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Universal Independence Income. A EUROMOD Utopian Simulation in the UK

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Abstract

In this paper we want to provide an utopian attempt to tackle inequality and to tackle, most specifically, what we consider the cultural and ethical origin of inequality: paid work. We believe that a globalised world, structured around the asymmetry between an increasingly small number of employers and an increasing, almost unlimited, supply of always available employees, leads to increasing inequalities. Under our perspective, in the post-industrialised economies of all major developed countries, paid work cannot be seen anymore as an instrument of self-determination (Marx, 1844) but becomes the main generator of exploitation and poverty. For this reason, we try to develop a benefit with attached strong disincentives to paid work that should provide people with an exit strategy and higher bargaining power. After presenting the main typologies of income benefits that are normally in use or discussed we provide a theoretical explanation of the Universal Independence Income (UII) benefit we want to introduce. We simulate the introduction of our preferred version of UII, two variations of UII and five forms of Universal Basic Income (UBI) to be compared with the tax and benefit system currently in place in the UK. Our main findings suggest that UII has a positive effect on inequality an almost null effect on poverty and strong positive effects on work disincentives.

JEL: D31, H21, H23, I38

Keywords: post-work, UBI, inequality, redistribution, United Kingdom

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1 Introduction

In the current labour markets only people from privileged backgrounds have a certain degree of choice while people who cannot afford to stay out of the labour market are forced to accept any job in order to survive. The main beneficiaries of such a structured labour market are employers which can pay low wages, given the availability of a globally mobile mass of poor unskilled workers ready to accept any job. This *do ut des* mechanism is further incentivised by all the various forms of income subsidy which are conditional on staying on the labour market, i.e. in-work benefits and all the forms of workfare policies or forms of minimum income conditional on the activation on the labour market.

Since the van Parijs' (1991) *Why Surfers Should be Fed,* Universal Basic Income (UBI) policies have emerged as a radical alternative to the status quo. Even if the concept was not entirely novel and indeed it had been advocated, even if with different nuances, much before by libertarian thinkers such as John Stuart Mill, Friedrich Hayek and Milton Friedman, after the van Parijs' seminal paper it has become much more *à la page* and in recent years it has raised attention across a broader spectrum of researchers. However even if many advocates of UBI try to present it as a radical measure (Torry, 2015; Van Parijs & Vanderborght, 2017; Tromp, 2017; Islam & Colombino, 2018) from our perspective any form of UBI fails to be radical enough and risk to perpetuate and augment the current unbalance of power between workers and employers. Indeed, any possible form of UBI would risk to provide everybody with the same amount of money that is never expected to be high enough to be able to survive with dignity. Thus, people would be still incentivised to enter the labour market and, perhaps, even at a lower salary since they already have something they can retain while earning low labour income. UBI measures do not reduce the possibility for employers to pay low wages transforming the UBI as well into a subsidy. At the same time, measures like

unconditional minimum income only to the poor, while they may seem to be satisfactory for reducing poverty and inequality, might be less acceptable if the aim is to make everybody free to choose, whether from a rich or poor background, independently from it.

The aim of this work is to explore alternative tax-benefit schemes which could provide people with more freedom to choose whether to work or not and, once decided to work, increase workers' bargaining power and their ability to select which job. We will explain the theoretical, philosophical and moral foundation of such an approach in the next section where we will also review the main literature of reference.

We conjecture that receiving a cash payment high enough to live on without working (on a purely theoretical basis, not far below the median income), would allow people to refuse low paid jobs. More importantly, this sum of money would be received only without working, while as soon as a person earns any other amount of money, the UII would be removed. We want to investigate which are the effects on the income distribution and work incentives of introducing such a radical measure in comparison with the current (i.e. 2018) UK tax and benefit system. Differently from other measures of Universal Basic Income (UBI) and income support whose first aim is to reduce poverty (Torry, 2018; Islam & Colombino, 2018; Granaglia & Bolzoni, 2016), however, the first goal of UII is to allow everyone to have full freedom regarding the decision to work or not, to be able to stay out of the labour market thanks to non labour incomes. In other words the purpose of our proposal of UII is to increase the bargaining power of any worker by raising hir reservation wage.

The ideal UII we are here proposing can be briefly summarised as follows: every person at the end of the high school receives a sum of money G (around the median income, Universal Independence Income). As soon as the person starts to work, ze stops to receive G and pays taxes according to the following structure: no tax area up to a gross labour income

equal to G, continuous increasing marginal tax rates above G. People are entitled to receive the sum for the entire life-time span, i.e. pensions are replaced by the sum G. Since people are now free to choose whether to work or not without an income constrain, the labour market is completely flexible and all welfare expenditures are cancelled out. The only residual welfare expenditures are some forms of children benefits and support to disable people. As we discuss more in depth in section 3 we design different UII scenarios, in order to see the differences while retaining pensions or other benefits. What we have just presented is our ideal UII reform that from section 3 will be called UII-1.

One possible concern is the effect on the labour supply of such a reform. While it would be important to investigate these effects a question remains why only people from richer backgrounds should be allowed to choose whether to work or not (and which job) and people from more disadvantaged backgrounds should not? In other words, even in the case that the introduction of this form of UII led to a strong reduction in the labour supply, it would simply mean that the only reason why people were working was the necessity to work. A reasonable concern is that such a reduction of the labour supply could render the UII itself unfeasible if the number of claimants let the amount of UII to be too low (or the tax burden to increase too much). We will return to this point in section 3 where we try to empirically answer this concern. In any case, a reduction in the labour supply, even if, possibly, not positive under a general equilibrium perspective, it could be beneficial in terms of equality of opportunities. After introducing a sort of equality of choice in the labour market, it should be then discussed how to reach a different equilibrium with the labour demand. The only way to do so cannot be the monetary extortion one. Increasing automation, increasing efficiency, raising wages for those jobs which are necessary may be all possible solutions. Obviously, all these measures ca be seen as costs for the employers, who, conversely, under the current

system can reduce investments and are not incentivised to increase efficiency because of abundant (unlimited?) human labour available at low price or subsidised by public funds.

From the introduction of both UII and a highly progressive continuous tax function, we expect a reduction in inequality due to income redistribution and important disincentives to work due to the availability of an exit strategy.

This paper proceeds with an overview of the current benefits commonly found in advanced economies (Section 1) and then we describe in more detail our UII proposal (Section 2). In Section 3 we present our empirical application of UII in the UK using the Family Resource Survey (FRS) 2015 data in the EU-wide tax-benefit model, EUROMOD. We first describe the data and the methodology, and then we present the empirical results. The last section concludes with a discussion of possible challenges and limitations and a final summary of the main contributions.

1 Current work and income support instruments

In the current economic debate, even if always within a paradigm of work valorisation, much reflection has been done on income support instruments. Before moving to the scheme we would like to introduce we have to present which are the instruments that have been so far designed to support those who do not earn enough to survive. We will therefore now review, albeit briefly and grouping them into macro-categories, the main tools that are analyzed in the literature (Granaglia & Bolzoni, 2016). The order of exposure is not random as we will start from those that seem less convincing to reach those policies that are closer to the scheme we want to develop in this paper. Moreover, it has to be stressed that we present

here what we consider the more standard and common form of each of the schemes we present. Obviously our choice is arbitrary and questionable. However, since the purpose of this paper is not to open a semantic and detailed discussion on each scheme, we intentionally simplify and select what we consider the most representative form.

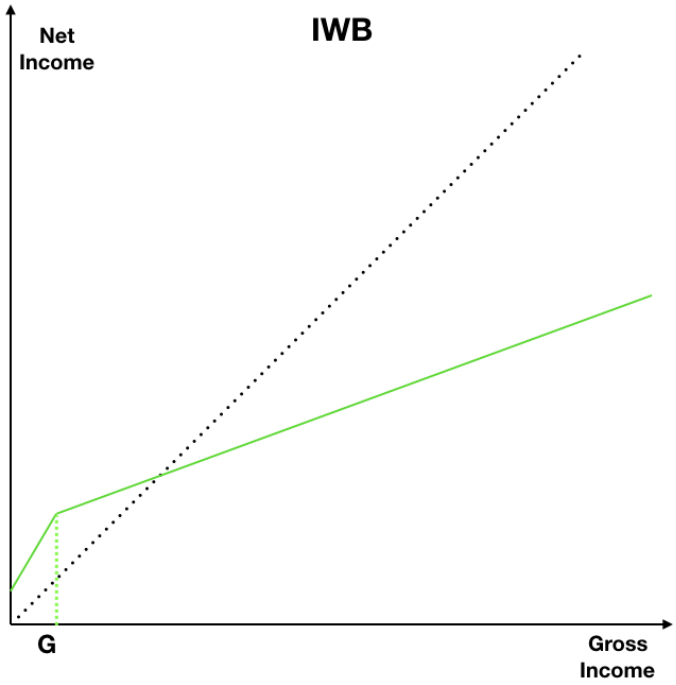
The first fundamental distinction must be made between in-work benefits (IWB), income subsidies (constant. i.e. Universal Basic Income, and decreasing, i.e. Guaranteed Minimum Income/Negative Income Tax), and minimum wage.

One common feature to almost all the hypotheses that are commonly presented in the literature is that they are calculated at the household level. Even if we recognise the rationale behind this common choice, we are convinced that this is, again, the consequence of a given cultural approach that do not consider many elements of individuals' identity. We think that it is more important and fairer to consider everybody equal, disregarding their background conditions, disregarding whether they are married or not, disregarding whether they share a flat with somebody else. The state should provide everybody with the same opportunities and should interfere as little as possible with individuals' choices. For example, the common approach of considering benefits at the household level, has the consequence that people may have less incentive to live in the same household in order to keep the entire benefit instead of receiving the household benefit to which are applied the equivalence scales (Srnicek & Williams, 2015). In a society in which social ties and relationship are fading out this effect is for sure one of the less desirable.

IWB (Fig. 1) and employment-conditional tax credits, as they are sometimes framed, rely on the idea to make-work-pay. IWB are means-tested payments available only to those who work. In general there are two main arguments put forward by the supporters of IWB measures: first, they are attractive because they are expected to redistribute to people in the

lower percentiles of the income distribution, they are, thus, target efficient (Bekerman, 1979); secondly, they also create additional employment incentives (Immervol & Pearson, 2009) and, thus, they do not give people money to allow them not to do anything. The empirical results on the effects of this kind of measures are controversial and differences emerge in cross-country analyses (Blundell & Hoynes, 2004). Our main criticism relies on the two advocated arguments presented here: first of all, in terms of efficiency, where there are no doubts that, by definition, IWB are less costly and more efficient, economically targeting people comes at the cost of social targeting and stigma (Horan & Austin, 1974; Rainwater, 1979; Moffitt, 1983); secondly, the effect of giving people money in exchange of something seems to us too similar to an extortion mechanism. Assuming that, even in an increasingly automated society, some workers would still be needed, is it fair to force those who have no means to decline work in order to survive? Moreover, at the current stage of capitalism, as we have seen above, work itself seems to be an absolute value through which judging people, with a strong social stigma towards those who do not work. As a consequence, this is also why a massive literature on optimum income tax, initiated by Mirreles (1971), has always analysed efficiency loss in terms of labour market distortions and its trade-off with equity considerations without questioning whether it is work itself that generates inequality.

Figure 1. In-Work Benefits



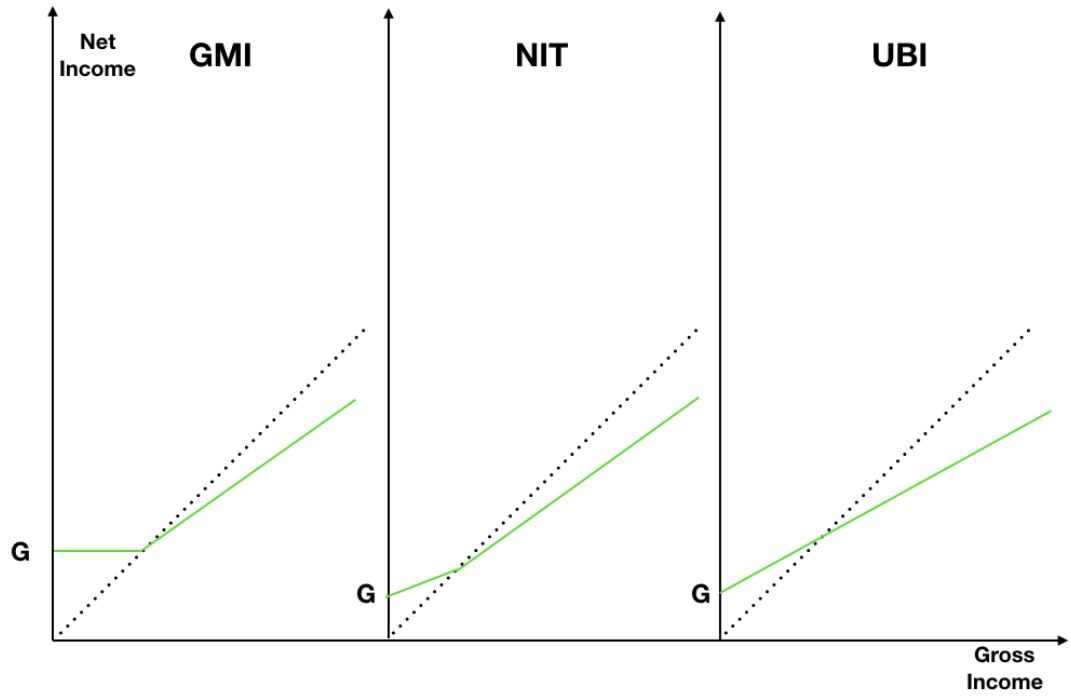
Source:

Authors's elaboration

We now move to the analysis of income subsides, which can be either decreasing or constant (Fig. 2). The former are usually framed as Guaranteed Minimum Income (GMI) or Negative Income Tax (NIT). In the case of GMI those who earn below a certain threshold G are subsidized up to the threshold and, after that, they start paying taxes on the difference between earnings and the subsidy. This form of subsidy decreases in monetary terms as income rises. The NIT is also a decreasing subsidy even if the subsidy is reduced at a lower rate. Finally, according to UBI schemes the subsidy is paid equal to everybody, disregarding whether they work or not. Thus, this form of subsidy is constant in the sense that it is not taken away when the threshold is reached. NIT and GMI schemes are partially means tested, since they are not constant, thus not properly universal. It is worth pointing out also that, GMI

and UBI are just special cases of NIT. Indeed, if we define *t* as the tax-rate before the threshold and *s* as the tax-rate after the threshold, in the standard case of NIT the following relationship holds $s<t<100$. In the special case of GMI we have $s<t=100$ while with UBI we have $s=t<100$. Both the NIT and UBI, even if they are likely to pay a lower G, are supposed to be universal, simpler and administratively more cost-effective than purely means-tested measures. In practice, while hypothetical UBI schemes have kept those elements of cost-effectiveness, universality and simplicity, NIT scheme proposals have moved towards greater means-testing and complex designs. In fact, from the 1960s GMI schemes, beside the poverty condition, have started to add the condition of availability to work; thus, they ceased to be guaranteed but became income for the active inclusion (Granaglia & Bolzoni, 2016). The most recurrent justification for requiring availability to work is to tackle a problem of welfare dependence which is supposed to arise if people receive money without being asked to do anything. As a consequence people would not be encouraged to improve their conditions since if they start to earn money they stop receiving the subsidy. We are convinced that these problems may arise if the provided income is too low and does not allow people to see it as a possibility of personal empowerment and development.

