The Curious Case of Universal Basic Income

A general overview and a case-study of the UK

by

Rik Hendrik Gerardus Hendriks

ri1670he-s@student.lu.se

Abstract

This research focuses on universal basic income (UBI) and what potential societal effects an implementation of such a benefit could have. While many opinionated papers circulate within the academic debate, this thesis tries to systematically bring together, interpret and critically evaluate the scientific publications that are relevant to the analysis of the implementation of UBI. This in combination with new empirical simulation results obtained from a tax-benefit model. The aim of this thesis is to provide a cornerstone of comparison, specifically for the United Kingdom, by making empirically and scientifically informed considerations about the possible outcomes of the implementation of UBI. Theoretical deliberations pertaining to behavioural patterns, take-up of benefits as well as social and political support showcase that the implementation of UBI in its purest form still harbours many unknowns. Empirical results from simulations show that UBI has potential to tackle poverty and inequality problems. However, they also show that this mostly happens at the cost of some people's economic situation. The decisions made on the UBI set-up play a vital role in determining where the economic winners and losers can be found in society. Overall, the policy has potential, but more research is required to estimate the true societal effects of the implementation of UBI.

Keywords: Universal Basic Income, Minimum Income Protection, Welfare States, Behavioural Patterns, Non-take up of Benefits and Tax-Benefit Model Simulations.

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"The natural effort of every individual to better his own condition…is so powerful a principle, that it is alone, and without any assistance, not only capable of carrying on the society to wealth and prosperity, but of surmounting a hundred impertinent obstructions with which the folly of human laws too often incumbers its operations"

- *Adam Smith, late economist & philosopher.*

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I. Introduction

An unconditional fixed income for everyone, provided by the government, that ensures the coverage of basic human needs, it perhaps sounds a bit like a utopia for many people. However, the eponymous book by Thomas More (1912) first introduced the concept of a universal basic income (UBI) in the form of a tax plan wherein every person would be provided with an income from the government, regardless of their financial status. Subsequently, the concept, albeit a hypothetical one, has captivated not only the academic world but also society as a whole. The intensity of the debate surrounding UBI roughly follows the pattern of a Kuznets curve, which probably is not a complete coincidence due its links to (income) inequality. Approximately every 20 years the concept again enters the spotlight of a variety of academic fields, such as economics and societal studies. While academic discussions normally are based on objectivity, the fierce debate around UBI is one animated by 'factual' claims made by both supporters and opponents of the UBI. These claims often diametrically oppose each other. Whereas advocates plea that the implementation of UBI is a powerful catalyst for economic growth, opponents warn for decreased labour market participation and an enormous increase in taxes in order to be able to sustain such a policy. As many academic fields have an interest in UBI, there are also claims to be found outside the economic factors. Supporters portray philanthropic advantages as people become more politically and socially involved. However, this is challenged by the idea that money has a high importance in the stimulus of human behaviour. All in all, there is no overall consensus in the literature considering the effects of the implementation of UBI, but above all there is also a clear lack of neutrality and reflection in the discussion. Most contributions to the literature are heavily opinionated as either being an advocate or challenger of UBI. To truly understand the effects of the implementation of UBI there is a clear need for more objectivity and neutrality in the analysis of past, but also new results. Therefore, the added value of this thesis partly lies in systematically bringing together, interpreting and critically evaluating the scientific publications that are relevant to the analysis of the implementation of UBI.

There are several different approaches to establish this contribution. First, by analysing UBI experiments, such as in Finland, where a sample of the unemployed were allowed to keep part of their benefits unconditionally (Kangas, Jauhiainen, Simanainen & Ylikännö, 2019). Second, quasi-experiments should also be considered. Marx and Peeters (2008), for example, analysed Belgian lottery winners who won a fixed amount per month for the rest of their life instead of

the more conventional enormous sum of money at once. Although these approaches sound enticing for research, the experiments almost always pertain to a certain group of individuals and are not able to give indications about the larger effects of the implementation of UBI on, for example, the labour market, wages and the economic system as a whole. The results from such analyses add to our understanding of what the effects are of making certain policies less conditional for specific groups. However, they are less useful for the broader picture and most certainly when one is trying to gauge the effects of the implementation of a basic income for a complete country. Therefore, a third and more relevant approach is considered by this thesis. The UBI can be placed within the much more extensive, mature and relevant framework of research into existing benefits in developed countries. This ranges from very selective, conditional benefits to benefits that are almost unconditional and therefore closer to a basic income. This broader approach allows for an interchange between the vast body of research regarding social benefits and taxes and the newer literature concerning UBI. Besides, the strand of literature on existing benefits is all the more relevant due to the fact that the basic income experiments in developed countries are precisely about making the existing benefits, such as unemployment benefits, less conditional. If there is to be a basic income in any form in the future, it will most likely be through a gradual mutation of existing benefits, by making them less conditional and selective. This approach also helps tremendously in distinguishing facts from fiction in the overall debate surrounding UBI as it is based on a vast and established body of literature.

The aim is to separate facts, supported by evidence, from the more circumstantial fictional claims. In order to establish this distinction even further the thesis also zooms in on a specific case, being the United Kingdom. After the early philosophical ideas of Thomas More the UK was also the birthplace of the first modern full-fledged UBI proposal that was created by Dennis Milner in 1918 (Van Parijs & Vanderborght, 2017). Atkinson (1995, 2015) extended the tradition by writing about UBI as a possible solution for inequality issues in later attention spans for basic income. Nevertheless, it must be mentioned that he was an advocate for a participation-income instead of an unconditional income, due to his beliefs of money stimulating human behaviour (Atkinson, 1995). Besides synthesizing the most relevant literature the contribution of this thesis also contains micro-simulations of the implementation of a hypothetical UBI in the UK with the use of a tax-benefit model. Interest in the concept of UBI has slowly gathered more traction over the past years as several developed countries have launched trials with the much-discussed policy. Furthermore, electoral candidates across the

world, like Andrew Yang in the US, have campaigned with the promise of implementing UBI when elected. Although this has been unsuccessful as of yet, it shows the rising interest. However, another external factor is sure to boost this interest even more, the COVID-19 pandemic. First of all, it has painfully highlighted the growing inequalities within developed countries that need to be addressed. More interestingly, it has also pushed governments to set up unconditional cash-transfer schemes for a big part of their population as many people were left without income suddenly (The Economist, 2021). Unwillingly, these schemes will, in the future, become natural experiments for academics who are interested in the effects of the implementation of UBI, and the UK is no exception in this. In March last year, 170 MPs of the UK parliament even signed a letter asking the government to introduce UBI for the duration of the pandemic (Stone, 2020). Additionally, the ongoing structural change in the form of Brexit is another important factor in the UK, which makes research even more relevant in the future. All these components combined are expected to prolong the interest in UBI research for the UK as there are many exogenous and endogenous variations in play at the moment. Therefore, it is of the utmost importance that the existing literature, both theoretical and empirical, concerning the UK is synthesized in order for sensible comparisons to take place after both the COVID-19 pandemic has passed and when Brexit is completed. This thesis aims to provide part of that cornerstone for comparison, specifically for the United Kingdom, by making an empirically and scientifically informed considerations about the possible outcomes of the implementation of UBI. The UK provides the optimal research ground for this plan as per the aforementioned reasons.

There are four main topics on which this thesis will focus. Firstly, the effects of the implementation of UBI on general behavioural patterns centralised around labour market participation as well as saving and consumption decisions. The effect of an unconditional income on labour market participation can possibly differ between groups within society. Secondly, take-up rates of existing benefits and the concomitant administrative complexity. Take-up rates are of the utmost importance for the intended effects of policies to take place, as Blundell, Fry and Walker (1988) already showcased for the UK housing market. Besides, the simplification of one benefit for all could potentially reduce administrative complexity resulting in the saving of costs. Thirdly, the potential social and political support for UBI. If the concept ever became relevant enough for implementation it is important to know whether it enjoys enough support in society and the dominating political spectrum for it to materialize. Fourthly, the potential distributional effects of the implementation of full-fledged hypothetical

UBI in the UK. The costs and redistributive outcomes are analysed using a tax-benefit simulation model. Analysing these four main deliberations is aimed at providing a clearer insight into what UBI entails by establishing the necessary building blocks in order to form a contemporary answer to the two main research questions posed in this thesis:

What are the principles underlying a universal basic income and what are the main effects on society according to existing literature and performed experiments?

What unique differences do the outcomes of simulations of the implementation of several hypothetical universal basic income variants demonstrate when compared to the existing benefit scheme in the UK?

The research questions are answered by following the subsequent structure. First, the thesis defines the principles underlying the concept of UBI and presents an overview of the arguments used by both opponents and supporters. Second, a discussion about the future of labour is presented in combination with several factors that have caused the discussion surrounding UBI to intensify once again. The discussion is threefold and in particular talks about robotisation, quality of employment and the imminent rise of inequality. Thirdly, the debate surrounding minimal living standards and what actually constitutes a minimum is discussed. Besides, Universal Credit, the minimum income protection in the UK, is analysed to understand perceived and actual shortcomings of the current social security system. Fourthly, the existing literature concerning behavioural effects, take-up of benefits as well as social and political support of benefit schemes is reviewed in order to discern facts from fiction in these particular domains. They contribute to the synthesis of the theoretical knowledge concerning UBI. Fifthly, results from several micro-simulations are presented as the final main deliberation. The hypothetical implementation of several basic income schemes is empirically tested and compared to the outcomes of the existing benefits system. Lastly, the thesis is brought to a close via some concluding remarks that summarises the main results by answering the two research questions. Subsequently, some interesting future research ideas that flow from both the results as well as the limitations are proposed for further continuation of the research field.

II. An Overview of Universal Basic Income

Before diving into the determinants of the recent surge in attention for UBI there first needs to be a common understanding of the concept in general. This chapter goes over the main principles underlying the concept. The context is further enriched by discussing both the main arguments in favour and against UBI.

i. The principles

The current wave of attention is somewhat obscuring the fact that UBI can be thought of in many different shapes and flavours. However, almost all versions share the same basic principles: *an equal cash transfer paid on a regular basis to all individuals within a certain territory, without any (behavioural) qualifications or conditions*. There are several distinctive characteristics, which can be implored from these principles, that deserve further attention. Firstly, the reception of a basic income is unconditional on any behaviour, meaning an uncompromising break with the ideas on which current social security systems are built in developed countries. These systems are based on the contributions made from labour participation, which in turn is also a decisive condition in order to receive social security assistance. The implementation of UBI literally cuts the ties between labour contributions and social assistance. This touches the fundamentals of reciprocity on which large parts of our current welfare states are built. Therefore, the implementation of a basic income most definitely has consequences, which are explored later. Secondly, the universality of the basic income ensures that everyone gets the same transfer independent of income or social background. This obviously has effects on the redistribution of wealth in a society. Korpi & Palme (1998) described some effects in their famous paradox of redistribution, which entailed that the more social spending is focussed on the poor, the less redistribution actually takes place. This is caused by decreasing social support for the welfare state and the small budget that follows from the lacking support. Universal spending could therefore cause more redistribution at the cost of efficiency in this framework. This paradox and its validity are discussed in more detail in due course. Thirdly and last, the UBI has the unique characteristic that the benefit is on a personal basis, whereas current systems often are based on family income or composition. The current systems take into account possible scale advantages of couples living together while these are, naturally, disregarded by the concept of UBI. Ultimately, this also influences the redistribution of wealth in a society as well as decisions made by individuals. This clearly shows that the implementation of UBI has lasting effects on the redistribution of wealth.

At first one might think that a basic income is mainly an idea from the political left-wing due to the characteristics of total equality and universality. However, advocates for UBI can be found in all ideological corners of the political spectrum. Most notably, Milton Friedman and James Tobin, both economic Nobel prize winners, were both in favour of the implementation of nation-wide UBI for the US in the 1960s (Bregman, 2016a). Although supporters of the concept are found on both the left and right-wing political spectrum it is important to understand that the goals of both camps are drastically different. The right-wing supporters, such as economist Charles Murray, advocate that implementation brings forth their beloved smaller government, but also less social spending and thus a system in which UBI would replace all other social assistance (Murray, 2014). This is built on the idea that citizens become more self-reliant and should eventually lead to a right-wing neoliberal utopia. On the other hand, the left-wing supporters, such as philosopher Philippe Van Parijs, hope to solve all inequality with UBI. They argue that by obtaining actual freedom, being able to make your own choices, power relations between employers and employees are restored to equal, for example (Bregman, 2016b). The aim is to create a more progressive world in which UBI is an addition to the social security system in order to improve the overall social assistance provided by the government. These positions are quite extreme, but they showcase the wide variety in which the concept can be interpreted. Different interpretations lead to different forms of implementation. This eventually also results in different (administrative) costs, but most importantly also in different redistribution effects. Later in this thesis the topic of costs paired with the implementation and maintenance of UBI is discussed in more detail. This is all the more relevant as the argument of cost reduction is often used as a factual claim by supporters of the concept. But what are other often-heard arguments in this interesting debate?

ii.   Arguments

An often-heard argument used by UBI supporters is the previously mentioned reduction in costs for the welfare state as the administration for a basic income is supposed to be much smaller. This argument, which actually is more of an assumption, obviously has the right-wing variants in mind. What is often forgotten is the idea forwarded by Pierson (2002), who discusses the permanent scarcity of public funds and the subsequent choices that have to be made by governments. The counterargument is that UBI might indeed be possible, but it should also be desirable and always compared to other available policy options. The increasing complexity of the welfare state plays an important role in this process. The changes to the basic principle of reciprocity provides ground for some more arguments. Behavioural economic

research has reached a consensus on the fact that human behaviour and motivation is strongly driven by the notion of reciprocity (Falk & Fischbacher, 2006). So, reciprocity seems to be an important factor as social norms have created a culture in most Western countries that punishes self-service behaviour. Sociological research into the same topic has revealed that reciprocity is of similar importance (Fong, 2001). The above arguments are used by opponents of UBI to argue that the implementation of such a concept would completely take away the important notion of reciprocity from society, as people could choose to do nothing and still receive the money. Supporters of UBI have tried to refute these arguments by pointing in the direction of the long-term perspective, across several generations. The counterargument is based on the idea that we all use the natural resources provided by the earth, as they belong to everyone, but not everyone reaps equal benefits from these resources (Van Parijs, 1997). According to proponents of the concept this proves that reciprocity is not as important on a larger scale. However, the discussion surrounding reciprocity remains complicated, due to the intuitive ideas of proponents and opponents, but should most definitely be considered when thinking about the implementation of a basic income on a national scale. Another topic of discussion comes from the universality of UBI. Advocates argue that the presumed higher redistribution rates, as predicted by Korpi and Palme (1998), should create automatic larger social and political support for the concept. However, Boone et al. (2018) rightly point out that the question as to 'what' and 'why' someone receives social assistance are still two very different questions. Universality can create a deluded idea of legitimacy as the intuitive ideas of reciprocity influence the opinion on support for different social groups, such as the unemployed. This challenges the assumed idea that the implementation of UBI automatically creates larger social and political support.

The individualistic character of the concept is also food for discussion. Parker and Sutherland (1991) considered it positive that all members of a household become more independent UBI provides them with more control over their own money and spending power. Financial dependence within households would become less of an issue in that case and this could positively influence gender equality. However, Browne and Immervoll (2017) rightly point out that a basic income entails less targeting to those in greater need which eventually leads to a substantial increase in taxes. In progressive tax systems that would mean that the richer people would bear most of the burden of this policy change. This feeds back into the existing friction between universality and reciprocity as described earlier, as well as the social support for the concept. Besides, UBI would also disturb the fundamentals on which current existing policies

are based. Activation strategies that require active participation in the search for jobs when receiving benefits are implemented in almost all Western welfare states (Immervoll & Scarpetta, 2012). Still, proponents argue that the concept of a basic income should be considered as the current principles also have to deal with a changing labour market situation, for example. New and different forms of independent work are slowly taking over from traditional employment and as a result more than half of the active jobseekers are not receiving unemployment support currently (OECD, 2017). This leads advocates of a basic income to belief that existing social support systems are somewhat outdated and in desperate need of refreshment. The move towards more universality, in the form of UBI, is a solution often mentioned in order to compensate the people that lose out with existing systems (Hughes, 2014). In Table 1 a short overview of the main arguments per theme discussed in this section is presented.

Pro	**Theme**	**Con**
Lower cost due to smaller administration (Murray, 2014)	Cost	Permanent scarcity of funds (Pierson, 2002)
Long-term perspective across generations (Van Parijs, 1997)	Reciprocity	Strong driver of human behaviour and motivation (Falk & Fischbacher, 2006)
Big social/political support (Korpi & Palme, 1998)	Universality	Deluded idea of legitimacy due to 'what' and 'why' question (Boone et al.,2018)
Financial independence for individuals (Parker & Sutherland, 1991)	Individualism	Less targeting leads to higher taxes eventually (Browne & Immervoll, 2017)
Currently >50% of active jobseekers lose out on assistance (OECD, 2017)	Existing Policies	Disturb society based on reintegration (Immervoll & Scarpetta, 2012)

Table 1: Overview of arguments per theme in UBI debate

This short overview of the main arguments has the intention to create a common understanding and enrich the context concerning the concept of UBI. However, it also shows the importance of the choices made regarding the potential designs of such a policy. Small differences can create totally contrasting outcomes. Lower levels of basic income have the target of creating more individual control while higher levels of basic income are meant to solve the existing gaps in current social security systems. Trade-offs between different redistributive effects are inevitable when choices are to be made on the design of UBI. The iron triangle of social policy of Blundell (2002) summarises this best as it states that the three policy goals of controlling cost, meeting needs and maintaining work incentives can never be met all at the same time.

