of a large number of basic income schemes. Here, we build on that distributional analysis in two important ways. First, we construct a new set of dummy variables corresponding to whether and the extent to which households have gained or lost out financially as a result of the reforms. The proportions of households gaining and losing from reform is important, as positive distributional/poverty alleviation effects **on aggregate** can mask significant losses within specific households. For example, households in the lowest income quintile may gain on average and poverty rates may fall across the population, while at the same time a significant proportion of disadvantaged households fall further into poverty. Second, we provide a more detailed account of how the gains and losses are distributed across different groups. Specifically, we construct a set of new categorical grouping variables that correspond to characteristics of disability status and gender at the individual and household levels[4], and report outcomes by labour market status at a higher level of disaggregation than in the previous paper[5].

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3. For example, the maximum sustainable income tax yield is achieved at rates far below 100%. For the UK, Brewer et al. (2010: 91) estimate that "the government would maximize the revenue it collects by imposing an overall marginal rate on the highest earners of 56.6%"; in contrast, focusing on US data, Saez and Piketty (2013) estimate that the revenue-maximising rate could potentially be as high as 83%.

4. Disability and gender are recorded in the *Family Resources Survey* at the individual level, so we construct household-level variables denoting head of household by sex and disability status, households comprising at least one disabled adult, and households comprising at least one disabled child.

5. Previously, distinction was only made between working and workless households; here, we distinguish between different combinations of full and part-time work, and between different causes of inactivity.

Assessing the Impact of Basic Income on Disabled People

One of the most prominent criticisms of basic income schemes which replace most existing benefits with a uniform payment is that they cannot adequately cover the complex array of circumstances and needs for which social security systems are intended. As discussed in the previous working paper, prominent among such circumstances are those relating to disability[6]. It is therefore interesting to consider the extent to which losses are indeed concentrated among households characterised (in different ways) by the incidence of disability, and the extent to which we can readily mitigate against these losses.

In the main, basic income advocates dismiss the problem (that groups with additional complex needs would be disadvantaged by a system of uniform payments) by recourse to the (correct) assertion that nothing implies that basic income must replace all social security payments. As a result, it is easy to hypothesise a system of UBI being supplemented by additional payments corresponding to different categories of need.

To avoid losses among individuals in receipt of various disability benefits (including premiums and supplements to benefits not paid exclusively in relation to disability, such as Income Support or Working Tax Credit (WTC)), it is most straightforward to model the retention of the entire existing structures of disability benefits for individuals, adjusting the means-tested ones by the amount of the basic income – as in Torry (2016b), for example.

The unavoidable downside is that as a practical administrative matter, we would need to retain existing monitoring and policing systems in order to determine eligibility and prevent fraudulent claims; and yet it is precisely the elimination of such intrusive, stigmatising and bureaucratic processes that motivates much interest in basic income in the first place.

While we acknowledge that differentiating payments based on disability status implies an unavoidable layer of bureaucracy, it is still possible to consider how the latter could be minimised. It is important to note that UK disability benefits basically take two forms, depending on whether they are designed to act as income replacement resulting from incapacity – as in the case of Employment and Support Allowance (ESA) and formerly Incapacity Benefit – or whether they are designed to compensate for additional costs of disability irrespective of labour market participation – as in the case of Disability Living Allowance (DLA) and Personal Independence Payment (PIP). ESA is subject to a 'Work Capability Assessment' and requires participation in 'work-related activity' (except for the most critically sick and disabled). It comes in two forms, means-tested and contributory, both of which impose further restrictions on eligibility. In contrast, DLA and PIP are universal (categorical) benefits assessed on the basis of difficulties with mobility, or with carrying out essential day-to-day activities.

"It is therefore interesting to consider the extent to which losses are indeed concentrated among households characterised (in different ways) by the incidence of disability"

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6. Others include high and divergent housing costs and the divergent costs of raising children; in the following analysis, we address the problem of high and divergent housing costs by retaining the existing structure of housing benefits, and we address the costs of raising children by making payments to adults and children alike, setting the children's basic income at levels approximating the support accruing to families in the existing means-tested system.

The characteristics of these benefits present two justifications for our decision to model a scheme in which we eliminate ESA, leave DLA/PIP in place, and supplement disabled individuals with additional flat payments (a scheme similar to what Duffy (2016) calls 'Basic Income Plus'). Firstly, the income replacement function of ESA means it resembles other income replacement benefits in basic payment structure; aside from any premiums and supplements, it can readily be substituted for a basic income paid at a similar level of generosity. Secondly, ESA requires assessment on two levels (incapacity for work and eligibility on grounds of income or contributions history) which are at odds with the principles of basic income, where DLA/PIP only imposes one such condition (relating to assessment of need).

The upshot is that a scheme in which ESA is eliminated and additional payments for disabled people are conceptualised and administered in the manner of DLA/PIP – as compensation for additional costs, irrespective of work status – is preferable to schemes in which the means-tested, incapacity-for-work-conditional ESA is retained and adjusted by the value of basic income. The former scheme, an example of which we present here as Model C, appears to be closer to the principles of basic income which we are attempting to emulate, and would be administratively feasible with minimal changes to existing systems.

Assessing the Impact of Basic Income on Gender Equality

Another interesting consideration is the extent to which the reforms have gendered effects. Following IFS (2011a: 1), while the UK social security system is formally neutral in the sense that "tax and benefit rules treat otherwise-identical men and women equally", nevertheless "it may be the case that men lose more than women from tax and benefit changes (or vice versa) because other characteristics such as income, time use and family structure differ systematically between men and women". There is a large and growing feminist literature which interrogates the extent to which basic income is likely to mitigate or exacerbate gender inequalities. One of the core issues is whether basic income functions as an 'emancipation fee' or as 'hush money' (Robeyns, 2000). At risk of simplification, there are two alternative feminist perspectives on the way in which the welfare system should promote gender equality: those of 'equality feminism' and 'difference feminism', where "equality means treating women exactly like men, and where difference means treating women differently insofar as they differ from men" (Fraser, 1994: 594). As O'Reilly (2008) puts it, "Do we mean equality of outcomes in, for example, labour market participation and pay [or] in valuing different lifestyle preferences?" These questions, O'Reilly and others contend, have implications for the ways in and extent to which welfare policies may actually promote gender equality. Fraser (1994) concludes that public policy based on either of these contrasting positions is fatally flawed. According to McLean (2016), the central argument is that:

> A caregiver parity model (whereby income supports are directed toward caregivers specifically) would lead to marginalisation, secluding women in the private sphere and perpetuating gender essentialism; on the other hand, the universal breadwinner model (whereby income supports are tied

to paid employment) would perpetuate androcentrism by emphasising masculine life-patterns and requiring women to conform to men's standards in order to be considered equal.

Of course, UBI is not conditional on labour market or caring activities, so is, in principle, neutral on these matters; it "avoids the drawbacks of a universal breadwinner model that perpetuates androcentric assumptions about the nature of work" while simultaneously providing "a means of valuing the care work that cannot be provided via state or market" (ibid.). Because women tend to be disadvantaged in the labour market and do a disproportionate amount of part-time and low-paid work, basic income should strengthen their bargaining position relative to men, while at the same time enabling men to reduce their hours of paid work and shoulder a greater proportion of unpaid care work. However, in opposition to these arguments, feminist critics of basic income (e.g. Gheaus, 2008) observe that, given women's already weaker attachment to the labour market, an unconditional income paid to men and women alike is expected to reinforce existing gender roles, exacerbating issues relating to dependence, intra-household inequality, and labour market disadvantage. These concerns are borne out in reference to existing experimental evidence (Widerquist, 2005) and labour market models (Sommer, 2016), which predict relatively small but significant contractions in female labour supply. On balance, feminist advocates of basic income recognise such problems and acknowledge that the policy insufficiently addresses structural factors that constrain women's choices (O'Reilly, 2008), but nevertheless posit that UBI would represent an unequivocal improvement – "not because [it] favours women, but because the existing system favours men" (Parker, 1993).

While we do not address these core issues directly, we present evidence on the likely distributional and work incentive effects of basic income schemes by gender. Following Keane et al. (2014: 15), because "most household surveys... [do not] identify the living standards of male and female members of couples" intra-household inequality cannot be directly measured and can only be imputed based on assumptions about income sharing. Such analysis being beyond the scope of the present paper, we follow DWP (2015: 140) in assuming "that both partners in a couple benefit equally from the household's income, and will therefore appear at the same position in the income distribution". The implication is that "any difference in figures can only be driven by gender differences for single adults, which will themselves be diluted by the figures for couples" (ibid.)[7]. In contrast, work incentives are measures at the individual (not household) level, so we are able to differentiate these effects more comprehensively by gender and 'breadwinner' status (i.e. whether an individual in a couple is the primary or secondary earner). Furthermore, we are able to identify whether couple households are male- or female-headed (as determined by the sex of primary and secondary earners), and thus go beyond analysing the distribution of income by sex across single households.

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7. We acknowledge, following Hobson (1990: 235), that "this framework for analysing inequality leaves out the important dimension of power and dependency in the family and how it affects the distribution of resources"; this is an important and lamentable limitation of the present research.

Work Incentives

One of the most contested areas of basic income debate relates to work incentives and labour market participation. This is perhaps inevitable, given the dearth of direct empirical evidence. The theoretical evidence is also inconclusive, with several complex factors interacting to determine basic income's effect on the labour market.

At issue is the (relative) magnitude of two effects, termed 'substitution' and 'income' effects (see Gamel et al. (2006) and Gilroy et al. (2012) for more comprehensive discussions). Let us assume the economy is comprised of two 'goods': consumption and leisure. *Ceteris paribus*, a rational, utility-optimising individual would like more of both, but must instead optimise the level of each according to her preferences and subject to a 'budget constraint'. The price of each good is determined by the quantity she would be required to sacrifice in order to afford an additional unit of the other good.

- The substitution effect relates to how much leisure she must sacrifice for more income; in other words, the financial return to labour, as defined by the slope of the budget constraint. This depends on taxes on employment income as well as, crucially, the extent to which benefits paid to inactive and/or low-income individuals are withdrawn as the individual enters employment or earns more money. Indicators of these concepts include the participation and marginal effective tax rates, both of which feature in the present study; their operationalisation is discussed in Section 3.
- The income effect relates to how much leisure and income the individual chooses to enjoy as a result of being able to afford more or less of both; in other words, the income effect is the effect of a price change abstracting from the change in relative prices between consumption and leisure. If we consider the counterfactual with no social transfers, the income effect of implementing any social transfer scheme could only be to increase or leave unchanged the level of leisure that an individual would choose to enjoy. The more generous the payment – and the more desirable the bundle of consumption and leisure she can afford as a result of the transfer – the more likely it is that she would choose to reduce her labour effort.

The substitution and income effects of tax and benefit changes can work in opposite directions. Consider an increase in tax on earned income. Working would become relatively less attractive compared to not working, since the effective wage rate would have fallen; the individual might choose to reduce their work effort accordingly. On the other hand, the individual would have to work even more to consume as much as before – and, given their preferences, might choose to swap leisure for additional consumption (i.e. increase their work effort). *A priori*, we cannot know the relative size of each of these effects.

So it is in relation to basic income, to which the combined labour market response is fundamentally ambiguous: it is expected to vary according to the specifics of each UBI scheme and the counterfactual to which they are being compared; according to individual characteristics with respect to labour market attachment (i.e. bargaining position and preferences); and according to the decisions of other household members in the context of

income-sharing. Then there is the fact that revenue-neutral schemes almost inevitably imply significant increases in direct taxation, as well as reducing high participation and marginal effective tax rates for people previously subject to means-testing. Specific impacts will depend not just on changes to the benefit structure, but on the changes in tax burdens that make the former possible. Another complication relates to the role of conditions and punitive measures associated with income replacement benefits, and the extent to which an unconditional basic income lacking these features would be more susceptible to free-riding.

Reduction of Marginal Effective Tax Rates Compared to Means-Tested Safety Nets

On the one hand, basic income is held up as one of several ways in which to reduce high marginal effective tax rates – characteristic of means-tested systems – which cause poverty and unemployment traps. In this sense, the implementation of a non-withdrawable basic income partly or fully in replacement of means-tested support would tend to increase the incentives for inactive individuals to enter paid employment, since there would be a significant positive return to employment at any wage rate, for any number of hours, and of any contractual duration. It is well known that in the existing UK system individuals routinely face effective marginal tax rates in excess of 90%: as Brewer et al. (2010: 92) observe, "the amount of gross income taken in tax and withdrawn benefits when people enter work at low earnings is too high: for most groups it is close to 100% before individuals are entitled to the Working Tax Credit". Furthermore, although in-work benefits such as WTC mitigate against **unemployment traps**, they create **poverty traps** due to high withdrawal rates further up the income distribution (Brewer et al. report marginal rates of 73.4%). While the implementation of Universal Credit (UC) promises to reduce the maximum marginal effective tax rate that households should face (to 76%), some households will face weaker work incentives (IFS, 2011b); the extent to which the policy will 'make work pay' is actually quite limited, this core goal having been diluted by fiscal constraints which "risk leaving UC as little more than a vehicle for rationalising benefit administration and cutting costs to the Exchequer... UC will on balance be less generous than the tax credit system for working families" (Resolution Foundation, 2016: 3, 8).