Figure 2. Guaranteed Minimum Income. Negative Income Tax and Universal Basic Income



Source: Author's Elaboration

UBI proposals have also been interpreted as social dividends in order to share the national resources (van Parjis, 1997; Raj, 2016). As described in Islam & Colombino (2018) UBI schemes are appreciated because "i) there should not be welfare dependence; ii) there should not be problems of black labour market because there is no incentive to under-report income or employment status; iii) there is no stigma since everyone receives the transfer; iv) administration costs (De Walle, 1999) and take-up costs (Pudney et al., 2006; Atkinson, 2015; Paulus, 2016) are relatively low." (Islam & Colombino, 2018, p. 3). While we think that UBI is a better tool than GMI and NIT, our main concern about UBI is that, since the transfer adds to labour income it simply ends up being a universal subsidy which still allows employers to pay low wages. In fact people, relying on a constant income basis, in order to have even a little more than what they have from the state would be likely available for low paid jobs.

Thus, even if the UBI seems satisfactory in terms of not causing welfare dependence, not creating stigma and having lower administrative costs, it does not solve the main issue: it remains a subsidy to firms.

Under our perspective the problem with all these instruments is their intrinsic nature of subsidies. Since none of these schemes are expected to provide an income high enough to allow people to make ends meet, they do not reduce the possibility for employers to pay low wages transforming these instruments in subsidies to the firms. GMI only to the poor, even if guaranteeing an higher income, while it may seem more satisfactory for reducing poverty and inequality, might be less acceptable if the aim is to make everybody free to choose, whether from a rich or poor background.

It is not surprising that forms of GMI, NIT (Friedman, 1962) and, in some cases, also of UBI have been proposed by neoliberal economists and supported by the entrepreneurial world. In fact, since current capitalism relies on great numbers of consumers, it is necessary to provide people with enough money to be buyers. In a growing authomatised society, with increasing unemployment, it is likely that labour income will not be available to a growing share of people, making them not consumers anymore. Thus, the solution might only come from the state paying incomes high enough to be basic consumers but low enough to impede personal empowerment and development. From this perspective, subsidies can be seen as just the life-saving drug of this agonizing form of capitalism.

We conclude this brief review, shortly presenting the role of minimum wages. Minimum wage typically refers to any law that sets the lowest payable wage by employers to employees. Under the best scenarios, an effective minimum wage could redistribute towards people at the lower bottom of the income distribution (Freeman, 1996). Conversely under the worst scenario, the effect of the introduction (or of raising) minimum wages could be to

displace low-paid workers to unemployment (Nguyen & Zimmer, 2017). We think that minimum wages are a good tool to raise workers' bargaining power and to empower workers, however, referring to labour wage, it is intrinsically linked to work. Thus, we see minimum wages as a complementary tool to a more general scheme that can provide everybody an independence net.

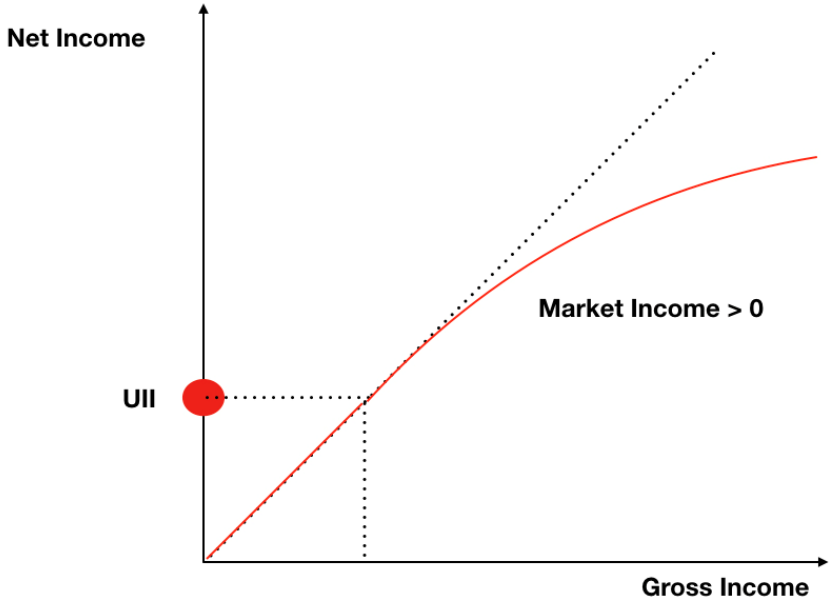
3 Universal Independence Income (UII)

In accordance with the weaknesses we see in the instruments currently discussed, we present here a different tax and benefit system. We call the benefit Universal Independence Income and it works as follows. Every person at the end of the high school starts receiving a regular monthly sum of money G (around the median income). As soon as ze starts working, ze stops receiving G and pays taxes according to the following structure: no tax area up to a gross market income equal to G, continuous increasing marginal tax rates above G. People are entitled to receive the sum for the entire life-time span, i.e. pensions are replaced by the sum G.

Since people are now free to choose whether to work or not without an income constrain, the labour market is completely flexible. All welfare expenditures are cancelled out and the only residual welfare expenditures are some forms of children benefits and subsidies to disable people.

Both the UII and the tax rate apply strictly to the individual without taking into consideration the household dimension. This is motivated, as mentioned above, by the desire not to incentivize an atomistic society based on incentives to live in separate households to receive larger total subsidies.

Figure 3. Universal Independence Income



Source: Author's Elaboration

If the income provided is high enough and is expected to be received forever in the future, it could create sufficient disincentives to paid work and should allow everybody to choose how to spend their time, reducing the attachment to the value of work itself and moving away the whole society from the ethic of work. From the society perspective, we acknowledge it would be quite a chaotic day-after if everybody decided to stop working. However this would be just the litmus paper of a society based on wrong values and wrong mechanisms. If people only work because they are forced to and not because they are willing to, we think that the GDP drop and productivity shocks would be the least worrying things. At the extreme, under we

think it would be better to come back to a cooperative rural society in which everybody choose what to do than persevere in a society in which even one single person is extorted.

Experimental evidence suggests that UBI might reduce risk-aversion and therefore promote entrepreneurial activities and investment in human capital (Blattman et al., 2014). We are convinced that these result should further hold for the UII with people having more time to spend on their personal development and to plan what they really want to do.

3 Empirical analysis

We will now put into practice what we have theoretically presented in the section above. We will thus implement three budget neutral tax and benefit reforms, introducing the new UII scheme together with a new smooth income tax function. The three reform scenarios will differ with respect to how much and what of the current system is retained. We will then compare the new regimes with the current tax-benefit system and with five UBI regimes, differing by the portion of existing benefits retained. The comparison of how different schemes perform will be about, inequality, poverty, winners and losers, average tax rate, marginal tax rate and participation tax rates. The main body of this section will present the results for just two versions of UII and two versions of UBI while the other four scenarios will be presented in the appendix.

3.1 Data and methodology

The empirical analysis makes use of microsimulation methods, using the UK component of the EUROMOD tax and benefit microsimulation model with input data coming from the Family Resources Survey (FRS) 2015. EUROMOD is the EU-wide tax-benefit model. It simulates cash benefit entitlements and direct tax and social insurance contribution liabilities on the

basis of the tax-benefit rules in place and on the information available in the underlying datasets for all EU countries (Sutherland and Figari (2013). EUROMOD produces a micro-data set with simulated variables as output.[1]

We consider the UK tax and benefit system in 2018 as our baseline scenario. The baseline system is characterised by a progressive tax schedule with three tax rates from 20% to 45% and a no-tax area below £12,500 per annum. The majority of the existing benefits follow the make-work-pay approach and are highly conditional. Universalism is confined to a limited number of disability, health and child benefits. The FRS data survey people from birth. Age is censored at 80 for confidentiality reasons.[2]

Table 1 describes the mean individual monthly disposable income, equivalised at the household level, by income decile groups under the current system. The empirical sample amounts to 43,678 individuals. Throughout the analysis we use survey weights.

Table 1. Average Equivalised Household Disposable Income at the Baseline by income deciles. £ pcm

	BASELINE INCOME DECILE GROUPS									
	1	2	3	4	5	6	7	8	9	10
MEAN INCOME	507	898	1,107	1,290	1,482	1,691	1,939	2,259	2,718	4,270

Source: Own calculations using EUROMOD with FRS 2015.

[1] Further information at https://www.euromod.ac.uk

[2] https://www.gov.uk/government/collections/family-resources-survey--2

We adopt here a budget neutral approach, meaning that we constrain the reforms we implement not to increase total expenditure by the state. In other words we constrain the change in total expenditures to be offset by change in total tax revenues. We design three UII models and five UBI models. What remains constant across the three UII scenarios is that:

- UII is provided to everybody not working;
- under the UII scheme people earning less than UII do not pay taxes;
- those who have labour gross incomes greater than UII pay taxes according to the following rational function for the effective (average) income tax E(X) (Schwarz and Sommer, 2018):

  $E(X| E_{max} , X (0) , X (h)) = E_{max} \cdot\{[X- X (0)]/ [X-2 \cdot X (0) + X (h)]\}$

E_{max} is here the maximum effective tax rate, **X** gross market incomes, **X(0)** the basic threshold below which income is untaxed, and finally **X(h)** a parameter shaping the concavity of the function, i.e. a threshold above which the effective tax rate starts rising in a steeper way. In this first attempt we set E_{max}=0.9 in line with the maximum effective income tax rates in the UK during the '70s (Atkinson & Salverda, 2005; Alvaredo et al., 2013), X(0) equal to the UII benefit, and X(h) at six time the UII benefit. The reason for setting the no tax area threshold at the benefit level is that it seems more egalitarian to allow people to retain the whole gross wage once they decide to work even if they could have opted out and took the benefit. From a certain perspective this is the only incentive to work provided under the UII scenario. However, we think that the UII should be seen as a tool of freedom, a tool allowing people to choose whether to work or not; thus we think those deciding to work should not be penalised and thus not paying taxes until the same amount of the benefit provided to those who do not work. The X(h) parameter conversely does not have a specific interpretation. For the main

analysis we set it at six times the benefit; six seems to us a reasonable value after having tried other values[3].

We thus have:

$E[X|E_{max}, X(0), X(h)] = 0.9 \cdot (X-UII)/(X+4UII)$

leading to net income Y:

$$Y(UII) = \begin{cases} UII, & X \leq 0 \\ X, & 0 < X \leq UII \\ X - X \cdot (0.9 \cdot (X - UII)/(X + 4UII)), & X > UII \end{cases}$$

- Under UBI scenarios, the benefit is provided unconditionally to everybody (though with different age bands across the scenarios) and the same tax schedule applies, leading to:

  $Y(UBI) = UBI + X - X \cdot \{0.9 \cdot [(X - X(0)/(X - 2 \cdot X(0) + X(h)]\}$

We thus have eight different scenarios to evaluate the effects of different schemes changing the age of beneficiaries and the level of existing benefit retention. UII-1 and UBI-1 are more radical schemes, UII-2 and UBI-2 intermediate and UII-3 and UBI-3 are the ones with the largest retention of existing benefits. UII-1 remains our preferred utopian model. UBI-4 and UBI-5 are variations that would not make sense under a UII perspective and thus do not have a corresponding UII version. The different eight scenarios are thus the following and are summarised for simplicity in Table 2:

- Untaxed UII-1 to everybody not working aged over 16 with complete replacement of the existing benefits and pensions.[4]
- Untaxed UII-2 to everybody not working aged 17 to 64 replacing the existing benefits but keeping pensions for people aged over 64.

[3] We have tried different combination of both X{h} and Emax. We have pursued the analysis for combination of values of X{h} ranging from 2 to 12 and of Emax from 0.45 to 0.95. Under revenue neutrality, as expected the smaller (higher) Emax and the higher (smaller) X{h} the smaller (higher) turns out to be the individual benefit. We are convinced the chosen value represents a coherent choice for our simulation.

[4] The reason for using 16 as a cut-off is because it corresponds to the end of compulsory schooling in the UK.

- Untaxed UII-3 to everybody not working aged over 16 retaining disability and health benefits but not pensions.
- Untaxed UBI-1 to everybody aged over 16 with complete replacement of the existing benefits and pensions.
- Untaxed UBI-2 to everybody aged 17 to 64 replacing the existing benefits but keeping pensions for people aged over 64.
- Untaxed UBI-3 to everybody aged over 16 retaining disability and health benefits but not pensions.
- Untaxed UBI-4 to everybody from birth with complete replacement of the current benefit and pensions.
- Untaxed UBI-5 to everybody aged 25-64 keeping existing non-means tested benefit for those younger than 25 and pensions for those older than 64.