III. A Changing Society

There are plenty of arguments, pro and con, surrounding UBI, but a common thread is the call for a government that is able to ensure adequate living standards for all citizens. The means used, a basic income or something else, are up for discussion. Possibilities are plentiful, such as improving and increasing social safety nets or creating negative income taxes for low-income families. However, it is clear that governments in the Western world have decided to ensure a basic income guarantee in one way or another. In the previous chapter philosophical arguments, mostly based on principles and (political) belief, were discussed. This chapter focuses on the more realistic and pragmatic arguments that can be found in the discussion of a basic income guarantee. Since these pragmatic arguments are based on factual analyses, they also have explanatory power for the current upsurge in attention of UBI in recent years. The recent boom can also be linked to the interest given to the matter by the super-rich. Most notably, Mark Zuckerberg has become a loud advocate of UBI in recent years (Sodha, 2017). This naturally has attracted more attention to the case with the likes of Elon Musk and Jeff Bezos joining him. They all portray a picture of a world in which fundamentals are changing and becoming more unstable, a changing society. Problems are arising in the form of robotisation, decreasing quality of employment and a growing inequality in society overall. The super-rich have made their fortune using these disparities but recognise that it threatens the broader society and seem set on changing it. Their true intentions are of course concealed but it is a bit ironic that the solution they advocate is paid for by taxes while their companies are not the biggest taxpayers per se themselves (Zucman, Tørsløv & Wier, 2018).

i.   Technical unemployment

The impact of technology on the labour market has been a topic of interest since the early 19th century, when the Luddites took up arms as they feared for structural unemployment (Ford, 2015). Later, the term Luddite fallacy was coined as their loss of jobs was not followed by the expected structural unemployment since the innovations that destroyed jobs also created new ones. However, the concern regarding technological unemployment did not disappear as new waves of unemployment always brought back this irrational fear. Keynes (1930) famously put forth the thought that the pace at which we would be able to economise labour would definitely outrun the pace at which we would be able to find new uses for said labour. This pessimistic thought was also based on the fear of technological unemployment. Over time these fears and predictions did not disappear and even got more intense. Society became of the opinion that

fundamental and structural changes had taken place in the developed world. These thoughts of doom and gloom were summarised by Rifkin (1995), who predicted a nearby future without any jobs at all. Computers, robots and artificial intelligence would take over any work we were still doing. A recent and influential study by Frey and Osborne (2017) predicted that in the upcoming two decades almost half of all jobs have a probability of being replaced by computers. We are currently on the brink of a new machine revolution, according to Brynjolfsson and McAfee (2014), in which the computer takes over from the human brain in the same way the steam engine took over from human muscles. Jobs are indeed disappearing, there is no denying that fact. However, the question is whether we are also witnessing the total disappearance of work as we know it. Over the course of time, the ominous predictions have always been proven wrong as new jobs appeared out of the ashes of the old ones. The evidence this time round has also not been that conclusive yet. A report by the OECD (2017) shows that more Europeans than ever before are in work. These numbers clash with the doom ideas about the future of labour that have been mentioned before. It seems that also the robots, computers and artificial intelligence have not been able to dish out the final blow to general existence of jobs so far. It can be concluded that the idea that labour must be seen as a finite amount is seemingly the persistent misconception in the literature which causes these doom predictions.

There is an agreed upon effect on productivity stemming from increased robotisation. The use of robots and artificial intelligence leads to more productivity in a day as these technologies are more consistent and can work without interruption (Buyst, Goos & Salomons, 2018). However, the exact impact of technological innovations is heavily debated. One side argues that computers trigger a new wave of technological innovations that increases productivity (Schön, 2009), while others argue we entered an age of secular stagnation (Gordon, 2015). This debate comes from the fact that classical productivity statistics have been on the decline for some time now. Solow (1987) adequately explained this by stating that the age of computers can be observed all around the world except for the productivity statistics. Consequence of this fact is that pressure is raised on wages of the remaining jobs while new ones are created. Consensus has been reached that these changes on the labour market have different effects for different jobs. Middle income jobs have been disappearing and so-called job polarisation has taken place in most of the Western world societies (Buyst et al., 2018). Eventually, the social ladder becomes harder to climb as cognitive skills and education grow in importance and are more linked to income than ever. This also threatens to exclude the group of people with lower education from the labour market when machines eventually also take their jobs. While

robotisation will not make work disappear as a whole, it has created a hole in society. Among others, this is a serious problem that needs to be addressed.

ii.   Quality of employment

Apparently, more and more people are working, but critics have been quick to point out that the quality of current jobs is decreasing overall. Graeber (2018) even went as far as stating that we have created increasingly more 'bullshit' jobs in our modern society. He argues that especially consultants and manager jobs, which are seemingly important to our service economy, have no intrinsic value and should therefore be disbanded completely. In the European Working Conditions Survey (EWCS, 2015) it also shows that 9% of people in the UK 'always' or 'usually' doubt the social impact and importance of their own work. This is of course somewhat disturbing as previous research has shown that satisfied and intrinsically motivated employees have a major impact on productivity, innovation and, ultimately, on the growth of a company and the economy as a whole (Proto, 2016). Furthermore, there is the general idea that due to increases in flexibility, working conditions have also deteriorated. Standing (2014) describes this as the creation of the so-called precariat, which basically boils down to a new class of workers that are dealing with more uncertain circumstances and badly paid jobs. These are the people 'working' for the Uber's and Foodora's of this world. Degryse (2016) called them the digital galley slaves of the platform economy and they are starting to form a problem due to their rising numbers.

However, when one analyses the broader outcomes of the EWCS (2015) and compares them to earlier editions we observe different trends. Piasna (2017) even found evidence for the fact that many labour quality indicators went up over time. This is surprising seeing the previous arguments and when taking into account it covers the years of the financial crisis. A possible explanation is that the so-called precariat jobs are not well enough represented in the EWCS yet. However, it seems that for the population en masse in Europe there is no concrete evidence for the severe decrease of labour quality standards as they are predicted by Standing and Graeber. It is worth noting, however, that certain countries, among which the UK, are actually showing slight decreases in labour quality over time (EWCS, 2015). Although there is no concrete evidence yet, there are certainly indications for the claims made previously. The current Brexit situation and pandemic could, in the future, potentially worsen the situation for labour quality as people are forced to switch jobs and work in different environments.

iii.   Rise of inequality

The discussion surrounding decreasing labour quality can naturally be traced back to the growing debate about increasing inequality in the world. It is well known that inequality is increasing in both income and wealth measurements. Piketty (2013) most famously described the increase of the top 0.1% of society while the rest of the population lacks behind. This phenomenon is creating more losers than winners of the ever-expanding economic growth and that naturally has consequences. While other developed countries have mildly increasing trends of growing income inequality, the UK stands out as an extreme outlier. Dorling (2015) shows that the top 1% has widely diverging income levels compared to the mainstream in the UK as it even approaches levels of inequality similar to the US. This is mainly caused by the socioeconomic polarization that has taken place due to both wealth and income inequalities. The fact is that wealth is extremely concentrated and often accumulated over generations. Furthermore, many countries have seen wealth tax reductions in the past decades, which has not helped solving the inequality issue. Although there is a very strong case to be made for taxing wealth more, and certainly inheritances, this does not mean that a basic income would automatically be the most reasonable way to spend that money. The permanent scarcity of public funds as described by Pierson (2002) is still at play and decisions need to be made.

The consequences connected to rising inequality are far reaching. Pickett and Wilkinson (2010) even claim that overall decreasing social cohesion, increasing criminality and decreasing health of citizens can all be linked to the increase in income and wealth inequality. These bold statements have had their fair share of criticism. However, it also seems only logical that an increase in inequality does not predict any beneficial outcomes for the more vulnerable people at the lower end of the income distribution. Other research has found a clear link between income inequality and the ability to climb the social ladder (Corak, 2013). Inequality is proven to be a hampering factor in the already more difficult climb awaiting the people at the bottom of the ladder. Lastly, Cingano (2014) also connects inequality to overall economic growth as more unequal countries have lower economic progress. This shows that ideas such as 'trickle down economics', where it is assumed that the wealth of the top of society is automatically redistributed to the bottom, are non-apparent in current developed economies, such as the UK.

Therefore, research attention should focus on the people at the bottom of the income distribution. Poverty and subsequent inequality make people unhealthy and unhappy, creates difficulties during parenting, and makes it difficult, if not impossible, to climb the income or

social ladder. Furthermore, it hampers children's chances of realising their full potential, something that can harm the development of societies in the long run. As well as inequality, poverty is as unequivocally problematic for society. The question that is starting to arise more and more is whether UBI is possibly an answer for these problems. Whether the problems are perceived or in fact real, in terms of rising inequality, robotisation or job quality, minimum income protection for the most vulnerable people of society is nevertheless the most important task for any government of a developed society. Consequently, the following chapter looks at the state of minimum income protection in general before zooming in on the UK in specific in order to assess the protection it currently offers to those who are the most vulnerable.

IV. Minimum Income Protection

This chapter dives deeper into minimum income protection and takes a closer look at the situation in the UK. As learned in previous chapters, the implementation of UBI can also be paired with existing benefit schemes. Therefore, it is interesting to see whether the guaranteed income floor of the UK contains any cracks that require additional income protection.

i.   The minimum

Around the world there are different benchmarks to measure the absolute minimum that somebody requires. Ravallion, Datt and Van de Walle (1991) first introduced the international poverty line, setting it at $1 a day. The line was updated over the years and currently stands at around $2 a day to reflect the growing inequality between developing and developed countries (Ferreira et al., 2016). There are also measures that take into account the minimum calorie intake required by a person. These are all examples of absolute poverty lines as they do not tend to change as much. The European Union, however, uses a more relative poverty line. They created a threshold per country based on 60% of the median equivalised income after social transfers, which was £12.168 for a single person in the United Kingdom in 2018 (Eurostat, 2021). This measure is, of course, easy to obtain and comparable over time. However, the problem with this method clearly lies in the measurement being based on the median household income. First of all, it limits the comparability between richer and poorer countries in the EU. Second, it can also give the wrong indication concerning poverty in times of an economic recession. As the median household income drops due to the recession, the poverty line and concomitant poverty numbers drop as well. Although there are some advantages there are also some obvious drawbacks. Therefore, the demand arises for a more comprehensive measure of the required minimum; a measurement that is more in line with what a person truly needs to be able to participate in society.

Luckily, these measurements do exist across Europe. Researchers in Belgium created so-called 'reference budgets', which are the minimum budgets required for a dignified and full participation in (Belgian) society (Storms, Van den Bosch, Goedemé & Casman, 2012). These reference budgets showed differences with the relative poverty line of the EU. Later, the EU created their own pilot for the calculation of reference budgets on the basis of food, health and housing as main contributors (Goedemé, Penne, Swedrup, Van den Bosch & Storms, 2019). The Minimum Income Standard (MIS) developed in the UK is another good example and was

one of the first with its inception in 2008 (Davis, Hirsch, Padley & Shepherd, 2018). In their latest annual update of 2020, Davis, Hirsch, Padley and Shepherd (2020) come to the conclusion that a single person requires £19.200 per year instead of the £12.168 suggested by the EU poverty line. These budgets are mainly used for the contextualisation of the absolute poverty lines. Overall, the minimum is hard to define as there are several views on what should be considered the minimum. This makes it also harder to put the measurement into an actual value. Dependent on the chosen method and perspective for defining the acceptable minimum there will be different outcomes. Ultimately, this hampers comparability between countries and therefore also reduce the applicability of results found in other countries unless they use similar poverty definitions.

Although the definition might be up for discussion it is certain that welfare states try to guarantee all citizens have access to the decided minimum. Pension payments, affordable healthcare and education or extra income for the poor are all part of these attempts to ensure everyone is able to participate fully in society. Redistribution is a big factor, and most governments use both horizontal and vertical redistribution logic in their benefit schemes (Boone et al., 2018). The horizontal redistribution is used for most social security systems and can be described as the redistribution between groups that are in different phases of their life. Pension payments are the best example of this. The vertical redistribution on the other hand happens between the rich and the poor. It ensures that everyone is able to live according to an absolute minimum. However, this minimum protection is only provided if all other rights and means of support have been exhausted. The conditional nature of these social security benefits immediately points to an important difference in comparison to UBI. Within this wide range of horizontal and vertical redistribution policies there are also differences in selectivity and universality. Whereas the universal benefits are for everyone, the selective ones, obviously, are more targeted at certain groups and often means-tested. Marchal & Van Lancker (2019) showed that benefits can have certain aspects from both as universality can exist within a certain selectivity, calling it progressive universalism. In the current welfare states of the Western world most emphasis is put on contributory benefits that have both vertical and horizontal redistribution elements. The famous Beveridge report in 1942 first coined this idea of a system consisting mainly out of contributory benefits and therefore a more residual role for the means tested benefits for the poor (Beveridge, 1942). However, times have changed with technological developments, sociodemographic changes, migration and increased globalisation all having left their mark on the requirements for benefits to be sufficient for all

citizens. Existing welfare states were adjusted and rebuilt towards a new focus of activation and getting as many employed as possible (Weishaupt, 2013). A natural consequence of these changes came in the form of emphasis shifting more and more towards the residual means tested benefits. Stricter access criteria to social security and increased sanctions have contributed to both the massification and diversification of the people having to rely on social assistance (Van Mechelen, Zamora & Cantillon, 2016). With the previous described trends of uncertainty on the labour market only intensifying this effect. This means that certain groups, in this changing socio-economic context, have more difficulty gaining access to the larger social insurance schemes and eventually end up with social assistance. In this sense, an analysis of minimum income protection can be a very useful exercise to signal problems that have manifested themselves in the rest of the welfare state. De Wilde, Cantillon, Vandenbroucke and De Bie (2016) also described social assistance as being the canary in the mine of the welfare state. The UK has had several overlapping social assistance programmes with Income Support being introduced in 1988, Jobseeker's Allowance in 1996 but a new programme called Universal Credit, created in 2013, is aimed at slowly replacing all of the other social assistance programmes by 2023 (Dwyer and Wright, 2014). Figure 1 depicts the increasing caseloads for the social assistance programmes over time in the UK and this shows that there is an overall increasing trend visible especially in the last years (OECD SOCR, 2021). The remainder of this chapter discusses Universal Credit, the main social assistance benefit provided by the UK government, in more detail.
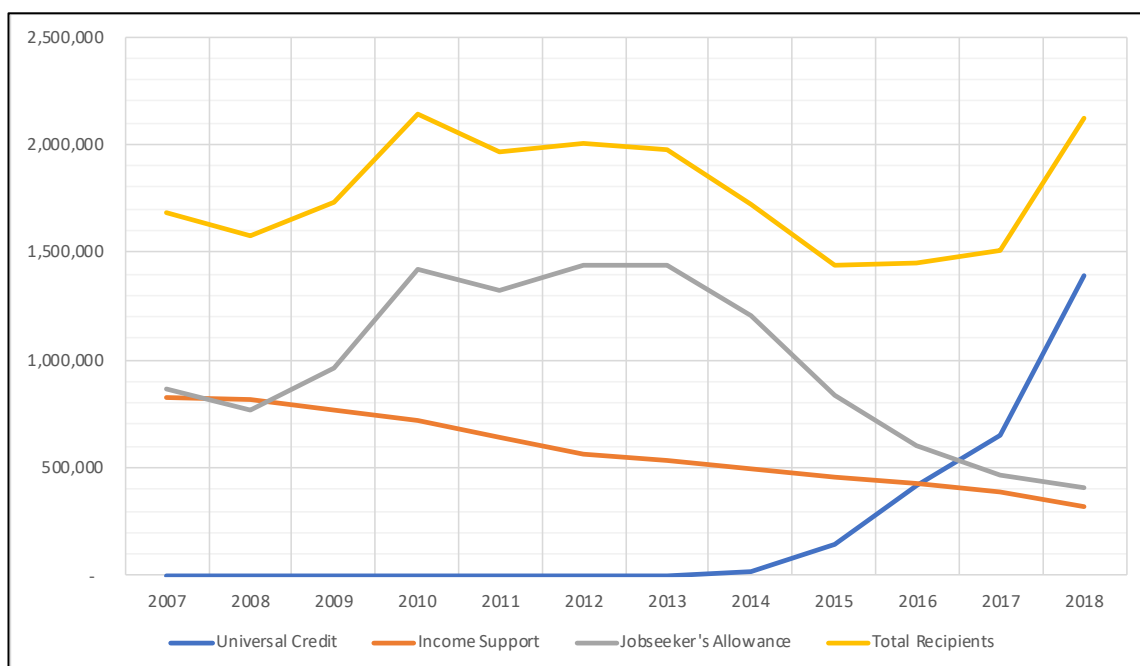
Figure 1: Social assistance recipients in UK over the years 2007 – 2018 (OECD SOCR, 2021)