Removal of Bureaucratic Traps

As well as facing weak financial incentives, individuals entangled in the UK's system of means-tested benefits are subject to bureaucratic traps. These occur when claimants are reluctant to enter employment due to uncertainty about how the change of circumstance will affect their entitlement to benefit due to the justifiable fear of "losing their benefits for certain periods of time" or facing delays in payment when shifting between different circumstances (Kalliomaa-Puha et al., 2016), even when the change of circumstance should result in a financial improvement. The effects of bureaucratic traps are particularly pronounced when individuals receive 'passported' benefits connected to their inactive labour market status (SSAC, 2012).

Generalised Increase in Rate of Tax on Employment

On the other hand, there are reasons to think that basic income serves to reduce financial incentives to work in several ways. These relate to requisite increases in tax rates and to the unconditional nature of basic income, which implies the removal of labour market behavioural conditions and punitive sanctions.

For one, it should be recalled that the aforementioned positive effects are in principle confined to recipients of means-tested benefits. While it is true that this is an extremely important group when addressing concerns relating to labour market participation[8], we have to consider work incentive effects for the wider population as well. For individuals not receiving means-tested benefits in the existing system, the effects seem likely to run counter to those described above. Almost all attempts at devising feasible basic income schemes incorporate significant increases in income tax rates as well as the elimination of personal allowance; this is certainly the case for the revenue-neutral schemes modelled for this working paper. It is important to consider, therefore, the extent to which these generalised tax increases might have adverse effects on labour market supply.

Meghir and Phillips (2010) provide a comprehensive overview of the large literature on taxation and labour supply, covering both theoretical economic models and empirical econometric studies. As suggested above, higher marginal rates of tax tend to lead to less work, but it is also possible that "when the income effect dominates the substitution effect at high hours of work it may increase effort" (ibid.: 207). In other words, the theoretical evidence on the effect of tax increases is ambiguous; although there is general consensus that the substitution effect tends to exceed the income effect for changes in marginal rates, the effect varies significantly across different groups. It is also worth noting that workers do not have complete flexibility to vary their hours of work; in the context of fixed hour contracts, incentives would have to change quite dramatically for them to withdraw their labour entirely, even if it were optimum for them to do so. Meghir and Phillips (ibid.: 204) summarise the voluminous empirical evidence as follows:

> Hours of work do not respond particularly strongly to the financial incentives created by tax changes for men, but they are a little more responsive for married women and lone mothers. On the other hand, the decision whether or not to take paid work at all is quite sensitive to taxation and benefits for women and mothers in particular.

Mass Withdrawal of Labour Supply?

Concerns about mass withdrawal from the labour market as a result of an unconditional basic income are usually raised in the context of two attributes: generosity and lack of conditions of eligibility. Of course, as noted previously,

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8. As discussed above, members of this group are subject to extremely high participation and marginal effective tax rates which are linked to high rates of inactivity and poverty.

there is nothing inherent in the concept of basic income that suggests that payment would cover so-called 'basic needs' any more generously than a conditional or means-tested system of minimum income would do. It is nonsensical to suggest that basic income is more likely to lead to labour market withdrawal for this reason; the level is simply not specified.

However, the contention that basic income will result in labour market withdrawal due to the income effect permitting people to enjoy more leisure whilst maintaining their levels of consumption – a function of the generosity of payments in combination with their unconditional nature – must at least be taken seriously. The lack of behavioural conditions makes 'idleness' less costly and therefore relatively more attractive. Under a conditional system, claimants undertake to participate in job search requirements and to attend sessions organised by Job Centre Plus. Even assuming that one can 'pay lip service' to these requirements with little chance of punitive action, a) doing so is technically fraud, and b) it would still require considerable effort on the part of the claimant. The lack of means-testing criteria implies that large swathes of the population who were previously required to work in order to top up their incomes through Tax Credits would no longer have to do so. Returning to the issue of generosity, it is evident that withdrawal from the labour market is likely to be more widespread the higher the level of payments.

Neoclassical models necessarily postulate that social security payments may be conditional on employment status or income level, but they are unable to incorporate some of the core features of such schemes, namely that "continued receipt of benefits is conditional on the recipient making demonstrable efforts to search for new employment, on being available for employment, and on accepting suitable job offers... These features modify the conclusions drawn with respect to the impact of unemployment benefit" (Atkinson, 1995: 106).

According to Verlaat (2016):

> Designing social assistance schemes policymakers face the challenge to provide claimants with means of subsistence while incentivising them to transition from welfare to work or other forms of societal participation. A common strategy to control the behaviour of claimants and prevent people from free-riding the scheme are performance-based benefit payments, most commonly punitive sanctions [which] aim to increase the cost of non-compliance with the welfare scheme regulations and in this way incentivise claimants to change their actions in accordance with the programme rules. Accordingly, claimants lose parts of their benefits if they do not comply with job search requirements or guidelines on skill development.

In the simplified framework employed by neoclassical economics, conditions and sanctions can only serve to promote labour market effort. But this assumes that the institutions charged with monitoring the behaviour of claimants themselves have the information and incentives to carry out the task effectively. In fact, it is plausible that, due to the manner in which conditions are devised and monitored, claimants devote time and effort to fulfil bureaucratic requirements when they would be better off engaging in job search and skills development activities of their own design. Furthermore, recent insights from behavioural economics suggests that pecuniary incentives (such

as sanctions) serve to 'crowd out' intrinsic motivation (Verlaat and De Bruijn, 2016). Not only that, but people act according to principles of reciprocation; if they feel they are being treated unfairly or with suspicion by the welfare bureaucracy, they are likely to respond in kind, reducing their effort to the bare minimum required to ensure continued receipt of benefit. On the other hand, people tend to reward trust with good behaviour (ibid.).

In summary, although in the UK the conditions attached to out-of-work benefits "have been highly effective" according to Gregg (2008), we note a number of caveats. Firstly, the empirical evidence to which Gregg refers cannot be separated from the context of poverty and unemployment traps exacerbated by high withdrawal rates. Secondly, it is unclear to which aspects of the conditionality and support regimes Gregg (ibid.) discusses we should attribute the positive outcomes he finds. Specifically, to what extent is it the punitive, compulsory elements (which conflict fundamentally with principles of basic income) or the personalised support (which is entirely consistent with an unconditional payment)? We simply don't know whether labour market withdrawal would increase or decrease if benefits were made unconditional, and active labour market policies were disentangled from the social security regime.

One final issue to note is the effect of the threat of punitive sanctions on 'job match quality'. To the extent that individuals would be unable to refuse an unsuitable job and wait for one more appropriate to their skills and interests, punitive conditions may reduce match quality. Indeed, match quality has long been a core pillar of the efficiency argument in favour of generous unemployment insurance entitlements more generally (Marimon and Zilibotti, 1999; Caliendo et al., 2013).

Basic Income as Exit Option

Some advocates, far from downplaying the extent to which basic income would result in labour market withdrawal, cite this as a distinct advantage. Guy Standing, for example, sees basic income as potentially transformative of the very nature of work itself[9]. According to Standing (2013), the concept of a 'right to work' beloved on the political left only makes sense in the context of the income security provided through an unconditional basic income. Standing's reasoning is simple. Firstly, he distinguishes 'work' and 'labour' – where the former has **use value** and the latter **exchange value** – questioning the apparently absolute prioritisation of the latter. Secondly, he points out that for 'right to work' to have any conceptual value, the term must also imply a right **not to work**; in other words, it implies that work must be freely chosen and not obligatory. This can only be the case if the individual is not compelled to participate in the labour market, which occurs only in the context of a basic income unattached to labour market obligations.

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9. As Standing has "long argued, a basic income is not primarily a means of compensating those without jobs, but is a means of providing basic security, a means of redistribution, a means of liberation and a means of gaining ecological balance and control. These are all strong reasons that do not depend on any level of unemployment" (2013: 34).

Thus, while individuals are compelled to accept employment they would not freely choose, they are subject to oppression[10] from which basic income provides an 'exit option' (Widerquist, 2013; see Birnbaum and De Wispelaere, 2016 for a critical review). It is questionable whether the possibility that the introduction of UBI could reduce labour supply is inherently bad, since it would expand the possibilities for engaging in socially-valuable activities outside of the labour market. Activities which may be under-valued from a societal perspective include caring for children and elderly relatives, engaging in voluntary and charitable service, education and skills development, and 'pre-competitive' entrepreneurial activities. Thus, provision of an exit option would serve efficiency-related objectives as well as promoting ethical goals. On the latter, Offe (2008: 14) reasons as follows:

> The undeserved gift of income enjoyed by "idle lazybones" can be justified not only because it cuts administrative expenses and their specific kind of loss of freedom that results from being ordered to accept some kind of work, but also because the alleged scandal of a (strictly individualised and universal allocation of) income without work is just the mirror image of the quite commonplace scandal of work without income performed by those who supply undeniably useful (though not market-valued) activities such as care work and voluntary services of all sorts. Thus the "positive" injustice from which non-working recipients would benefit is partly offset by an abolition of the "negative" injustice from which many non-receiving "workers" suffer today.

Wage Rates, Bargaining Power and Exploitation

Issues pertinent to the question of whether labour supply would expand or contract relate also to the **conditions** under which labour is performed. Assuming that basic income functions as an in-work benefit or wage subsidy, and that employers have some monopsony power over workers, there is a danger that basic income "would aggravate the problem of low pay and subsidise inefficient employers" (Parker, 1991: 13) leading to a proliferation of 'lousy' jobs. Such effects are the corollary of the alleviation of the high marginal effective tax rates and bureaucratic traps depicted above. Following Kenworthy (2015), there are two distinct reasons to expect downward pressure on wages:

> In the presence of the subsidy, employers might offer a lower wage than they otherwise would, and workers may be willing to accept a lower wage. Also, the subsidy may increase the supply of less-educated people seeking jobs, and without an increase in employer demand for such workers, this rise in supply is likely to push wages down.

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10. Three related forms of oppression comprise the basis of the Marxist critique of capitalist economy: exploitation, domination and alienation. Exploitation involves the (unjust) extraction of surplus labour from the worker by their employer; domination, the arbitrary capacity of an individual to interfere in the choices of another (in this case, of the employer in those of the worker); and alienation, the sense of psychological separation that the worker feels with respect to their labour and its products.

The logic of this argument as it pertains to basic income is largely based on evidence of the wage suppressive effects of in-work benefits – necessarily, given the lack of empirical evidence on basic income *per se* – and in our view, the conclusions have somewhat limited validity when applied to the latter. In-work benefits are by necessity conditional not only on a work test but also on a means test. Thus, the combination of means-testing and work conditionality that characterises in-work benefits results in two implications:

- Workers are not able to reduce their labour and continue receiving benefit payments.
- Workers are (relatively) indifferent between higher or lower pay; the state tops up their income to an acceptable level anyway in the case of the latter.

Thus theoretically speaking, means-tested in-work benefits can **only** suppress the reservation wage. By contrast, precisely because the payment of basic income is not conditional on employment or income, the effect on the reservation wage is ambiguous: it lowers the amount of employment income required to achieve an acceptable total income (exerting downwards pressure of wages) but at the same time, it permits individuals **unwilling** to work at the prevailing wage rate to enjoy a higher level of consumption regardless. Furthermore, because basic income generally implies lower marginal effective tax rates compared to in-work benefits, workers will be more sensitive to changes in wage rate, as they would keep a larger proportion of wage hikes than under a withdrawable tax credit.

As Gray (2017) argues, the wage suppression effect of the removal of poverty and unemployment traps would be pitched against the increased bargaining power of the low-paid due to the exit option; the relative magnitude of these effects depends crucially on the level of payments:

A basic income that was high enough to enable people to refuse low pay or very insecure work would probably reduce the total of hours worked and the number of jobs offered... But if the basic income was not high enough to enable people to refuse 'bad' jobs, it would have the opposite effect – low pay would be more acceptable and employers would recruit more easily at low wages than if there was no basic income. It is impossible to say, *a priori*, how much would be 'high enough' to mark the tipping point or boundary between these two effects, above which labour supply falls. Moreover, the tipping point could vary according to socioeconomic group and region.

Thus, as Van Parijs (2004) explains: basic income does indeed create "a potential for offering and accepting low-paid jobs that currently do not exist", the effect of which **may** be to increase labour supply and reduce wages. However, as he continues:

If the concern is not to keep poor people busy at all cost but rather to provide them with access to meaningful paid activity, the very unconditional nature of a basic income is a crucial advantage: it makes it possible

to spread bargaining power so as to enable (as much as is sustainable) the less advantaged to discriminate between attractive or promising and lousy jobs[11].

Thus, for Van Parijs (2004) the prospect of downward pressure on wage rates is less important than the consideration that individuals are free(r) to refuse work and therefore, would be less vulnerable to exploitation. Taking this argument one step further, Lord (2016) argues that in the presence of a basic income, labour market regulations (for example, minimum wages or legislation prohibiting zero-hour contracts) would be unnecessary and indeed, counter-productive – a conclusion that is explicitly refuted by Gray (2017).

The Reshuffle Effect

At face value at least, there appears to be some tension between the claims of advocates with respect to labour market effects. Advocates keen to stress the immediate feasibility of basic income argue that labour market effects are likely to be positive, with inactive individuals discouraged by high marginal effective tax rates and the uncertainty engendered by 'bureaucratic traps' entering paid employment. On the other hand, advocates of basic income as liberation from work stress labour market exit – or at least the threat thereof – as a positive virtue. They envisage withdrawal from the labour market as individuals seek to establish a more optimal balance of labour, work and leisure.