Table 2. Alternative tax-benefit scenarios

SCENARIOS	AGE REFERENCE GROUP	MEANS-TESTED BENEFITS RETAINED	NON-MEANS-TESTED BENEFITS RETAINED	PENSIONS RETAINED
UII-1	>16	No	No	No
UII-2	17-64	No	No	Yes
UII-3	>16	No	Disability and Health	No
UBI-1	>16	No	No	No
UBI-2	17-64	No	No	Yes
UBI-3	>16	No	Disability and Health	No
UBI-4	>=0	No	No	No
UBI-5	25-64	No	Yes for people <25	Yes

Notes: Scenarios UII-1: to everybody not working aged over 16 with complete replacement of the existing benefits and pensions; UII-2: to everybody not working aged 17 to 64. replacing the existing benefits but keeping pensions for people aged over 64; UII-3: to everybody not working aged over 16 retaining disability and health benefits but not pensions; UBI-1: to everybody aged over 16 with complete replacement of the existing benefits and pensions; UBI-2: to everybody aged 17 to 64 replacing the existing benefits but keeping pensions for people aged over 64; UBI-3: to everybody aged over 16. retaining disability and health benefits but not pensions; UBI-4: to everybody from birth with complete replacement of the current benefit and pensions; UBI-5: to everybody aged 25-64. keeping existing non-means tested benefit for those younger than 25 and pensions for those older than 64.

Through an iterative process, we thus derive the values of relevant policy parameters for each reform scenario (i.e. the amount of UII or UIB). To ensure comparability between the UII and UBI scenarios, for the latter we keep the no-tax area threshold, X(0) , at the UII benefit level[5], and X(h) at six times the UII. This makes most sense when we want to evaluate the effect of these two schemes on poverty and inequality. Indeed, changing the thresholds would create reference point problems. Finally, as mentioned both UII and UBI are untaxed.

[5] For scenarios UBI-1 and UBI-4 we use the UII value from scenario UII-1; for scenarios UBI-2 and UBI-5 we use the UII value from scenario UII-2; for scenario UBI-3 we use the UII value from scenario UII-3.

We think it is important to stress that while we impose revenue neutrality we are not convinced it is the only (and best) way of doing this kind of simulations. In other words, while it seems the price to pay to make the analysis credible in the current socio-political situation (Torry, 2018) we believe that under a more utopian, inspirational and ambitious mindset, a different role of the government and a larger involvement should be, at least, discussed. Indeed, with respect to the UK, where the expected cuts to social security in 2021 are about £37 billion compared to 2010[6], why should not we be allowed to at least consider increasing government expenditures again while perhaps increasing taxes on wealth and high earners instead of keep going on the opposite direction?

3.2 First Order Static Results

We compare the 8 different scenarios and the current tax and benefit system in place in the UK in 2018. We will compare first-order results (i.e. before any behavioural changes) with respect to 1) inequality measures; 2) poverty measures; 3) percentage of winners and average gain by different subgroups; 4) average effective tax rates (AETRs) and marginal tax rates (MTRs); Participation Tax Rates (PTRs).

In Table 3 we can see that, when introducing UII with full replacement (scenario UII-1), those who do not work receive a benefit of £1,262 per month and no one has negative disposable incomes. Under UBI with full replacement (UBI-1), everybody receives £245 per month but there are still individuals with negative incomes. When other benefits and/or transfers are kept in place, obviously as expected, the value of the new benefit itself goes down. A striking difference emerges when we confront the maximum equivalised individual disposable income in the reformed scenarios with the baseline, and the maximum value in

[6] https://socialmetricscommission.org.uk/new-report-on-poverty-from-independent-commission-highlights-scale-of-challenge-facing-new-prime-minister/

the baseline is more than four times higher than in the reformed scenarios. This is due to the great progressivity introduced with the smooth tax function. While this last indicator to show the effect of the tax function, since it may represent just one individual, it may not say much about inequality. To this end, column (e) shows the ratio of the 90th and 10th percentile of the distribution (P90/P10). It is again evident that UII outperforms both the baseline and UBI and that UBI performs worse even than the baseline. The difference we can see in mean equivalised household disposable income (column (b)) of Table 3 is due to the fact that revenue neutrality is imposed in terms of non equivalised individual disposable income.

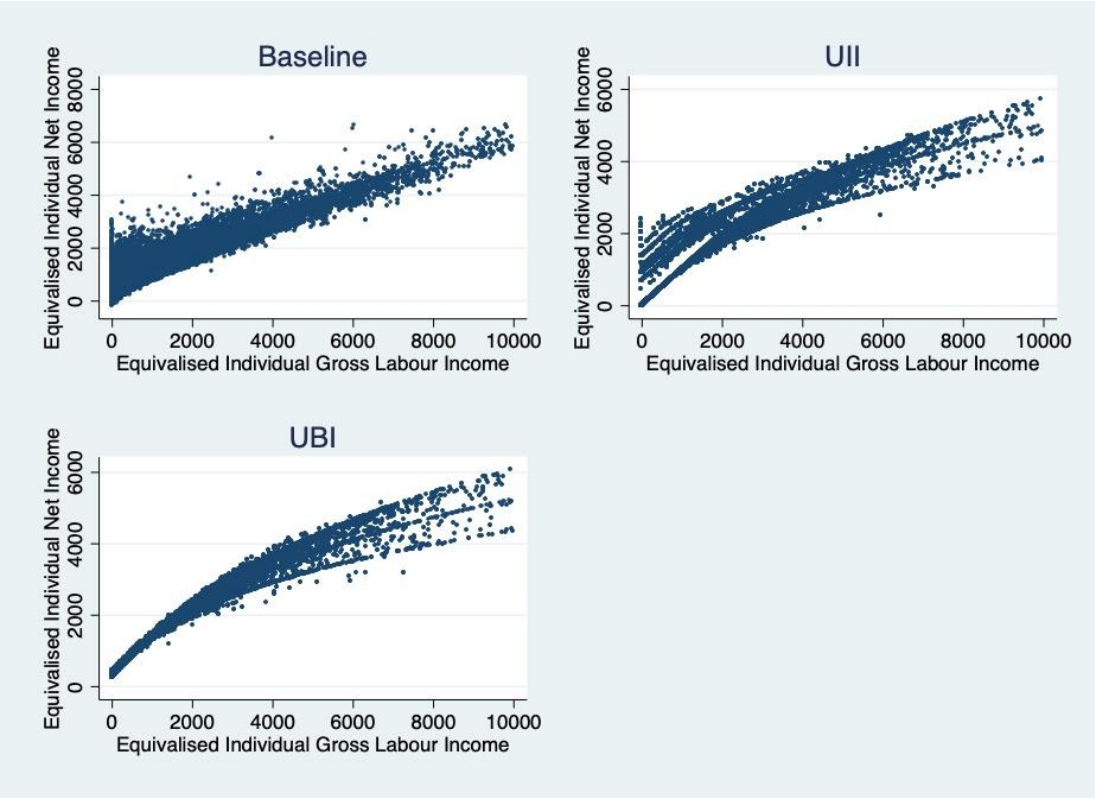
Table 3. Summary table

SCENARIOS	(A)	(B)	(C)	(D)	(E)
UII-1	1,262	1,557	0.1	14,350	3.15
UII-2	1,074	1,554	0.1	13,805	2.74
UII-3	1,174	1,559	0.1	14,095	2.93
UBI-1	245	1,546	-573	13,920	4.12
UBI-2	218	1,547	-618	13,450	4.01
UBI-3	228	1,550	-597	13,702	4.07
UBI-4	197	1,573	-621	13,976	4.56
UBI-5	230	1,547	-606	13,460	4.18
BASELINE	n/a	1,579	-368	57,125	3.82

Notes: (a) Monthly Benefit Value. (b) Mean Equivalised Individual Disposable Income. (c) Minimum Disposable Income across the Population. (d) Maximum Disposable Income across the Population (e) p90/p10 ratio; Scenarios: as in Table (2)
Source: Own calculations using EUROMOD with FRS 2015.

As can be seen in Figure 4, presenting scenarios UII-1, UBI-1 and the baseline, the two reformed scenarios display quite evidently the smooth nature of the new tax schedule. However, with the introduction of UII those at the low end of the distribution are better off than under UBI. Under UII there is no one with equivalised individual disposable income smaller or equal to 0, even if there may be individual with very low income, because since they are earning very little they do not receive UII.

Figure 4. Distribution of disposable income, for the baseline, UII-1 and UBI-1



Source: Own calculations using EUROMOD with FRS 2015.

It is not straightforward to compare the values of the simulated benefits with those featuring in earlier studies because in some cases a distinction of benefit recipients is made by age groups, and some analyses have not considered a full replacement of benefits. The vast majority of the current literature tends to refer to UBI even when conditionality is required, or means-tested benefits are retained, or, more generally, uses the term UBI in a quite vague and ephemeral way. To give a rough idea of comparison, we compare with the following three works about the UK. All of them use EUROMOD for their simulation.

Under a static approach, without taking into account labour supply responses and based on benefit levels in the 2016/17 tax year, Martinelli (2017) computes with full replacement a UBI to working age people (18-64) of £73.10 per week, i.e. around 292.4 pcm. It is similar to our UBI-5 scenario with the exception that in this scenario we retain existing pensions for those older than 64 and non-means-tested benefit for those younger than 25

while Martinelli (2017) replaces them with £155.60 for pensioners and around £67.01 for dependent children (financed with a 4% increase of each of the existing progressive tax bands)

Using an approach which is a combination of structural microeconometric modelling, microsimulation and numerical optimization, Islam & Colombino (2018) simulate a UBI plus flat-tax scenario with near-complete replacement even if it is not fully clear who are the beneficiaries. i.e. which age bands are covered and how much of the existing benefits is retained. The UBI benefit for one person household is around £625 per month and it is added to gross income to be taxed. The value is higher than the ones we found in the different scenarios also because it takes into account labour supply responses.

After replacing the old tax regime with a new "Hybrid Negative Income Tax"[7] scheme the amount of the exemption/benefit that Tromp (2017) finds feasible is computed using a static microsimulation model (EUROMOD). For the United Kingdom this amounts to £570 for working age adults (23-64) per month when keeping work incentives equal as far as possible in comparison with the current situation, i.e. keeping the tax brackets as similar as possible to the existing structure. Children younger than 16 would get £250, young adults (16-22) £400 and pensioners above 63 would get £950. Also in this case the benefit is added to gross income in order to be taxed. The Hybrid Negative Income Tax is not a constant subsidy paid to everybody but it is a decreasing subsidy (Fig. 2), which thus does not involve the universality that normally characterises UBI.

Overall our results seem quite in line with those of Martinelli (2017) which is also the scenario which is closest to what we are currently presenting.

[7] A HNIT is designed as mixture between a NIT (see section 2) and a classic social assistance scheme.

In Table 4 we present results on inequality and poverty measures. As an inequality measure we use the Gini coefficient, which is commonly used to measure income dispersion, the higher the Gini, the more dispersed are incomes, the more unequal is a country. With respect to poverty we use the Headcount Ratio (HC) which measures the proportion of a population that lives below a given poverty line. In column (b) we present the HC with constant poverty line set a 1/2 median value of the baseline equivalised individual disposable income, while in column (c) we show the HC with the poverty line varying scenario by scenario to 1/2 median value of each equivalised individual disposable income.

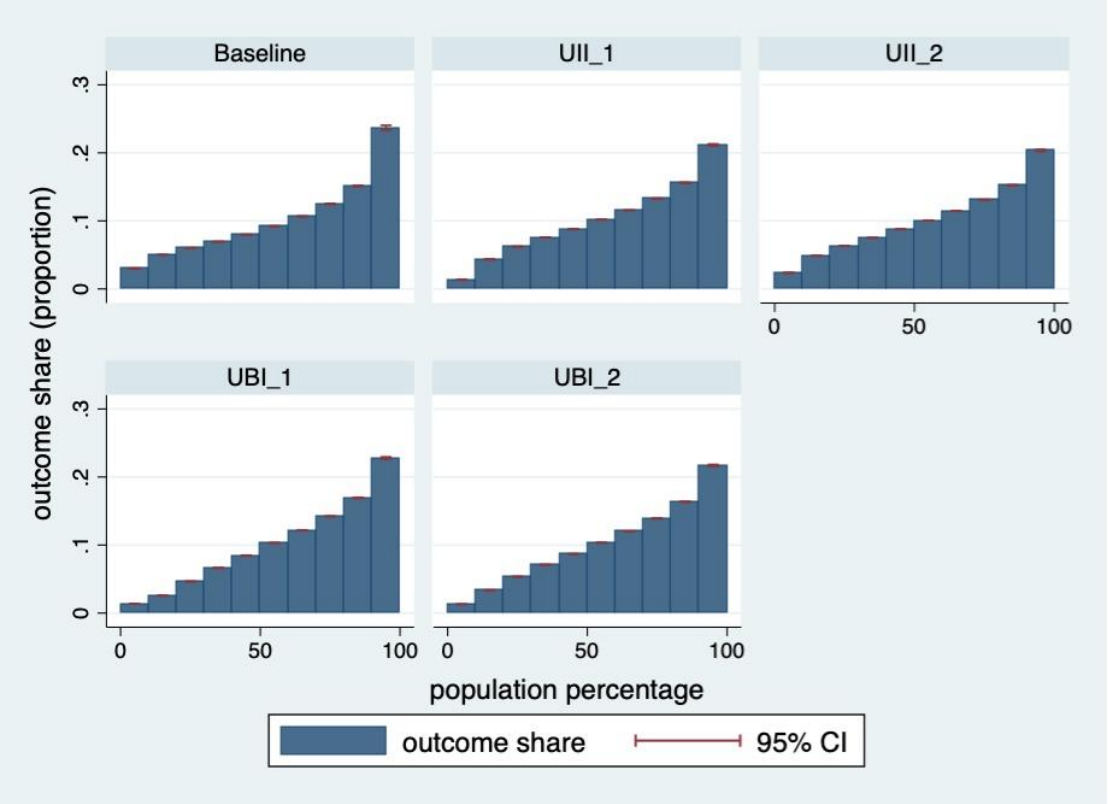
With respect to inequality all the three UII scenarios perform better than the baseline, and much better of any UBI scenario. Indeed, we can see that the Gini in the current system is 0.310, under UII ranges from 0.282, when pensions are retained and UII is provided to non working people aged 16-64, to 0.307 in the complete replacement scenario (UII-1). On the other hand, when introducing UBI the Gini is always higher than the baseline scenario and in the case of complete replacement of the existing benefits when UBI is provided to everybody older than 16 (scenario UBI-1) the coefficient jumps up to 0.365. Figure 5 confirms that the share of income which belongs to the top income decile group of the population is always smaller in UII regimes.