ii.   Universal Credit

Every country in Western Europe has a safety net for citizens that have depleted all other options for support in order to guarantee a minimum income (Bahle, Hubl & Pfeifer, 2011). There are, of course, many differences between the forms of protection. However, common denominators in order to be eligible are that one no longer has any own resources available, all other rights have been exhausted and there is an obligation to always try to improve the situation by actively looking for employment (Van Mechelen & Marchal, 2013). In the UK Universal Credit provides the minimum income protection for those that ran out of all other possible options. The basic protection lies at £342.72 a month for a single person under 25, £409.89 for a single person over 25 and couples receive £488.59 (<25) or £594.04 (>25) for both (UK Government, 2014). In case of children, limiting health conditions or taking care of disabled people there are potential extra amounts to be received as well as assistance with housing cost. These numbers are in the end political decisions as they are not directly and officially coupled to any of the poverty lines discussed before. Figure 2 shows the net social assistance income, for a single household in 2020, as a percentage of the national EU poverty line, which is 60% of the median household income (OECD, 2021). Other household compositions show similar numbers and can be found in Appendix A. The UK is in the upper parts of these graph, which indicates that the adequacy of the Universal Credit seems good, as it almost in all cases fully guarantees the minimum income set by the EU poverty line.
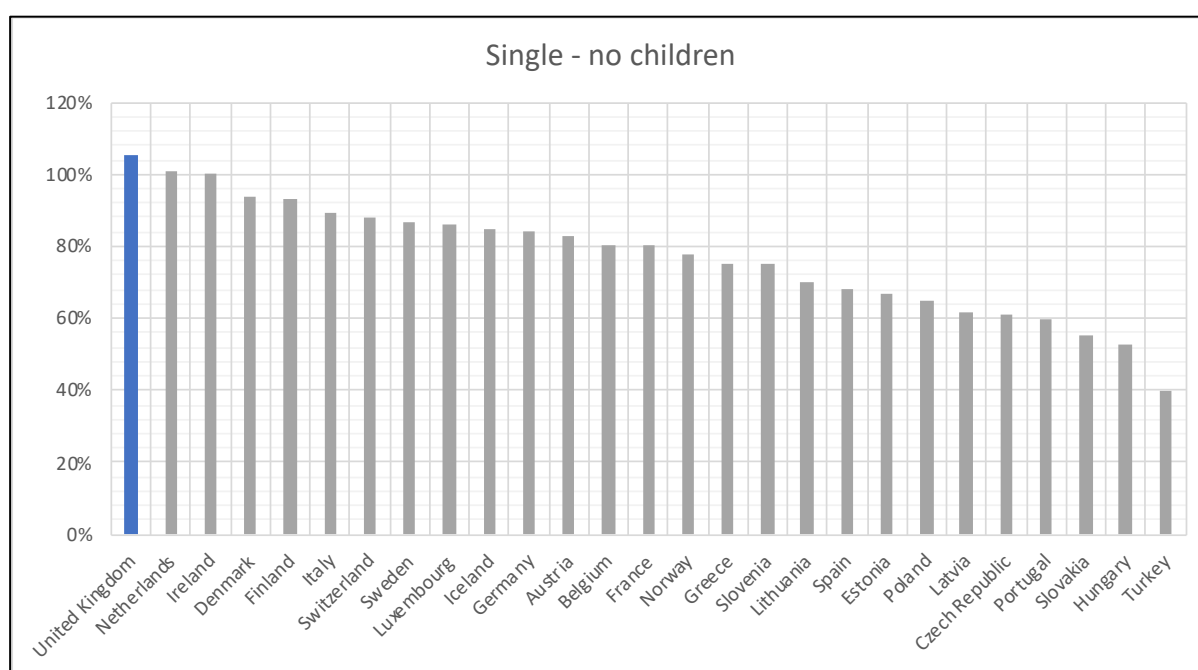
Figure 2: Net social assistance income (incl. housing assistance) in 2020 as percentage of the EU poverty line for singles (OECD, 2021)

Although the Universal Credit seems an adequate policy there are still eligibility conditions to be met before assistance can be received. First, you have to live in the UK, although nationality does not matter, and be between the age of 18 and 67 in order to meet primary requirements (MISSOC, 2020). Second, the existing income must be insufficient. A means test examines whether the income available to the person or family is low enough to be entitled to Universal Credit and also verifies that there are no other sources of income available. All rights, like social security benefits, but also alimony, redundancy payments, and - in the case of young adults - parental support, must be exhausted before assistance can be allocated. Third, available capital is also taken into account. For example, savings cannot be higher than £16.000 in order to qualify for assistance, while any savings above £6.000 already lowers the monthly assistance amount the person is eligible for (MISSOC, 2020). This forces people to purposefully not save as it could otherwise lead to exclusion of assistance. Research has indicated that these savings boundaries have negative effects as they create a vulnerable position for people on benefits in the long term since they lack any equity to help them with unexpected expenses (Baek & Raschke, 2016). Lastly, applicants also have to show a willingness to enter the labour market again by actively looking for jobs, if there are no clear reasons as to why they would not be able to work (MISSOC, 2020). It is clear that, in this sense, Universal Credit differs greatly from UBI. Whereas a basic income guarantees a decent standard of living individually and unconditionally, Universal Credit only applies to families that are unable to provide for themselves, bound by strict conditions and depending on the needs within the household. Therefore, it can be said that access to assistance is strictly regulated in the UK. Figari, Matsaganis & Sutherland (2013) researched how these eligibility conditions influenced the uptake of benefits and they found that among the poor, which are people with an income lower than 60% of median household income, only 54% was eligible for Universal Credit. Among the extreme poor, those under 40% of median household income, 68% was eligible. They provide two potential explanations for these distressing facts as either the categorical eligibility conditions are too harsh or the threshold of eligibility for benefit schemes is set below the extreme poverty line of 40% of median household income. Figari et al. (2013) find the categorical eligibility conditions to be the main culprit in case of the UK.

In the foregoing, the structure of the social assistance, which normally functions as a safety net under the structure of social insurance and redistribution, in the UK was briefly described. This is the main type of benefit that advocates of the basic income target. Besides, its importance is increasing, and it represents the basic protection in Western welfare states to which in principle

everybody should be entitled when needed. Although the Universal Credit is an adequate measure, not all intended persons are eligible to receive the minimum assistance as shown. Therefore, the analysis is completed by looking at how effective the current protection is. Figure 3 shows that still around 18% of the UK population has to live with less than 60% of median household income, while this number drops to around 6% for absolute poverty, being 40% of median household income (Eurostat, 2021). After a slight decrease earlier, the trend is currently showing a worrisome upward direction over the past two years. This shows that poverty is far from being eradicated in the UK, and although the drop between 60% and 40% is significant, still some people are not guaranteed the minimum income protection that the welfare state set out to provide them with.
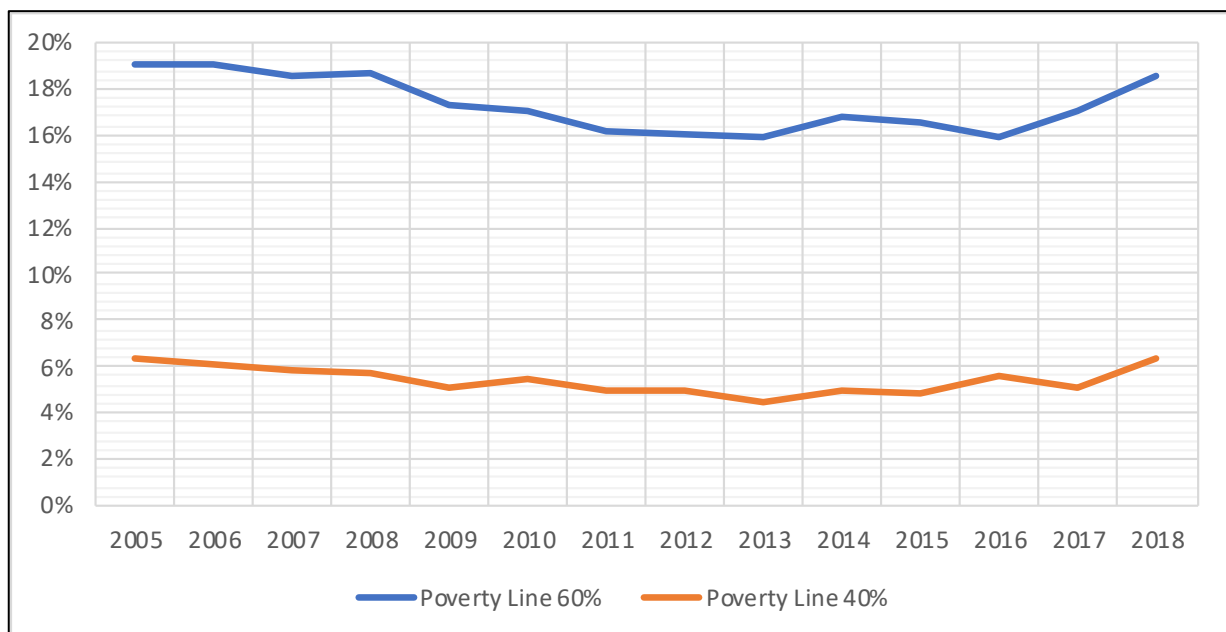
Figure 3: Percentage of population living in poverty in the UK between 2005 – 2018 (Eurostat, 2021)

When compared to the other European countries the UK also does not perform as well as with the adequacy comparisons. Figure 4 clearly shows that the UK is in the middle of the pack and with that also one of the backmarkers of the Western world (Eurostat, 2021). Appendix B shows the same graph but for the 40% poverty line with a similar picture for the UK. This tells us that although the Universal Credit benefit scheme might be an adequate one, there is still ground to be won in facilitating minimum income protection to all the population that actually requires it. As mentioned before, the strict set of rules that govern the eligibility of Universal Credit seem to be a problem for ensuring that all of the population is able to live above a certain minimum. As the current protection clearly has shortcomings this thesis continues with exploring the possibilities that stem from UBI in the next chapter.
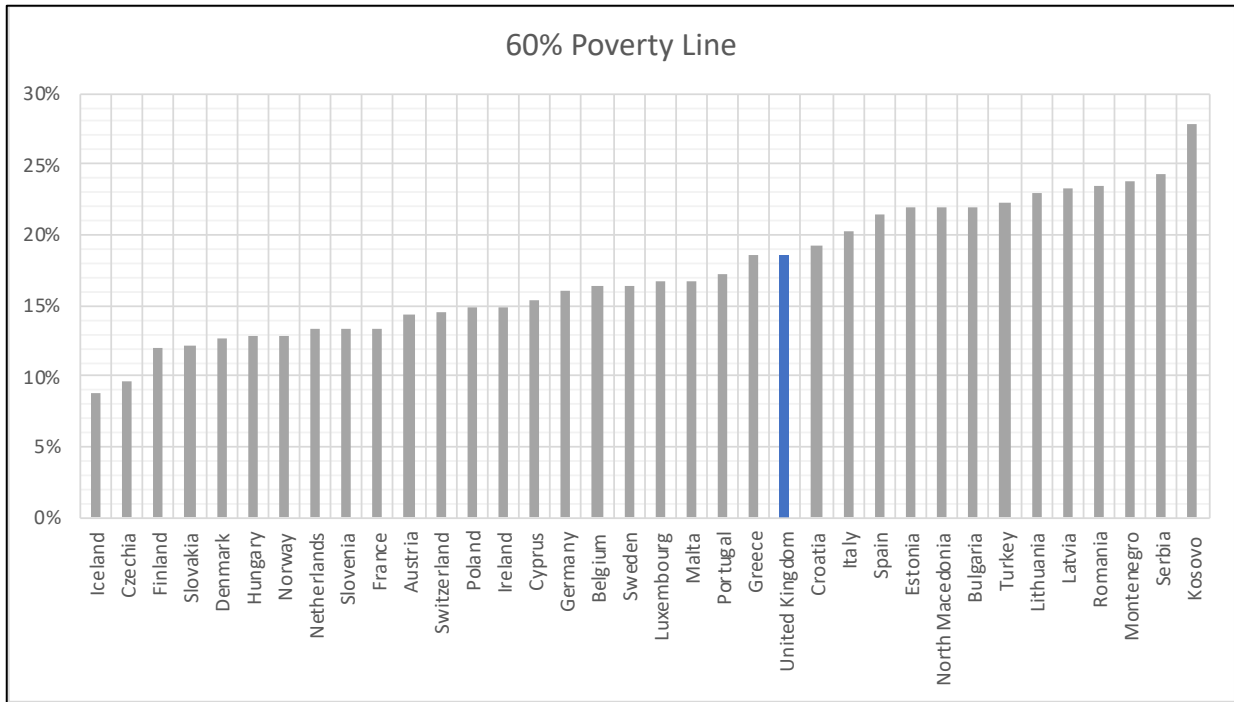
Figure 4: Percentage of population living in poverty in Europe between 2005 – 2018 (Eurostat, 2021)

V. Theoretical Implications

The current protection does not seem to be entirely comprehensive as per the previous chapter. Therefore, it is justified to have a closer look at potential alternative ways of ensuring minimum income protection for citizens, such as UBI. Before diving into hypothetical simulations for the UK specifically, a better general understanding is needed of the possible societal effects such a policy could have. Thus, this chapter focuses on the theoretical implications concerning behaviour on the labour market, non-take up of benefits, administrative complexity, as well as political and social support for UBI.

i. Behavioural patterns

The main focus of the literature concerning behavioural patterns is on labour market participation and the changes that might occur after the implementation of UBI. The rational economic expectation is that both an increased hourly wages and taxes, due to the implemented UBI, leads to decreased labour market participation as people value free time more (Boone et al., 2018). Dependent on the amount of basic income, these effects could potentially reinforce each other. However, the situation is far more complex as our rational economic thought, because UBI is implemented within the existing welfare state. Van Parijs and Vanderborght (2017) discuss the possibility of people with low incomes benefitting, because as they work more, they are able to escape the poverty trap set by current systems. Richer people on the other hand have less incentive to work more as progressive tax systems put the heaviest burden on their incomes. The previously discussed arguments on individualism in chapter two give reason to believe that these complex and differing effects can most likely also be found within households, between men and women. It seems that heterogenous effects in society are to be expected when studying behavioural patterns on the labour market. In the literature there are two main approaches to study these patterns. First, a method that estimates elasticities between a change in wages or incomes and a change in people's labour market participation in order to see the difference in labour market participation among several groups after a policy change (Bargain, Orsini & Peichl, 2012). Second, a method that looks at work incentives by analysing the amount of taxes that need to be paid (Browne & Immervoll, 2017). The second approach mainly focuses on the participation tax rate (PTR) and the marginal effective tax rate (METR) as those show how much money is taxed extra when you start working or start earning more, respectively (Boone et al., 2018). An overarching research for Europe has proven that an increase in individual income leads to increased labour market participation, while increased

family income has smaller negative effects on labour supply (Bargain et al., 2012). These effects are stronger for people with low income or females, as these groups are more sensitive to labour market incentives. Due to the fact that no full-fledged UBI has yet been introduced, direct behavioural effects cannot be observed. However, in order to shed more light on this important issue there are alternatives that can be analysed. Literature based on experiments with variants of UBI, as well as simulations of the introduction of UBI and research identifying causal effects of changes in existing policies, so-called (quasi-)natural experiments, are all briefly considered.

Experiments with variants of a basic income have been tried around the world with different levels of success. One that is still currently ongoing is the Alaska Permanent Fund in the US that was set up back 1976 and was meant as a redistribution for the income generated out of the oil production in the state, a wealth fund (APFC, 2020). A recent study has shown that labour market participation has not been influenced by the dividend, but hours worked have decreased, especially for the women (Jones & Marinescu, 2018). Other experiments in the US and Canada have mainly used a negative income tax, which is an income transfer at the end of the year for people that are below a certain income. The big difference with UBI is that the sum is paid in one instead of monthly and it is also often based on the family income instead of individual income. Nevertheless, the experiments form an interesting case for behavioural patterns. An overview made by Tromp (2017) of the US experiments shows small decreases in labour market participation for both men and women, although the decreases for women are higher. The most analysed experiment is Mincome in Canada. Hum and Simpson (1991) find that in this experiment the male labour participation changes only very slightly while single and married women both have a higher tendency to decrease their participation when they receive UBI. This is in accordance with other literature, and while conclusive causal evidence is not provided, the increasing fertility levels tend to explain part of the story (Bargain et al., 2012). A last variant of experiments looks at lottery winners or people that inherit a substantial amount of money. Sila and Sousa (2014) find a reduction in labour market participation after so-called windfall gains, especially when the amounts of money are considerable, the person has a family with children, or the person is close to retiring. The experiments have shown that reductions in labour market participation effectively take place and are indeed heterogenous when considering sex.

This thesis performs several micro-simulations of the implementation of a hypothetical UBI in the UK in the next chapter, but it is interesting to see what other micro-simulation studies have

indicated. The simulations give a good indication of the direct effects for the different socioeconomic groups in a society, but the more complex indirect effects taking place after the change are not included in these models. Studies using simulations have reached consensus about the fact that the implementation of UBI generally leads to fewer work incentives for the 'second earners' among couples, women in particular, but to stronger work incentives among low-income families (Boone et al., 2018). This happens because UBI does not take into account economies of scale within a family and the benefit does not disappear when someone makes the switch from non-participation to active participation in the labour market. A study of the UK indicates that the work incentive, measured through PTR and METR, decreases for working couples while it increases for single(s) parents due to current benefits being mainly means tested (Browne & Immervoll, 2017). This shows that interaction between taxation and existing social policies are vital in the estimation of the impacts of UBI. Martinelli (2017) also estimated the METR and PTR for the UK to find that indeed the incentive to work, on average, becomes weaker due to the higher fiscal pressure to finance the basic income. However, as expected, the effects are heterogeneous as for the lowest income groups and families that are not working, the incentive to work increases, while the work incentive decreases for both couples and the higher income groups of society. The simulations have shown that a basic income generally increases work incentives for the lowest earners but reduces work incentives for couples, and especially for the lowest earning partner in couples. These effects are similar to the ones discussed in the experiments previously.