On closer inspection, this tension is easily reconciled (from a conceptual point of view, at least). According to Van Parijs et al. (2000), basic income is unique in fulfilling the functions of two core welfare state policies, each designed to address the problems of unemployment and inactivity in different ways: **in-work benefits**, which are designed to reduce unemployment and poverty traps and thus increase the number of people in paid employment, and **chosen-time subsidies**, which aim to compensate individuals for reducing their labour effort. This in turn results in what Groot and Van Der Veen (2000: 24) call 'the reshuffle effect': "more full-time workers will choose to work part-time, freeing up jobs for the unemployed, while at the same time these unemployed have greater incentives to accept part-time jobs".

The simple and intuitive idea is that some people do not have enough paid work while others would like to do less (in order to more effectively balance work and care responsibilities, for example, or even to spend more time at leisure); basic income helps both groups to achieve more optimal outcomes.

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11. Van Parijs suggests that **means-unconditionality** and **work-unconditionality** are logically independent but "intrinsically linked as components of a strong proposal". The policy prevents **exploitation** that might arise from the removal of poverty and unemployment traps alongside a requirement to seek and accept offers of work. If people were not only free but **obliged** to take low-paying jobs, exploitation would surely follow. At the same time, the policy prevents **exclusion** that might arise from a policy that releases people from any obligation to accept work, but sharply reduces their payments when they do so. In such circumstances, as a result of financial penalties, employment would become all but unattainable for individuals lacking marketable skills or the capacity to work significant numbers of hours, leading to a highly dualistic labour market; such individuals would have income security but their **right to work** would be circumscribed.

Contribution of our Study to Debates Around Work Incentives

The theoretical consequences of basic income for the labour market are complex, with empirical evidence offering little clarity on the core issues. Basic income would have contradictory effects on labour supply, the net effect of which would be hard to predict. Specifically, effects would be determined by variation at the level of the individual (e.g. their preferences, earning potential, and financial relationships with family members) and in the features of the basic income (especially with respect to generosity). In Gray's (2017) concise depiction, "the higher the basic income in relation to the individual's hourly wage, the greater would be the likely reduction in labour supply from people already in paid work".

We address a subset of the issues discussed in the preceding paragraphs, relating to the financial incentives faced by different groups of individuals, as measured by the participation tax rate and marginal effective tax rate. In doing so, we only address issues pertaining to the financial incentives of working (or working more) *vis-à-vis* not working (or working less). We compare these indicators under three basic income schemes with the existing system of means-tested in- and out-of-work benefits, in which work incentives are already heavily distorted in comparison to those pertaining to the free market.

We cannot say whether these effects will dominate over others that might run in the opposite direction; even if we observe improved financial returns to work compared to inactivity, we still cannot discount that the unconditional nature of basic income may nevertheless result in labour market withdrawal. Similarly, we have no clear metric of how different groups are expected to respond to variation in incentives. The purpose of our analysis is simply to provide some empirical meat around the largely theoretical bones of the basic income/labour market debate.

3

Method and Approach

As in our previous working paper (Martinelli, 2017), this analysis employs the Institute for Public Policy Research (IPPR) microsimulation model and is based on the 2014/15 version of the *Family Resources Survey*. Please refer to that paper for a more detailed methodological discussion of the microsimulation approach.

Basic Income Schemes Analysed in This Paper

For three levels of payment, we analyse what we consider to be the most plausible implementation mode (in terms of interactions with wider tax and benefit systems) modelled in the previous paper[1]. Specifically, we examine the following three schemes:

Model A

UBI set at the level of the tax saving implied by personal income tax allowance (PITA)

- Combined with the withdrawal of PITA and Child Benefit (CB)
- Taken into account in the calculation of all means-tested benefits

Model B

UBI set at the level of existing benefits

- Combined with the withdrawal of PITA, Basic State Pension (BSP), Carer's Allowance (CA), CB, Child Tax Credit (CTC), ESA, Income Support, Jobseeker's Allowance (JSA), Pension Credit (PC) and WTC
- Taken into account in the calculation of other means-tested benefits
- With income tax rates and National Insurance Contributions (NICs) set to approximate fiscal neutrality within the existing tax band structure

Model C

UBI set at the level of existing benefits with premiums for individuals determined as disabled or severely disabled

- Combined with the withdrawal of PITA, BSP, CA, CB, CTC, ESA, IS, JSA, PC and WTC
- Taken into account in the calculation of other means-tested benefits
- With income tax rates and National Insurance Contributions (NICs) set to approximate fiscal neutrality within the existing tax band structure.

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1. As in the previous paper, we disregard schemes similar to those examined in Reed and Lansley (2016) and Torry (2016b) to avoid duplication; this does not reflect any judgement about the desirability or feasibility of those schemes in comparison to the ones modelled herein.

These schemes correspond to Models 1.4, 2.5 and 3.5 respectively in our previous working paper.

Why these particular schemes? All three plausibly balance adherence to the various goals and principles motivating interest in basic income with concerns about administrative, financial and political feasibility. (Again, we are not claiming that these schemes represent the 'most successful' or 'optimum' balance of design features, and indeed we dispute whether it is possible to identify such features in an objective or apolitical manner.)

Model A reflects a stream of interest in basic income that views it as a fairly prosaic exercise in tax reform, as opposed to a large-scale reorganisation of the welfare system (e.g. Painter, 2016). The personal income tax allowance (PITA) can be viewed as a benefit accruing to everyone earning at least £11,000; converting this allowance into a universal payment "would rectify some of the current distributional anomalies of the personal allowance where those who earn the least receive less support". Of course, the reform would have fiscal implications, as analysed in our previous paper. Perhaps more importantly, questions arise about how such a change would affect work incentives, given that a number of low earners, paying zero income tax in the existing system, would pay tax at the basic rate on their first pound of income. On the other hand, by providing an income 'floor' not subject to means-testing, and reducing payments of means-tested benefits, there may be offsetting reductions in withdrawal rates. The implications for marginal effective tax rates – and in particular how different groups are affected – are uncertain and warrant further investigation.

Model B represents a straightforward attempt to simulate a basic income pitched at the level of standard income replacement benefits and benefits designed to compensate for the costs of raising children. Of the two revenue-neutral schemes modelled in the previous paper, the one we replicate here retains the existing tax band structure – under the assumption that this would represent a more administratively-straightforward reform, but also due to the more favourable (progressive) distributional consequences. As we showed in our previous paper, this scheme has some adverse implications for household poverty levels. It is worthwhile, therefore, to explore the incidence of losses across different groups in greater depth. This is done via comparison between Model B and Model C, which explicitly aims to compensate for the difference between the 'standard' levels of payment and those made to disabled individuals.

Operationalisation of Variables

Output Variables

Proportions of benefit units experiencing gains and losses of different magnitudes

As in our previous working paper, we report absolute levels of weekly equivalised disposable income and the absolute change (gain or loss) in weekly equivalised disposable income. We then use these data to construct a new

series of binary (dummy) indicators, based on whether each benefit unit has experienced an increase, a reduction, or no change in income. We construct further dummy variables taking into account the magnitude of the experienced changes – indicating incidences in which gains or losses exceed 10% and 25% of pre-reform income levels. These binary variables are easily converted into summary statistics at alternative levels of aggregation (operationalisation of which is discussed below). The result is that we are able to report the proportions of winners and losers – further distinguishing those experiencing moderate and large gains or losses – for politically-salient demographic categories.

<u>Financial work incentives</u>

Financial work incentives depend upon the "amount of income an individual receives without working, the gross wage rate an individual can command when working and the taxes and benefits payable from/to them at different levels of earnings" (IFS, 2015: 22). Following Adam et al. (2006), we distinguish between indicators of financial incentives to work at all and indicators of financial incentives to progress in work or increase work effort marginally.

In terms of the former, two common measures are the replacement rate and the participation tax rate. The replacement rate measures the ratio of 'out-of-work' income to 'in-work' income (i.e. how generous social protection is in comparison to self-provision). The participation tax rate measures the proportion of gross earnings lost through tax and/or benefit withdrawal. In this paper we focus on PTRs, defined as follows:

$$\text{PTR} = 1 - \frac{\text{Net income if individual works} - \text{Net income if individual does not work}}{\text{Gross income}}$$

With respect to the incentive to work more or progress in the labour market, the most common measure is the marginal effective tax rates, which measures the proportion of each additional unit of earned income lost to tax and/or benefit withdrawal. The METR is defined formally as follows:

$$\text{METR} = \frac{\Delta \text{ net income}}{\Delta \text{ gross income}}$$

Where Δ denotes a positive or negative change. In principle, we can calculate these measures based on either individual income or family/household

income[2]. However, because we typically assume that income is shared within households – although this assumption is itself subject to some dispute – we are more interested in how changes in individual income affect total household income. In any case, because many UK benefits are calculated in relation to the benefit unit, benefit income cannot be accurately assigned to individuals. For these reasons, we measure net income at the household level and gross income at the individual level. Thus, we are able to examine how varying an individual's earned income – while maintaining their partner's earned income at a constant level – would affect net household income. In households headed by couples, we can report individuals' work incentives based on characteristics such as their 'breadwinner' status (i.e. whether they are the primary or secondary earner within the household) and sex. We can also report averages of these individual statistics for different groups.

Participation tax rates

While it is straightforward to calculate PTRs for employed individuals based on their current wage rate, in order to calculate these for unemployed individuals, we need to make assumptions about hypothetical wage rates and working patterns. For the purposes of our analysis, if an individual is not working, we calculate their PTR on the basis of 16 hours per week paid at the national minimum wage.

Marginal effective tax rates/deduction rates

The IPPR model calculates METRs by simulating an increase in income of £1 for each individual in a benefit unit separately, maintaining other sources of income constant, and records the effect of the change on income at the household (or more accurately, benefit unit) level. The concept of a 'marginal' change in economics implies an increase or decrease of smallest possible increment of income; however, following Adam et al. (2006: 23), "such a measure can be criticised because, in practice, it is virtually impossible for individuals to vary their labour supply to the extent that their earnings change by 1p a week. In addition, rounding rules inherent in the calculation of taxes and benefit and tax credits sometimes mean that EMTRs calculated for a 1 penny change are atypical and uninformative about the slope evaluated over a slightly larger margin". The operationalisation of a marginal change is also important because some benefit rules permit small amounts of income to be disregarded, followed by subsequently high withdrawal rates on earned

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2. As noted by Adam et al. (2006: 7): "this choice will affect our impression of the strength of the financial reward to work. For example, a low-earning person living with a high-earning partner may have no independent income if he or she does not work, and therefore would have a very low replacement rate – or a strong financial incentive to work – when calculated using individual income. However, the same individual would have a very high replacement rate when calculated using family income, because whether he or she works makes little difference proportionally to the family's income. By contrast, the participation tax rate for this individual is likely to be very low (if the individual is only paying income tax and employee national insurance contributions on a small portion of their earnings, and is in a family too rich to be entitled to tax credits) regardless of whether individual or family income is used for the calculation".

income (as is the case for Income Support, Jobseekers Allowance and ESA[3], for example).

It is worth noting that other models calculate METRs using alternative marginal units. For example, Adam et al. (2006), using the IFS microsimulation model, take a marginal unit to be an increase of 5% in gross earnings. *Ceteris paribus*, using a smaller marginal increase would be likely to result in lower METRs, as a higher proportion of individuals would be subject to income disregards. Our findings may thus underplay the extent of improvements in METRs implied by UBI reforms which eliminate a number of means-tested benefits – thus reducing withdrawal rates – at the cost of higher income tax rates and the withdrawal of the personal income tax allowance; small marginal increases in income are not exempt from the positive rates of income tax in the same way as they are exempt from the withdrawal of means-tested benefit payments. Of course, it is particularly important to accurately understand the impacts of reforms on the labour market incentives of recipients of means-tested benefits, a group known to be subject to disproportionately high withdrawal rates, leading to unemployment and poverty traps. For these reasons, our analysis of the implications of UBI schemes on METRs must be treated with caution.

Categorical (Grouping) Variables for Distributional Analysis

A number of the categorical (grouping) variables used to distinguish outcomes in this paper follow our previous working paper: these are income quintile and family type. However, we employ a more detailed measure of labour market status here compared to the previous paper. All of these variables are based on standardised categorical variables reported in the *Family Resources Survey*. In addition, we construct and examine a number of new categorical variables relating to sex, breadwinner status, disability status and benefit recipiency status.

Sex

Because sex is an individual level variable, with income measured at the household (benefit unit) level, only single-adult households or same-sex couple households contribute towards variation in income based on sex at the individual level (as described above). This does not pose a problem for work incentives, which are also measured at the individual level. We also distinguish households based on the sex of household head, defined as the main breadwinner (operationalisation of which is described below).

Disability Status

We construct four indicators of disability status. The first, operating at the

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3. Adam et al. (2006: 10) present details of how METRs vary with hours worked for a single parent with one child on Income Support. In this (not atypical) scenario, METRs jump from zero to 100% as the individual earns in excess of £20. If such an individual were represented in our findings, assuming they were not working, we would report an METR of 0% (the rate applicable to the first £1 of earnings). On the other hand, assuming they were earning £20, their METR would be calculated at 100%.

individual level, identifies people as disabled if they receive one disability-related benefit (PIP, DLA, Attendance Allowance, Severe Disablement Allowance or Industrial Injuries Disablement Benefit), are registered as disabled with their local authority, or self-report as having a limiting condition. At the household level, we construct an indicator identifying benefit units in which the main earner is disabled, for those in which there is at least one disabled adult (regardless of breadwinner status), and for those in which there is at least one disabled child.