Table 4. Inequality and Poverty

SCENARIOS	(A)	(B)	(C)	POVERTY LINE
UII-1	0.307	14.252	16.406	785.3
UII-2	0.282	11.555	13.861	765.5
UII-3	0.293	13.582	16.155	783.2
UBI-1	0.365	23.292	25.330	766.5
UBI-2	0.347	19.391	21.885	771.0
UBI-3	0.345	20.112	22.628	762.1
UBI-4	0.363	22.031	24.577	780.7
UBI-5	0.342	19.334	21.909	772.3
BASELINE	0.310	8.769	8.769	696.8
PRE-TAX	0.513	32.112	31.607	675.6

Notes: (a) Gini coefficient (b) Headcount Ratio with a constant poverty line set a 1/2 median value of the baseline income distribution (£696.762). (c) Headcount Ratio with a varying poverty line set a 1/2 median value of each income distribution (in parenthesis). Scenarios: as in Table (2).
Source: Own calculations using EUROMOD with FRS 2015.

Figure 5. Share of income by income decile groups



Source: Own calculations using EUROMOD with FRS 2015.

The results about UII seem promising also given that here we are considering only the effects on inequality the day after the new regime has been implemented, i.e. without taking into account labour supply responses. However, in the case of UII those who earn below UII would have in the dynamic setting a) the possibility of leaving their job and thus getting the UII; b) increased bargaining power which would allow them to ask for higher wages. Thus, we believe it is fair to assume that many of the figures would change in favour of a more redistributive power of UII scenarios, once the dynamic component is accounted for.

With respect to the impact on poverty, the regimes in which the UII is implemented perform in an intermediate way between the baseline scenario and the ones where UBI is introduced. When the poverty line is kept constant at the baseline level (column (b)), the Headcount ratio in scenario UII-2, where UII is provided to those non-working aged 16-64 and pensions are retained, comes quite close to the baseline level. What is conversely striking is the high values for the UBI scenarios. This is not surprising overall for us as the UBI being a universal measure benefits everybody in the same way and once all existing benefits are cancelled out, the introduction of UBI generates poverty.

Martinelli and O'Neill's (2019) cross-country analysis involves 28 European countries and five different UBI schemes. They use the same data and model we are using here and find similar results with respect to poverty but a small inequality-reducing effect (Gini from 0.310 to 0.294) from the introduction in the UK of a UBI with full replacement (similar to our UBI-1). However, to finance an individual UBI for every adult over 18 of around £700pcm, they add on top of the current tax structure a 32% flat tax on disposable income.

As stressed in Martinelli (2018) UBI, designed as a constant equal payment to everybody, proves to be either infeasible (due to the high costs it would require to be more generous or to retain existing benefits) or ineffective and actually counterproductive in

tackling poverty and inequality. There is one exception in Torry (2015) and then updated in Torry (2019) where a (conditional) Citizen's Basic Income plus means tested benefit leads to some positive outcomes in terms of inequality (Gini=0.275) and poverty (-30% population in poverty). However, the working age adult monthly amount was supposed to be around just £200, conditionality was kept in place and means testing as well, reducing the total costs in means-tested benefits by only 31% (Torry, 2019). While this exercise is quite successful in tackling poverty, it does not address under any perspective the problem of power relations within the job market, and, most of all, it is not, by definition, under any perspective a Universal Basic Income.

In Table 5 we present the share of winners in 4 reformed scenarios, namely UII and UBI to those aged over 16 with full replacement (scenarios 1 and 4) and UII and UBI to those aged 16-64 with pensions retained (scenarios 2 and 5).[8] We present here the share of winners by baseline equivalised household disposable income decile groups. Winners are here defined in three different ways: as those individuals gaining more than £100 pcm (Brick et al., 2018) with respect to the baseline; as those gaining more than £50 pcm (Obinna et al., 2015) or as net winners, gaining just one pound with respect to the baseline.[9]

[8]Values for the other scenarios are provided in the appendix in Table 8.
[9] Results for losers are provided in the appendix in Tables 12 to 15.

Table 5. Share of winners, i.e. income gain of more than £100, £50 or £1 a month with respect to the baseline scenario

	BASELINE INCOME DECILES										TOTAL
	1	2	3	4	5	6	7	8	9	10	
	Winners 100										
UII-1	0.67	0.53	0.46	0.44	0.42	0.53	0.55	0.53	0.51	0.21	0.48
	0.007	*0.007*	*0.007*	*0.007*	*0.007*	*0.008*	*0.008*	*0.008*	*0.008*	*0.007*	*0.002*
UII-2	0.62	0.45	0.42	0.43	0.43	0.51	0.52	0.47	0.39	0.08	0.43
	0.007	*0.007*	*0.007*	*0.007*	*0.007*	*0.008*	*0.008*	*0.008*	*0.008*	*0.004*	*0.002*
UBI-1	0.43	0.25	0.38	0.47	0.49	0.62	0.72	0.73	0.71	0.45	0.53
	0.007	*0.006*	*0.007*	*0.007*	*0.007*	*0.007*	*0.007*	*0.007*	*0.007*	*0.008*	*0.002*
UBI-2	0.44	0.26	0.39	0.53	0.57	0.69	0.73	0.71	0.64	0.27	0.52
	0.007	*0.006*	*0.007*	*0.007*	*0.007*	*0.007*	*0.007*	*0.007*	*0.008*	*0.007*	*0.002*
	Winners 50										
UII-1	0.73	0.59	0.53	0.51	0.50	0.58	0.61	0.58	0.57	0.26	0.54
	0.007	*0.007*	*0.007*	*0.007*	*0.007*	*0.007*	*0.007*	*0.008*	*0.008*	*0.007*	*0.002*
UII-2	0.73	0.53	0.53	0.52	0.54	0.61	0.61	0.56	0.47	0.12	0.52
	0.007	*0.007*	*0.007*	*0.007*	*0.007*	*0.007*	*0.007*	*0.008*	*0.008*	*0.005*	*0.002*
UBI-1	0.48	0.26	0.42	0.49	0.53	0.65	0.75	0.77	0.74	0.49	0.56
	0.007	*0.006*	*0.007*	*0.007*	*0.007*	*0.007*	*0.007*	*0.007*	*0.007*	*0.008*	*0.002*
UBI-2	0.52	0.33	0.49	0.59	0.62	0.73	0.78	0.78	0.70	0.34	0.59
	0.007	*0.007*	*0.007*	*0.007*	*0.007*	*0.007*	*0.006*	*0.006*	*0.007*	*0.008*	*0.002*

	Net winners										
UII-1	0.78	0.63	0.57	0.57	0.56	0.63	0.64	0.63	0.62	0.32	0.59
	0.006	*0.007*	*0.007*	*0.007*	*0.007*	*0.007*	*0.007*	*0.007*	*0.008*	*0.007*	*0.002*
UII-2	0.80	0.60	0.58	0.59	0.61	0.68	0.69	0.64	0.55	0.17	0.59
	0.006	*0.007*	*0.007*	*0.007*	*0.007*	*0.007*	*0.007*	*0.007*	*0.008*	*0.006*	*0.002*
UBI-1	0.52	0.30	0.45	0.52	0.55	0.67	0.77	0.79	0.77	0.53	0.59
	0.007	*0.007*	*0.007*	*0.007*	*0.007*	*0.007*	*0.007*	*0.006*	*0.007*	*0.008*	*0.002*
UBI-2	0.57	0.37	0.54	0.61	0.66	0.77	0.83	0.83	0.74	0.38	0.63
	0.007	*0.007*	*0.007*	*0.007*	*0.007*	*0.006*	*0.006*	*0.006*	*0.007*	*0.008*	*0.002*

Notes: Deciles calculated for the Equivalised Household Disposable Income in the Baseline. Scenario UII-1: to everybody not working aged over 16 with complete replacement of the existing benefits and pensions; UII-2: to everybody not working aged 17 to 64. replacing the existing benefits but keeping pensions for people aged over 64; UBI-1: to everybody aged over 16 with complete replacement of the existing benefits and pensions; UBI-2: to everybody aged 17 to 64 replacing the existing benefits but keeping pensions for people aged over 64.Standard Errors in italics.
Source: Own calculations using EUROMOD with FRS 2015.

With all three definitions of winners, there is one constant feature: when UII is introduced the higher share of winners is concentrated in the poorest deciles, while under the UBI regime winners are concentrated in the top deciles with a greater proportion of winners from the 5th decile on. In the 10th income decile group, given the greater progressivity introduced with the new tax function, both under UII and UBI the share of winners is almost always below 50% but in the case of UII they even arrive to as little as 8% and they are never above 20%. What seems striking in the UII scenarios is the reduction of the proportion of winners in the central deciles (especially in the 4th and 5th) compared to the other deciles. We consider this result also driven by the lack of dynamic effect, since those until the 5th decile earn less than UII (compare Table 2). This hypothesis is reinforced by looking at the change in disposable income compared to the baseline (first part of Table 6) where we see that in the UII scenarios those in the central deciles, suffer some income losses or gain less than, for example, those in the 6th and 7th deciles. In the UII scenarios the greatest losses are, however, concentrated in the top decile and the larger gains in the first decile. Also in this case the UII seems to be more efficient in redistribution than UBI, under which people in the lowest deciles suffer almost always some income losses.

Even if in this paper we have not considered the dynamic effect, we have tried to simulate the day after situation when everybody earning below UII decide to quit their job and start receiving UII. As expected the value of UII decreases a lot, for example UII-1 moves £1262 to £906 per month but, while keeping the tax burden constant, it does not seem to become unfeasible. It is however reasonable to expect that people earning very little more than UII would decide anyway to quit their job and perhaps the value could decrease even more. As mentioned in section two, while this tendency to potential infeasibility can be worrying under a standard reasoning, from our perspective if it turns out that the majority of

people decide to quit their job to receive the benefit this would only mean that the current system is mainly based on extortion and its collapse can be desirable.

In Table 6 we also present the average gain by age group and household type. We consider here 7 age groups as consistent as possible with the way we designed our policy reforms i.e. 0-16, 17-24, 25-34, 35-44, 45-54, 55-64 and 65-80. With respect to the household types, we divide our sample by six different household types: singles aged 25 to 64 which are around 7% of our sample; singles aged 65 to 80 which are another 7% of the sample; couples aged 25 to 64 living with at least one person aged 0 to 24 (which we conventionally consider in our interpretation to be the offsprings of the couple) which constitutes the most populous household type, 39%; couples aged 25-64 living without anybody else, 14%; single parents aged 25-64 living with at least one person aged 0-24, 12%; and couple of pensioners aged 65 to 80 which are around 10% of the sample. We are then left with about 11% of our sample which live in households that have a different structure.

When we look at the average gain by age groups (central part of Table 6) we can see that under UII those benefitting more from this benefit are those in the middle years of their life. Children below 17 lose what they would be entitled to under the baseline scenario. However, as the UII is provided individually to each non-working parent and higher than any other benefit currently in place, parental gains are expected to outperform children's loss. When pensions are retained in scenario 2, it is evident that elderly's average loss sharply decrease from £424 to just £29 per month. Under UBI the results are similar with the relevant difference that those aged 17 to 34 have gains that are lower than under UII. This is due to the fact that in these two age groups there are more people with no market incomes who, thus, are allowed to receive UII. With UII being considerably larger than UBI the benefit for those who receive it is much larger.

When we then move our focus on the average win by household type in the last panel of Table 6 we can see that under UII those that lose more in this scenarios are the elderly, also, even if less, when pensions are retained (in this case singles aged 65-80 still lose quite a lot while couples of pensioners do not lose very much). At the same time, under UII, especially in scenario 2 single parents (column e) have some losses. When looking at the differences across household types, gains from UII are mainly concentrated among couples both with and without children. This is, again, one of the desired goals of our reform, i.e. inducing people to form new households together, tackling the atomisation of our society which is strongly supported by the structure of the majority of the current benefits which involve household based equivalence scales and reductions of the benefits which do not allow the creation of economies of scale. The results about UBI do not differ very much while they simply confirm the UBI to be less balanced and performing on average worse than UII.

Table 7 complements the picture showing the £50 pcm winners by both age groups and household type. The figures confirm what we have just described with UII benefitting more young people and those living in couples, while harming more singles and, once pensions are not retained, older people.

Table 6. Average income gain by income decile groups, age groups and household types, monthly figures.