The research identifying causal effects of changes in existing policies mainly focuses on child benefits and home-care allowances. Research in Canada and Spain pertaining to more universal child benefits shows that labour market participation of single moms increases while married women decrease in participation (Koebel & Schirle, 2016; González, 2013). Similar results are found in behavioural patterns of people that receive home-care allowance in Finland and Norway. Mothers are more inclined to stay home than the fathers as their labour market participation drops by four percentage points (Schøne, 2004; Drange, 2015). No matter whether predictions are based on microsimulation models, actual observed behavioural effects or (quasi-)experimental research, the results show a clear and unambiguous pattern. In general, the behavioural effects on the labour market are only modest. However, the expected labour market effects are heterogeneous. A general observation that needs to be kept in mind is that UBI mainly discourages second earners in a family to work (more), and this are unfortunately still mainly women. Of course, the amount of the basic income also plays an important role:

the higher the amount, the stronger the effects. This inevitably impacts inequality within households and threatens to further increase gender inequality in the labour market.

ii.   Non-take up of benefits

In the previous chapter the topic of non-take up of benefits (NTU) was already briefly touched upon as it is a major issue for developed welfare states that are trying to provide minimum income protection for all citizens but are seemingly failing at this task (Figari et al., 2013). This section takes a closer look at the problem by surveying existing literature and experiments. However, before looking at results, a more comprehensive understanding of the phenomenon NTU is required. Bouckaert and Schokkaert (2011) define primary NTU as individuals who are eligible for benefits but do not apply, and secondary NTU as individuals who are eligible and do apply but do not get the benefits due to administrative errors. However, there is an important tertiary form of NTU which refers to the exclusion from benefits, despite being entitled to them, by rules or (political) decisions (Janssens & Van Mechelen, 2017). Until recently, NTU was an undeveloped academic field mainly due to data limitations. A report by Eurofound (2015) concerning 16 EU member states showed that for at least one benefit per country a third of the eligible people do not receive it. Naturally, these NTU rates undermine the effectiveness of social policies. Even more so when welfare states do not reach the vulnerable target groups, which may have important implications for poverty reduction (Eurofound, 2014). Several studies in different countries have indicated that a full take-up of benefits creates significant reductions in poverty as especially the NTU for social assistance is very high and these benefits have gained in importance (Hernanz, Malherbet & Pellizzari, 2004; Fuchs, 2007). Currie (2004) indicates that NTU is higher in the lower regions of the income distribution, which means that this trend leads to more inequality as the effectiveness of policies is compromised. At first an overly optimistic picture is created by reduced financial cost, due to NTU. However, Janssens and Van Mechelen (2017) state that if estimates do not take into account imperfect take-up it becomes more costly in the long run as not everyone is protected. Although NTU is mostly associated with the individual, Van Oorschot (1996) rightly indicates that NTU can also be caused by policy decisions or the administrative level dealing with applications. Means tested social benefits are thus becoming increasingly more important. However, these forms of income protection have high NTU and an administrative complexity that undermines their purpose. UBI could potentially take away those problems, as it is a benefit with universality and potentially less administrative complexity.

An important advantage of UBI is indeed the tackling of the NTU problem. Holford (2015) indicates that more universal benefit schemes have much higher take-up rate than selective instruments. Countries that heavily rely on benefit schemes based on means tested income, such as the UK, are also characterised by higher levels of NTU. Hills (2017) even estimates that in some cases in the UK, the NTU goes up to 80%. Official statistics from the government show around 80% take-up for housing assistance but only a 60% take-up on tax rebate for job seekers in 2017 (UK Government, 2021). This leads to the conclusion that, especially in Western Europe, the NTU trends of means-tested minimum income protection seem to be a problem, even in Scandinavian countries (Finn & Goodship, 2014). This conclusion is confirmed by existing benefit schemes that are more universal in nature. Boone et al. (2018) show that universal child support benefits in Belgium and the UK had take-up rates of close to a 100% over the past years. Further evidence has shown that take-up of benefits increases when they are available for more people in the society (Holford, 2015). The more universal ideas seem to have a higher take-up overall, which would mean that it could benefit the effectivity of policies and also positively influence the poverty reduction. Nicaise (2016) implies that information, transaction as well as psychological costs are all higher in current systems that label people in the lower parts of society mostly as 'needy' and have several strict eligibility requirements. The literature shows that those costs for universal benefits are much lower compared to current systems.

The problem of NTU seems solved by UBI in the first place. The administrative complexity in current systems is often said to disappear with the implementation of UBI. Automatic assignment of the benefit is cited as the solution for the high transaction and information costs (Steenssens, 2014). This would reduce the primary NTU. Cantillon and Buysse (2016) argue it would be easier administration-wise as in UBI scenarios all other benefits are often replaced. This in turn could minimise the problem of secondary NTU. There is scarce empiric evidence corroborating these facts. Van de Walle and Nead (1995) find that administrative costs of selective benefits vary between 6% - 9% of program funds, while those of universal benefits are around 2.5%. Although the administrative costs are not completely eliminated, they are significantly reduced. It seems that UBI is the logical replacement in order to solve the problems of NTU and administrative complexity of the current welfare states. There is, however, also critique towards the administrative effectiveness of UBI that has to be taken into account. De Wispelaere and Stirton (2012) describe three accurate administrative challenges that the implementation of UBI would create. First, the civil registry, on which payment of UBI

is based, is most likely to miss out those who need this measure the most (e.g., homeless). This would increase the NTU relatively more in the parts of society that need it the most. Second, everyone needs access to a payment channel to which the government can transfer the benefit, such as a bank account. Again, this is most likely to exclude and increase NTU in the lower income regions of society. Lastly, the authors also mention that with an automatic basic income the control on eligibility falls away (De Wispelaere & Stirton, 2012). Supporters of basic income should not be blind to these administrative challenges and realise that UBI is not completely free of administrative red taper. Nevertheless, in terms of administrative costs and efficiency, UBI is more likely to do better than the selective policy variants currently in place due to the general higher take up with universal benefits. This is especially true for income-tested programmes, such as Universal Credit in the UK, which requires both a complex application procedure and an intensive examination of said application.

As technology advances there are however other options to be explored that walk a middle path between the more selective nature of current benefits and the complete universal nature of UBI. Buysse et al. (2017) discuss the possibilities of automatic benefit entitlement in several different forms. These range from complete automation, in which case the eligible citizens do not have to take any actions, to partial automation where information is actively distributed or reception of one benefit leads to extra benefits automatically. The automatization of rights thus ensures that administrations use the information already available to identify potential beneficiaries as well as allocate or update benefits automatically. While at the moment beneficiaries still often have to provide the necessary information to the institutions themselves, several governments are moving towards more automatization. The Universal Credit programme in the UK has been an example of this. There remain, however, also some challenges within this process. Buysse et al. (2017) describe the accuracy of databases and available data as well as the translation of eligibility conditions into informatica logic as the main challenges. Mistakes can lead to unintended targeting errors that could drive up NTU in vulnerable groups. This shows that when on the verge of making automatic entitlement possible through the many technological innovations, the implementation of computer systems and ICT applications is not without risks, and the possibilities must be treated with the necessary care.

The literature revealed that universal programmes report a higher take-up than selective policy instruments. This is partly due to the higher information and transaction costs involved in applying for income-tested benefits. Complex eligibility criteria, which are inherent to selective public assistance, and the administrative burden involved, create difficulties not only for the

beneficiary but also for the administration itself. Although a basic income seems to reduce NTU and administrative complexity, there still remain doubts about the redistribution effects for the lower income parts of society. More conclusive answers on poverty reduction are provided in the simulations.

iii.   Social and political support

A last important theoretical deliberation is the political feasibility of the implementation of UBI. Such a benefit scheme can only be realised if there is enough social and political support for the idea. Back in 2016, Switzerland organised a referendum about UBI for all citizens, but 77% of the population voted against the idea and it was therefore not implemented (SWI, 2017). The 2016 wave of the European Social Survey also included a question that tried to assess the support for the introduction of UBI in European countries. Figure 5 depicts the answers to this question graphically per country and shows that several countries, such as the UK, have a majority that is in favour of the implementation of UBI (ESS, 2017).
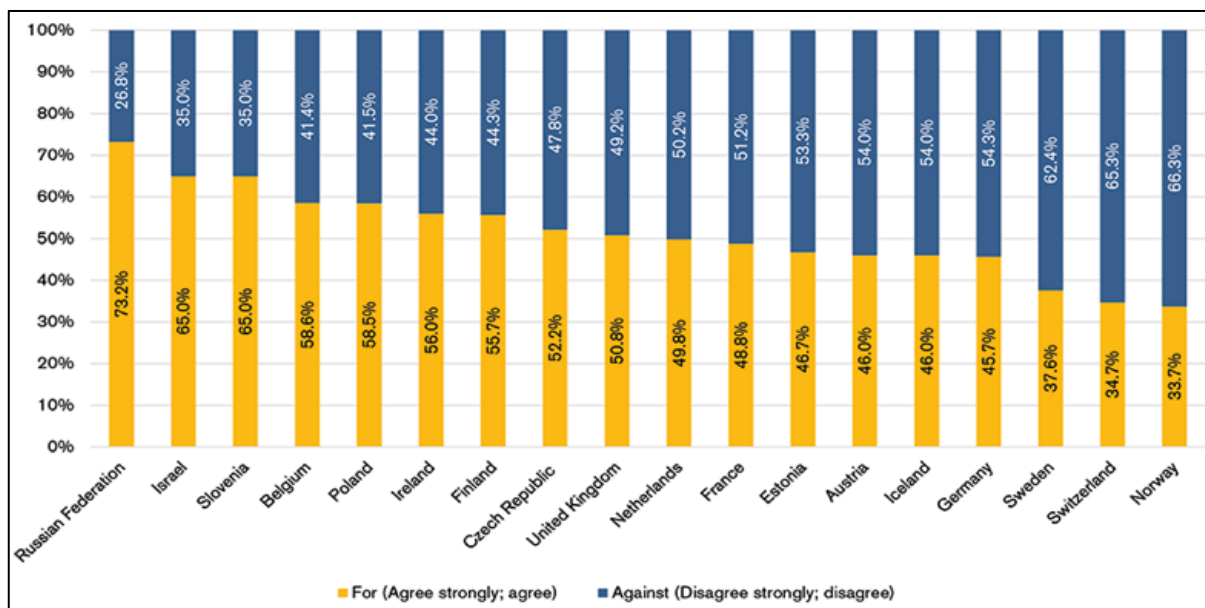
Figure 5: Support for basic income scheme per country from ESS 2016 (ESS, 2017)

However, it must be noted that the question only asked about the concept of UBI and did not provide any specifics. This makes it impossible for the respondents to gauge the impact of such a policy on their personal situation or on the country. Opinion polls and referendums are not necessarily a good basis for estimating whether there could ever be broad support for a basic income. Baldwin (1990) already argued that the developments of the welfare state were not purely based on the preferences of majorities, as voting rights for women, for example, were still a radical idea in the past but are completely normal today. Moreover, in addition to

individual preferences and attitudes towards redistribution, policy developments and institutions also have an impact on the political feasibility of UBI.

In chapter two the paradox of redistribution of Korpi and Palme (1998) was already briefly discussed, which put forth the idea that the more selective benefit schemes would eventually do the least amount of wealth redistribution due to decreased social support. According to this reasoning UBI benefit schemes should receive the most social and political support. There are, however, some doubts as Gugushvili and Hirsch (2014) show that the UK performs relatively well in combatting poverty while their benefit system is mostly selective of nature. Marx, Salanauskaite and Verbist (2016) explain this by stressing that the most effective wealth redistribution is generated when chosen policies allow for selective government support within broader universal programmes, which is the so-called 'selectivity within universality'. Besides, Marx et al. (2016) also reason that whether to support an income-tested benefit scheme is not merely a pure rational decision based on an individual cost-benefit analysis. For example, Kangas (1995) showed that a majority of the Finnish population are actually in favour of greater selectivity in benefit schemes. This means that other aspects, besides self-interest, also have an important influence on the social support for a redistribution policy. The notion of reciprocity, which was mentioned before, also plays an important role as the general tendency nowadays is that social assistance has to be earned (Van Lancker, 2007). Van Oorschot (2000) even identified the five criteria on which people base their assessment and found that control over the situation, level of help needed, identity, attitude and reciprocity all played a vital role. The fact that welfare states with selective benefits are mostly aiming at reactivating the recipients creates good levels of social support, according to Kenworthy (2011). Analysing the motivation for giving social support is crucial if we are to determine the political feasibility of UBI. First, it is paramount to understand what people understand as the source of inequality. Societies that put more emphasis on the circumstances are more likely to support redistribution policies while societies with an inkling towards the working hard/self-made mentality are less likely to support these policies (Alesina & Giuliano, 2009). Second, the individual characteristics of a person also play a role. Several characteristics, such as a solid financial situation, a higher education or being male all lower the willingness to support redistribution policies (Buser, Putterman & Van Der Weele, 2016; Neher, 2011). Third and last, there are macroeconomic determinants that influence the attitude of individuals as well. Alesina and Glaeser (2004) found, for example, that European democracies are more likely to support redistribution compared to the US while countries with a socialist past have the highest tendency to support

them. This might also explain the high support for UBI in Russia, as seen in Figure 5. Without social support, UBI has no direct future. A high degree of reciprocity seems to be the essence of increasing public support for redistribution in our current society and the universality of UBI does not provide a good answer to this. Van Lancker (2017) even stresses that the importance of reciprocity could mean reduced support for redistribution towards vulnerable groups.

Moreover, Larsen (2008) argues that the public opinion is usually influenced by the institutional set-up of the welfare state. As we have seen before, current welfare states have all transformed to becoming more active with reciprocity at the centre (Cantillon, 2011). With this transformation protection levels from social security have decreased and policy has focused more on activation and decreasing financial support. In this institutional set-up it is hard to imagine UBI being implemented. An alternative presented by Atkinson (1995), called the participation income, is an attempt to reconcile the reciprocity principle with UBI as it is a universal benefit scheme but with the condition of a social contribution to society. However, De Wispelaere and Stirton (2004) warn for the potential extra administration costs associated with a participation income. In addition, Brooks and Manza (2006) stress that the effect of public opinion should not be overestimated since path dependency also has a clear impact. Pierson (2011) explains that different obstacles, in the form of country-specific institutions and actors, can inevitably lead to so-called path dependency as positive feedback loops protect the system against radical changes, such as UBI. Those benefitting from the system continue to support the current social policies now and in the future. Without any evidence that citizens would benefit significantly from the introduction of UBI, or without any reason to question the redistributive capacity of current policies, it is fairly unlikely that a significant number of citizens would support a change in the form of UBI. Exogenous shocks are a catalyst in this case according to Pierson (2000) and a failing welfare state could potentially be such a shock. This is also visible in Figure 5, as the more underdeveloped European countries have a much clearer pro-stance towards UBI, while the richer Western European countries are more likely to be negative. Finally, even if the path dependency is broken and UBI would be implemented, there would still be challenges considering social and political support. De Wispelaere and Morales (2016) warn for policy changes that can lead to replacement, changes or the undermining of the implemented UBI, which would make it very unstable. So, on the one hand, strong public support is needed to break the path dependency and once it has been found, it is paramount that a strong coalition is formed during the implementation to prevent the policy reform from being scaled down or abolished completely. This is also important because it could

potentially worsen the position of people at the bottom of the income distribution, who would potentially benefit most from the proposal altogether.

Overall, this chapter has reviewed a wide range of theoretical implications and deliberations connected to the implementation of UBI. From behavioural patterns to the much-needed political support. Labour market participation shows a modest overall increase. However, the effects are heterogenous with women often decreasing labour market participation. The effect on saving decisions is also negatively influenced by the current strict eligibility conditions. NTU seems to drastically improve with a more universal benefit in place, but it cannot be assumed that administrative complexity will decrease. Big political and social support also cannot be automatically assumed for UBI due to the notion of reciprocity, individual characteristics as well as path dependency of institutions all having a vital influence. It has become apparent that implementation of UBI in its purest form still harbours many unknowns but also clear advantages and disadvantages for the people at the bottom of the income distribution. Therefore, it can be concluded that more empirical evidence is required to better understand the true implications of the implementation of UBI. The next chapter aims to provide in this need by performing several simulations.

VI. Micro-simulations of UBI in the UK

The last chapter of the thesis is dedicated to simulations of several hypothetical UBI scenarios in the UK tax-benefit system and their redistributive implications. The effects on poverty, inequality and household income are analysed. The scenarios are different in terms of UBI amounts but also in terms of changes to the existing taxes and benefits, which brings different distributional outcomes. However, the chapter starts with a brief explanation of the UKMOD model and a more comprehensive overview of the UK tax-benefit system.

i. UKMOD

The thesis utilises the tool of micro-simulations to analyse the outcomes of the implementation of multiple hypothetical UBI scenarios in the UK. The micro-simulation model used is UKMOD, version A2.51+, as this is the only model that is freely available. UKMOD is maintained, developed and managed by the Centre for Microsimulation and Policy Analysis at the University of Essex and financially supported by the Nuffield Foundation. The UKMOD model aims to calculate benefits, taxes and social security contributions for a particular year based on the policy rules of the UK (Sutherland & Figari, 2013). The model makes these simulations based on household microdata for which it utilises the Family Resource Survey (FRS), which is an annual report with facts and figures about the income and living circumstances of households and families in the UK and can be used as a representative sample of the UK population (Sutherland and Figari, 2013). The latest data is from the year 2018 and is combined with the policy rules of 2019. The aim of the thesis is to provide a cornerstone of comparison before the Brexit and COVID-19 pandemic, which makes 2019 the best year to analyse as it was the last full year before any of the two events happened. To make the data of 2018 and policy rules of 2019 compatible UKMOD uses price and income indices in order to uprate the values of the survey automatically. Furthermore, it is important to mention again that UKMOD is a static microsimulation model. This means that simulated decisions do not change over time and that makes UKMOD only suitable to estimate and analyse the first-order effects of policy changes as Boone et al. (2018) explain. First order effects are the direct impact of a policy change on poverty and inequality, for example. A policy change can also have an impact on the behaviour of people. These second-order effects are not simulated in UKMOD as they would require multiple assumptions on the behaviour of people. Those assumptions cannot be based on much literature, which means that the results would not be as reliable as the first-order effects. Although indirect effects are of equal importance to the basic income

debate, first-order effects also provide enough food for debate. Another restraint is the fact that not all benefits and taxes are simulated in UKMOD, caused by data limitations in the FRS. However, first a brief and comprehensive overview of the tax-benefit system in the UK is provided for context purposes before showing the simulation results.

ii.   The UK tax-benefit system

In chapter four the thesis already discussed part of the existing social protection in the UK with the focus on Universal Credit, being the minimum income guarantee. This section, however, aims to provide a broader overview of the relevant parts of the tax-benefit system in place in the UK for the sake of understanding any upcoming changes made to said system. There are two main tax elements simulated within UKMOD, being the personal income tax and the national insurance contributions (NIC). The personal income tax has three rates depending on an individual's annual gross income and includes a personal tax allowance. The annual income free of tax is maximum £12.500 and after that the tax rates are 20% for income between £12.500 - £37.500, 40% for income between £37.500 - £150.000 and 45% for income over £150.000 (Reis & Tasseva, 2020). The NIC are compulsory contributions deducted from the gross income that finance current national insurance benefits and state pension, which shows the earlier mentioned combination of horizontal and vertical redistribution in Western welfare states. The NIC also has different rates as well as the inclusion of an allowance. The annual gross income free of contributions is maximum £8.632 and after that the NIC rate is 12% for income between £8.632 - £50.042 and goes down to 2% for income above £50.042 in 2019 (Reis & Tasseva, 2020).