Breadwinner Status

Breadwinner status is determined by identifying the adult with the highest level of individual income in each household (excluding households comprising more than one benefit unit). Thus, for couples, we identify primary and secondary earners; in single-adult households, each adult will be the primary earner by default.

Means-Testing Status

We construct an indicator of means-testing status operating at the household level, concerned with whether households are in receipt of one or more of any of the following means-tested benefits: Council Tax, Housing Benefit, Income Support, Income-Based Jobseekers Allowance, Income-Related ESA, and Pension Credit.

4

Distributional Implications: Household Gains and Losses

Overall Distribution of Gains and Losses

Table 1 compares the implications of our three schemes across the whole population. Model A has the most favourable effects, reflecting the fact that it is not revenue neutral; households gain at the expense of the exchequer, by an equivalised average of just over £20 per week. 60% of households gain from this scheme, with 6% experiencing no change in income and 34% experiencing a loss of income – of which 0% (rounded to the nearest figure) experience losses exceeding 10% of their initial income. Model B sees a majority of households (56%) gain, many by a large percentage of their base income, but a significant minority of 42% of households lose out from the scheme at the point of implementation. Crucially, these include 15% of households losing over 10%, and 6% of households losing over 25%, of their base income. Model C has a similar marginal majority of households experiencing gains and losses to Model B, and in fact it has slightly less favourable figures in this regard, with 55% and 44% of households gaining and losing out respectively; on the other hand, it sees considerably smaller proportions of households losing out by large amounts.

Table 1: Average Change in Equivalised Disposable Income and Proportions of Winners and Losers across Whole Population

Model	Base income (£)	Change in income (£)	Proportion of Benefit Units in Category						
			Gain	>10%	>25%	No change	Lose	>10%	>25%
A	601.74	20.18	0.60	0.18	0.04	0.06	0.34	0.00	0.00
B	601.74	-0.36	0.56	0.24	0.07	0.02	0.42	0.15	0.06
C	601.74	0.62	0.55	0.29	0.10	0.01	0.44	0.10	0.01

Gains and Losses by Income Quintile

Turning to the analysis of gains and losses by income quintile, all of the schemes are broadly progressive in terms of the ratios of winners and losers; for each scheme, the poorest quintile sees the highest proportions of winners and the richest quintile see the highest proportion of losers. Indeed, for the revenue-neutral schemes (Models B and C), the 5th quintile is the only one to exhibit losses on average, the magnitude of which represent transfers to the lower income groups. For Model A, although a majority of households in quintiles 4 and 5 lose, there are no losses exceeding 10% of base income in any income grouping.

This is in contrast to Models B and C, both of which see large proportions of households in every quintile losing out by significant amounts. Furthermore, Model B sees the largest proportions of losers with significant losses in quintiles 1 to 3. Thus, though it may be correct to say that the scheme is

broadly progressive on average, large numbers of poor and middle-income households would be significantly worse off: 7% of the poorest households lose over 25% of their initial income and over a fifth of quintile 2 – the quintile that perhaps best represents the 'just managing' cohort – would lose over 10% of their income compared to the base scenario. Thus, while the richer quintiles lose more in absolute terms, those in the poorer quintiles who lose do so by a proportionally greater amount of their income.

Model C is more progressive; the fifth quintile exhibits the highest proportion of households losing over 10% and the proportions of households losing over 25% of their initial income are low in every quintile. Nevertheless, a significant minority (8%) of households in quintiles 1 to 3 would stand to lose over 10% of their base income.

Table 2: Average Change in Equivalised Disposable Income and Proportions of Winners and Losers, by Pre-Reform Equivalised Disposable Income Quintile

Model	Quintile	Base income (£)	Change in income (£)	Proportion of Benefit Units in Category						
				Gain	>10%	>25%	No change	Lose	>10%	>25%
A	1 (poorest)	229.26	29.27	0.81	0.52	0.18	0.14	0.05	0.00	0.00
	2	382.40	21.16	0.69	0.25	0.00	0.07	0.24	0.00	0.00
	3	490.10	15.59	0.59	0.10	0.00	0.07	0.35	0.00	0.00
	4	654.41	13.97	0.48	0.04	0.00	0.02	0.51	0.00	0.00
	5 (richest)	1252.46	20.92	0.43	0.01	0.00	0.00	0.57	0.00	0.00
B	1 (poorest)	229.26	19.10	0.65	0.47	0.25	0.07	0.28	0.16	0.07
	2	382.40	2.98	0.62	0.33	0.06	0.01	0.37	0.23	0.12
	3	490.10	1.17	0.62	0.27	0.02	0.00	0.38	0.21	0.08
	4	654.41	8.14	0.60	0.13	0.00	0.00	0.40	0.10	0.03
	5 (richest)	1252.46	-33.20	0.34	0.02	0.00	0.00	0.66	0.06	0.00
C	1 (poorest)	229.26	35.59	0.75	0.55	0.31	0.05	0.20	0.08	0.01
	2	382.40	29.06	0.66	0.44	0.12	0.01	0.33	0.08	0.02
	3	490.10	25.05	0.66	0.33	0.06	0.00	0.34	0.08	0.02
	4	654.41	3.99	0.51	0.14	0.01	0.00	0.49	0.06	0.01
	5 (richest)	1252.46	-90.56	0.16	0.02	0.00	0.00	0.84	0.19	0.00

Gains and Losses by Family Type

There are significant differences between family types with respect to gains and losses arising from the three proposed schemes. Across the board (for all three schemes) winners are prevalent among pensioner couples and couples with children. Model A also benefits single parents significantly, with 99% of lone-parent households better off, over half of them by more than 10% of their base household income. However, lone parents fare very badly in the two revenue-neutral schemes, with approximately two-thirds losing income compared with the base scenario. Single pensioners do very badly from all of

the proposals, probably as a result of paying tax on previously exempt income; couples on the other hand are treated relatively generously under an individualised UBI compared with the existing system, in which payments for couples are reduced to account for shared expenditure (i.e. economies of scale at the household level).

Table 3: Average Change in Equivalised Disposable Income and Proportions of Winners and Losers, by Family Type

Model	Family type	Base income (£)	Change in income (£)	Proportion of Benefit Units in Category						
				Gain	>10%	>25%	No change	Lose	>10%	>25%
A	Pensioner couple	571.33	10.58	0.65	0.04	0.00	0.09	0.27	0.00	0.00
	Pensioner single	479.14	1.89	0.25	0.01	0.00	0.19	0.56	0.00	0.00
	Couple with children	619.77	42.21	0.99	0.32	0.04	0.00	0.01	0.00	0.00
	Couple w/o children	816.70	11.64	0.41	0.08	0.02	0.03	0.56	0.00	0.00
	Lone parent	428.75	42.40	0.99	0.52	0.05	0.00	0.01	0.00	0.00
	Single w/o children	456.58	15.34	0.37	0.27	0.12	0.09	0.54	0.00	0.00
B	Pensioner couple	571.33	17.85	0.65	0.29	0.07	0.00	0.35	0.08	0.01
	Pensioner single	479.14	-60.42	0.16	0.05	0.01	0.08	0.76	0.55	0.17
	Couple with children	619.77	37.35	0.86	0.44	0.06	0.00	0.14	0.05	0.01
	Couple w/o children	816.70	-8.40	0.50	0.16	0.04	0.00	0.50	0.07	0.02
	Lone parent	428.75	-31.16	0.31	0.10	0.00	0.00	0.69	0.38	0.14
	Single w/o children	456.58	-17.65	0.46	0.19	0.15	0.05	0.49	0.20	0.14
C	Pensioner couple	571.33	47.11	0.77	0.51	0.19	0.00	0.23	0.03	0.00
	Pensioner single	479.14	-20.13	0.46	0.18	0.04	0.04	0.50	0.28	0.08
	Couple with children	619.77	19.44	0.77	0.38	0.05	0.00	0.23	0.04	0.00
	Couple w/o children	816.70	-29.99	0.41	0.20	0.07	0.00	0.59	0.09	0.00
	Lone parent	428.75	-19.94	0.34	0.08	0.00	0.00	0.66	0.27	0.02
	Single w/o children	456.58	-14.86	0.33	0.21	0.16	0.04	0.63	0.11	0.01

Gains and Losses by Labour Market Status

In the previous working paper, we examined labour market status in a simplified way, distinguishing working and non-working households. Here, we introduce numerous additional categories. Turning first to Model A, the majority of households in each labour market category gain, in some instances considerably, with the exception of households in which both members of a couple work. For Model A, gains are largest among single earner couple households and 'other' workless households (a category which includes inactivity due to disability). This contrasts completely with Model B, in which the latter category loses out significantly, with more than half losing over 10% of their base income. These results confirm our suspicion that a uniform basic income combined with the elimination of means-tested support would be very harmful to disabled people as a group. Of course, this was the motivation for Model C, which represents an attempt to compensate disabled households for the loss of disability premiums and supplements. It is not quite successful in doing so, since just under half of 'other' workless households lose as a result of the implementation of Model C, with a fifth of households losing significantly. Nevertheless, Model C represents a clear and unambiguous improvement for this demographic, compared to Model B. The implications of the three schemes with respect to disability are examined in further detail below.

Table 4: Average Change in Equivalised Disposable Income and Proportions of Winners and Losers, by Household Labour Market Status

Model	Labour Market Status	Base income (£)	Change in income (£)	Proportion of Benefit Units in Category						
				Gain	>10%	>25%	No change	Lose	>10%	>25%
A	One or more full-time self employed	770.49	27.50	0.70	0.22	0.05	0.00	0.30	0.00	0.00
	Single/couple all in full-time work	775.81	11.21	0.35	0.03	0.00	0.00	0.64	0.00	0.00
	Couple, one in full-time, one part-time	709.76	27.61	0.79	0.11	0.00	0.00	0.21	0.00	0.00
	Couple, one full-time, one not working	585.13	39.00	0.89	0.39	0.01	0.00	0.11	0.00	0.00
	No full-time, one or more part-time	504.71	20.27	0.66	0.28	0.08	0.02	0.32	0.00	0.00
	Workless, head or spouse aged 60 or over	488.51	8.64	0.52	0.06	0.01	0.16	0.32	0.00	0.00
	Workless, head or spouse unemployed	203.82	28.36	0.64	0.53	0.20	0.35	0.01	0.00	0.00
	Workless, other inactive	276.78	47.14	0.88	0.75	0.24	0.09	0.03	0.00	0.00
B	One or more full-time self employed	770.49	25.47	0.79	0.36	0.06	0.00	0.21	0.05	0.02
	Single/couple all in full-time work	775.81	-9.22	0.48	0.09	0.01	0.00	0.52	0.04	0.01
	Couple, one in full-time, one part-time	709.76	24.60	0.77	0.33	0.01	0.00	0.23	0.02	0.00
	Couple, one full-time, one not working	585.13	36.74	0.81	0.53	0.11	0.00	0.19	0.04	0.00
	No full-time, one or more part-time	504.71	4.08	0.64	0.30	0.11	0.00	0.36	0.15	0.04
	Workless, head or spouse aged 60 or over	488.51	-14.00	0.46	0.21	0.06	0.03	0.51	0.29	0.10
	Workless, head or spouse unemployed	203.82	-5.88	0.45	0.28	0.25	0.18	0.37	0.20	0.09
	Workless, other inactive	276.78	-37.85	0.31	0.25	0.22	0.05	0.64	0.51	0.35
C	One or more full-time self employed	770.49	-0.79	0.67	0.33	0.06	0.00	0.33	0.05	0.01
	Single/couple all in full-time work	775.81	-41.52	0.26	0.06	0.01	0.00	0.74	0.10	0.00
	Couple, one in full-time, one part-time	709.76	-0.51	0.63	0.25	0.01	0.00	0.37	0.05	0.00
	Couple, one full-time, one not working	585.13	31.10	0.78	0.54	0.14	0.00	0.22	0.05	0.00
	No full-time, one or more part-time	504.71	5.84	0.62	0.33	0.13	0.00	0.38	0.13	0.02
	Workless, head or spouse aged 60 or over	488.51	27.26	0.68	0.42	0.15	0.02	0.30	0.13	0.03
	Workless, head or spouse unemployed	203.82	13.76	0.61	0.42	0.30	0.15	0.25	0.09	0.01
	Workless, other inactive	276.78	14.16	0.50	0.35	0.26	0.04	0.47	0.15	0.01

Another notable insight from the breakdown of distributional effects by labour market status is that Model B is most advantageous to working households **in which at least one adult is not a full-time employee**. All workless households, including pensioner households, lose out. This is consistent with theory which implies that basic income will be most beneficial to low-income households with non-standard working patterns (including precarious employment) which are not entitled to support in the current system; individuals reliant on means-tested benefits, by contrast, are likely to be disadvantaged by a system of uniform payments that does not take their specific additional needs into account. Of course, households in which all adults work full time are likely to experience losses as their earnings are subject to higher rates of tax that surpass their basic income payments.