	AVERAGE GAIN BY INCOME DECILES										TOTAL
	1	2	3	4	5	6	7	8	9	10	.
UII-1	432	138	51	-6	-55	19	33	18	3	-491	14.1
	8.46	*7.74*	*7.55*	*8.11*	*7.68*	*7.37*	*7.07*	*6.66*	*6.95*	*26.2*	*3.5*
UII-2	333	92	34	24	1	56	51	23	-38	-625	-4.7
	6.61	*5.63*	*5.73*	*5.98*	*5.71*	*5.44*	*5.31*	*4.97*	*5.62*	*26.6*	*3.22*
UBI-1	-1	-207	-124	-80	-44	99	186	243	238	-233	7.78
	4.60	*5.43*	*6.01*	*6.97*	*7.47*	*7.13*	*7.16*	*6.50*	*7.27*	*26.5*	*3.28*
UBI-2	2.43	-167	-84	-32	596	167	193	193	141	-426	-8.74
	4.31	*5.20*	*5.37*	*5.96*	*6.28*	*5.71*	*5.69*	*5.10*	*6.24*	*26.9*	*3.15*
	Average Gain by Age Groups										
	0-16	17-24	25-34	35-44	45-54	55-64	65-80				
UII-1	-23	223	158	71	170	134	-424				
	7.58	*11.7*	*6.88*	*14.3*	*8.05*	*8.50*	*5.80*				
UII-2	-121	101	46	-45	47	59	-29				
	7.55	*11.1*	*6.63*	*14.5*	*8.05*	*8.14*	*3.72*				
UBI-1	-62	85	191	87	163	165	-389				
	7.51	*9.97*	*6.68*	*14.2*	*7.62*	*7.94*	*3.77*				
UBI-2	-145	-3.64	85	-21	53	90	-36				
	7.50	*9.74*	*6.51*	*14.3*	*7.72*	*7.87*	*3.65*				
	Average Gain by HH type										
	a	b	c	d	e	f	g				
UII-1	123	-501	122	179	-43	-499	48				
	12.03	*9.47*	*6.51*	*7.38*	*8.07*	*7.80*	*8.47*				
UII-2	10	-111	3.75	51	-130	-2	43				
	12.1	*7.32*	*6.54*	*7.55*	*7.38*	*4.17*	*7.27*				
UBI-1	63	-502	112	294	-198	-397	-6				
	13	*6.99*	*6.26*	*6.84*	*7.06*	*4.29*	*7.21*				
UBI-2	32	-111	5	161	-255	-2	-7				
	12.9	*7.32*	*6.35*	*7.0*	*6.70*	*4.17*	*6.73*				

Notes: Deciles calculated for the Equivalised Household Disposable Income in the Baseline. Scenarios: as in Table (5). Household types: a (6.92%): Single 25-64; b (6.67%):Single 65-80; c(38.9%): Couple 25-64 with young people 00-24; d(13.9%): Couple 25-64 without young people 00-24; e(11.6%):Single 25-64 with children 00-24; f(10.2%):Couple 65-80; g (11.7%) Residual. Standard Errors in italics.
Source: Own calculations using EUROMOD with FRS 2015.

Table 7. Share of winners (£50) by age groups and household types

	SHARE OF WINNERS BY AGE GROUPS						
	0-16	17-24	25-34	35-44	45-54	55-64	65-80
UII-1	0.47	0.71	0.68	0.60	0.69	0.65	0.19
	0.005	*0.008*	*0.007*	*0.007*	*0.006*	*0.007*	*0.004*
UII-2	0.33	0.66	0.58	0.46	0.58	0.60	0.55
	0.004	*0.009*	*0.007*	*0.006*	*0.006*	*0.007*	*0.005*
UBI-1	0.54	0.64	0.73	0.68	0.72	0.70	0.07
	0.005	*0.008*	*0.006*	*0.006*	*0.006*	*0.006*	*0.002*
UBI-2	0.44	0.59	0.67	0.60	0.66	0.68	0.55
	0.005	*0.009*	*0.007*	*0.006*	*0.006*	*0.006*	*0.002*
	Share of Winners by HH type						
	a	b	c	d	e	f	g
UII-1	0.73	0.16	0.61	0.75	0.44	0.15	0.53
	0.009	*0.007*	*0.004*	*0.006*	*0.007*	*0.005*	*0.006*
UII-2	0.63	0.49	0.47	0.64	0.38	0.59	0.50
	0.009	*0.009*	*0.004*	*0.006*	*0.007*	*0.007*	*0.007*
UBI-1	0.64	0.02	0.71	0.81	0.37	0.02	0.51
	0.009	*0.003*	*0.004*	*0.005*	*0.007*	*0.002*	*0.007*
UBI-2	0.59	0.49	0.59	0.76	0.31	0.59	0.49
	0.009	*0.009*	*0.004*	*0.006*	*0.006*	*0.007*	*0.006*

Notes: Scenarios and household types: as in Table (6). Standard Errors in italics.
Source: Own calculations using EUROMOD with FRS 2015.

We analyse also Average Effective Tax Rates (AETR) in order to understand the feasibility of the reformed tax burden, calculated here as the ratio of personal income taxes and individual original market incomes. Table 8 shows AETR for the Baseline, UII-1, UII-2 and UBI-1, UBI-2. Indeed, in all reformed scenarios the mean value is very similar to the baseline, thus showing that the reformed scenario is feasible under this perspective. At the same time it is relevant to stress that with respect to the baseline, the median values of the AETR by income decile groups are considerably lower until the 8th decile group in the reformed scenarios and usually much higher in the 10th decile group. Overall this picture suggests that in the reformed scenarios there is strong rebalance towards the poorest percentiles or, in a more conventional way, shifting the tax burden towards higher incomes. There are not substantial differences between UII and UBI.

We now move the focus to evaluate the effect of the introduction of UII and UBI on the work incentives both at the intensive margins with the change in Marginal Tax Rates (MTRs) (Table 9 and 10) and at the extensive margine with the change in the Participation Tax Rates (PTRs) (Table 11 and 12). It is indeed important to see if and how introducing these two measure change people willingness to work more or less (intensive margin) or to enter or quit the labour market (extensive margin).

MTRs measure the proportion of a marginal increase in earnings that is lost due to increased taxes or reduced benefit entitlement.[10] For this reason MTRs are a popular indicator to analyse to what extent a worker is incentivised to increase hir work contribution (i.e. the intensive margin, which is different from the extensive margin which refers to the decision whether to work or not).

[10] "The calculations are performed by EUROMOD through the following steps: first, household disposable income is calculated; then individual earnings are increased in turn for each earner in the household and the corresponding household disposable incomes are computed. MTRs are hence calculated and assigned to the individual whose earnings have been increased. Consider the following example: assume two earners, i and j, are part of a household. Earner specific marginal effective tax rates are calculated as follows. First, household disposable income is calculated. Earnings of the first earner (i) are then increased by the margin, holding constant the earnings of the other earner (j) and any other household characteristics. The new household disposable income is hence computed simulating new tax liabilities and benefit entitlements for all household members and METRs for the first earner (i) are calculated. The same procedure is then applied to the second earner (j)." (Jara and Tumino, 2013, p. 33)

Table 8. Average Effective Tax Rates by income decile groups

	BASELINE INCOME DECILES										MEAN
	1	2	3	4	5	6	7	8	9	10	
BASELINE	0.05	0.05	0.10	0.12	0.15	0.18	0.20	0.22	0.25	0.29	0.18
	0.008	*0.005*	*0.004*	*0.003*	*0.002*	*0.002*	*0.002*	*0.002*	*0.002*	*0.002*	*0.015*
UII-1	0.0	0.0	0.02	0.03	0.05	0.08	0.11	0.15	0.19	0.33	0.11
	0.004	*0.003*	*0.002*	*0.002*	*0.002*	*0.002*	*0.002*	*0.002*	*0.002*	*0.003*	*0.001*
UII-2	0.0	0.0	0.03	0.06	0.09	0.13	0.16	0.20	0.24	0.37	0.15
	0.004	*0.003*	*0.003*	*0.002*	*0.002*	*0.002*	*0.002*	*0.002*	*0.002*	*0.003*	*0.001*
UBI-1	0.0	0.0	0.0	0.02	0.06	0.09	0.10	0.12	0.15	0.28	0.13
	0.001	*0.007*	*0.004*	*0.004*	*0.004*	*0.003*	*0.003*	*0.003*	*0.003*	*0.003*	*0.001*
UBI-2	0.0	0.0	0.02	0.04	0.08	0.10	0.13	0.15	0.18	0.33	0.15
	0.010	*0.006*	*0.003*	*0.004*	*0.004*	*0.003*	*0.003*	*0.003*	*0.003*	*0.003*	*0.001*

Notes: Decile groups calculated for the Equivalised Household Disposable Income in the Baseline. AETRs calculated for people with non-negative AETRs values Scenarios: as in Table (5). Standard Errors in italics.
Source: Own calculations using EUROMOD with FRS 2015.

In this analysis we exclude from our calculations those with non-positive earnings, and/or non-positive MTRs or MTR greater than 150. The MTR is here calculated at the individual level as the ratio of the marginal change of the tax liability over the marginal change in disposable income.

In the last two columns of table 9 we show the mean and median values of MTRs for the baseline and for our four main scenarios for those people with positive earnings and who have a non-negative MTR. As expected and desired the introduction of UII and UBI overall reduces the incentives to work more. With respect to the baseline we can see an increase of the mean MTR ranging from two percentage points when pensions are not retained (UII-1 and UBI-1) to seven percentage points when pensions are retained (UII-2 and UBI-2). When we look at median MTR the ranking does not change, however, since the median MTR in the baseline is much lower than the mean value, the difference from the baseline in the reformed scenarios is much larger.

When we look at who is more affected by the reforms across the income distribution (Table 9) we can see that work incentives increase quite substantially in the poorest half of the income distribution and reduce in the top half. The largest differences are in the poorest three decile groups and in the three richest ones. While this result is not surprising at the top of the distribution, due to the greater progressivity introduced with the new tax schedule, it is more difficult to explain the effect at the bottom of the distribution. The introduction of a higher no-tax area and the replacement of highly targeted means-tested benefits with universal benefits may be a significant element. Across the four reform scenarios the results are very similar and MTRs range from around 10% at the bottom of the income distribution to around 60% at the top.

Table 10 shows the MTR by both age groups and household type. All four scenarios show a very similar pattern. People aged above 44 experience the largest increase in the disincentives to work in all four reform scenarios. This is basically in line with what we have just seen in Table 9, since those in these two age groups are more likely to be in the higher decile group of the income distribution (since they are in their work income peak). With respect to household types, differences across the six categories we have defined are smaller in the reformed scenarios than in the baseline. Under UII, singles aged 25-64 with children aged 0-24 (column (e)) are, even if with a very little difference, those more negatively affected (i.e. smaller MTRs, thus greater work incentives). Conversely, those benefitting the most (larger MTRs, thus lower work incentives) from the introduction of the two universalistic measures are singles and couples aged 25-64 without kids (column (a) and (d) respectively). This outcome can be due to the removal of all means-tested benefits, child benefits included.

Table 9. Marginal Tax Rates across the Income Distribution

MEAN VALUE BY DECILES

	1	2	3	4	5	6	7	8	9	10	Mean	Median
BASELINE	0.53	0.58	0.54	0.44	0.39	0.34	0.33	0.33	0.34	0.40	38.7	34.4
	0.021	*0.009*	*0.008*	*0.007*	*0.006*	*0.004*	*0.003*	*0.002*	*0.002*	*0.002*	*0.002*	*0.002*
UII-1	0.09	0.17	0.20	0.27	0.30	0.36	0.41	0.46	0.51	0.61	40.5	44.6
	0.001	*0.001*	*0.010*	*0.003*	*0.003*	*0.004*	*0.004*	*0.004*	*0.015*	*0.004*	*0.004*	*0.004*
UII-2	0.11	0.20	0.24	0.32	0.35	0.42	0.46	0.51	0.56	0.66	45.2	49.9
	0.001	*0.002*	*0.010*	*0.003*	*0.004*	*0.004*	*0.004*	*0.005*	*0.013*	*0.004*	*0.004*	*0.004*
UBI-1	0.09	0.19	0.23	0.29	0.32	0.38	0.43	0.47	0.52	0.62	42.2	45.1
	0.001	*0.002*	*0.010*	*0.003*	*0.003*	*0.004*	*0.004*	*0.004*	*0.005*	*0.002*	*0.002*	*0.002*
UBI-2	0.12	0.23	0.27	0.34	0.37	0.43	0.48	0.52	0.57	0.67	46.9	50.4
	0.001	*0.002*	*0.010*	*0.003*	*0.004*	*0.004*	*0.004*	*0.005*	*0.005*	*0.002*	*0.002*	*0.002*

Notes: Deciles calculated for the Equivalised Household Disposable Income in the Baseline. MTRs presented only for people with positive earnings and non-negative MTR values. Scenario: as in Table (5). Standard Errors in italics.

Source: Own calculations using EUROMOD with FRS 2015.

Table 10. Marginal Tax Rates by Age Groups and HH Type

	MTR BY AGE GROUPS				
	17-24	25-34	35-44	45-54	55-64
BASELINE	0.34	0.43	0.45	0.41	0.38
	0.005	*0.004*	*0.003*	*0.003*	*0.003*
UII-1	0.33	0.44	0.49	0.50	0.47
	0.005	*0.003*	*0.003*	*0.015*	*0.004*
UII-2	0.39	0.49	0.54	0.55	0.52
	0.005	*0.003*	*0.003*	*0.012*	*0.004*
UBI-1	0.35	0.45	0.50	0.49	0.48
	0.005	*0.003*	*0.003*	*0.003*	*0.004*
UBI-2	0.38	0.49	0.53	0.53	0.52
	0.005	*0.003*	*0.003*	*0.003*	*0.004*
	MTR by HH type				
	a	c	d	e	g
BASELINE	0.39	0.43	0.37	0.53	0.39
	0.003	*0.002*	*0.002*	*0.007*	*0.006*
UII-1	0.49	0.47	0.49	0.38	0.41
	0.005	*0.009*	*0.003*	*0.006*	*0.005*
UII-2	0.54	0.52	0.54	0.43	0.46
	0.005	*0.008*	*0.003*	*0.006*	*0.005*
UBI-1	0.50	0.47	0.50	0.39	0.42
	0.004	*0.003*	*0.003*	*0.005*	*0.004*
UBI-2	0.54	0.51	0.54	0.42	0.46
	0.004	*0.003*	*0.003*	*0.006*	*0.004*

Notes: MTRs presented only for people with positive earnings and non-negative MTR values. Scenario: as in Table (6). Household type *b* and *f* are not reported because refer to housholds with only over 64 for whom MTRs are not calculated. Standard Errors in italics.
Source: Own calculations using EUROMOD with FRS 2015.