The central benefits in UKMOD can be classified in three main groups, being the contributory benefits, non-means tested benefits and the means-tested benefits. The Jobseeker's Allowance (JSA), aimed at the unemployed, and the Employment and Support Allowance (ESA), aimed at the sick and long-term incapacitated, are the two main contributory benefits. Both JSA and ESA have means-tested components and the contributory part can only be claimed for six or twelve months, respectively (Reis & Tasseva, 2020). The Child Benefit is one of the only non-means tested benefits in the UK system as the majority of the benefit system consists of means-tested benefits. Besides the means-tested benefits JSA and ESA there is Income Support (IS) and Universal Credit, which are the two main social assistance benefits for low-income families in the UK (Reis & Tasseva, 2020). Universal Credit was introduced in 2013 and is supposed to replace most existing means-tested benefits by 2023 as the system is currently transitioning

(UK Government, 2014). The Universal Credit combines the IS, JSA, ESA, Housing Benefit as well as the Child Tax Credit and the Working Tax Credit in one benefit, which should make application for the benefit easier (Reis & Tasseva, 2020). Another tax rebate is the Council Tax Benefit that offers support with the payment of local taxes. Lastly, in 2013 a benefit cap was introduced which means that households cannot receive more than £13.400 for a single person or £20.000 for a couple in benefits annually (Reis & Tasseva, 2020). Overall, the tax-benefit system, when simulated for 2019, had a surplus of £94 billion in revenues as Appendix C presents the full fiscal overview.

iii.   Simulation results

Several different approaches on how to implement UBI in a micro-simulation model can be found in previous research (Martinelli, 2017; Reed & Lansley, 2016; Torry, 2018). The approaches often differ only in small details. However, the approach used by De Henau, Himmelweit & Reis (2021) clearly stands out due to its versatility and is therefore also used in the creation of UBI in UKMOD for this thesis. A new UBI benefit is created and programmed in the 2019 policy system of UKMOD. The benefit is set to pay out a certain amount each month to each individual unconditionally and automatically. The amounts received differ for children (<16), adults (16-64) and pensioners (>65) and are specified per scenario. Furthermore, the UBI enters the means test for other means-tested benefits but is not included in the benefit cap due to its universality. A big change from the other approaches is that the extra income from UBI is made taxable, whereas this amount would normally be exempt from any taxes (Reed & Lansley, 2016). De Henau et al. (2021) argue that this results in higher marginal tax rates for the higher incomes, which ultimately means that they contribute more to the costs of the benefit. This makes the tax-benefit system as a whole more progressive. Moreover, all other benefits are left intact except for the Child Benefit, which is abolished and replaced by the UBI for children. Although the current system runs at a surplus it cannot be assumed this is free money which can be used for anything. Therefore, the additional costs of the UBI have to be countered somewhere else in the system. For this purpose, the personal income tax allowance is set to zero, which effectively means that the lowest tax rate of 20% is now applied as of the first pound earned by individuals, instead of starting at £12.500. Besides, the lower and upper limits of NIC's are abolished as well, which means that a 12% flat rate is to be paid over all income on national insurance contributions. These changes together constitute the basic UBI implemented in UKMOD as based on the approach by De Henau et al. (2021). The versatility of the approach lies in the fact that both the UBI amount or tax

increase can be fixed or set in a loop to determine the optimal amount based on set parameters. The remainder of this result section utilises both those options in different combinations.

As introduced in chapter four, the MIS is the minimum budget required for a full participation in UK society according to Davis et al. (2020). As they bring out annual budgets it is possible to investigate what the effects would be of setting UBI amounts equal to MIS standards of 2019. The 2019 MIS standards indicate a required net annual amount of £16.311 for adults, £7.344 for children and £14.410 for pensioners (MIS, 2021). The amount for children is set at 45% of the adults, which is the extra amount required for a teenager, the most expensive child, by a lone parent over the amount of a single adult in the MIS standards (De Henau et al., 2021). Furthermore, the pensioners still receive their state pension and get a top-up to the indicated MIS amount via the UBI payment if needed. No other changes are made, yet.

Table 2 presents the poverty and inequality numbers of the base system of 2019 compared to the system with the UBI at MIS standards. The results are quite clear as the implementation of UBI equal to MIS levels almost completely eradicates poverty and heavily reduces inequality within society. This, naturally, is a dream scenario for every policy maker and politician.

	Base year 2019	MIS UBI	Difference
Poverty Headcount			
All population	16.17%	0.01%	-16.17pp
Children	20.87%	0.02%	-20.85pp
Adults	14.08%	0.01%	-14.07pp
Adults Economically Active	6.62%	0.01%	-6.62pp
Elderly	17.75%	0.0%	-17.75pp
Inequality			
Gini	0.3533	0.2110	-0.1423
S80/S20	6.5457	2.9729	-3.5728

Table 2: Poverty & Inequality Base vs. MIS UBI. Own calculations using UKMOD.

Figures 6 and 7 corroborate these results and present the outcomes for the changes in mean equivalised household income per decile and the winners and losers per household type, respectively. Based on these graphs everybody seems to improve their economic situation. The household incomes increase very progressively with the lowest decile getting the highest increase of 307%, while the highest decile increases with 16%.
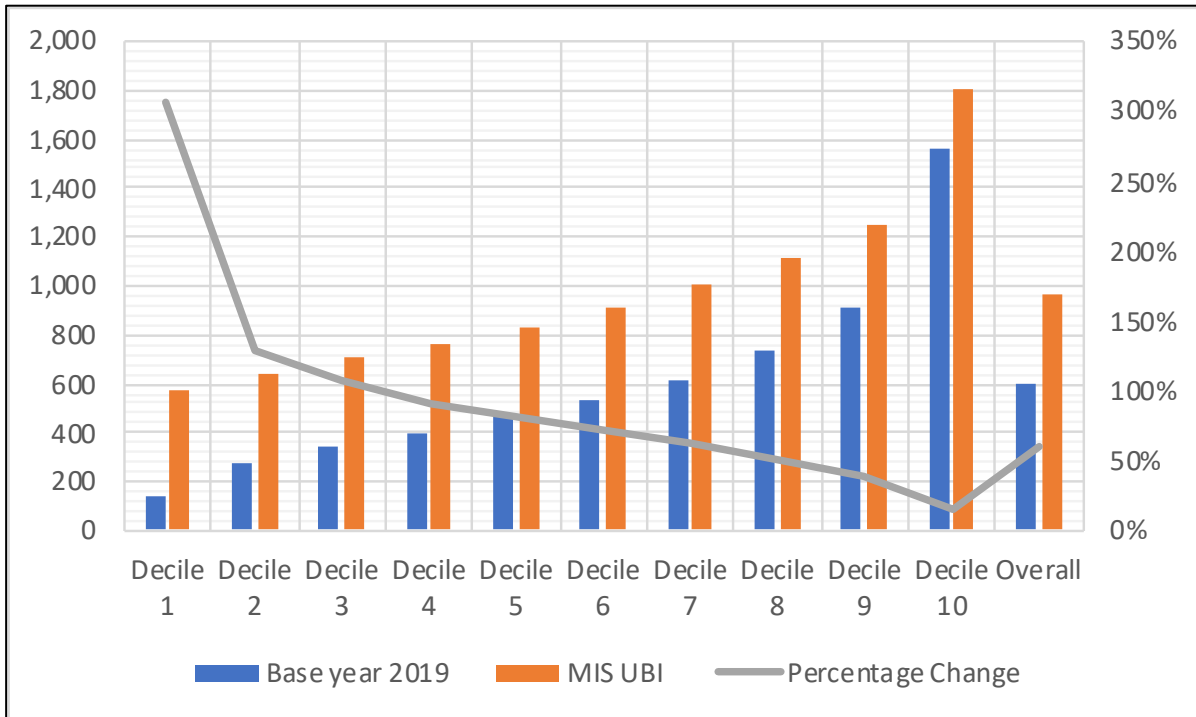
Figure 6: Mean equivalised household income change per decile. Own calculations using UKMOD.

Almost all household types also clearly gain more than 5% in household income compared to the current tax-benefit system. On the other hand, there are no economic losers. Again, this seems like the ideal scenario for any politician or policy maker to implement. As indicated before, a full-fledged UBI benefit has yet to be introduced in any country. The question is why there has not yet been one introduced if it is able to almost eradicate poverty and increase the financial situation of all citizens. It almost looks too good to be true.
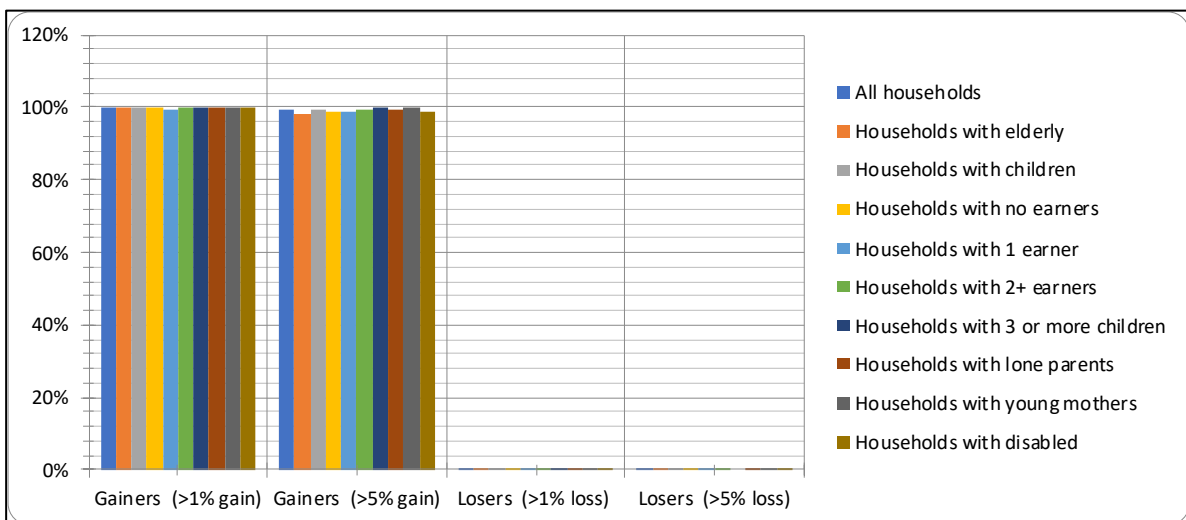
Figure 7: Winners and losers per household type. Own calculations using UKMOD.

The iron triangle of social policy of Blundell (2002), which was already briefly mentioned in chapter two, unfortunately comes back into play here. The three policy goals of controlling

cost, meeting needs and maintaining work incentives can never be met all at the same time. The needs of all citizens seem to be met and we can assume that work incentives are maintained as there were no other radical changes. This leaves us with the third policy goal of controlling cost. The fiscal overview, which is reported in full in Appendix D, tells us that the new UBI policy has created a total deficit of £587 billion compared to the surplus of £94 billion in the original system. This clearly indicates that costs are not controlled, and additional government revenue is required to sustain this level of benefit spending. While keeping the amounts of UBI equal to the MIS standards, tax rates are universally increased with a fixed increment of 3%. This means that the new rates are equal to 23%, 43% and 48% for the different bands. The full fiscal overview, reported in Appendix E, shows that the deficit is still very high, £552 billion. Although it has decreased it is clear that more drastic measures have to be taken to sustain these levels of UBI.

The versatile set-up of the UBI in UKMOD allows for a loop to determine the required tax increase to sustain the level of UBI at MIS standards whilst obtaining a fiscal neutral difference compared to the original tax-benefit model of 2019. Fiscal neutrality is defined in the loop as being within 3% of the £94 billion surplus of the original system. When this system is simulated, we indeed obtain a fiscal neutral result of £91.1 billion surplus as reported in Appendix F. However, a massive universal tax increase across all bands of 46.4% is required to sustain those levels of UBI at fiscal neutrality. This effectively means that the personal income tax rates increase from 20% to 66.4%, from 40% to 86.4% and from 45% to 91.4%. Subsequently, this has implications for the wealth redistribution. Table 3 shows us that such a measure would still eradicate most of the poverty and heavily decrease inequality.

	Base year 2019	MIS UBI	Difference
Poverty Headcount			
All population	16.17%	0.12%	-16.06pp
Children	20.87%	0.02%	-20.85pp
Adults	14.08%	0.18%	-13.90pp
Adults Economically Active	6.62%	0.24%	-6.38pp
Elderly	17.75%	0.0%	-17.75pp
Inequality			
Gini	0.3533	0.1464	-0.2069
S80/S20	6.5457	2.1794	-4.3664

Table 3: Poverty & Inequality Base vs. MIS UBI with tax increase. Own calculations using UKMOD.

However, Figure 8 tells us that people as of the 7th decile experience a drop in household income. The household incomes under the new policy with increased taxes show remarkable universality across all deciles. This change towards equality most likely excites governments with communist affiliations but most certainly is not a goal of modern Western welfare states. The lowest decile records an increase of 279% while the highest decile notes a decrease of 56% compared to the base. As a decrease of household income is apparent as of the seventh decile, the overall result is only a 1% increase in mean equivalised household income with the introduction of UBI set to MIS standards and financed by a personal tax increase of 46.4%.
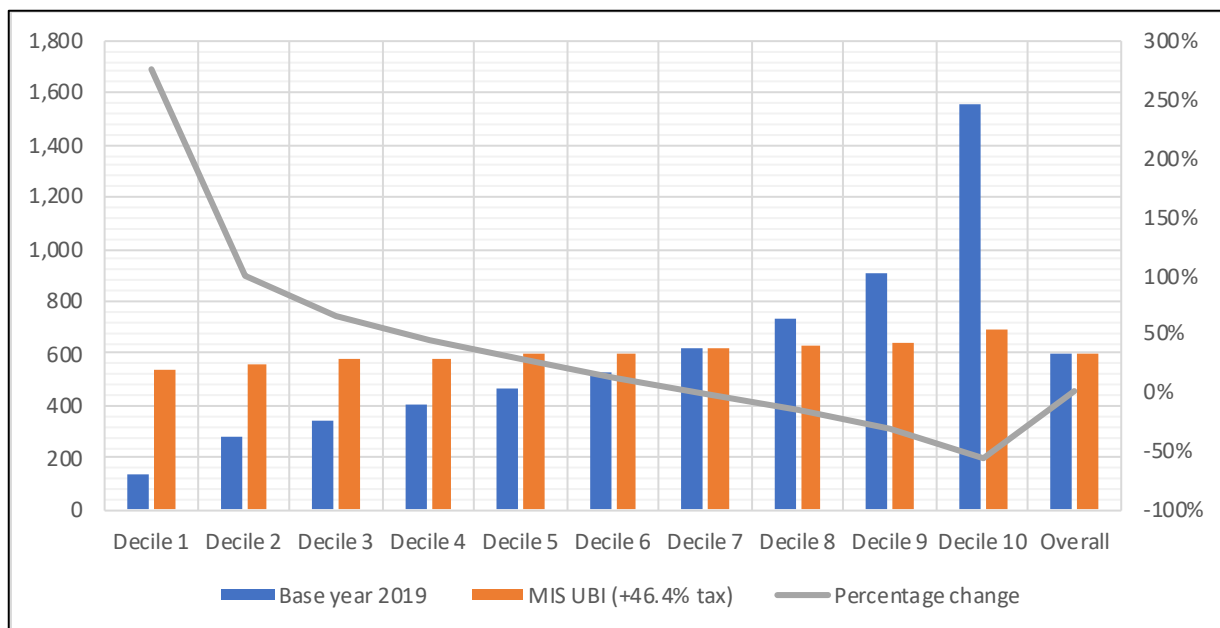
Figure 8: Mean equivalised household income change per decile; tax increase. Own calculations using UKMOD.