Interestingly, Model C is advantageous to all labour market categories but two ('one or more full-time self-employed' and 'single/couple all in full-time work'). Of these, working households in which all adults work full time are made significantly worse off, paying for the majority of the gains experienced by the other household types.

5

Distributional Implications: Sex and Disability Status

Gains and Losses by Sex

The manner in which gains and losses from our three schemes are distributed according to sex is an important consideration. On average, women are more likely to live in poverty compared to men – a consequence of numerous complex factors, including labour market disadvantage, lone parenthood (the incidence of which falls predominantly on women), and shortfalls in insurance contributions for female pensioners. It is a proud claim of many advocates that basic income furthers the cause of gender equality by strengthening the position of poorly paid, part-time and precarious workers and recognising the contribution of unpaid carers – groups in which women feature dispro-portionately. We cannot address these claims here; our more modest goal is to provide an account of the distributional implications of our three schemes *vis-à-vis* sex.

Turning to the individual-level analysis, as shown in Table 5 below, we remind the reader that any differences are due to the sex characteristics of single-adult and same-sex couple households, as discussed in Section 3. In the base scenario, men have disposable weekly incomes approximately £25 higher than women. There is actually very little difference in how each sex fares under each scheme; the biggest difference is for Model B, in which men gain about £2.50 per week and women lose roughly £3.

As shown in Table 6, there is a more significant difference in the patterns of gains and losses in relation to the sex of the household head (defined as the main earner, as discussed in Section 3). Male-headed households enjoy base scenario income levels significantly higher than female-headed ones. Model A is almost neutral with respect to the change in income, although a higher proportion of men gain compared to women. However, Models B and C are considerably more favourable to male-headed households. In both cases, a clear majority (in excess of 60%) of male-headed households gain from the proposals, whereas for female-headed households less than half of households gain. This strikes an important blow against basic income's gender-egalitarian credentials; further research is needed to identify the demographic and familial characteristics and consequent patterns of benefit recipiency that drive this divergence, in order for advocates to prevent any inadvertent inequalities arising in implementation.

In this regard, it is likely that lone parenthood, which is predominantly a circumstance experienced by women (around 90% of lone-parent families are headed by the mother, according to Gingerbread[1]), is the main reason that female-headed households lose income as a result of basic income schemes being implemented. Specifically, while schemes B and C aim to replace the standard benefits to which families are entitled at equivalent rates (and in the case of Model C, we have further aimed to replace disability premiums and supplements at equivalent rates), one important type of benefit supplement we fail to model here is the childcare supplement of WTC. It is noteworthy that this group (lone parents) are particularly likely to receive the childcare

"Male-headed households enjoy base scenario income levels significantly higher than female-headed ones"

1. https://goo.gl/xmrKZv

supplement (HMRC, 2015).

Another possible contributory factor for a higher proportion of female-headed households losing out from the proposals is that women tend to live longer and thus are relatively more likely to live alone as pensioners; our family type analysis showed that single pensioners would expect to do very badly from the implementation of our illustrative schemes, particularly Models B and C.

Table 5: Average Change in Equivalised Disposable Income and Proportions of Winners and Losers, by Sex

Model	Sex	Base Income (£)	Change in Income (£)	Proportion of Benefit Units in Category						
				Gain	>10%	>25%	No change	Lose	>10%	>25%
A	Male	615.59	19.74	0.58	0.17	0.04	0.06	0.36	0.00	0.00
	Female	589.27	20.58	0.61	0.19	0.04	0.06	0.33	0.00	0.00
B	Male	615.59	2.51	0.59	0.26	0.07	0.02	0.40	0.13	0.05
	Female	589.27	-2.95	0.54	0.23	0.06	0.02	0.44	0.17	0.07
C	Male	615.59	1.00	0.55	0.30	0.11	0.01	0.44	0.09	0.01
	Female	589.27	0.28	0.55	0.29	0.09	0.01	0.44	0.11	0.01

Table 6: Average Change in Equivalised Disposable Income and Proportions of Winners and Losers, by Sex of Household Head (Highest Earner)

Model	Sex	Base Income (£)	Change in Income (£)	Proportion of Benefit Units in Category						
				Gain	>10%	>25%	No change	Lose	>10%	>25%
A	Male	652.96	22.11	0.66	0.16	0.01	0.04	0.30	0.00	0.00
	Female	588.57	18.90	0.55	0.19	0.03	0.06	0.38	0.00	0.00
B	Male	652.96	10.01	0.63	0.29	0.05	0.01	0.37	0.11	0.04
	Female	588.57	-17.10	0.45	0.16	0.03	0.03	0.52	0.23	0.08
C	Male	652.96	8.54	0.61	0.34	0.09	0.01	0.38	0.08	0.01
	Female	588.57	-11.11	0.49	0.22	0.05	0.01	0.50	0.13	0.02

Gains and Losses by Disability Status

We turn now to the distribution of gains and losses arising from the three schemes in relation to the characteristic of disability status, operationalised in four different ways. Table 7 breaks down the implications by disability status at the level of the individual, showing clear distributional differences between the three schemes with respect to their relative generosity to disabled and

non-disabled individuals. Non-disabled people have significantly higher equivalised income levels in the base scenario, confirming the well-documented fact that disability is a strong predictor of poverty, even before considering the additional costs that disabled people face in their daily lives. Model A is approximately equally favourable to disabled and non-disabled people alike. However, Models B and C diverge sharply in their implications for each group. Model B sees non-disabled adults gain an average of £5.65 per week from the change, while disabled people lose almost £60 on average. 73% of disabled people lose out from the imposition of the scheme; over a quarter of them lose at least 25% of their income. Model C reverses the bias against disabled people. Non-disabled people experience a small drop in their equivalised incomes, while disabled people are over £30 better off, on average, per week. In this scheme, 68% of them gain and 32% lose. However, even in this scenario, 11% of the group lose out by at least 10% of their initial base scenario income.

Table 7: Average Change in Equivalised Disposable Income and Proportions of Winners and Losers, by Disability Status

Model	Disability status (individual)	Base Income (£)	Change in Income (£)	Proportion of Benefit Units in Category						
				Gain	>10%	>25%	No change	Lose	>10%	>25%
A	Non-disabled	612.60	19.99	0.59	0.17	0.04	0.05	0.36	0.00	0.00
	Disabled	495.19	22.09	0.64	0.26	0.01	0.20	0.17	0.00	0.00
B	Non-disabled	612.60	5.65	0.60	0.26	0.07	0.02	0.39	0.11	0.04
	Disabled	495.19	-59.32	0.26	0.10	0.01	0.01	0.73	0.55	0.27
C	Non-disabled	612.60	-2.44	0.54	0.28	0.10	0.01	0.45	0.10	0.01
	Disabled	495.19	30.69	0.68	0.40	0.13	0.00	0.32	0.11	0.01

The patterns of gains and losses are very similar for each of the alternative ways of operationalising disability status at the household level, so we omit any discussion here, and refer the reader to appendices 1 – 3 for further details.

6

Implications for Financial Work Incentives

A Note on Interpretation of PTRs and METRs

The interpretation of the PTR is the proportion of total gross earned income lost through taxation and withdrawn benefits, compared to not working at all. For individuals who do not work, we assume a counterfactual of 16 hours per week paid employment at the national minimum wage. The METR is interpreted as the proportion of each additional (or initial) pound of gross earnings lost through taxation and withdrawn benefits. Abstracting from associated changes to the tax system, basic income schemes of equivalent value to existing means-tested systems would tend to reduce PTRs and METRs on average, because they are not withdrawn as earned income increases like means-tested benefits are. However, in each of the schemes modelled here, we **do** make substantial changes to the tax system; the overall effect will depend on the relative magnitude of improvements to work incentives through the elimination of means-testing *vis-à-vis* deteriorated work incentives as a result of higher tax rates.

It is also worth repeating here that reported METRs and changes therein must be treated with some caution. As discussed above, using the marginal unit of £1 means that METRs are likely, in many instances, to cover the initial income disregard granted to recipients of means-tested benefits, and not the subsequently very high withdrawal rates. This phenomenon is likely to understate the extent of improvements in METRs due to basic income, which as noted above, may improve work incentives in comparison to means-tested systems precisely because unlike the latter, they are not withdrawn as income rises. In other words, these data may reflect **increases** in METRs that arise as a result of increased tax rates, but not **reductions** in METRs due to reduced withdrawal rates (since high withdrawal rates that pertain to the existing means-tested system are not necessarily captured in reference to the first £1 of earnings).

NB. '+ve change' refers to a **reduction** in METRs reflecting stronger/improved work incentives; '-ve change' refers to an increase in METRs reflecting weaker/deteriorated work incentives.

Work Incentive Implications Overall and by Breadwinner Status

Table 8 shows the implications of our three basic income schemes for average PTRs across the population, and for primary and secondary earners separately. The population average PTR in the base scenario is 36%, with main earners facing average PTRs of 42% and second earners facing PTRs of 25%. For every scheme, secondary earners experience a large increase in PTRs in comparison to main earners. This reflects the fact that secondary earners make less money, and are more likely to be in the position, in the base scenario, where they pay no income tax or national insurance on a large proportion of their individual income.

Models A and C unambiguously increase PTRs across the population on average and for primary and secondary breadwinners; large majorities face a

deterioration in work incentives (based on this indicator). However, for Model B, primary earners face reduced PTRs, implying improved financial work incentives. On average, and across all schemes, a majority of individuals face weaker work incentives, with large numbers facing increases in their personal PTRs in excess of 25%. However, for each scheme there are still large numbers of individuals facing improved work incentives. The schemes which incorporate significant changes to the existing means-tested structure of the benefits system (Models B and C) have more favourable work incentive effects; this is unsurprising given our theoretical expectations, as discussed in Section 2.

Turning to the METRs, reported in Appendix IV, our findings show that individuals face average rates of 28% across the population as a whole, with higher rates for primary compared to secondary earners. This indicator reports weaker average work incentives across the board for all schemes, with even fewer individuals experiencing improved work incentives, compared to the PTR indicator. An important characteristic of Model A is that the vast majority of individuals face no change in their METRs.

Table 8: Average Change in PTRs and Proportions of Benefit Units Experiencing Stronger and Weaker Work Incentives, across Whole Population and by Breadwinner Status

| Model | Breadwinner status | Base PTR | Change in PTR | Proportion of Individuals in Category | | | | | | |
				+ve change	>10%	>25%	No change	-ve change	>10%	>25%
A	Primary	0.42	0.03	0.28	0.11	0.05	0.13	0.59	0.27	0.14
	Secondary	0.25	0.10	0.18	0.14	0.11	0.07	0.74	0.65	0.54
	Total	0.36	0.05	0.25	0.12	0.07	0.11	0.64	0.40	0.28
B	Primary	0.42	-0.05	0.50	0.39	0.28	0.00	0.50	0.39	0.24
	Secondary	0.25	0.08	0.30	0.27	0.22	0.00	0.70	0.67	0.57
	Total	0.36	-0.01	0.43	0.35	0.26	0.00	0.57	0.49	0.36
C	Primary	0.42	0.02	0.39	0.30	0.20	0.00	0.61	0.51	0.38
	Secondary	0.25	0.13	0.26	0.22	0.19	0.00	0.74	0.71	0.67
	Total	0.36	0.06	0.34	0.28	0.20	0.00	0.66	0.58	0.48

Work Incentive Implications by Income Quintile

Next we turn to work incentive effects disaggregated by income quintile, as shown in Table 9. In each of the schemes, a higher proportion of individuals from the lower income deciles face improved work incentives, compared to the richer deciles. Turning to Model A, none of the quintiles have a majority of individuals facing improved work incentives measured by the PTR. However, for Models B and C, the majority of individuals in the lowest income quintile do face improved work incentives; for Model B, the same is also true for the second quintile. Indeed, Model B has generally positive implications for work incentives

for the bottom three quintiles of the income distribution; on average PTRs fall for each group. In Model C, by comparison, average PTRs only fall for quintile 1. This difference is to be expected; Model C has a more generous payment structure and requires higher taxes, both of which characteristics increase PTRs. Even for Model B, which has the most favourable work incentive effects, large proportions of individuals face weaker incentives. In every quintile, over a quarter of individuals face PTR increases of at least 25% of the base scenario PTR.

Turning to METRs reported in Appendix V, again the vast majority of individuals face no change in their work incentives under Model A. For both Models B and C, only the first quintile experience improved METRs. A significant proportion of individuals from every quintile face METRs at least 25% higher than the experience in the base scenario.