Table 11 and 12 present the results on the Participation Tax Rates (PTRs). The PTR shows the financial incentives to undertake (or remain in) work. More precisely, PTRs measure the proportion of gross earned income lost due to taxes and social insurance contributions or reduced benefits, comparing out-of-work option with in-work option. In this paper we simulate only transitions from work to unemployment. Differently from the MTRs that, as we

have seen above, describe the incentives to work at the intensive margin, PTRs refer to the incentives to work at the extensive margin.[11]

Our personal interpretation of PTR is that it represents individual's power of choice or, even more, individual's freedom.

As above with the MTRs, we exclude from our analysis of results observations with non-positive earnings and/or non-positive PTR. The last two columns of Table 12 show mean and median values for the Baseline, UII-1, UII-2 and UBI-1, UBI-2. The higher the PTR, the more the tax and benefit system reduces the financial incentives to work. From the figures in Table 12 we can soundly say that UII perfectly achieves our starting goal of discouraging labour market participation. Indeed, the mean value increases of around 20 percentage points with respect to the baseline for both UII-1 and UII-2. UBI results show the opposite pattern, i.e. that PTRs are lower and incentives to participate in the labour market stronger than in the baseline.

In table 11 we show that people at the bottom of the income distribution are more discouraged to work in any scenario except when UBI is introduced and that under UII the values are much larger than in the other scenarios. These results suggest that UII is a good tool to give more bargaining power to workers, while UBI is just an efficient tool to induce people into employment, to increase the labour supply and to increase the pressure on wages. People at the low end of the income distribution are those most negatively affected

[11] "The calculations are performed by EUROMOD through the following steps: EUROMOD runs three iterations of an (outer) loop and two household level loops (inner loops) . The first iteration of the outer loop runs the EUROMOD baseline as it is. The second iteration runs after having set to zero the unemployment benefits for those individuals who have both positive earnings and receive unemployment benefit. EUROMOD sets then to zero the unemployment related benefits for each individual in the household in turn (first inner loop). Finally, the third iteration runs, and calculates household disposable income in case of unemployment for all the people with positive earnings. If there are multiple earners in the household, the EUROMOD runs this third iteration for each individual in the household in turn (second inner loop)." (Jara, 2016, p.2)

by the introduction of UBI if compared with the baseline. PTRs under UBI are indeed lower in the poorest decile groups and higher in the top deciles. Conversely UII raises PTRs along the whole income distribution but it is particular effective in raising them at the lower end.

Table 11. Participation Tax Rates across the Income Distribution

	MEAN VALUE BY DECILES											
	1	2	3	4	5	6	7	8	9	10	Mean	Median
BASELINE	48.8	50.2	57.5	53.4	49.0	43.7	40.9	38.2	36.8	37.6	43.0	40.1
	0.021	*0.009*	*0.008*	*0.007*	*0.006*	*0.004*	*0.003*	*0.002*	*0.002*	*0.002*	*0.002*	*0.002*
UII-1	63.4	76.6	74.9	72.8	70.5	67.9	64.8	61.6	57.9	56.8	64.4	53.9
	0.308	*0.115*	*0.117*	*0.042*	*0.039*	*0.079*	*0.180*	*0.074*	*0.010*	*0.008*	*0.031*	*0.031*
UII-2	68.6	77.0	75.0	72.3	70.8	68.5	65.8	62.8	59.6	58.4	65.8	59.4
	0.263	*0.098*	*0.100*	*0.036*	*0.033*	*0.068*	*0.153*	*0.063*	*0.008*	*0.006*	*0.026*	*0.026*
UBI-1	26.2	27.9	30.4	31.5	32.2	33.2	35.0	36.2	39.1	47.4	36.3	36.7
	0.039	*0.002*	*0.010*	*0.005*	*0.005*	*0.006*	*0.004*	*0.004*	*0.003*	*0.003*	*0.002*	*0.002*
UBI-2	28.3	30.5	33.3	34.6	35.6	36.7	38.7	40.1	43.1	51.5	39.9	40.3
	0.039	*0.002*	*0.010*	*0.005*	*0.005*	*0.006*	*0.004*	*0.004*	*0.003*	*0.003*	*0.002*	*0.002*

Notes: Deciles calculated for the Equivalised Household Disposable Income in the Baseline. PTRs presented only for people with positive earnings and non-negative PTR values. Scenario: as in Table (5). Standard Errors in italics.
Source: Own calculations using EUROMOD with FRS 2015.

We now move our attention to the different PTRs by age groups and household types in Table 12. What seems a very important result achieved by UII is that it raises the freedom of choice for younger people who may be allowed to stay longer out of the labour market in order to choose, in case, the job that suits them the most. UII perform very well also when we look at the household that would benefit the most from its introduction. Indeed both single parents (e) and couples with children (c) are the more incentivised to quit work while under UBI they are the more incentivised to keep working. UII would allow parents of children to freely choose whether they prefer to work or to stay at home with their children. This result partially reverts the story presented about MTR and it suggests that under a static analysis even if UII may incentivise 25-64 people with children to work more (intensive margin), it surely incentives them to quit their job.

Table 12. Participation Tax Rates by Age Groups and HH Type

	MEAN PTR BY AGE GROUPS				
	17-24	25-34	35-44	45-54	55-64
BASELINE	35.5	44.5	47.0	43.5	38.9
	0.010	*0.004*	*0.003*	*0.004*	*0.005*
UII-1	67.8	68.6	65.8	62.7	56.7
	0.054	*0.023*	*0.031*	*0.099*	*0.082*
UII-2	67.6	69.6	67.4	64.3	58.7
	0.046	*0.020*	*0.026*	*0.084*	*0.070*
UBI-1	18.8	36.3	39.5	39.1	38.2
	0.008	*0.004*	*0.004*	*0.003*	*0.004*
UBI-2	21.8	39.9	43.2	42.8	41.9
	0.008	*0.004*	*0.004*	*0.003*	*0.004*
	Mean PTR by HH type				
	a	c	d	e	g
BASELINE	49.3	45.0	39.2	43.1	39.7
	0.007	*0.003*	*0.003*	*0.007*	*0.006*
UII-1	60.3	66.0	61.5	67.9	66.3
	0.051	*0.064*	*0.037*	*0.048*	*0.072*
UII-2	62.8	67.2	63.2	69.0	67.0
	0.043	*0.054*	*0.031*	*0.041*	*0.062*
UBI-1	37.6	36.5	38.6	33.6	31.8
	0.006	*0.003*	*0.003*	*0.006*	*0.005*
UBI-2	41.5	40.1	42.4	36.8	35.1
	0.006	*0.003*	*0.003*	*0.006*	*0.004*

Notes: PTRs presented only for people with positive earnings and non-negative PTR values. Scenario: as in Table (6). Household type *b* and *f* are not reported because refer to housholds with only over 64 for whom PTRs are not calculated. Standard Errors in italics.
Source: Own calculations using EUROMOD with FRS 2015.

4 Concluding remarks

In this final part we will first discuss some of the possible difficulties that may naturally arise from this proposal and we then summarise our main conclusions.

4.1 Challenges and Limitations

Some concerns might emerge with respect to the tax and benefit system we are proposing.

First of all, there might be a problem with respect to a growing risk of informal work and of people keeping the UII while earning some extra money, especially for existing jobs paying under the benefit level. We are convinced that one possibility to reduce this risk is through a system of penalties. People losing the access to UII would almost lose any welfare benefit. Thus, if the punishment for being picked a given number of times (1/2/3) working without declaring their working status was the perpetual loss of the access to UII, this could be quite a strong disincentive to informal work. In any case, since we want to remain under a clearly utopian perspective, while it is fundamental to try to address potential issues, exploring appropriate enforcement schemes is out of scope for the current analysis.

Another possible concern is the effect on the labour supply of such a reform. While it is important to investigate these effects, there remains a question of why only people from richer backgrounds should be allowed to choose and people from more disadvantaged backgrounds should not. In other words, even in the case that the introduction of this form of UII lead to a strong reduction in the labour supply, it would simply mean that the main reason why people were working was the necessity to work. As discussed in section three, even if not accounting for the dynamic adjustment of the labour supply, when giving UII to everybody currently earning below UII the value of the individual benefit diminishes but it does not become unfeasible. It remains obviously open the possibility that more and more people could decide to quit the labour market and thus make the benefit to low and the whole

system unfeasible. This has to be investigated in further research but theoretically, it is not something that can worry us. Under the utopian approach the drastic voluntary reduction of the labour supply would be the main achievement of UII, since it would indeed show that (poor)people are working just because they are obliged to. It would immediately destroy the whole rhetoric about work and the work ethic.

With respect to the possibility that the introduction of UII would let the system to collapse, we are convinced that the egoistic nature of the human being would accept a sharp reduction of profits if this would allow to preserve a crumb of profits and inequality. Thus, under a dynamic approach wages would adapt, automation would increase while perhaps, indeed, profits would decrease, although perhaps only in the medium term.

We need to acknowledge that while we are trying to investigate the effect of the introduction of the UII on work incentives, using them as a proxy for the effect on the labour supply, at the current stage of our research we are not able to investigate which could be the effect on the labour demand (Peichl and Siegloch, 2012; Dolls et al., 2017). Since the introduction of the UII would induce a radical change, it is difficult to formulate a hypothesis about the determination of the equilibrium wage. In fact, if the UII had the effect of removing people from the labour market, the place within which wages are now determined would be dramatically changed. Some strong assumptions would be thus needed. Theoretically we therefore assume unconstrained demand, moving from the ideological belief that the current capitalistic arrangement is just one of the possible arrangements which is originated from one of the possible rationalities. We therefore assume unconstrained demand side beyond the current paradigm of profit maximisation.

Finally, a further emphasis should be put on the fundamental role of technological change. One common, though trivial, comment UBI supporters are used to receive is the old

adage “there is no such a thing as a free lunch”. This is dramatically false or, at least, can be false: thanks to automation we can aspire to a free lunch. What is needed is a propulsive trust in innovation. Once we will be able move beyond the rhetoric of the hard-work we will realise that we do not really need that much work (Frey and Osborne, 2013; Bowles, 2014; Elliott, 2014). Innovation and its exploitation may be the real forces of the much-awaited human liberation.

4.2 Conclusions

The aim of this work was twofold: first, to develop, on a theoretical basis, a radical tax and benefit reform with the introduction of the Universal Independence Income; second, to empirically investigate the effects of possible versions of this reform in the UK.

We have first reviewed many types of benefits existing in most developed countries analysing their role in supporting the work ethic. We have then presented how the preferred proposal of UII would work. Every person at the end of the high school receives a regular monthly sum of money G (around the median income). As soon as ze starts working, ze stops receiving G and pays taxes according to the following structure: no tax area up to a gross labour income equal to G, continuous increasing marginal tax rates above G. People are entitled to receive the sum for the entire life-time span, i.e. pensions are replaced by the sum G.

In the third part we first present our data and methodology and we then simulate the introduction of our preferred version of UII (UII-1), two variations of UII and five forms of UBI to be compared with the tax and benefit system currently in place in the UK. Our main findings of its first-order effects can be briefly summarised as follows:

- the monthly simulated UII in our three scenarios ranges from £1074 to £1262 and in our five UBI scenarios from £197 to £245 depending on current benefit retention, pension retention and target population;
- in terms of inequality, measured in this paper with the Gini coefficient, UII scenarios perform better than the baseline and much better than any UBI scenario, while with respect to poverty UII performs better than the baseline but worse than UBI;
- the UII shows a larger redistributive power, indeed when UII is introduced a higher share of winners is concentrated in the poorest deciles of the income distribution, while under the UBI regime winners are concentrated in the top deciles;
- Marginal Tax Rates are higher on average both under UII and UBI compared to the baseline;
- Participation Tax Rates are much higher under UII and lower under UBI compared to the baseline, proving the UII to be the best measure to discourage work and to move the society out of the work ethic;
- Overall UII seems to be a measure that advantages the most low-earning workers and provides them with an exit strategy, while UBI confirms to be the perfect tool in the hands of employers to increase the labour supply, depress wages and increase profits.

In this work we simulated all new scenarios under budget neutrality, i.e. without any extra expenditure by government. While this can have some sense under a perspective of political feasibility, it is important to stress that increasing government expenditure could potentially be entirely legitimate, e.g. just to give an idea, only in the UK the cuts to social security in the last decade amounted to more than £35 million. This means that enlarging government

expenditure could considerably increase the amount of UII and that the results provided here can be considered as lower bounds.

We look forward to complementing this research in several directions. First of all we would like to investigate, in a dynamic framework, the effects at the extensive margin of the labour supply after the introduction of UII using a dynamic labour supply model. After the introduction of the UII, we expect different reactions across both the income distribution and, most of all, according to the type of occupations. Indeed, we expect more people from low paid (which in general are assumed to be associated with low skilled) jobs quitting their job than people from high paid jobs.

It would be also interesting to understand the effect of UII in terms of administrative costs and efficiency. We expect the new regime to be much easier in terms of administration and, thus, less expensive and more efficient.

Finally, as long-run effects, it would be interesting to investigate the effects that UII would have on the human capital accumulation process. Under our perspective allowing people to be free not to work would lead to an accumulation of human capital because it would allow young people to study what they are most fitted for rather than what they are required to do in order to be employed.