This means that this time there are also economic losers within society. Figure 9 clearly shows that while households with no earners, young mothers and disabled still gain income often, the households with 2+ earners now more often lose income than they gain it from the new situation. Households with 2+ earners are often within the higher deciles of the income distribution, which makes this a logical result as they are paying more taxes relatively. Overall, the percentage of households losing income has also increased from virtually zero to more than 30% with the necessary tax increase. However, overall income gains are higher than the losses.
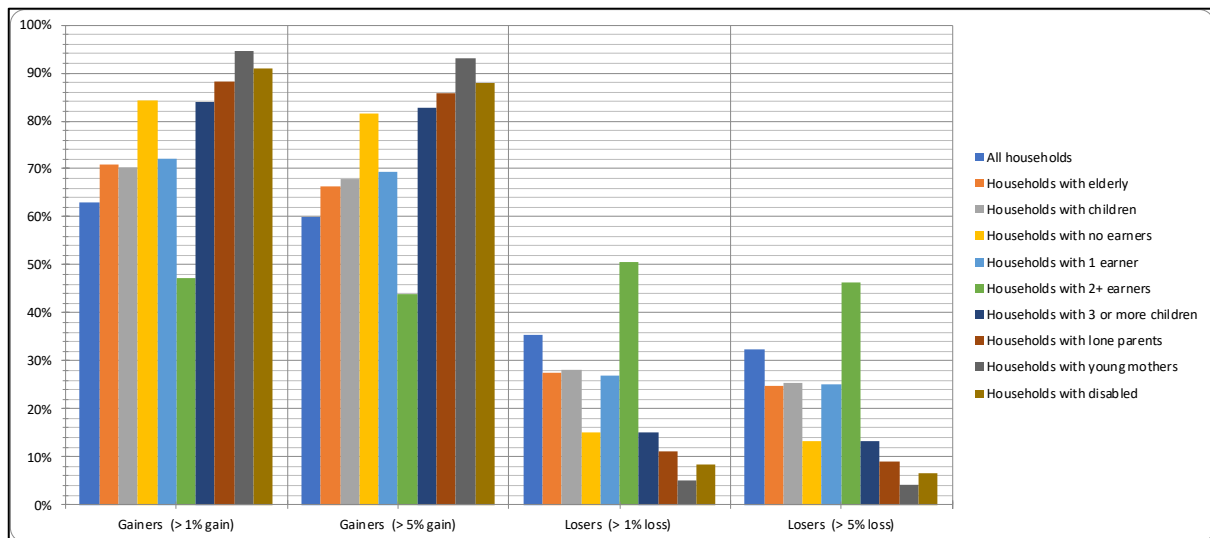
Figure 9: Winners and losers per household type. Own calculations using UKMOD.

The combination of an enormous but necessary tax increase and the subsequent changes in the wealth distribution make it a very radical change from the current system. Therefore, it seems also quite unlikely that such a policy is implemented any time soon in the UK. To analyse more feasible UBI options the loop earlier used to determine the required tax rate increase is now utilised to determine the highest possible amount of basic income within a set tax system. Four different scenarios are compared. Firstly, UBI is implemented in a system where it replaces all other benefits, which is a so-called full UBI scheme (Reed and Lansley, 2016). Only the Housing Benefit and council tax benefit are kept while there is also a universal tax increase of 3%. Secondly, UBI is implemented in the original system keeping all other benefits intact, except Child Benefit, which is a so-called partial UBI scheme, whilst also implementing a 3% universal tax increase (De Henau et al., 2021). Thirdly, the same partial scheme as scenario two is implemented but the tax rates are increased progressively with 2%, 3% and 4%, respectively. Fourth and last, the same partial scheme as scenario two is introduced again but this time without any tax rate increases at all. These four scenarios are simulated in UKMOD and Table 4 presents the net annual amounts per age group per scenario. It is clear that with all other benefits abolished there is more money available for an unconditional UBI, while the partial scheme with no tax increases logically has the lowest amounts of the four. The amount for children is again set at 45% of the adults. Pensioners still receive state pension but receive a top up to the maximum amount of New State Pension in 2019 if their income is below that amount. Naturally, any income above that amount can be kept but no UBI is paid.

	Scheme 1	**Scheme 2**	**Scheme 3**	**Scheme 4**
Adults	£4,428	£4,158	£3,920	£3,240
Children	£1,992	£1,871	£1,763	£1,458
Pensioners	£8,777	£8,777	£8,777	£8,777
Short Description	Full UBI Scheme with universal 3% tax increase	Partial UBI scheme with universal 3% tax increase	Partial UBI scheme with progressive tax increases	Partial UBI scheme with no tax increases

Table 4: Overview of net annual UBI amounts. Own calculations using UKMOD.

The UBI amounts alone do not tell a complete story as we have seen before. Table 5 presents the poverty and inequality reductions compared to the base system. Overall, all four UBI schemes reduce poverty as well as inequality with scheme two being the most effective of the four. However, what springs out is the fact that in three scenarios child poverty actually increases and in scheme two only decreases ever so slightly. This can most likely be linked to our main set-up decision of abolishing the Child Benefit and replacing it with an UBI equal for everyone. That decision disregards certain special needs and results in the increase of child poverty, which is most expressed in scheme one and four. On the other hand, the elderly are the ones with the highest poverty reduction in all four scenarios. A possible explanation is the guarantee of a maximum New State Pension for all pensioners in this case. The adults have a reduction almost equal to the overall population poverty reduction. Although the schemes do not eradicate poverty altogether, they still reduce it with a significant amount.

	Base year 2019	*UBI Scheme 1*	*UBI Scheme 2*	*UBI Scheme 3*	*UBI Scheme 4*
Poverty Headcount					
All population	16.17%	-2.37pp	-3.79pp	-3.32pp	-2.07pp
Children	20.87%	3.11pp	-0.39pp	0.38pp	2.31pp
Adults	14.08%	-2.04pp	-3.06pp	-2.58pp	-1.23pp
Adults Economically Active	6.62%	-1.54pp	-1.93pp	-1.61pp	-0.52pp
Elderly	17.75%	-9.90pp	-10.24pp	-10.18pp	-10.04pp
Inequality					
Gini	0.3533	-0.0320	-0.0380	-0.0359	-0.0247
S80/S20	6.5457	-0.6758	-1.1153	-1.0395	-0.7075

Table 5: Poverty & Inequality difference with 2019 base system. Own calculations using UKMOD.

Moving on to the mean equivalised household income changes per decile in the scenarios as presented in Figure 10. Again, there is an overall progressive trend in all scenarios visible. A clear increase in mean household income up until the seventh decile followed by a decrease in subsequent deciles. Besides, almost all scenarios are able to create an income increase of over 25% for the lowest decile, except for scheme four that creates a 22% increase.
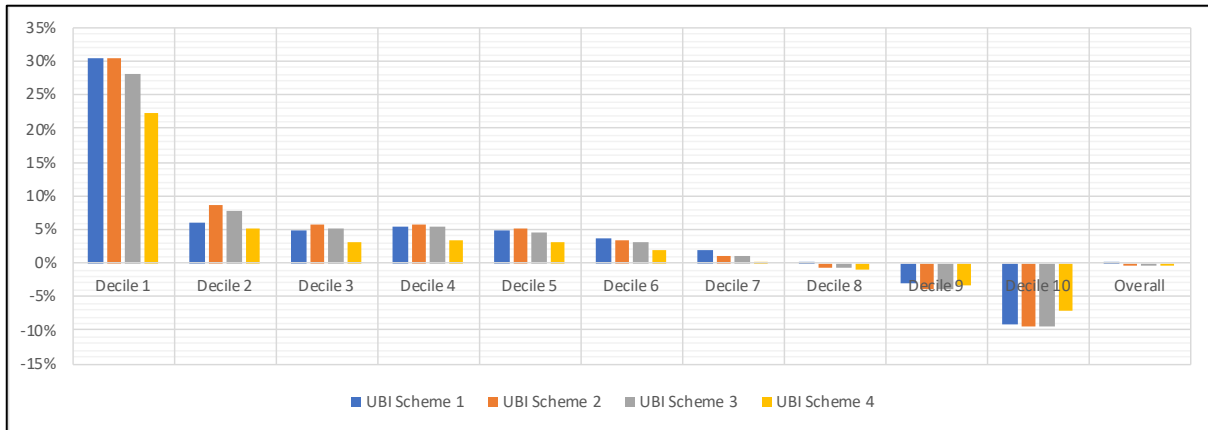
Figure 10: Mean equivalised household income change per decile in percentages; four UBI scenarios. Own calculations using UKMOD.

However, there are some differences between the schemes. The partial schemes with tax increases, being scenario two and three, put more emphasis on the increase of the lower deciles two to four as they show the highest percentual increases there. The focus of scenario one mostly lies on the middle deciles of five to eight as it notes the biggest increases there compared to the rest. Scenarios two and three are also the most progressive as they create the biggest decrease for the last three deciles. The relatively lacking performance of scenario four is easily explained by the missing additional revenues as it harbours no tax increases. This missing revenue leaves the scenario with less money to redistribute and that clearly affects the effectiveness of the benefit overall. The difference between a partial and full UBI scheme manifests itself in the focus of the respective scenarios. Schemes two and three are clearly more targeted at the lower end of the income distribution as they keep most existing benefits intact, while scenario one is less targeted with the abolishment of all other benefits. The overall picture is one of slight increase and progressiveness, which is also confirmed by the reduction in the ratio between the top and lowest decile. This ratio drops with 30% for the first three scenarios and with 24% for the last.

Lastly, Figure 11 presents the economic winners and losers per household type for the four different schemes. Appendix G shows these differences for more than 5% changes, results are similar. Overall, the households that gain the most income are again the elderly, no earners or disabled just as with the MIS UBI. It can be said that the chosen UBI is a good benefit for these groups. The household types that lose income this time, however, are the lone parents, young mothers and households with children. Again, the abolishment of the Child Benefit seems to have a lasting effect on the distribution of wealth in these systems. Between the systems there are only little differences. The most notable one is the difference in loss for households with

lone parents, which is far more prolific in scenario one compared to the others. This is related to the lesser level of targeting in the full UBI scheme.
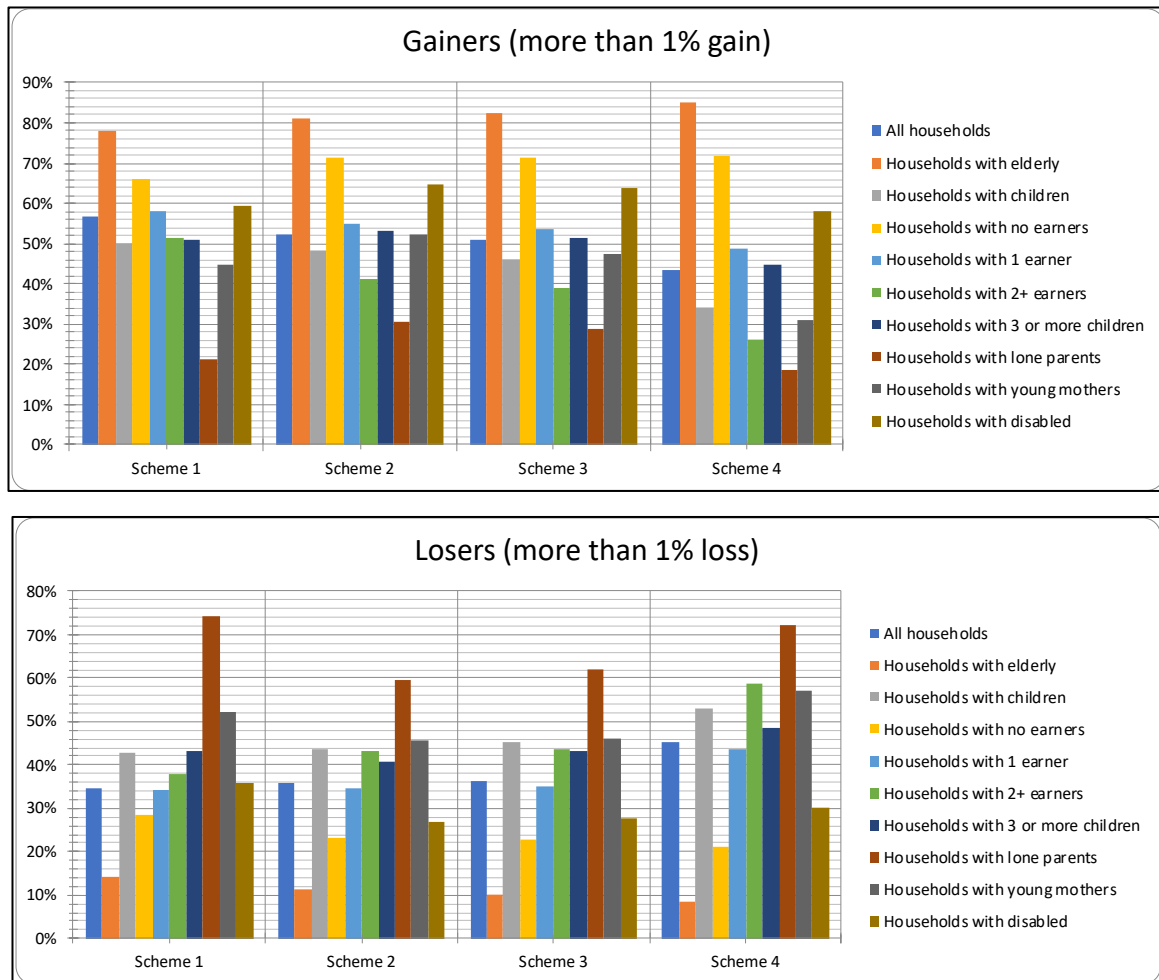
Figure 11: Winners and losers per household type; four UBI scenarios. Own calculations using UKMOD.

The main focus of this chapter has been to showcase a small part of the endless possibilities in which one could introduce UBI in UK society and what its effects on poverty, inequality and the income distribution would be. The aim of the chapter was not to find the best UBI set-up for the UK, but simply to showcase the results of different scenarios as an addition to the earlier theoretical deliberations. A basic income set equal to MIS standards showcased its potential in eradicating poverty, reducing inequality and increasing household incomes in all deciles when simulated in UKMOD and compared to the results of base year 2019. The funding of that system, however, had to come from a 46.4% tax increase, which can be described as a radical change and therefore unlikely to be implemented in the near future. Four fiscal neutral UBI schemes showed that UBI was still able to reduce poverty and inequality significantly compared to the original situation. All of the household income distributions were also

progressively improved after the implementation of the UBI, creating more equality. This shows that UBI could indeed have the potential to help Western countries battle their growing numbers of poverty and inequality. However, it must be remembered that UBI is always compared to other policies with the same aim. The question is whether a government prioritises this poverty and inequality reduction over the loss of income for certain household types. This chapter has also shown us that the set-up decisions have clear effects on the distributional outcomes. The abolishment of the Child Benefit negatively impacted the situation of households with children and lone mothers, while the pensioners, due to the generous pensioner amount, profited mostly. This makes the set-up principles a vital part of any UBI as policy changes always have economic winners and losers. Overall, UBI seems to have some potential, but one thing has become abundantly clear. Far more research is required into these tax-benefit simulations in order to come closer to the true effects of the implementation of a hypothetical UBI in societies.

iv.   Limitations

A short overview of the limitations of UKMOD is provided before moving on to the conclusion. Firstly, the simulations can only be made for one single year at a time, which excludes the possibility of a longitudinal analysis. This makes the analysis of the impact of macroeconomic events on the implementation of UBI nearly impossible. Besides, only first-order effects are analysed as the equally important second-order effects are negated due to the static nature of the tax-benefit model. Secondly, the analysis of behavioural effects could potentially be expanded with the analysis of the METR and PTR, as introduced in chapter five. Unfortunately, the current version of UKMOD does not provide any tools to create those rates. The creation of longitudinal data sets with more in-depth information are feasible additions for the future of UKMOD. This would also potentially allow for the calculation of METR and PTR. Lastly, the government can fund UBI in many different ways, such as a wealth fund, increased wealth tax or land tax. The Alaskan Permanent Fund is an example of such a wealth fund. Due to data limitations in the FRS, UKMOD is unable to simulate those components making an analysis of a different funded UBI impossible. UKMOD is very centred around personal income tax changes, which is another limiting factor that has to be taken into consideration. These limitations indicate the wide scope of possibilities in which UBI can be implemented, but it also showcases the need for more research. Besides, they show that the obtained results must be interpreted with care as they could potentially change when UBI would be implemented in the real world, both positively and negatively.

VII. Conclusion

To conclude the thesis, a contemporary answer to the research questions is formulated with the obtained knowledge from the theoretical and empirical deliberations. The first research question was:

What are the principles underlying a universal basic income and what are the main effects on society according to existing literature and performed experiments?

The principles of UBI are: *an equal cash transfer paid on a regular basis to all individuals within a certain territory, without any (behavioural) qualifications or conditions*. Although these are not contested, the potential societal effects are discussed heavily. Arguments pertaining to costs, reciprocity, universality, individualism and existing policies all passed in opinionated literature. By placing the question within the more extensive research framework of existing benefits a more comprehensive and factual answer has been formulated. This review showed the heterogenous effects on labour market participation between men and women, with women mostly decreasing their participation while overall participation was only changed modestly. Also, the strict eligibility conditions of current benefits negatively influence saving behaviour. Besides, the problem of NTU is all but solved with UBI as new challenges arise surrounding ICT systems or the registry. However, it increases take-up rates overall compared to current selective policies. This also means that the assumed decreased administrative complexity and concomitant cost reduction is not so easily achieved with UBI. Lastly, it cannot be expected that both social and political support automatically is large for UBI. Notions of reciprocity, individual characteristics as well as path dependency of institutions all have a vital influence on the support for the policy. From the theoretical deliberations it has become apparent that implementation of UBI still harbours many unknowns. Therefore, more (empirical) evidence is required to better understand the true implications of the implementation of UBI, something to which research question two adds:

What unique differences do the outcomes of simulations of the implementation of several hypothetical universal basic income variants demonstrate when compared to the existing benefit scheme in the UK?