Table 9: Average Change in PTRs and Proportions of Benefit Units Experiencing Stronger and Weaker Work Incentives, by Income Quintile

Model	Income Quintile	Base PTR	Change in PTR	Proportion of Benefit Units in Category						
				+ve change	>10%	>25%	No change	-ve change	>10%	>25%
A	1 (poorest)	0.44	0.02	0.44	0.32	0.22	0.04	0.53	0.40	0.29
	2	0.40	0.07	0.26	0.16	0.09	0.07	0.67	0.39	0.28
	3	0.35	0.06	0.21	0.11	0.07	0.12	0.66	0.32	0.23
	4	0.28	0.05	0.18	0.07	0.05	0.13	0.69	0.39	0.31
	5 (richest)	0.28	0.04	0.18	0.04	0.02	0.14	0.69	0.45	0.28
B	1 (poorest)	0.44	-0.12	0.68	0.61	0.52	0.00	0.32	0.28	0.23
	2	0.40	-0.05	0.57	0.46	0.36	0.00	0.43	0.37	0.26
	3	0.35	-0.02	0.49	0.40	0.29	0.00	0.51	0.43	0.28
	4	0.28	0.05	0.29	0.22	0.14	0.00	0.71	0.58	0.41
	5 (richest)	0.28	0.08	0.15	0.10	0.06	0.00	0.85	0.74	0.53
C	1 (poorest)	0.44	-0.08	0.61	0.54	0.46	0.00	0.39	0.34	0.29
	2	0.40	0.02	0.46	0.39	0.31	0.00	0.54	0.45	0.38
	3	0.35	0.06	0.38	0.30	0.21	0.00	0.62	0.54	0.42
	4	0.28	0.10	0.22	0.16	0.10	0.00	0.78	0.70	0.57
	5 (richest)	0.28	0.12	0.10	0.07	0.04	0.00	0.90	0.85	0.70

Work Incentive Implications by Labour Market Status

Table 10 shows the changes in PTRs and the proportion of individuals facing stronger or weaker work incentives as a result of the three schemes, disaggregated by (detailed) labour market status. The data show that Model A results in weaker work incentives for all groups except workless households characterised by unemployment. In contrast, Model B results in stronger average

work incentives for five out of the eight groups – all workless households, plus part-time working households and couple households in which one individual works full time and one is inactive. However, it is notable that even within these groups, large proportions of individuals face weaker work incentives. When we turn to Model C, work incentives are much weaker on average. Only for households in which the head or spouse is unemployed are PTRs stronger on average.

Turning to METRs, reported in Appendix VI, findings are similar to those for PTRs with respect to the differences between schemes, although reductions in METRs are much less pronounced, almost certainly as a result of the manner in which the variable has been constructed (discussed in Section 3).

Table 10: Average Change in PTRs and Proportions of Benefit Units Experiencing Stronger and Weaker Work Incentives, by Labour Market Status

Model	Labour Market Status	Base PTR	Change in PTR	Proportion of Benefit Units in Category						
				+ve change	>10%	>25%	No change	-ve change	>10%	>25%
A	One or more full-time self employed	0.33	0.07	0.25	0.13	0.10	0.05	0.70	0.47	0.36
	Single/couple all in full-time work	0.34	0.04	0.09	0.03	0.02	0.02	0.90	0.44	0.28
	Couple, one in full-time, one part-time	0.30	0.08	0.20	0.08	0.06	0.03	0.77	0.55	0.40
	Couple, one full-time, one not working	0.40	0.06	0.51	0.25	0.16	0.05	0.44	0.32	0.25
	No full-time, one or more part-time	0.37	0.03	0.37	0.25	0.16	0.12	0.51	0.33	0.24
	Workless, head or spouse aged 60 or over	0.36	0.03	0.23	0.09	0.04	0.27	0.50	0.29	0.20
	Workless, head or spouse unemployed	0.61	-0.06	0.66	0.55	0.41	0.03	0.31	0.21	0.12
	Workless, other inactive	0.28	0.10	0.42	0.40	0.33	0.04	0.53	0.49	0.40
B	One or more full-time self employed	0.33	0.01	0.51	0.40	0.29	0.00	0.49	0.41	0.31
	Single/couple all in full-time work	0.34	0.05	0.26	0.17	0.09	0.00	0.74	0.61	0.45
	Couple, one in full-time, one part-time	0.30	0.09	0.33	0.24	0.13	0.00	0.67	0.57	0.46
	Couple, one full-time, one not work-ing	0.40	-0.03	0.64	0.58	0.47	0.00	0.36	0.31	0.22
	No full-time, one or more part-time	0.37	-0.01	0.54	0.45	0.38	0.00	0.46	0.39	0.26
	Workless, head or spouse aged 60 or over	0.36	-0.07	0.43	0.36	0.29	0.00	0.57	0.50	0.28
	Workless, head or spouse unemployed	0.61	-0.31	0.88	0.81	0.75	0.00	0.12	0.11	0.10
	Workless, other inactive	0.28	-0.06	0.60	0.58	0.55	0.00	0.40	0.39	0.36
C	One or more full-time self employed	0.33	0.05	0.41	0.33	0.24	0.00	0.58	0.50	0.39
	Single/couple all in full-time work	0.34	0.09	0.17	0.13	0.06	0.00	0.83	0.72	0.56
	Couple, one in full-time, one part-time	0.30	0.13	0.26	0.17	0.10	0.00	0.74	0.67	0.55
	Couple, one full-time, one not work-ing	0.40	0.01	0.60	0.53	0.40	0.00	0.40	0.35	0.29
	No full-time, one or more part-time	0.37	0.03	0.46	0.40	0.33	0.00	0.54	0.47	0.38
	Workless, head or spouse aged 60 or over	0.36	0.02	0.32	0.26	0.20	0.00	0.68	0.62	0.52
	Workless, head or spouse unemployed	0.61	-0.25	0.85	0.77	0.73	0.00	0.15	0.14	0.12
	Workless, other inactive	0.28	0.05	0.57	0.53	0.51	0.00	0.43	0.42	0.40

Work Incentive Implications by Means-Testing Status

One of the most important issues to address is the extent to which work incentives are improved by the group most profoundly affected by unemployment and poverty traps: those entangled in the means-tested support systems that give rise to excessively high PTRs and METRs. Arguably, the labour market response of this group could more than compensate for the generalised deterioration in work incentives due to higher tax rates. Indeed, turning to Table 11, we observe that in the base scenario, average PTRs are significantly higher for individuals in households in which means-tested benefits are in payment compared to those in which they are not (50% and 32% respectively).

For Model A, individuals face increases in PTRs on average, of roughly the same magnitude regardless of whether they received means-tested benefits in the base scenario. However, for both Models B and C, individuals who faced means-testing in the base scenario face stronger work incentives on average; under Model B, 58% of individuals in such circumstances face PTR at least 25% lower compared to the base scenario; and for Model C, the same is true of almost half of the individuals in that group.

Again, METRs, reported in Appendix VII, do not imply improved work incentives reflecting the findings for PTRs. On the contrary, the data show larger increases in METRs on average for recipients of means-tested benefits. We attribute this discrepancy to the facts that, firstly, many individuals on means-tested benefits face income tax and NI rates of zero in the base scenario, implying large increases for Models B and C, and secondly, the marginal unit of £1 used in the IPPR model to calculate METRs is unlikely to fully capture the high marginal withdrawal rates of means-tested benefits over a more intermediate income range (these issues were discussed at length in Section 3).

Table 11: Average Change in PTRs and Proportions of Benefit Units Experiencing Stronger and Weaker Work Incentives, by Means-Testing Status

Model	Benefit Status	Base PTR	Change in PTR	Proportion of Benefit Units in Category						
				+ve change	>10%	>25%	No change	-ve change	>10%	>25%
A	No means-tested benefits in payment	0.32	0.05	0.22	0.11	0.07	0.11	0.67	0.40	0.28
	At least one of ESA, IS, JSA, PC, CTB and HB in payment	0.50	0.06	0.38	0.27	0.18	0.08	0.54	0.35	0.25
B	No means-tested benefits in payment	0.32	0.02	0.37	0.29	0.21	0.00	0.63	0.53	0.37
	At least one of ESA, IS, JSA, PC, CTB and HB in payment	0.50	-0.17	0.72	0.64	0.58	0.00	0.28	0.25	0.22
C	No means-tested benefits in payment	0.32	0.07	0.29	0.23	0.17	0.00	0.71	0.64	0.52
	At least one of ESA, IS, JSA, PC, CTB and HB in payment	0.50	-0.04	0.63	0.54	0.47	0.00	0.37	0.32	0.27

7

Conclusion: Summary and Discussion of Key Findings

In this paper, we have presented microsimulation evidence about the effects of three basic income schemes, focusing on distributional and work incentive implications in turn. Our distributional analysis built on previous analysis in two main ways. Firstly, we extended beyond the focus on average change in income of the previous working paper to determine the proportions of individuals or households in each category winning and losing, by various degrees of magnitude, for each scheme. Secondly, we considered the effects with respect to two important characteristics – disability and sex – that are associated with vulnerability to poverty. The work incentive analysis focused predominantly on participation tax rates, given the limitations of marginal effective tax rates as an indicator discussed in depth above.

Summary of Proportions of Households Gaining and Losing Income

Our core insight is that for the most part, even when particular groups gain (lose) on average, there are usually still non-trivial numbers of individuals and households who are worse off (better off).

Model A imposes far fewer losses (and very negligible significant losses) on households – this is by design since the proposal is not revenue neutral (meaning it represents a net transfer from the exchequer to households); under this scheme we only eliminate the personal allowance and Child Benefit to pay for a basic income equalling the rate of payment of the former and exceeding that of the latter.

However it appears to be a defining characteristic of schemes in which basic income serves to replace the mainstay of existing benefits (Models B and C) that large numbers of people will inevitably experience significant losses of income. Furthermore, despite the generally progressive character of the schemes modelled here, these losses are not concentrated among richer groups; on the contrary, they are proportionally larger for the bottom three income quintiles.

Turning to the profile of winners and losers by family type, a vast majority of single pensioners lose out from Model B and a narrow majority from Model C. Further research is required to examine the specific causes (in terms of sources of lost income) of the losses among so many single-pensioner households but the most important is probably that while the basic income compensates for the lost Basic State Pension, pensioners also pay more tax on their income from other sources as a result of the elimination of the PITA. High proportions of families without children and lone-parent families also lose out as a result of the implementation of Models B and C.

In terms of the profiles of winners and losers by labour market status, Models B and C have very different implications. Model B, without additional payments related to disability, is detrimental to the majority of workless households as well as those in which all adults are in full-time employment. It is beneficial to the majority of those with 'intermediate' working patterns – i.e. households in which at least one adult works part-time or in which one partner works and the other does not. In contrast, Model C concentrates losses on one group – households in which all adults work full-time – with around

three-quarters of such households losing out.

We cannot escape the conclusion that even if we were to find the imposition of such hardship morally acceptable, such schemes are surely politically unrealistic in the absence of some means of compensating losers, at least in the short and medium term (perhaps as a transitional arrangement).

Summary of Implications of Illustrative Schemes by Sex and Disability Status

Women and disabled people face considerable disadvantages with respect to labour market participation, leading to significantly higher poverty rates. The welfare system mitigates against labour market disadvantage through decommodification, but does so imperfectly; both sex and disability status are still associated with inequality with respect to net equivalised income levels. In recent years, gender and disability impact assessments have become increasingly important aspects of *ex ante* tax and benefit policy evaluations (e.g. Bennett (2011) and Grey-Thompson (2012) on the gender and disability impacts of UC respectively). It is particularly important that tax/benefit changes do not inadvertently further impoverish disadvantaged groups.

So how do the illustrative schemes analysed in this paper fare by this criterion? Model A is broadly neutral and no significant losses (exceeding 10% of previous income) are experienced by any group; this is unsurprising given that Model A does not significantly alter the existing structure of benefits. However, Models B and C both have adverse effects for significant numbers of women and disabled people. Model B fares particularly badly, with a majority of female-headed households and disabled adults losing out at the point of implementation. Model C performs only marginally better for female-headed households, but much better for disabled individuals (and households affected by disability). Even so, a large number of disabled individuals still stand to lose out from the proposals.

Designing basic income schemes that replace a large proportion of existing benefits without adverse distributional consequences for groups currently reliant on means-tested premiums and supplements is very difficult. In order to mitigate against adverse effects for disabled people, Model C provides additional payments at the cost of an additional £38bn. An important avenue for future research would be to model additional payments to compensate for the elimination of childcare subsidies in the WTC in order to mitigate against losses among lone-parent households. The difficulty, as with disability premiums and supplements, would be to control costs while ensuring payments are consistent with the principles of universalism. The alternative is to run a means-tested system or systems in parallel with the universalism of basic income, but this would mean retaining some of the worst features of such systems in terms of stigma, intrusion, administrative cost, and poverty and unemployment traps caused by steep marginal withdrawal rates.

Summary of Work Incentive Analysis

We have provided some important empirical detail to complement theoretical discussion around the work incentive effects of basic income. While we recognise that 'static' indicators such as PTRs and METRs cannot replace *ex post* empirical evaluation of the labour market effects of reforms, nevertheless they help to build up a picture of the **potential** for basic income to instigate increases or contractions in labour supply.

On average across the population, PTRs and METRs increase as a result of all three illustrative basic income schemes. However, Model B – which replaces the same range of benefits as Model C but incorporates lower tax rates – has the most desirable effects, in terms of the proportions of individuals and households experiencing stronger work incentives.

In all three models, work incentives deteriorate more on average for second earners than for primary breadwinners. This appears to be a result of the fact that many second earners are unemployed (the category was operationalised as the person in a couple with lower personal income, whether or not they are in work) or working part-time jobs, with the income of their partner meaning that they are entitled to little or no means-tested support. They feel the full effect of the elimination of the PITA and increases in National Insurance and income tax rates. For these individuals, our illustrative schemes represent unambiguous increases in participation and marginal effective tax rates. While Models A and C are also detrimental on average to the work incentives facing main earners, in Model B this group faces improved average participation tax rates. However, even for this group, the majority of individuals face weaker work incentives.