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Appendix

Table A1. Share of winners. i.e. income gain of more than £100. £50 or £1 a month with respect to the baseline scenario

	BASELINE INCOME DECILES										MEAN
	1	2	3	4	5	6	7	8	9	10	
	Winners 100										
UII-3	0.67	0.52	0.47	0.42	0.44	0.52	0.51	0.48	0.44	0.14	0.46
	0.007	*0.007*	*0.007*	*0.007*	*0.007*	*0.007*	*0.007*	*0.008*	*0.008*	*0.005*	*0.002*
UBI-3	0.46	0.25	0.38	0.46	0.49	0.62	0.68	0.69	0.65	0.37	0.51
	0.007	*0.007*	*0.007*	*0.007*	*0.007*	*0.007*	*0.006*	*0.006*	*0.007*	*0.008*	*0.002*
UBI-4	0.45	0.27	0.44	0.49	0.51	0.63	0.72	0.75	0.72	0.46	0.55
	0.007	*0.007*	*0.007*	*0.007*	*0.007*	*0.007*	*0.007*	*0.008*	*0.008*	*0.005*	*0.002*
UBI-5	0.40	0.25	0.37	0.52	0.57	0.69	0.73	0.72	0.64	0.27	0.52
	0.007	*0.007*	*0.007*	*0.007*	*0.007*	*0.007*	*0.006*	*0.006*	*0.007*	*0.008*	*0.002*
	Winners 50										
UII-3	0.72	0.57	0.53	0.50	0.50	0.58	0.59	0.54	0.49	0.18	0.53
	0.007	*0.007*	*0.007*	*0.007*	*0.007*	*0.007*	*0.007*	*0.008*	*0.008*	*0.005*	*0.002*
UBI-3	0.51	0.28	0.41	0.50	0.52	0.64	0.73	0.74	0.69	0.41	0.54
	0.007	*0.007*	*0.007*	*0.007*	*0.007*	*0.007*	*0.007*	*0.008*	*0.008*	*0.005*	*0.002*
UBI-4	0.48	0.31	0.47	0.52	0.54	0.65	0.74	0.77	0.75	0.49	0.57
	0.007	*0.007*	*0.007*	*0.007*	*0.007*	*0.007*	*0.006*	*0.006*	*0.007*	*0.008*	*0.002*
UBI-5	0.50	0.31	0.47	0.59	0.62	0.74	0.78	0.79	0.71	0.33	0.58
	0.007	*0.007*	*0.007*	*0.007*	*0.007*	*0.007*	*0.007*	*0.008*	*0.008*	*0.005*	*0.002*

	Net winners										
UII-3	0.78	0.64	0.58	0.57	0.57	0.64	0.65	0.59	0.56	0.22	0.58
	0.007	*0.007*	*0.007*	*0.007*	*0.007*	*0.007*	*0.007*	*0.008*	*0.008*	*0.005*	*0.002*
UBI-3	0.55	0.32	0.44	0.53	0.56	0.67	0.76	0.77	0.73	0.45	0.58
	0.007	*0.007*	*0.007*	*0.007*	*0.007*	*0.007*	*0.006*	*0.006*	*0.007*	*0.008*	*0.002*
UBI-4	0.52	0.35	0.51	0.53	0.56	0.67	0.76	0.79	0.78	0.52	0.61
	0.007	*0.007*	*0.007*	*0.007*	*0.007*	*0.007*	*0.007*	*0.008*	*0.008*	*0.005*	*0.002*
UBI-5	0.55	0.36	0.53	0.62	0.66	0.78	0.83	0.85	0.78	0.38	0.63
	0.007	*0.007*	*0.007*	*0.007*	*0.007*	*0.007*	*0.006*	*0.006*	*0.007*	*0.008*	*0.002*

Notes: Deciles calculated for the Equivalised Household Disposable Income in the Baseline. Scenarios UII-3: to everybody not working aged over 16 retaining disability and health benefits but not pensions; UBI-3: to everybody aged over 16. retaining disability and health benefits but not pensions; UBI-4: to everybody from birth with complete replacement of the current benefit and pensions; UBI-5: to everybody aged 25-64. keeping existing non-means tested benefit for those younger than 25 and pensions for those older than 64.Standard Errors in italics.

Source: Own calculations using EUROMOD with FRS 2015.

Table A2. Share of losers. i.e. income loss of more than £100 a month with respect to the baseline scenario

	BASELINE INCOME DECILES										TOTAL
	1	2	3	4	5	6	7	8	9	10	
	Losers 100										
UII-1	0.329	0.473	0.537	0.562	0.578	0.474	0.454	0.467	0.495	0.791	0.516
	0.007	*0.007*	*0.007*	*0.007*	*0.007*	*0.008*	*0.008*	*0.008*	*0.008*	*0.007*	*0.002*
UII-2	0.376	0.554	0.577	0.567	0.568	0.493	0.483	0.531	0.609	0.918	0.568
	0.007	*0.007*	*0.007*	*0.007*	*0.007*	*0.008*	*0.008*	*0.008*	*0.008*	*0.004*	*0.002*
UII-3	0.333	0.477	0.528	0.572	0.564	0.481	0.487	0.517	0.564	0.855	0.538
	0.007	*0.007*	*0.007*	*0.007*	*0.007*	*0.008*	*0.008*	*0.008*	*0.008*	*0.006*	*0.002*
UBI-1	0.568	0.752	0.618	0.531	0.508	0.378	0.281	0.266	0.290	0.547	0.474
	0.007	*0.006*	*0.007*	*0.007*	*0.007*	*0.007*	*0.007*	*0.007*	*0.007*	*0.008*	*0.002*
UBI-2	0.560	0.738	0.606	0.472	0.426	0.311	0.272	0.288	0.360	0.727	0.476
	0.007	*0.006*	*0.007*	*0.007*	*0.007*	*0.007*	*0.007*	*0.007*	*0.008*	*0.007*	*0.002*
UBI-3	0.536	0.745	0.618	0.536	0.513	0.384	0.316	0.312	0.346	0.631	0.494
	0.007	*0.006*	*0.007*	*0.007*	*0.007*	*0.007*	*0.007*	*0.007*	*0.008*	*0.008*	*0.002*
UBI-4	0.547	0.726	0.552	0.507	0.481	0.362	0.274	0.247	0.274	0.541	0.451
	0.007	*0.007*	*0.007*	*0.007*	*0.007*	*0.007*	*0.007*	*0.007*	*0.007*	*0.008*	*0.002*
UBI-5	0.599	0.750	0.628	0.476	0.424	0.311	0.273	0.278	0.356	0.729	0.482
	0.007	*0.006*	*0.007*	*0.007*	*0.007*	*0.007*	*0.007*	*0.007*	*0.008*	*0.007*	*0.002*

Notes: Deciles calculated for the Equivalised Household Disposable Income in the Baseline. Scenarios UII-1: to everybody not working aged over 16 with complete replacement of the existing benefits and pensions; UII-2: to everybody not working aged 17 to 64. replacing the existing benefits but keeping pensions for people aged over 64; UII-3: to everybody not working aged over 16 retaining disability and health benefits but not pensions; UBI-1: to everybody aged over 16 with complete replacement of the existing benefits and pensions; UBI-2: to everybody aged 17 to 64 replacing the existing benefits but keeping pensions for people aged over 64; UBI-3: to everybody aged over 16. retaining disability and health benefits but not pensions; UBI-4: to everybody from birth with complete replacement of the current benefit and pensions; UBI-5: to everybody aged 25-64. keeping existing non-means tested benefit for those younger than 25 and pensions for those older than 64. Standard Errors in italics.
Source: Own calculations using EUROMOD with FRS 2015.

Table A3. Share of losers. i.e. income loss of more than £50 a month with respect to the baseline scenario

	BASELINE INCOME DECILES										TOTAL
	1	2	3	4	5	6	7	8	9	10	
						Losers 50					
UII-1	0.273	0.414	0.473	0.489	0.504	0.419	0.390	0.422	0.431	0.743	0.456
	0.007	*0.007*	*0.007*	*0.007*	*0.007*	*0.007*	*0.007*	*0.008*	*0.008*	*0.007*	*0.002*
UII-2	0.268	0.465	0.473	0.480	0.463	0.391	0.387	0.436	0.529	0.880	0.477
	0.007	*0.007*	*0.007*	*0.007*	*0.007*	*0.007*	*0.007*	*0.008*	*0.008*	*0.005*	*0.002*
UII-3	0.270	0.426	0.472	0.494	0.492	0.417	0.404	0.457	0.503	0.821	0.476
	0.007	*0.007*	*0.007*	*0.007*	*0.007*	*0.007*	*0.008*	*0.008*	*0.008*	*0.006*	*0.002*
UBI-1	0.517	0.735	0.584	0.506	0.469	0.351	0.252	0.233	0.259	0.509	0.442
	0.007	*0.006*	*0.007*	*0.007*	*0.007*	*0.007*	*0.007*	*0.007*	*0.007*	*0.008*	*0.002*
UBI-2	0.481	0.674	0.510	0.415	0.383	0.266	0.215	0.225	0.304	0.662	0.414
	0.007	*0.007*	*0.007*	*0.007*	*0.007*	*0.007*	*0.006*	*0.006*	*0.007*	*0.008*	*0.002*
UBI-3	0.488	0.716	0.586	0.500	0.477	0.351	0.267	0.260	0.311	0.583	0.454
	0.007	*0.007*	*0.007*	*0.007*	*0.007*	*0.007*	*0.007*	*0.007*	*0.007*	*0.008*	*0.002*
UBI-4	0.511	0.686	0.522	0.481	0.452	0.345	0.255	0.227	0.242	0.504	0.423
	0.007	*0.007*	*0.007*	*0.007*	*0.007*	*0.007*	*0.007*	*0.006*	*0.007*	*0.008*	*0.002*
UBI-5	0.495	0.681	0.530	0.406	0.380	0.253	0.214	0.208	0.286	0.670	0.412
	0.007	*0.007*	*0.007*	*0.007*	*0.007*	*0.007*	*0.006*	*0.006*	*0.007*	*0.008*	*0.002*

Notes: Deciles calculated for the Equivalised Household Disposable Income in the Baseline. Scenarios 1:UII to everybody not working aged over 16 with complete replacement of the existing benefits and pensions; 2:UII to everybody not working aged 17 to 64. replacing the existing benefits but keeping pensions for people aged over 64; 3:UII to everybody not working aged over 16 retaining disability and health benefits but not pensions; 4:UBI to everybody aged over 16 with complete replacement of the existing benefits and pensions; 5:UBI to everybody aged 17 to 64 replacing the existing benefits but keeping pensions for people aged over 64; 6:UBI to everybody aged over 16. retaining disability and health benefits but not pensions; 7:UBI to everybody from birth with complete replacement of the current benefit and pensions; 8:UBI to everybody aged 25-64. keeping existing non-means tested benefit for those younger than 25 and pensions for those older than 64. Standard Errors in italics.
Source: Own calculations using EUROMOD with FRS 2015.

Table A4. Share of losers. i.e. income loss of more than £1 a month with respect to the baseline scenario

	BASELINE INCOME DECILES										TOTAL
	1	2	3	4	5	6	7	8	9	10	
	Net losers										
UII-1	0.224	0.373	0.431	0.435	0.444	0.373	0.356	0.374	0.381	0.684	0.408
	0.006	*0.007*	*0.007*	*0.007*	*0.007*	*0.007*	*0.007*	*0.007*	*0.008*	*0.007*	*0.002*
UII-2	0.201	0.399	0.415	0.408	0.395	0.324	0.306	0.359	0.451	0.831	0.409
	0.006	*0.007*	*0.007*	*0.007*	*0.007*	*0.007*	*0.007*	*0.007*	*0.008*	*0.006*	*0.002*
UII-3	0.218	0.362	0.418	0.427	0.425	0.357	0.352	0.408	0.438	0.777	0.418
	0.006	*0.007*	*0.007*	*0.007*	*0.007*	*0.007*	*0.007*	*0.008*	*0.008*	*0.007*	*0.002*
UBI-1	0.480	0.704	0.547	0.482	0.448	0.329	0.235	0.214	0.226	0.474	0.414
	0.007	*0.007*	*0.007*	*0.007*	*0.007*	*0.007*	*0.007*	*0.006*	*0.007*	*0.008*	*0.002*
UBI-2	0.430	0.627	0.461	0.388	0.339	0.235	0.168	0.171	0.262	0.619	0.370
	0.007	*0.007*	*0.007*	*0.007*	*0.007*	*0.006*	*0.006*	*0.006*	*0.007*	*0.008*	*0.002*
UBI-3	0.446	0.680	0.555	0.472	0.438	0.325	0.237	0.229	0.269	0.548	0.420
	0.007	*0.007*	*0.007*	*0.007*	*0.007*	*0.007*	*0.007*	*0.006*	*0.007*	*0.008*	*0.002*
UBI-4	0.477	0.643	0.490	0.463	0.432	0.329	0.237	0.206	0.216	0.475	0.397
	0.007	*0.007*	*0.007*	*0.007*	*0.007*	*0.007*	*0.007*	*0.006*	*0.007*	*0.008*	*0.002*
UBI-5	0.447	0.635	0.471	0.379	0.335	0.219	0.170	0.153	0.221	0.617	0.365
	0.007	*0.007*	*0.007*	*0.007*	*0.007*	*0.006*	*0.006*	*0.006*	*0.007*	*0.008*	*0.002*

Notes: Deciles calculated for the Equivalised Household Disposable Income in the Baseline. Scenarios UII-1: to everybody not working aged over 16 with complete replacement of the existing benefits and pensions; UII-2: to everybody not working aged 17 to 64. replacing the existing benefits but keeping pensions for people aged over 64; UII-3: to everybody not working aged over 16 retaining disability and health benefits but not pensions; UBI-1: to everybody aged over 16 with complete replacement of the existing benefits and pensions; UBI-2: to everybody aged 17 to 64 replacing the existing benefits but keeping pensions for people aged over 64; UBI-3: to everybody aged over 16. retaining disability and health benefits but not pensions; UBI-4: to everybody from birth with complete replacement of the current benefit and pensions; UBI-5: to everybody aged 25-64. keeping existing non-means tested benefit for those younger than 25 and pensions for those older than 64. Standard Errors in italics.
Source: Own calculations using EUROMOD with FRS 2015.