The results obtained in the previous chapter showed that UBI indeed has potential to solve some of the problems the UK social security system has. Although the Universal Credit is an

adequate measure, the coverage is far from ideal as chapter four showed that the strict eligibility conditions make people at the lower end of the income distribution fall through the cracks of the income floor. UBI has potential as it showcased reduced poverty and inequality numbers in all hypothetical scenarios. The percentage of people that improved their economic situation was also always higher than the ones that experienced a worsening of their situation. However, it must be noted that (political) choices have to be made as the results in chapter six showed. The cost of such a policy can be a limiting factor and in the case of a fiscal neutral UBI there will always be economic losers within society. The set-up principles decide mostly where those losers, but also the gainers of income, can be found. When Child Benefit is abolished, households with children seem to lose income. Although UKMOD is a good tool to indicate these first-order or direct effects the results must interpreted cautiously due to the earlier mentioned limitations. Again, more research is needed in order to estimate the true effects of the implementation of a hypothetical UBI.

Future research in this field should naturally focus on the potential effects of UBI after the dust of the pandemic and Brexit has settled, but other interesting options are available. The ethical side of implementing UBI should not be forgotten. Robeyns (2018) indicates that the trend of reduced female labour market participation should be discussed after years of emancipation made the opposite possible. Moreover, the impact of UBI on other domains of life, like health care spending, is an interesting unexplored field. Longitudinal datasets could potentially allow for more intra-household analysis, which could benefit the ethical discussion about gender roles within the UBI debate. Besides, it can also give more insights in differences between ethnicities. A last idea is to look more in depth into radical changes, such as the implementation of a MIS UBI. All these ideas showcase the great potential of the research field of basic income.

The main aim of this thesis was to establish known facts and debunk potential common misconceptions surrounding the concept of UBI, hoping to have made a meaningful contribution to the debate of basic income by providing a comprehensive overview of the relevant matters based on facts. The goal was never to create a verdict as to whether UBI is a good or bad policy in general or for the UK in specific. The goal has been to inform the reader about the potential impacts an implementation of UBI would have but also about the many unknowns that still surround those estimations and the topic in general. The hope is that this overview and these results trigger more (economic) research into the notion of UBI as it holds so much potential.

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Appendix A: Social Assistance Adequacy EU

Single - 2 children

Couple - no children

Couple - 2 children
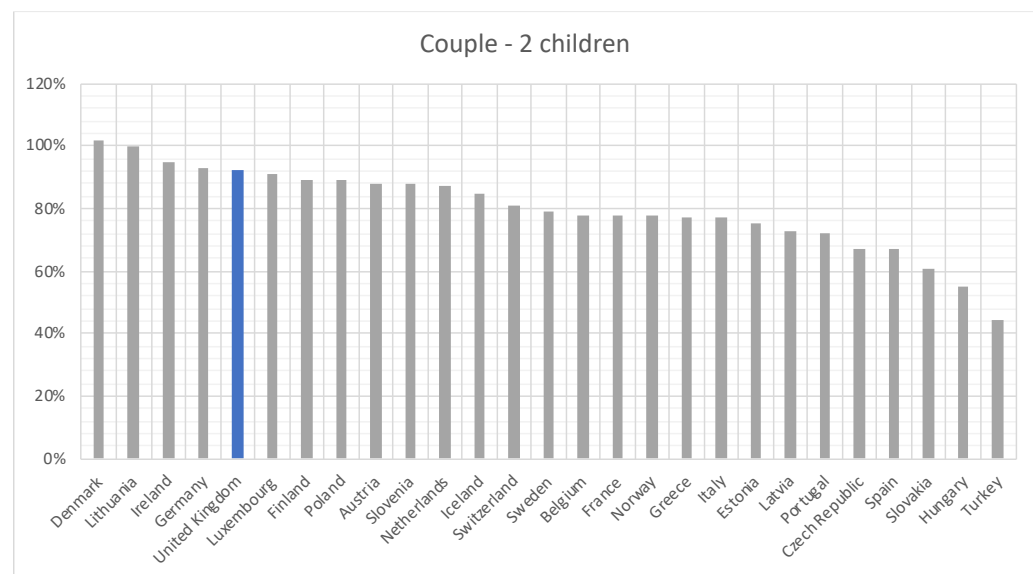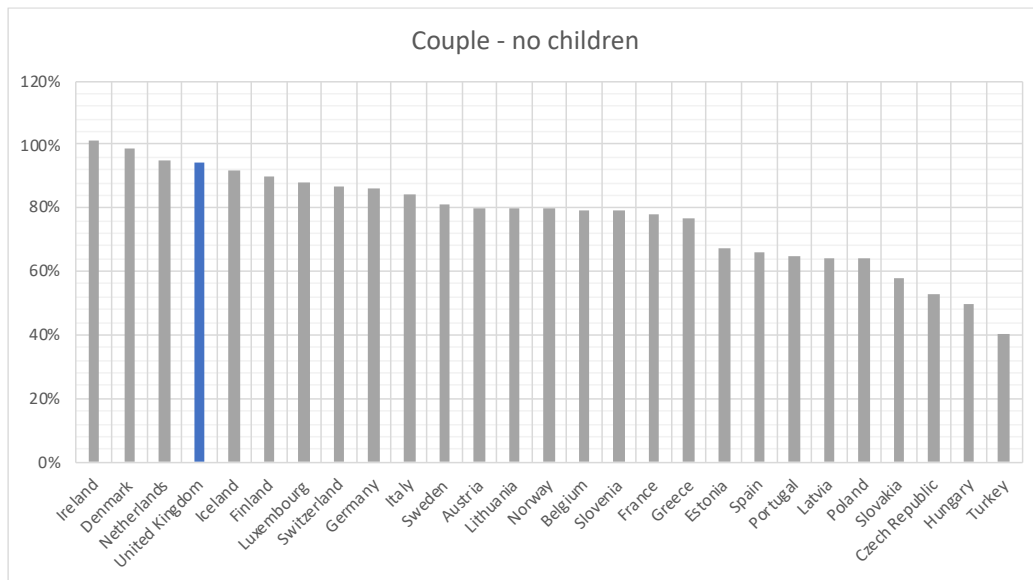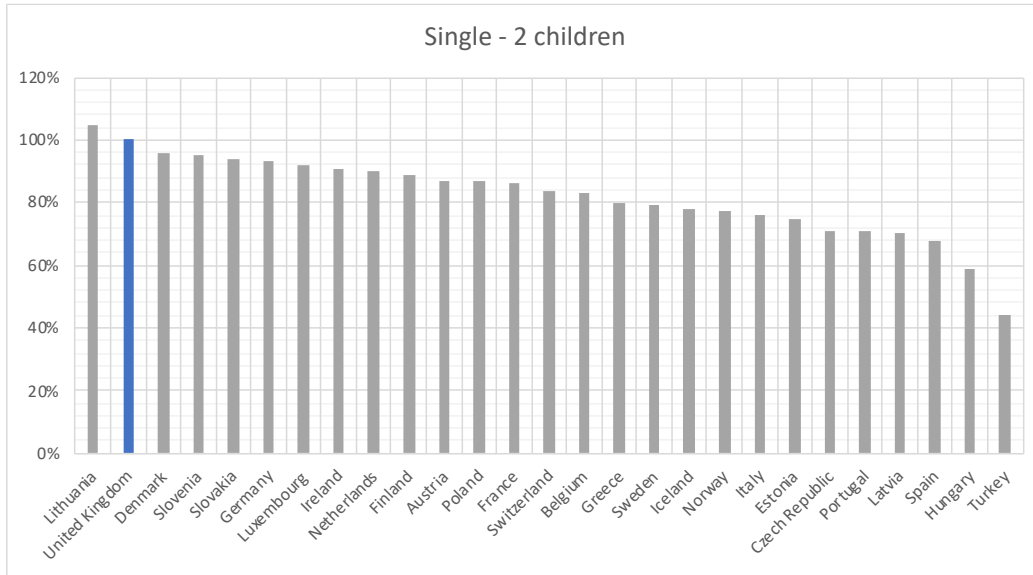
Appendix B: 40% Poverty Line EU

40% Poverty Line
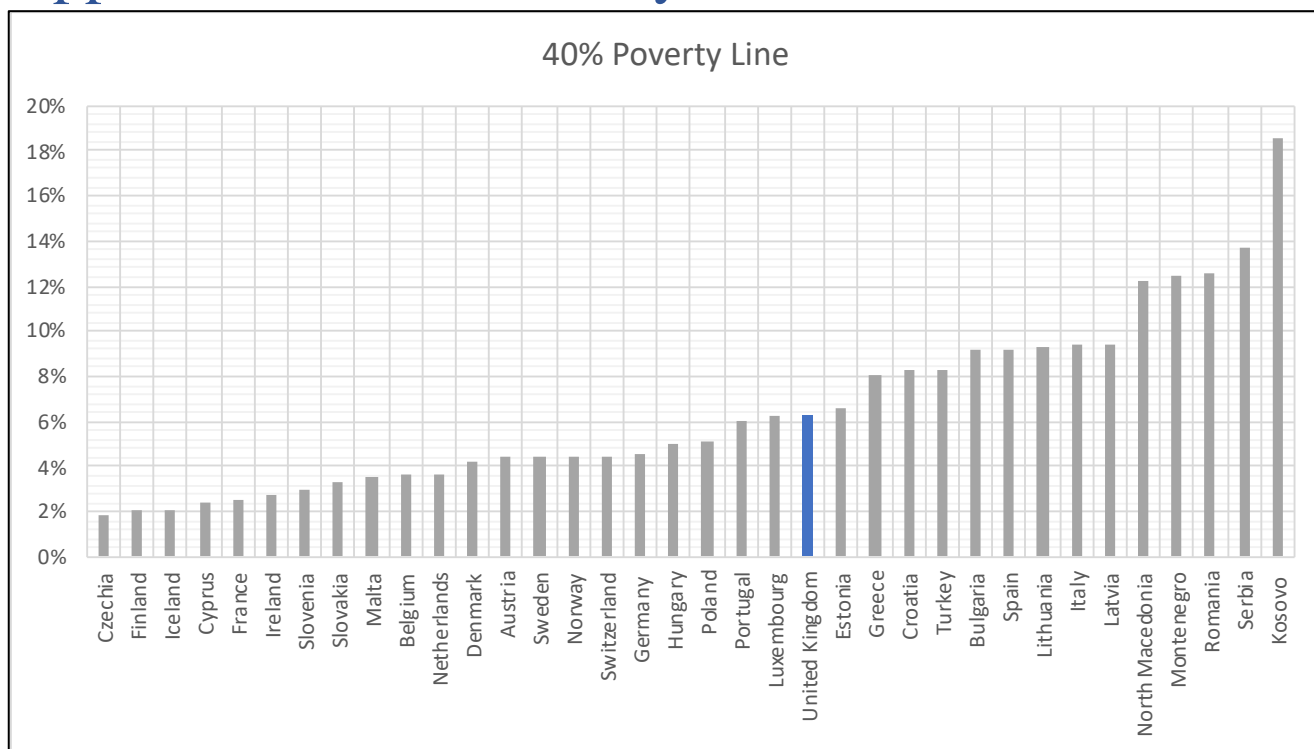
Appendix C: Fiscal overview base year 2019

Yearly, in millions of pounds	2019	
	Amounts	Recipients/Payers
Total market incomes	1,081,585.74	42,991,299.00
… employment and self-employment income	930,209.86	30,472,361.00
… other sources	151,375.88	27,422,827.00
Government revenue through taxes and National Insurance contributions	375,945.13	40,774,029.00
… direct taxes	203,968.27	38,479,465.00
(simulated taxes)		
…… Personal Income Tax	165,907.66	29,294,467.00
(non-simulated taxes)		
…… Council Tax	38,060.73	26,803,660.00
(simulated National Insurance contributions)		
… employee National Insurance contributions	86,297.60	24,134,744.00
… self-employed National Insurance contributions	5,294.92	3,041,300.00
… other National Insurance contributions		
… employer National Insurance contributions (not part of disposable income)	80,384.35	23,203,828.00
Credited National Insurance contributions (not part of disposable income)	0.00	0.00
Government expenditure on benefits and tax credits	201,840.04	25,399,726.00
… means-tested non-pension benefits	61,043.58	9,225,912.00
(simulated benefits)		
Working Tax Credit	1,550.60	542,604.00
Child Tax Credit	7,097.49	1,497,980.00
Income Support & income-based Jobseekers Allowance	3,763.72	1,019,825.00
Income-based Jobseeker's Allowance	0.00	0.00
Income-related Employment and Support Allowance	5,125.52	827,424.00
Pension Credit	3,595.46	1,470,420.00
Housing Benefit	11,032.74	2,578,622.00
Sure Start Maternity Grant	44.90	89,795.00
Best Start Grant (Scotland)	32.07	89,501.00
Council Tax Benefit/Reduction	4,439.81	5,287,356.00
Universal Credit	24,780.82	2,987,963.00
Scottish Child Payment	0.00	0.00
(-) Benefit cap (reducing Housing Benefit)	179.07	57,568.00
(-) Benefit cap (reducing Universal Credit)	240.44	69,948.00
… non-means-tested non-pension benefits	51,706.11	22,976,529.00
(simulated benefits)		
Winter Fuel Allowance	1,972.24	11,770,257.00
Child Benefit	11,431.62	7,155,291.00
Contribution-based Jobseeker's Allowance	123.94	33,791.00
Scottish Carer's Allowance Supplement	38.35	84,778.00
Scottish Child Winter Heating Assistance	0.00	0.00
Coronavirus Job Retention Scheme (in 2020)	0.00	0.00
Self-Employment Income Support Scheme (in 2020)	0.00	0.00
(non-simulated benefits)		
Student payments	2,732.06	585,138.00
Student Loan	12,085.62	1,263,867.00
Attendance allowance	3,186.28	810,520.00
Disability Living Allowance	4,236.74	1,317,063.00
Disability Living (mobility) Allowance	2,743.56	1,106,456.00
Personal Independence Payment living allowance	5,589.77	1,521,158.00
Personal Independence Payment mobility	2,641.88	1,086,010.00
Incapacity Benefit	0.00	0.00
Contributory Employment and Support Allowance	172.72	30,394.00
Industrial injuries pension	454.61	151,046.00
Invalid Carer's Allowance	2,551.20	734,581.00
Severe Disablement Allowance	32.96	11,916.00
Statutory Sick Pay	282.22	73,610.00
Training Allowance	11.99	4,316.00
Statutory Maternity Pay	1,180.32	157,891.00
Maternity Allowance	208.19	30,560.00
Other benefits	29.91	7,698.00
… pensions	89,090.49	11,658,776.00
(non-simulated pensions)		
Basic State pension	71,303.13	11,503,754.00
Second State Pension	16,837.84	8,116,516.00
War pension	253.98	61,193.00
Widow's pension	695.87	149,197.00

Appendix D: Fiscal overview base year vs. MIS UBI (no tax rate increase)