To summarise so far, most individuals face weaker work incentives as a result of all three illustrative schemes. Does this imply that basic income would have negative consequences with respect to labour market participation? Not necessarily. This distribution of work incentive effects is such that we can imagine the effects of stronger work incentives on particularly sensitive groups to outweigh the more generalised effect of weaker work incentives over the wider population.

Indeed, turning to our findings broken down by income quintile, labour market status and means-testing status, this appears to be a distinct possibility. Across all schemes, the lower income quintiles contain larger proportions of households facing improved PTRs. For Models B and C, the vast majorities of workless households, and households in receipt of at least one means-tested benefit, face improved PTRs.

An important avenue for future research would be to examine labour supply elasticities in relation to these specific groups, to determine the overall net effects and impacts on different types of labour supply (i.e. relating to the skill level of employment). This is an endeavour in which ongoing and upcoming empirical experiments will also be invaluable.

Policy Implications: Towards Desirable and Feasible Basic Income Schemes

The illustrative schemes examined in this paper are probably all unfeasible in at least one sense. Model A has perhaps the least adverse distributional effects, but is not revenue neutral; the exchequer would need to find an additional £36bn. Funding the proposal fully through reductions in benefits or tax increases would have implications for household incomes that are not examined here. Models B and C have profound distributional consequences; while these may tend on average to be progressive in the sense that losses fall predominantly on rich households, there are great number of poorer households that also lose. Furthermore, even if losses were confined to households above the poverty line, they include large losses (in excess of 10% of original income) that would surely be politically unacceptable. In any case, the analysis draws our attention to the difficulty involved in designing basic income schemes that satisfactorily compensate existing beneficiaries of the system while retaining the principles of universalism and administrative simplicity.

The work incentive analysis highlights that achieving revenue neutrality implies higher participation and marginal tax rates for large swathes of the population. As argued above, however, this does not necessarily nullify arguments that basic income would enhance labour supply. Furthermore, it should be recalled that the arguments in favour of basic income are not reducible to favourable distributional implications or improved work incentives. There are other consequences of basic income that are not picked up by microsimulation analyses. These relate to, *inter alia*, the provision of basic income security as an unconditional right, without fear of sanction or stigma; improved protection in the face of increasing labour market precarity and irregular employment; and the strengthening of workers' bargaining position due to the presence of a (partial) exit option.

On the other hand, there are two fundamental normative/ethical arguments which appear to severely limit the political prospects for UBI: that UBI severs the link between social security transfer and 'desserts'; and that it severs the link between transfers and 'need'. In both cases, uniformity of payments clashes with conceptions of equality that suggest that payments should be proportional to some specified characteristic or other. In the case of desserts, decoupling social protection from labour market participation could be seen to encourage idleness and to be inherently unfair. In this view, numerical equality of transfers irrespective of recipients' work effort and with no corresponding reciprocal contribution would be unjust (Anderson, 1999).

With respect to need, a narrow understanding of horizontal equality holds that to the extent that everyone is the same, they should be treated the same; in contrast vertical equality suggests that to the extent that everyone is different, they should be treated differently. In the former conception, we might posit that a uniform UBI is appropriate, given the equal status of the rights of every citizen to receive some recompense for the private control of social 'commons' and natural resources (Van Parijs, 1992). In the latter conception, in order to equalise important outcomes such as welfare or opportunity, resource transfers must necessarily vary according to specified characteristics of recipients.

Clearly, when we consider that UBI may be funded from progressive taxation, net transfers are not of equal value; some people are net contributors and other net recipients. But the point stands that even a progressively funded UBI is relatively unrelated to need compared to more targeted systems of social security. Our research indicates that there is a great deal of inter-household variation in poverty levels even among groups of 'similar' households (e.g. those in which at least one adult is disabled; workless households; single parent households). Numerous circumstances affect households' prospects for earning income in the labour market and the costs they have to bear; in combination, these factors determine their living standards. A uniform payment structure cannot compensate for this, which is why in almost every household group, there are both winners and losers in the schemes modelled here.

As the findings of our previous working paper have already shown, if UBI is conceived as a single uniform payment replacing existing wage replacement benefits, then it must be either inadequate (i.e. it will raise poverty levels) or unaffordable (i.e. the fiscal cost will be too high). But, even in the case of the latter, UBI may still be seen as fundamentally inegalitarian – even if it leads to an absolute improvement in the material living standards of all poor households – if uniform payments favour households with fewer costs and unmet needs. This could lead to increased income inequality as households would benefit from the more generous UBI even if they had an adequate income without it. The addition of a flat-rate disability premium goes some way towards compensating for variation in living standards but is clearly a fairly blunt instrument, unrelated to the actual variable costs of disability or to an individual's (in)capacity for work. The only way around these egalitarian concerns is to have a system of payments more closely related to additional costs and needs running parallel to the UBI – with all the attendant administrative issues this would entail.

Advocates for basic income must address these normative and theoretical issues as well as make a robust case on the political and institutional feasibility of specific basic income schemes with respect to costs and distributional implications. Whether there exists a basic income scheme able to generate sufficiently broad support in the UK – given the demographic groups opposed on the grounds of self-interest, and given the complex normative trade-offs involved – is an open question.

8

References and Appendices

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Appendix I: Average Change in Equivalised Disposable Income and Proportions of Winners and Losers, by Disability Status of Household Head (Highest Earner)

Model	Disability status (household head)	Base income (£)	Change in income (£)	Proportion of benefit units in category						
				Gain	>10%	>25%	No change	Lose	>10%	>25%
A	Non-disabled	675.62	23.38	0.65	0.17	0.02	0.02	0.33	0.00	0.00
	Disabled	560.40	17.27	0.59	0.17	0.02	0.10	0.32	0.00	0.00
B	Non-disabled	675.62	13.64	0.65	0.29	0.05	0.01	0.34	0.06	0.01
	Disabled	560.40	-20.03	0.44	0.17	0.03	0.02	0.54	0.28	0.12
C	Non-disabled	675.62	-10.97	0.51	0.24	0.05	0.01	0.48	0.10	0.01
	Disabled	560.40	20.23	0.66	0.38	0.12	0.01	0.34	0.09	0.01

Appendix II: Average Change in Equivalised Disposable Income and Proportions of Winners and Losers, by Disability Status of Household (Presence of Disabled Adults)

Model	Disability status (household)	Base income (£)	Change in income (£)	Proportion of benefit units in category						
				Gain	>10%	>25%	No change	Lose	>10%	>25%
A	No disabled adults	676.46	23.36	0.63	0.17	0.02	0.02	0.35	0.00	0.00
	At least one disabled adult	557.43	18.66	0.60	0.19	0.04	0.08	0.32	0.00	0.00
B	No disabled adults	676.46	11.15	0.63	0.28	0.05	0.01	0.36	0.07	0.01
	At least one disabled adult	557.43	-10.41	0.50	0.21	0.06	0.02	0.48	0.23	0.1
C	No disabled adults	676.46	-19.16	0.47	0.20	0.03	0.01	0.52	0.11	0.02
	At least one disabled adult	557.43	16.93	0.63	0.37	0.14	0.01	0.36	0.09	0.01

Appendix III: Average Change in Equivalised Disposable Income and Proportions of Winners and Losers, by Disability Status of Household (Presence of Disabled Children)

Model	Disability status	Base income (£)	Change in income (£)	Proportion of benefit units in category						
				Gain	>10%	>25%	No change	Lose	>10%	>25%
A	No disabled chldren	633.37	20.04	0.61	0.16	0.02	0.05	0.34	0.00	0.00
	At least one disabled child	529.81	46.31	0.98	0.43	0.05	0.00	0.02	0.00	0.00
B	No disabled chldren	633.37	0.53	0.56	0.24	0.04	0.02	0.42	0.14	0.05
	At least one disabled child	529.81	-11.52	0.51	0.23	0.01	0.00	0.49	0.32	0.13
C	No disabled chldren	633.37	0.29	0.56	0.29	0.08	0.01	0.43	0.10	0.01
	At least one disabled child	529.81	32.46	0.72	0.45	0.10	0.00	0.28	0.12	0.01

Appendix IV: Average Change in METRs and Proportions of Benefit Units Experiencing Stronger and Weaker Work Incentives, across Whole Population and by Breadwinner Status

Model	Breadwinner status	Base METR	Change in METR	Proportion of benefit units in category						
				+ve change	>10%	>25%	No change	-ve change	>10%	>25%
A	Primary	0.30	0.03	0.08	0.08	0.06	0.83	0.09	0.06	0.04
	Secondary	0.23	0.09	0.07	0.06	0.06	0.72	0.21	0.18	0.16
	Total	0.28	0.05	0.08	0.07	0.06	0.80	0.13	0.10	0.08
B	Primary	0.30	0.03	0.22	0.19	0.16	0.00	0.78	0.42	0.20
	Secondary	0.23	0.07	0.23	0.21	0.17	0.01	0.76	0.29	0.12
	Total	0.28	0.05	0.23	0.19	0.17	0.00	0.77	0.38	0.17
C	Primary	0.30	0.07	0.20	0.17	0.15	0.00	0.80	0.76	0.39
	Secondary	0.23	0.11	0.22	0.18	0.16	0.00	0.78	0.76	0.25
	Total	0.28	0.08	0.21	0.18	0.16	0.00	0.79	0.76	0.34

Appendix V: Average Change in METRs and Proportions of Benefit Units Experiencing Stronger and Weaker Work Incentives, by Income Quintile

Model	Income quintile	Base METR	Change in METR	Proportion of benefit units in category						
				+ve change	>10%	>25%	No change	-ve change	>10%	>25%
A	1	0.18	0.17	0.16	0.15	0.14	0.29	0.55	0.46	0.41
	2	0.31	0.04	0.14	0.13	0.12	0.62	0.24	0.19	0.15
	3	0.26	0.04	0.08	0.07	0.07	0.84	0.08	0.07	0.05
	4	0.27	0.02	0.03	0.03	0.02	0.94	0.03	0.03	0.03
	5	0.34	0.01	0.04	0.04	0.03	0.94	0.01	0.01	0.01
B	1	0.18	0.10	0.67	0.61	0.54	0.00	0.33	0.25	0.17
	2	0.31	0.00	0.47	0.43	0.38	0.00	0.53	0.27	0.10
	3	0.26	0.04	0.21	0.19	0.17	0.00	0.78	0.35	0.10
	4	0.27	0.06	0.06	0.04	0.03	0.00	0.94	0.36	0.11
	5	0.34	0.07	0.06	0.05	0.03	0.00	0.94	0.45	0.31
C	1	0.18	0.13	0.64	0.55	0.52	0.00	0.36	0.30	0.21
	2	0.31	0.03	0.44	0.39	0.37	0.00	0.56	0.50	0.22
	3	0.26	0.08	0.20	0.18	0.16	0.00	0.80	0.77	0.31
	4	0.27	0.09	0.05	0.04	0.03	0.00	0.95	0.94	0.32
	5	0.34	0.11	0.05	0.03	0.02	0.00	0.95	0.94	0.42

Appendix VI: Average Change in METRs and Proportions of Benefit Units Experiencing Stronger and Weaker Work Incentives, by Labour Market Status

Model	Labour market status	Base METR	Change in METR	Proportion of benefit units in category						
				+ve change	>10%	>25%	No change	-ve change	>10%	>25%
A	One or more full-time self employed	0.35	0.05	0.09	0.09	0.08	0.69	0.22	0.19	0.17
	Single/couple all in full-time work	0.37	0.00	0.04	0.04	0.04	0.92	0.04	0.03	0.03
	Couple, one in full-time, one part-time	0.36	0.02	0.11	0.10	0.09	0.75	0.14	0.13	0.12
	Couple, one full-time, one not working	0.37	0.06	0.14	0.12	0.11	0.59	0.27	0.20	0.16
	No full-time, one or more part-time	0.35	0.08	0.08	0.08	0.07	0.54	0.38	0.28	0.23
	Workless, head or spouse aged 60 or over	0.08	0.07	0.03	0.03	0.02	0.95	0.02	0.02	0.02
	Workless, head or spouse unemployed	0.01	0.24	0.06	0.06	0.06	0.78	0.16	0.16	0.16
	Workless, other inactive	0.01	0.26	0.18	0.18	0.18	0.58	0.23	0.23	0.23
B	One or more full-time self employed	0.35	-0.01	0.35	0.33	0.30	0.02	0.63	0.35	0.08
	Single/couple all in full-time work	0.37	0.03	0.10	0.09	0.07	0.00	0.90	0.18	0.16
	Couple, one in full-time, one part-time	0.36	0.04	0.22	0.19	0.14	0.00	0.78	0.27	0.22
	Couple, one full-time, one not working	0.37	0.01	0.44	0.37	0.33	0.00	0.56	0.29	0.18
	No full-time, one or more part-time	0.35	0.01	0.42	0.38	0.33	0.00	0.57	0.33	0.14
	Workless, head or spouse aged 60 or over	0.08	0.13	0.08	0.04	0.04	0.00	0.92	0.90	0.19
	Workless, head or spouse unemployed	0.01	0.21	0.31	0.31	0.31	0.00	0.69	0.66	0.47
	Workless, other inactive	0.01	0.22	0.23	0.21	0.21	0.00	0.77	0.72	0.25
C	One or more full-time self employed	0.35	0.03	0.34	0.31	0.28	0.00	0.66	0.64	0.15
	Single/couple all in full-time work	0.37	0.07	0.09	0.08	0.07	0.00	0.91	0.90	0.17
	Couple, one in full-time, one part-time	0.36	0.07	0.22	0.15	0.14	0.00	0.78	0.77	0.25
	Couple, one full-time, one not working	0.37	0.04	0.41	0.36	0.31	0.00	0.59	0.53	0.26
	No full-time, one or more part-time	0.35	0.05	0.41	0.34	0.31	0.00	0.59	0.55	0.30
	Workless, head or spouse aged 60 or over	0.08	0.16	0.04	0.04	0.04	0.00	0.96	0.91	0.88
	Workless, head or spouse unemployed	0.01	0.24	0.34	0.34	0.34	0.00	0.66	0.66	0.63
	Workless, other inactive	0.01	0.25	0.21	0.21	0.21	0.00	0.79	0.77	0.72