Table A5. Share of losers (£50) by Categories

	SHARE OF LOSERS BY AGE GROUPS						
	0-16	17-24	25-34	35-44	45-54	55-64	65-80
UII-1	0.531	0.284	0.318	0.397	0.308	0.350	0.808
	0.005	*0.008*	*0.007*	*0.007*	*0.006*	*0.007*	*0.004*
UII-2	0.666	0.342	0.419	0.540	0.416	0.394	0.446
	0.005	*0.008*	*0.007*	*0.007*	*0.006*	*0.007*	*0.005*
UII-3	0.575	0.295	0.353	0.442	0.329	0.339	0.796
	0.005	*0.008*	*0.007*	*0.007*	*0.006*	*0.006*	*0.004*
UBI-1	0.459	0.352	0.268	0.318	0.277	0.300	0.926
	0.005	*0.008*	*0.006*	*0.006*	*0.006*	*0.006*	*0.003*
UBI-2	0.560	0.407	0.331	0.405	0.344	0.317	0.443
	0.005	*0.009*	*0.007*	*0.007*	*0.006*	*0.006*	*0.005*
UBI-3	0.494	0.357	0.279	0.341	0.283	0.281	0.934
	0.005	*0.008*	*0.006*	*0.006*	*0.006*	*0.006*	*0.003*
UBI-4	0.364	0.366	0.249	0.268	0.274	0.334	0.948
	0.005	*0.008*	*0.006*	*0.006*	*0.006*	*0.006*	*0.002*
UBI-5	0.559	0.392	0.330	0.402	0.349	0.318	0.443
	0.005	*0.009*	*0.007*	*0.007*	*0.006*	*0.006*	*0.005*

SHARE OF LOSERS BY HH TYPE

	a	b	c	d	e	f	g
UII-1	0.269	0.840	0.393	0.248	0.559	0.842	0.470
	0.008	*0.007*	*0.004*	*0.006*	*0.007*	*0.005*	*0.007*
UII-2	0.362	0.502	0.535	0.358	0.621	0.408	0.415
	0.009	*0.009*	*0.004*	*0.006*	*0.007*	*0.007*	*0.007*
UII-3	0.245	0.839	0.441	0.271	0.560	0.832	0.466
	0.008	*0.007*	*0.004*	*0.006*	*0.007*	*0.006*	*0.007*
UBI-1	0.360	0.974	0.292	0.190	0.625	0.980	0.485
	0.009	*0.003*	*0.003*	*0.005*	*0.007*	*0.002*	*0.007*
UBI-2	0.405	0.502	0.402	0.238	0.681	0.407	0.403
	0.009	*0.009*	*0.004*	*0.005*	*0.007*	*0.007*	*0.007*
UBI-3	0.337	0.973	0.324	0.175	0.633	0.983	0.498
	0.009	*0.003*	*0.004*	*0.005*	*0.007*	*0.002*	*0.007*
UBI-4	0.376	0.979	0.226	0.213	0.594	0.985	0.525
	0.009	*0.003*	*0.003*	*0.005*	*0.007*	*0.002*	*0.007*
UBI-5	0.401	0.502	0.404	0.232	0.713	0.408	0.371
	0.009	*0.009*	*0.004*	*0.005*	*0.006*	*0.007*	*0.007*

Notes: Scenarios UII-1: to everybody not working aged over 16 with complete replacement of the existing benefits and pensions; UII-2: to everybody not working aged 17 to 64. replacing the existing benefits but keeping pensions for people aged over 64; UII-3: to everybody not working aged over 16 retaining disability and health benefits but not pensions; UBI-1: to everybody aged over 16 with complete replacement of the existing benefits and pensions; UBI-2: to everybody aged 17 to 64 replacing the existing benefits but keeping pensions for people aged over 64; UBI-3: to everybody aged over 16. retaining disability and health benefits but not pensions; UBI-4: to everybody from birth with complete replacement of the current benefit and pensions; UBI-5: to everybody aged 25-64. keeping existing non-means tested benefit for those younger than 25 and pensions for those older than 64.a (6.92%): Single 25-64; b (6.67%):Single 65-80; c(38.9%): Couple 25-64 with young people 00-24; d(13.9%): Couple 25-64 without young people 00-24; e(11.6%):Single 25-64 with children 00-24; f(10.2%):Couple 65-80; g (11.7%) Residual. Standard Errors in italics.
Source: Own calculations using EUROMOD with FRS 2015.

Table A6. Average Effective Tax Rates

	BASELINE INCOME DECILES										MEAN
	1	2	3	4	5	6	7	8	9	10	
BASELINE	0.05	0.05	0.10	0.12	0.15	0.18	0.20	0.22	0.25	0.29	0.18
	0.008	*0.005*	*0.004*	*0.003*	*0.002*	*0.002*	*0.002*	*0.002*	*0.002*	*0.002*	*0.015*
UII-3	0.0	0.0	0.02	0.04	0.06	0.10	0.13	0.17	0.21	0.35	0.13
	0.004	*0.003*	*0.003*	*0.002*	*0.002*	*0.002*	*0.002*	*0.002*	*0.002*	*0.003*	*0.001*
UBI-3	0.0	0.0	0.01	0.03	0.07	0.09	0.11	0.13	0.16	0.30	0.14
	0.001	*0.007*	*0.004*	*0.004*	*0.004*	*0.003*	*0.003*	*0.003*	*0.003*	*0.003*	*0.001*
UBI-4	0.0	0.0	0.0	0.01	0.03	0.07	0.09	0.10	0.14	0.29	0.13
	0.010	*0.006*	*0.003*	*0.004*	*0.004*	*0.003*	*0.003*	*0.003*	*0.003*	*0.003*	*0.001*
UBI-5	0.0	0.0	0.02	0.05	0.08	0.09	0.12	0.15	0.19	0.33	0.15
	0.001	*0.007*	*0.004*	*0.004*	*0.004*	*0.003*	*0.003*	*0.003*	*0.003*	*0.003*	*0.001*

Notes: Deciles calculated for the Equivalised Household Disposable Income in the Baseline. Scenarios UII-3: to everybody not working aged over 16 retaining disability and health benefits but not pensions; UBI-3: to everybody aged over 16. retaining disability and health benefits but not pensions; UBI-4: to everybody from birth with complete replacement of the current benefit and pensions; UBI-5: to everybody aged 25-64. keeping existing non-means tested benefit for those younger than 25 and pensions for those older than 64. Standard Errors in italics.

Source: Own calculations using EUROMOD with FRS 2015.

Table A7. Marginal Tax Rates across the Income Distribution

BASELINE INCOME DECILES

	1	2	3	4	5	6	7	8	9	10	Mean	Median
BASELINE	0.53	0.58	0.54	0.44	0.39	0.34	0.33	0.33	0.34	0.40	38.8	34.4
	0.021	*0.009*	*0.008*	*0.007*	*0.006*	*0.004*	*0.003*	*0.002*	*0.002*	*0.002*	*0.004*	*0.004*
UII-3	0.10	0.18	0.22	0.29	0.32	0.39	0.43	0.48	0.53	0.63	43.3	46.9
	0.001	*0.001*	*0.010*	*0.003*	*0.003*	*0.004*	*0.004*	*0.004*	*0.015*	*0.005*	*0.004*	*0.004*
UBI-3	0.10	0.21	0.25	0.31	0.34	0.41	0.45	0.49	0.54	0.64	44.6	47.4
	0.001	*0.002*	*0.010*	*0.003*	*0.004*	*0.004*	*0.004*	*0.005*	*0.013*	*0.006*	*0.002*	*0.002*
UBI-4	0.09	0.19	0.23	0.29	0.32	0.38	0.43	0.47	0.52	0.62	42.2	45.1
	0.001	*0.002*	*0.010*	*0.003*	*0.003*	*0.004*	*0.004*	*0.004*	*0.005*	*0.005*	*0.002*	*0.002*
UBI-5	0.10	0.20	0.24	0.30	0.33	0.39	0.44	0.48	0.52	0.63	44.5	45.7
	0.001	*0.002*	*0.010*	*0.003*	*0.003*	*0.004*	*0.004*	*0.004*	*0.005*	*0.005*	*0.003*	*0.003*

Notes: Deciles calculated for the Equivalised Household Disposable Income in the Baseline. MTRs presented only for people with positive earnings and non-negative MTR values. Scenario: as in Table (5). Standard Errors in italics.

Source: Own calculations using EUROMOD with FRS 2015.

Table A8. Marginal Tax Rates by Age Groups and HH Type

	MTR BY AGE GROUPS						
	0-16	17-24	25-34	35-44	45-54	55-64	65-80
BASELINE	0.29	0.34	0.43	0.45	0.41	0.38	0.30
	0.156	*0.005*	*0.004*	*0.003*	*0.003*	*0.003*	*0.007*
UII-3	0.02	0.35	0.46	0.51	0.52	0.49	0.42
	0.000	*0.005*	*0.003*	*0.003*	*0.015*	*0.004*	*0.009*
UBI-3	0.02	0.36	0.47	0.51	0.51	0.49	0.34
	0.000	*0.005*	*0.003*	*0.003*	*0.012*	*0.004*	*0.009*
UBI-4	0.20	0.35	0.45	0.50	0.49	0.48	0.32
	0.000	*0.005*	*0.003*	*0.003*	*0.003*	*0.004*	*0.009*
UBI-5	0.25	0.37	0.46	0.50	0.45	0.44	0.32
	0.000	*0.005*	*0.003*	*0.003*	*0.003*	*0.004*	*0.009*
	MTR by HH type						
	a	b	c	d	e	f	g
BASELINE	0.39	0.33	0.43	0.37	0.53	0.28	0.39
	0.003	*0.016*	*0.002*	*0.002*	*0.007*	*0.008*	*0.006*
UII-3	0.51	0.40	0.49	0.51	0.40	0.42	0.43
	0.005	*0.018*	*0.009*	*0.003*	*0.006*	*0.013*	*0.005*
UBI-3	0.52	0.29	0.49	0.51	0.40	0.33	0.43
	0.005	*0.017*	*0.008*	*0.003*	*0.006*	*0.013*	*0.005*
UBI-4	0.50	0.28	0.47	0.50	0.39	0.32	0.42
	0.004	*0.017*	*0.003*	*0.003*	*0.005*	*0.013*	*0.004*
UBI-5	0.48	0.30	0.45	0.45	0.43	0.30	0.42
	0.004	*0.017*	*0.003*	*0.003*	*0.005*	*0.010*	*0.004*

Notes: MTRs presented only for people with positive earnings and non-negative MTR values. Scenario: as in Table (6). Standard Errors in italics.
Source: Own calculations using EUROMOD with FRS 201

Table A9. Participation Tax Rates across the Income Distribution

MEAN PTR VALUE BY DECILES

	1	2	3	4	5	6	7	8	9	10	Mean	Median
BASELINE	48.8	50.2	57.5	53.4	49.0	43.7	40.9	38.2	36.8	37.6	43.0	40.1
	0.021	*0.009*	*0.008*	*0.007*	*0.006*	*0.004*	*0.003*	*0.002*	*0.002*	*0.002*	*0.002*	*0.002*
UII-3	66.9	76.0	75.5	72.7	70.7	68.4	64.9	62.2	58.6	57.5	0.98	0.66
	0.287	*0.110*	*0.117*	*0.042*	*0.053*	*0.084*	*0.167*	*0.074*	*0.009*	*0.007*	*0.028*	*0.028*
UBI-3	27.1	28.9	31.7	32.8	33.6	34.7	36.6	37.9	40.8	49.2	37.8	38.2
	0.039	*0.002*	*0.010*	*0.004*	*0.005*	*0.006*	*0.003*	*0.004*	*0.002*	*0.003*	*0.004*	*0.004*
UBI-4	26.2	27.9	30.4	31.5	32.2	33.2	35.0	36.2	39.1	47.4	36.3	36.7
	0.039	*0.002*	*0.010*	*0.005*	*0.005*	*0.006*	*0.004*	*0.004*	*0.003*	*0.003*	*0.002*	*0.002*
UBI-5	27.1	28.4	31.5	32.3	33.0	34.5	35.8	36.9	40.2	55.3	39.2	38.8
	0.036	*0.002*	*0.009*	*0.004*	*0.005*	*0.006*	*0.003*	*0.004*	*0.002*	*0.003*	*0.002*	*0.002*

Notes: Deciles calculated for the Equivalised Household Disposable Income in the Baseline. PTRs presented only for people with positive earnings and non-negative PTR values. Scenario: as in Table (5). Standard Errors in italics.

Source: Own calculations using EUROMOD with FRS 2015.

Table A10. Participation Tax Rates by Age Groups and HH Type

	MTR BY AGE GROUPS				
	17-24	25-34	35-44	45-54	55-64
BASELINE	35.5	44.5	47.0	43.5	38.9
	0.010	*0.004*	*0.003*	*0.004*	*0.005*
UII-3	67.8	68.6	65.8	62.7	56.7
	0.054	*0.023*	*0.031*	*0.099*	*0.082*
UBI-3	20.1	37.9	41.1	40.7	39.8
	0.046	*0.020*	*0.026*	*0.084*	*0.070*
UBI-4	18.8	36.3	39.5	39.1	38.2
	0.008	*0.004*	*0.004*	*0.003*	*0.004*
UBI-5	23.8	36.9	38.7	40.0	38.1
	0.008	*0.004*	*0.004*	*0.003*	*0.004*
	MTR by HH type				
	a	c	d	e	g
BASELINE	49.3	45.0	39.2	43.1	39.7
	0.003	*0.002*	*0.002*	*0.007*	*0.006*
UII-3	61.1	66.5	62.4	68.7	66.6
	0.047	*0.059*	*0.034*	*0.044*	*0.067*
UBI-3	39.3	38.1	40.2	35.0	33.2
	0.006	*0.003*	*0.003*	*0.006*	*0.005*
UBI-4	37.6	36.5	38.6	33.6	31.8
	0.006	*0.003*	*0.003*	*0.007*	*0.004*
UBI-5	38.4	37.1	37.7	33.3	32.2
	0.004	*0.003*	*0.003*	*0.006*	*0.004*

Notes: PTRs presented only for people with positive earnings and non-negative PTR values. Scenario: as in Table (6). Standard Errors in italics.
Source: Own calculations using EUROMOD with FRS 2015.