Yearly, in millions of pounds	Amounts			Recipients/Payers		
	Base year 2019	MIS UBI	Difference	Base year 2019	MIS UBI	Difference
Total market incomes	1,081,585.74	1,081,585.74	0.00	42,991,299.00	42,991,299.00	0.00
… employment and self-employment income	930,209.86	930,209.86	0.00	30,472,361.00	30,472,361.00	0.00
… other sources	151,375.88	151,375.88	0.00	27,422,827.00	27,422,827.00	0.00
Government revenue through taxes and National Insurance contributions	375,945.13	798,955.01	423,009.88	40,774,029.00	65,478,555.00	24,704,526.00
… direct taxes	203,968.27	584,093.97	380,125.69	38,479,465.00	65,478,555.00	26,999,090.00
(simulated taxes)						
…… Personal Income Tax	165,907.66	546,033.34	380,125.68	29,294,467.00	65,478,555.00	36,184,088.00
(non-simulated taxes)						
…… Council Tax	38,060.73	38,060.73	0.00	26,803,660.00	26,803,660.00	0.00
(simulated National Insurance contributions)						
… employee National Insurance contributions	86,297.60	123,620.54	37,322.94	24,134,744.00	26,287,809.00	2,153,065.00
… self-employed National Insurance contributions	5,294.92	10,856.16	5,561.24	3,041,300.00	3,802,511.00	761,211.00
… other National Insurance contributions						
… employer National Insurance contributions (not part of disposable income)	80,384.35	80,384.35	0.00	23,203,828.00	23,203,828.00	0.00
Credited National Insurance contributions (not part of disposable income)	0.00	0.00	0.00	0.00	0.00	0.00
Government expenditure on benefits and tax credits	201,840.04	1,211,839.58	1,009,999.53	25,399,726.00	65,478,555.00	40,078,829.00
… means-tested non-pension benefits	61,043.58	1,937.78	-59,105.80	9,225,912.00	966,747.00	-8,259,165.00
(simulated benefits)						
Working Tax Credit	1,550.60	23.82	-1,526.78	542,604.00	10,377.00	-532,227.00
Child Tax Credit	7,097.49	900.16	-6,197.33	1,497,980.00	316,849.00	-1,181,131.00
Income Support & income-based Jobseekers Allowance	3,763.72	0.00	-3,763.72	1,019,825.00	0.00	-1,019,825.00
Income-based Jobseeker's Allowance	0.00	0.00	0.00	0.00	0.00	0.00
Income-related Employment and Support Allowance	5,125.52	0.00	-5,125.52	827,424.00	0.00	-827,424.00
Pension Credit	3,595.46	0.92	-3,594.54	1,470,420.00	1,379.00	-1,469,041.00
Housing Benefit	11,032.74	880.85	-10,151.89	2,578,622.00	521,648.00	-2,056,974.00
Sure Start Maternity Grant	44.90	6.88	-38.02	89,795.00	13,753.00	-76,042.00
Best Start Grant (Scotland)	32.07	4.39	-27.68	89,501.00	11,885.00	-77,616.00
Council Tax Benefit/Reduction	4,439.81	112.06	-4,327.74	5,287,356.00	289,869.00	-4,997,487.00
Universal Credit	24,780.82	8.70	-24,772.12	2,987,963.00	5,666.00	-2,982,297.00
Scottish Child Payment	0.00	0.00	0.00	0.00	0.00	0.00
(-) Benefit cap (reducing Housing Benefit)	179.07	0.00	-179.07	57,568.00	0.00	-57,568.00
(-) Benefit cap (reducing Universal Credit)	240.44	0.00	-240.44	69,948.00	0.00	-69,948.00
… non-means-tested non-pension benefits	51,706.11	1,120,811.36	1,069,105.26	22,976,529.00	65,478,555.00	42,502,026.00
(simulated benefits)						
Winter Fuel Allowance	1,972.24	1,972.24	0.00	11,770,257.00	11,770,257.00	0.00
Child Benefit	11,431.62	0.00	-11,431.62	7,155,291.00	0.00	-7,155,291.00
Contribution-based Jobseeker's Allowance	123.94	123.94	0.00	33,791.00	33,791.00	0.00
Scottish Carer's Allowance Supplement	38.35	38.35	0.00	84,778.00	84,778.00	0.00
Scottish Child Winter Heating Assistance	0.00	0.00	0.00	0.00	0.00	0.00
Coronavirus Job Retention Scheme (in 2020)	0.00	0.00	0.00	0.00	0.00	0.00
Self-Employment Income Support Scheme (in 2020)	0.00	0.00	0.00	0.00	0.00	0.00
(non-simulated benefits)						
Student payments	2,732.06	2,732.06	0.00	585,138.00	585,138.00	0.00
Student Loan	12,085.62	12,085.62	0.00	1,263,867.00	1,263,867.00	0.00
Attendance allowance	3,186.28	3,186.28	0.00	810,520.00	810,520.00	0.00
Disability Living Allowance	4,236.74	4,236.74	0.00	1,317,063.00	1,317,063.00	0.00
Disability Living (mobility) Allowance	2,743.56	2,743.56	0.00	1,106,456.00	1,106,456.00	0.00
Personal Independence Payment living allowance	5,589.77	5,589.77	0.00	1,521,158.00	1,521,158.00	0.00
Personal Independence Payment mobility	2,641.88	2,641.88	0.00	1,086,010.00	1,086,010.00	0.00
Incapacity Benefit	0.00	0.00	0.00	0.00	0.00	0.00
Contributory Employment and Support Allowance	172.72	172.72	0.00	30,394.00	30,394.00	0.00
Industrial injuries pension	454.61	454.61	0.00	151,046.00	151,046.00	0.00
Invalid Carer's Allowance	2,551.20	2,551.20	0.00	734,581.00	734,581.00	0.00
Severe Disablement Allowance	32.96	32.96	0.00	11,916.00	11,916.00	0.00
Statutory Sick Pay	282.22	282.22	0.00	73,610.00	73,610.00	0.00
Training Allowance	11.99	11.99	0.00	4,316.00	4,316.00	0.00
Statutory Maternity Pay	1,180.32	1,180.32	0.00	157,891.00	157,891.00	0.00
Maternity Allowance	208.19	208.19	0.00	30,560.00	30,560.00	0.00
Other benefits	29.91	29.91	0.00	7,698.00	7,698.00	0.00
… pensions	89,090.49	89,090.49	0.00	11,658,776.00	11,658,776.00	0.00
(non-simulated pensions)						
Basic State pension	71,303.13	71,303.13	0.00	11,503,754.00	11,503,754.00	0.00
Second State Pension	16,837.84	16,837.84	0.00	8,116,516.00	8,116,516.00	0.00
War pension	253.98	253.98	0.00	61,193.00	61,193.00	0.00
Widow's pension	695.87	695.87	0.00	149,197.00	149,197.00	0.00

Appendix E: Fiscal overview base year vs. MIS UBI (3% tax rate increase)

Yearly, in millions of pounds	Amounts			Recipients/Payers		
	Base year 2019	MIS UBI (+3%)	Difference	Base year 2019	MIS UBI (+3%)	Difference
Total market incomes	1,081,585.74	1,081,585.74	0.00	42,991,299.00	42,991,299.00	0.00
... employment and self-employment income	930,209.86	930,209.86	0.00	30,472,361.00	30,472,361.00	0.00
... other sources	151,375.88	151,375.88	0.00	27,422,827.00	27,422,827.00	0.00
Government revenue through taxes and National Insurance contributions	375,945.13	878,766.80	502,821.67	40,774,029.00	65,478,555.00	24,704,526.00
... direct taxes	203,968.27	663,905.76	459,937.49	38,479,465.00	65,478,555.00	26,999,090.00
(simulated taxes)						
...... Personal Income Tax	165,907.66	625,845.15	459,937.49	29,294,467.00	65,478,555.00	36,184,088.00
(non-simulated taxes)						
...... Council Tax	38,060.73	38,060.73	0.00	26,803,660.00	26,803,660.00	0.00
(simulated National Insurance contributions)						
... employee National Insurance contributions	86,297.60	123,620.54	37,322.94	24,134,744.00	26,287,809.00	2,153,065.00
... self-employed National Insurance contributions	5,294.92	10,856.16	5,561.24	3,041,300.00	3,802,511.00	761,211.00
... other National Insurance contributions						
... employer National Insurance contributions (not part of disposable income)	80,384.35	80,384.35	0.00	23,203,828.00	23,203,828.00	0.00
Credited National Insurance contributions (not part of disposable income)	0.00	0.00	0.00	0.00	0.00	0.00
Government expenditure on benefits and tax credits	201,840.04	1,256,624.66	1,054,784.61	25,399,726.00	65,478,555.00	40,078,829.00
... means-tested non-pension benefits	61,043.58	1,844.59	-59,198.99	9,225,912.00	948,212.00	-8,277,700.00
(simulated benefits)						
Working Tax Credit	1,550.60	20.44	-1,530.16	542,604.00	10,377.00	-532,227.00
Child Tax Credit	7,097.49	800.30	-6,297.19	1,497,980.00	294,446.00	-1,203,534.00
Income Support & income-based Jobseekers Allowance	3,763.72	0.00	-3,763.72	1,019,825.00	0.00	-1,019,825.00
Income-based Jobseeker's Allowance	0.00	0.00	0.00	0.00	0.00	0.00
Income-related Employment and Support Allowance	5,125.52	0.00	-5,125.52	827,424.00	0.00	-827,424.00
Pension Credit	3,595.46	1.04	-3,594.42	1,470,420.00	1,379.00	-1,469,041.00
Housing Benefit	11,032.74	891.92	-10,140.82	2,578,622.00	524,123.00	-2,054,499.00
Sure Start Maternity Grant	44.90	6.29	-38.61	89,795.00	12,587.00	-77,208.00
Best Start Grant (Scotland)	32.07	4.39	-27.68	89,501.00	11,885.00	-77,616.00
Council Tax Benefit/Reduction	4,439.81	116.01	-4,323.79	5,287,356.00	292,641.00	-4,994,715.00
Universal Credit	24,780.82	4.20	-24,776.62	2,987,963.00	5,666.00	-2,982,297.00
Scottish Child Payment	0.00	0.00	0.00	0.00	0.00	0.00
(-) Benefit cap (reducing Housing Benefit)	179.07	0.00	-179.07	57,568.00	0.00	-57,568.00
(-) Benefit cap (reducing Universal Credit)	240.44	0.00	-240.44	69,948.00	0.00	-69,948.00
... non-means-tested non-pension benefits	51,706.11	1,165,689.50	1,113,983.39	22,976,529.00	65,478,555.00	42,502,026.00
(simulated benefits)						
Winter Fuel Allowance	1,972.24	1,972.24	0.00	11,770,257.00	11,770,257.00	0.00
Child Benefit	11,431.62	0.00	-11,431.62	7,155,291.00	0.00	-7,155,291.00
Contribution-based Jobseeker's Allowance	123.94	123.94	0.00	33,791.00	33,791.00	0.00
Scottish Carer's Allowance Supplement	38.35	38.35	0.00	84,778.00	84,778.00	0.00
Scottish Child Winter Heating Assistance	0.00	0.00	0.00	0.00	0.00	0.00
Coronavirus Job Retention Scheme (in 2020)	0.00	0.00	0.00	0.00	0.00	0.00
Self-Employment Income Support Scheme (in 2020)	0.00	0.00	0.00	0.00	0.00	0.00
(non-simulated benefits)						
Student payments	2,732.06	2,732.06	0.00	585,138.00	585,138.00	0.00
Student Loan	12,085.62	12,085.62	0.00	1,263,867.00	1,263,867.00	0.00
Attendance allowance	3,186.28	3,186.28	0.00	810,520.00	810,520.00	0.00
Disability Living Allowance	4,236.74	4,236.74	0.00	1,317,063.00	1,317,063.00	0.00
Disability Living (mobility) Allowance	2,743.56	2,743.56	0.00	1,106,456.00	1,106,456.00	0.00
Personal Independence Payment living allowance	5,589.77	5,589.77	0.00	1,521,158.00	1,521,158.00	0.00
Personal Independence Payment mobility	2,641.88	2,641.88	0.00	1,086,010.00	1,086,010.00	0.00
Incapacity Benefit	0.00	0.00	0.00	0.00	0.00	0.00
Contributory Employment and Support Allowance	172.72	172.72	0.00	30,394.00	30,394.00	0.00
Industrial injuries pension	454.61	454.61	0.00	151,046.00	151,046.00	0.00
Invalid Carer's Allowance	2,551.20	2,551.20	0.00	734,581.00	734,581.00	0.00
Severe Disablement Allowance	32.96	32.96	0.00	11,916.00	11,916.00	0.00
Statutory Sick Pay	282.22	282.22	0.00	73,610.00	73,610.00	0.00
Training Allowance	11.99	11.99	0.00	4,316.00	4,316.00	0.00
Statutory Maternity Pay	1,180.32	1,180.32	0.00	157,891.00	157,891.00	0.00
Maternity Allowance	208.19	208.19	0.00	30,560.00	30,560.00	0.00
Other benefits	29.91	29.91	0.00	7,698.00	7,698.00	0.00
... pensions	89,090.49	89,090.49	0.00	11,658,776.00	11,658,776.00	0.00
(non-simulated pensions)						
Basic State pension	71,303.13	71,303.13	0.00	11,503,754.00	11,503,754.00	0.00
Second State Pension	16,837.84	16,837.84	0.00	8,116,516.00	8,116,516.00	0.00
War pension	253.98	253.98	0.00	61,193.00	61,193.00	0.00
Widow's pension	695.87	695.87	0.00	149,197.00	149,197.00	0.00

Appendix F: Fiscal overview base year vs. MIS UBI (46.4% tax rate increase)

Yearly, in millions of pounds	Amounts			Recipients/Payers		
	Base year 2019	MIS UBI (+46.4%)	Difference	Base year 2019	MIS UBI (+46.4%)	Difference
Total market incomes	1,081,585.74	1,081,585.75	0.01	42,991,299.00	43,021,945.00	30,646.00
… employment and self-employment income	930,209.86	930,209.90	0.04	30,472,361.00	30,472,361.00	0.00
… other sources	151,375.88	151,375.85	-0.03	27,422,827.00	27,492,149.00	69,322.00
Government revenue through taxes and National Insurance contributions	375,945.13	2,973,529.52	2,597,584.38	40,774,029.00	65,478,555.00	24,704,526.00
… direct taxes	203,968.27	2,758,668.49	2,554,700.21	38,479,465.00	65,478,555.00	26,999,090.00
(simulated taxes)						
…… Personal Income Tax	165,907.66	2,720,607.90	2,554,700.24	29,294,467.00	65,478,555.00	36,184,088.00
(non-simulated taxes)						
…… Council Tax	38,060.73	38,060.60	-0.13	26,803,660.00	26,803,660.00	0.00
(simulated National Insurance contributions)						
… employee National Insurance contributions	86,297.60	123,620.54	37,322.95	24,134,744.00	26,287,809.00	2,153,065.00
… self-employed National Insurance contributions	5,294.92	10,856.16	5,561.25	3,041,300.00	3,802,511.00	761,211.00
… other National Insurance contributions						
… employer National Insurance contributions (not part of disposable income)	80,384.35	80,384.32	-0.02	23,203,828.00	23,203,828.00	0.00
Credited National Insurance contributions (not part of disposable income)	0.00	0.00	0.00	0.00	0.00	0.00
Government expenditure on benefits and tax credits	201,840.04	2,802,011.12	2,600,171.08	25,399,726.00	65,478,555.00	40,078,829.00
… means-tested non-pension benefits	61,043.58	1,472.01	-59,571.58	9,225,912.00	1,062,853.00	-8,163,059.00
(simulated benefits)						
Working Tax Credit	1,550.60	0.00	-1,550.60	542,604.00	0.00	-542,604.00
Child Tax Credit	7,097.49	12.04	-7,085.45	1,497,980.00	5,020.00	-1,492,960.00
Income Support & income-based Jobseekers Allowance	3,763.72	0.00	-3,763.72	1,019,825.00	0.00	-1,019,825.00
Income-based Jobseeker's Allowance	0.00	0.00	0.00	0.00	0.00	0.00
Income-related Employment and Support Allowance	5,125.52	0.00	-5,125.52	827,424.00	0.00	-827,424.00
Pension Credit	3,595.46	6.47	-3,588.98	1,470,420.00	4,274.00	-1,466,146.00
Housing Benefit	11,032.74	1,279.50	-9,753.24	2,578,622.00	780,614.00	-1,798,008.00
Sure Start Maternity Grant	44.90	0.00	-44.90	89,795.00	0.00	-89,795.00
Best Start Grant (Scotland)	32.07	0.00	-32.07	89,501.00	0.00	-89,501.00
Council Tax Benefit/Reduction	4,439.81	173.99	-4,265.81	5,287,356.00	495,805.00	-4,791,551.00
Universal Credit	24,780.82	0.00	-24,780.82	2,987,963.00	0.00	-2,987,963.00
Scottish Child Payment	0.00	0.00	0.00	0.00	0.00	0.00
(-) Benefit cap (reducing Housing Benefit)	179.07	0.00	-179.07	57,568.00	0.00	-57,568.00
(-) Benefit cap (reducing Universal Credit)	240.44	0.00	-240.44	69,948.00	0.00	-69,948.00
… non-means-tested non-pension benefits	51,706.11	2,711,448.64	2,659,742.54	22,976,529.00	65,478,555.00	42,502,026.00
(simulated benefits)						
Winter Fuel Allowance	1,972.24	1,972.27	0.03	11,770,257.00	11,770,257.00	0.00
Child Benefit	11,431.62	0.00	-11,431.62	7,155,291.00	0.00	-7,155,291.00
Contribution-based Jobseeker's Allowance	123.94	123.94	0.00	33,791.00	33,791.00	0.00
Scottish Carer's Allowance Supplement	38.35	38.35	0.00	84,778.00	84,778.00	0.00
Scottish Child Winter Heating Assistance	0.00	0.00	0.00	0.00	0.00	0.00
Coronavirus Job Retention Scheme (in 2020)	0.00	0.00	0.00	0.00	0.00	0.00
Self-Employment Income Support Scheme (in 2020)	0.00	0.00	0.00	0.00	0.00	0.00
(non-simulated benefits)						
Student payments	2,732.06	2,732.06	0.00	585,138.00	585,138.00	0.00
Student Loan	12,085.62	12,085.63	0.01	1,263,867.00	1,263,867.00	0.00
Attendance allowance	3,186.28	3,186.25	-0.03	810,520.00	810,520.00	0.00
Disability Living Allowance	4,236.74	4,236.70	-0.04	1,317,063.00	1,317,063.00	0.00
Disability Living (mobility) Allowance	2,743.56	2,743.57	0.01	1,106,456.00	1,106,456.00	0.00
Personal Independence Payment living allowance	5,589.77	5,589.70	-0.06	1,521,158.00	1,521,158.00	0.00
Personal Independence Payment mobility	2,641.88	2,641.89	0.01	1,086,010.00	1,086,010.00	0.00
Incapacity Benefit	0.00	0.00	0.00	0.00	0.00	0.00
Contributory Employment and Support Allowance	172.72	172.72	0.00	30,394.00	30,394.00	0.00
Industrial injuries pension	454.61	454.62	0.00	151,046.00	151,046.00	0.00
Invalid Carer's Allowance	2,551.20	2,551.20	0.00	734,581.00	734,581.00	0.00
Severe Disablement Allowance	32.96	32.96	0.00	11,916.00	11,916.00	0.00
Statutory Sick Pay	282.22	282.22	0.00	73,610.00	73,610.00	0.00
Training Allowance	11.99	11.99	0.00	4,316.00	4,316.00	0.00
Statutory Maternity Pay	1,180.32	1,180.32	0.00	157,891.00	157,891.00	0.00
Maternity Allowance	208.19	208.19	0.00	30,560.00	30,560.00	0.00
Other benefits	29.91	29.91	0.00	7,698.00	7,698.00	0.00
… pensions	89,090.49	89,090.47	-0.01	11,658,776.00	11,658,776.00	0.00
(non-simulated pensions)						
Basic State pension	71,303.13	71,302.81	-0.31	11,503,754.00	11,503,754.00	0.00
Second State Pension	16,837.84	16,837.84	-0.01	8,116,516.00	8,116,516.00	0.00
War pension	253.98	253.98	0.00	61,193.00	61,193.00	0.00
Widow's pension	695.87	695.87	0.00	149,197.00	149,197.00	0.00

Appendix G: Redistribution (>5% change)

Gainers (more than 5% gain)

Legend:
- All households
- Households with elderly
- Households with children
- Households with no earners
- Households with 1 earner
- Households with 2+ earners
- Households with 3 or more children
- Households with lone parents
- Households with young mothers
- Households with disabled

Losers (more than 5% loss)

Legend:
- All households
- Households with elderly
- Households with children
- Households with no earners
- Households with 1 earner
- Households with 2+ earners
- Households with 3 or more children
- Households with lone parents
- Households with young mothers
- Households with disabled