Appendix VII: Average Change in METRs and Proportions of Benefit Units Experiencing Stronger and Weaker Work Incentives, by Means-Testing Status

Model	Benefit status	Base METR	Change in METR	Proportion of benefit units in category						
				+ve change	>10%	>25%	No change	-ve change	>10%	>25%
A	No means-tested benefits in payment	0.28	0.04	0.07	0.07	0.06	0.83	0.10	0.09	0.08
	At least one of ESA, IS, JSA, PC, CTB and HB in payment	0.13	0.17	0.09	0.08	0.06	0.42	0.49	0.29	0.18
B	No means-tested benefits in payment	0.28	0.05	0.18	0.16	0.14	0.00	0.81	0.36	0.16
	At least one of ESA, IS, JSA, PC, CTB and HB in payment	0.13	0.13	0.54	0.47	0.42	0.00	0.46	0.36	0.20
C	No means-tested benefits in payment	0.28	0.09	0c.17	0.14	0.13	0.00	0.83	0.80	0.32
	At least one of ESA, IS, JSA, PC, CTB and HB in payment	0.13	0.16	0.51	0.44	0.41	0.00	0.49	0.41	0.31

Appendix VIII: Average Change in PTRs and Proportions of Benefit Units Experiencing Stronger and Weaker Work Incentives, by Sex

Model	Sex	Base PTR	Change in PTR	Proportion of benefit units in category						
				+ve change	>10%	>25%	No change	-ve change	>10%	>25%
A	Male	0.38	0.03	0.28	0.12	0.07	0.12	0.60	0.31	0.19
	Female	0.33	0.06	0.22	0.14	0.11	0.08	0.69	0.46	0.36
B	Male	0.38	-0.03	0.44	0.34	0.25	0.00	0.56	0.45	0.28
	Female	0.33	0.01	0.43	0.36	0.29	0.00	0.57	0.51	0.40
C	Male	0.38	0.03	0.34	0.28	0.19	0.00	0.66	0.57	0.44
	Female	0.33	0.06	0.35	0.30	0.24	0.00	0.65	0.59	0.51

Appendix IX: Average Change in METRs and Proportions of Benefit Units Experiencing Stronger and Weaker Work Incentives, by Sex

Model	Sex	Base METR	Change in METR	Proportion of benefit units in category						
				+ve change	>10%	>25%	No change	-ve change	>10%	>25%
A	Male	0.30	0.04	0.08	0.08	0.07	0.84	0.08	0.07	0.06
	Female	0.25	0.07	0.07	0.07	0.06	0.76	0.17	0.14	0.12
B	Male	0.30	0.04	0.20	0.18	0.15	0.00	0.79	0.38	0.17
	Female	0.25	0.06	0.24	0.22	0.19	0.00	0.76	0.32	0.16
C	Male	0.30	0.08	0.19	0.16	0.14	0.00	0.81	0.78	0.33
	Female	0.25	0.10	0.23	0.20	0.18	0.00	0.77	0.75	0.30

Appendix X: Average Change in PTRs and Proportions of Benefit Units Experiencing Stronger and Weaker Work Incentives, by Sex of Household Head (Highest Earner)

Model	Sex	Base PTR	Change in PTR	Proportion of benefit units in category						
				+ve change	>10%	>25%	No change	-ve change	>10%	>25%
A	Male	0.34	0.06	0.25	0.11	0.07	0.11	0.64	0.43	0.32
	Female	0.40	0.04	0.24	0.13	0.08	0.11	0.65	0.36	0.23
B	Male	0.34	0.02	0.39	0.31	0.23	0.00	0.61	0.52	0.39
	Female	0.40	-0.05	0.49	0.41	0.32	0.00	0.51	0.43	0.31
C	Male	0.34	0.08	0.31	0.25	0.17	0.00	0.69	0.62	0.52
	Female	0.40	0.02	0.40	0.33	0.25	0.00	0.60	0.52	0.43

Appendix XI: Average Change in METRs and Proportions of Benefit Units Experiencing Stronger and Weaker Work Incentives, by Sex of Household Head (Highest Earner)

Model	Sex	Base METR	Change in METR	Proportion of benefit units in category						
				+ve change	>10%	>25%	No change	-ve change	>10%	>25%
A	Male	0.26	0.05	0.08	0.08	0.07	0.81	0.11	0.09	0.08
	Female	0.30	0.05	0.07	0.06	0.05	0.78	0.15	0.11	0.08
B	Male	0.26	0.06	0.21	0.17	0.14	0.00	0.79	0.38	0.17
	Female	0.30	0.02	0.26	0.23	0.21	0.00	0.74	0.37	0.17
C	Male	0.26	0.09	0.19	0.15	0.13	0.00	0.81	0.78	0.35
	Female	0.30	0.06	0.25	0.22	0.20	0.00	0.75	0.73	0.33

Appendix XII: Average change in PTRs and Proportions of Benefit Units Experiencing Stronger and Weaker Work Incentives, by Disability Status

Model	Disability status (individual)	Base PTR	Change in PTR	Proportion of benefit units in category						
				+ve change	>10%	>25%	No change	-ve change	>10%	>25%
A	Non-disabled	0.35	0.04	0.25	0.13	0.09	0.10	0.66	0.39	0.27
	Disabled	0.37	0.10	0.26	0.18	0.12	0.15	0.58	0.38	0.31
B	Non-disabled	0.35	0.00	0.42	0.33	0.25	0.00	0.58	0.49	0.35
	Disabled	0.37	-0.10	0.59	0.55	0.51	0.00	0.41	0.39	0.30
C	Non-disabled	0.35	0.05	0.33	0.27	0.20	0.00	0.67	0.59	0.48
	Disabled	0.37	0.05	0.50	0.45	0.38	0.00	0.50	0.46	0.42

Appendix XIII: Average Change in METRs and Proportions of Benefit Units Experiencing Stronger and Weaker Work Incentives, by Disability Status

Model	Disability status (individual)	Base METR	Change in METR	Proportion of benefit units in category						
				+ve change	>10%	>25%	No change	-ve change	>10%	>25%
A	Non-disabled	0.29	0.05	0.07	0.07	0.06	0.80	0.12	0.10	0.09
	Disabled	0.10	0.11	0.10	0.10	0.09	0.71	0.19	0.15	0.13
B	Non-disabled	0.29	0.04	0.22	0.19	0.17	0.00	0.78	0.34	0.16
	Disabled	0.10	0.14	0.31	0.28	0.25	0.00	0.69	0.59	0.19
C	Non-disabled	0.29	0.08	0.21	0.17	0.16	0.00	0.79	0.77	0.31
	Disabled	0.10	0.17	0.30	0.26	0.24	0.00	0.70	0.66	0.56

Appendix XIV: Average Change in PTRs and Proportions of Benefit Units Experiencing Stronger and Weaker Work Incentives, by Disability Status of Household Head

Model	Disability status (household head)	Base PTR	Change in PTR	Proportion of benefit units in category						
				+ve change	>10%	>25%	No change	-ve change	>10%	>25%
A	Non-disabled	0.36	0.04	0.25	0.12	0.07	0.08	0.67	0.42	0.29
	Disabled	0.37	0.06	0.24	0.12	0.07	0.15	0.61	0.38	0.27
B	Non-disabled	0.36	0.02	0.39	0.30	0.21	0.00	0.61	0.51	0.39
	Disabled	0.37	-0.05	0.48	0.41	0.33	0.00	0.52	0.45	0.32
C	Non-disabled	0.36	0.06	0.32	0.25	0.18	0.00	0.68	0.60	0.49
	Disabled	0.37	0.06	0.38	0.31	0.24	0.00	0.62	0.56	0.47

Appendix XV: Average Change in METRs and Proportions of Benefit Units Experiencing Stronger and Weaker Work Incentives, by Disability Status of Household Head

Model	Disability status (household head)	Base METR	Change in METR	Proportion of benefit units in category						
				+ve change	>10%	>25%	No change	-ve change	>10%	>25%
A	Non-disabled	0.33	0.03	0.08	0.08	0.06	0.79	0.13	0.10	0.08
	Disabled	0.20	0.09	0.07	0.07	0.06	0.81	0.12	0.09	0.08
B	Non-disabled	0.33	0.03	0.22	0.19	0.16	0.00	0.78	0.33	0.18
	Disabled	0.20	0.08	0.24	0.21	0.19	0.00	0.76	0.48	0.16
C	Non-disabled	0.33	0.07	0.20	0.17	0.15	0.00	0.80	0.77	0.30
	Disabled	0.20	0.11	0.23	0.20	0.18	0.00	0.77	0.73	0.44

Appendix XVI: Average Change in PTRs and Proportions of Benefit Units Experiencing Stronger and Weaker Work Incentives, by Disability Status of Household (Presence of Disabled Adults)

Model	Disability status (household)	Base PTR	Change in PTR	Proportion of benefit units in category						
				+ve change	>10%	>25%	No change	-ve change	>10%	>25%
A	No disabled adults	0.36	0.04	0.25	0.11	0.07	0.07	0.68	0.41	0.28
	At least one disabled adult	0.35	0.06	0.25	0.14	0.09	0.13	0.62	0.39	0.28
B	No disabled adults	0.36	0.02	0.39	0.30	0.20	0.00	0.61	0.51	0.38
	At least one disabled adult	0.35	-0.03	0.47	0.40	0.32	0.00	0.53	0.46	0.32
C	No disabled adults	0.36	0.05	0.32	0.25	0.17	0.00	0.68	0.59	0.48
	At least one disabled adult	0.35	0.04	0.38	0.32	0.25	0.00	0.62	0.56	0.47

Appendix XVII: Average Change in METRs and Proportions of Benefit Units Experiencing Stronger and Weaker Work Incentives, by Disability Status of Household (Presence of Disabled Adults)

Model	Disability status (household)	Base METR	Change in METR	Proportion of benefit units in category						
				+ve change	>10%	>25%	No change	-ve change	>10%	>25%
A	No disabled adults	0.33	0.02	0.07	0.07	0.06	0.80	0.13	0.10	0.08
	At least one disabled adult	0.23	0.08	0.08	0.07	0.07	0.79	0.13	0.10	0.09
B	No disabled adults	0.33	0.02	0.21	0.18	0.15	0.00	0.79	0.33	0.18
	At least one disabled adult	0.23	0.07	0.25	0.22	0.19	0.00	0.75	0.40	0.15
C	No disabled adults	0.33	0.06	0.19	0.16	0.14	0.00	0.81	0.78	0.29
	At least one disabled adult	0.23	0.10	0.23	0.20	0.19	0.00	0.77	0.74	0.36

Appendix XVIII: Average Change in PTRs and Proportions of Benefit Units Experiencing Stronger and Weaker Work Incentives, by Disability Status of Household (Presence of Disabled Children)

Model	Disability status	Base PTR	Change in PTR	Proportion of benefit units in category						
				+ve change	>10%	>25%	No change	-ve change	>10%	>25%
A	No disabled chldren	0.36	0.05	0.24	0.11	0.07	0.11	0.64	0.40	0.28
	At least one disabled child	0.44	0.08	0.32	0.20	0.15	0.01	0.66	0.45	0.31
B	No disabled chldren	0.36	0.00	0.42	0.34	0.25	0.00	0.58	0.50	0.36
	At least one disabled child	0.44	-0.10	0.71	0.67	0.55	0.00	0.29	0.25	0.21
C	No disabled chldren	0.36	0.06	0.33	0.26	0.19	0.00	0.67	0.59	0.49
	At least one disabled child	0.44	-0.06	0.67	0.60	0.48	0.00	0.33	0.28	0.23

Appendix XIX: Average Change in PTRs and Proportions of Benefit Units Experiencing Stronger and Weaker Work Incentives, by Disability Status of Household (Presence of Disabled Children)

Model	Disability status	Base METR	Change in METR	Proportion of benefit units in category						
				+ve change	>10%	>25%	No change	-ve change	>10%	>25%
A	No disabled chldren	0.27	0.05	0.07	0.07	0.06	0.81	0.12	0.09	0.08
	At least one disabled child	0.41	0.11	0.10	0.10	0.09	0.55	0.34	0.26	0.20
B	No disabled chldren	0.27	0.05	0.21	0.18	0.15	0.00	0.79	0.39	0.18
	At least one disabled child	0.41	-0.06	0.66	0.61	0.55	0.00	0.34	0.14	0.10
C	No disabled chldren	0.27	0.09	0.19	0.16	0.14	0.00	0.81	0.77	0.35
	At least one disabled child	0.44	-0.06	0.67	0.60	0.48	0.00	0.33	0.28	0.23

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Contact

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