The Health Case for Universal Basic Income:
Supporting Document for The Labour Party's Report on Universal Basic Income

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Summary: Universal Basic Income (UBI) has been advanced to deal with a number of challenges. Seldom have trials of UBI been designed adequately to measure its impact on the health of participants across the spectrum of socioeconomic status. But the data that does exist suggests that policy has the potential to improve this aspect of people's lives. Two theoretical frames have been advanced to explain this effect. The first is based, broadly, on its impact on behaviour, highlighting the ways in which present socio-economic conditions, including needs and means-based welfare systems, disincentivise healthy choices and activity. The second is based, broadly, on its impact on the endocrine system, holding that UBI serves to protect individuals from a range of stress-related illnesses induced by socio-economic conditions associated with hierarchy and inequality. While the absence of epidemiological input into designing trials means that these frames have yet to be tested, there are good sources of data from non-UBI-related studies that support their validity. This account lays out pathways to impact, demonstrates important points of consideration in the designing of trials and argues strongly for a trial on the basis of a transformative 'upstream intervention' capable of shaping the way that we deal with health. In that respect, we argue that, seven decades on from the creation of the NHS, UBI can be Labour's next great and common-sense contribution to Britain's health.

Introduction

Universal Basic Income (UBI), the universal payment of stipends to all adult citizens (Wright, 2006, 5), has been justified for myriad reasons (see Standing 2017), including as a means of promoting citizens' rights (Pettit, 2007), increasing efficiency in welfare systems (Gordon, 2014) and promoting growth (Sheahan 2012). While trials of programmes that resemble UBI have often noted an effect on health (see Gibson, Hearty & Craig, 2018), few have either advanced health as a justification for UBI or designed evaluations of trials in such a way as to measure any effect reliably. This inconsistency may be because proponents assume an effect, because they believe health to be an ancillary concern or because the means by which to understand and assess that effect are complex and demand methodological precision. This lack of precision in design is, though, to neglect perhaps the most compelling case for UBI in a society such as Great Britain in which the NHS is regarded as a national, patriotic achievement and its costs a direct consideration for state budgeting. Moreover, in light of Britain's long-standing struggle with loss of working days due to ill-health and productivity in general, there is now, more than ever, a need for 'health in all policies' 'upstream interventions' (see Webber, et al. 2018). Such interventions are capable of impacting a range of social outcomes by virtue of improvement in the health of the populace (Johnson, Johnson and Webber under review).

In this report, we trace the literature on UBI's health effects to identify two related, but distinct, pathways to impact that contribute to an epidemiological justification for an effectively designed trial. In terms of the first pathway, we show that reducing absolute poverty and needs-based disincentives to activity attendant to our present welfare system, UBI can promote 'healthy' choices and behaviour (see Johnson, Geyer and Degerman under review). In the

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second, we demonstrate that by reducing inequality, and the capacity of those higher in organisational hierarchies to impose arbitrary decisions on those below them, UBI can ameliorate the relative social bases of stress-related ill-health (see Johnson and Johnson 2018). While research on outcomes has focused generally on the first impact, it may be the second that is of much greater importance in advancing the health case for UBI. This is because it remains relevant to those abstracted from absolute levels of poverty, since there is potential to improve the health of those in work who often find themselves neglected in discussions of welfare reform.

Much of the literature on the second impact stems from research independent of any concern for UBI. As such, we emphasise the need for policy makers to consider the application of the medical literature to UBI as an 'upstream intervention' and for researchers to design trials methodologically in such a way as to trace specific impacts accurately (see Johnson, Johnson and Webber under review). The Shadow Chancellor has recognised the importance of increasingly radical solutions to deal with increasingly desperate circumstances in contemporary Britain. As such, this Labour Party report on the health case for UBI has the potential to shape prospective Governmental commitments to pursue a trial that provides an evidential basis for a policy the benefits of which future generations may rightly take for granted.

We begin by outlining the existing literature on empirical research on health and UBI.

Incidental improvements in health: existing data on UBI

While there have been several trials of programmes that resemble UBI, it is important to note that the nature, scope and place of Labour's prospective trial may entail a series of commitments that differ radically. That said, in each of the cases already examined, there has been evidence indicating a positive effect of UBI-like policies on health, even if that data has stemmed from projects not designed centrally to measure health As Gibson, Heart & Craig (2018, 11) note,

> A number of studies reported modest to strong positive effects on a range of health outcomes, including low birthweight, adult and child mental health, service use, and diet. Improved parenting quality and reduced financial strain were among the suggested mechanisms underlying some of these improvements. These effects were less consistent than those for labour market outcomes and educational participation, possibly because the outcome measures or the samples included in the analyses differed.

The case that is often cited in this regard is the 1974-1979 trial of MINCOME, a Canadian Guaranteed Annual Income (GAI), which was conducted in the province of Manitoba. Unlike UBI, MINCOME included a means testing element with a tapered payment based on other sources of income. In this respect, it resembled more closely a more generous form of Universal Credit than UBI. Nevertheless, the study 'found a significant reduction in hospitalisation, especially for admissions related to mental health and to accidents and injuries, relative to the matched comparison group. Physician contacts for mental health diagnoses fell relative to the comparison group' (Forget 2011, 0).

Other pilots have included evaluation of psychological benefits. For example, phenomenological data from Finland's trial indicate a reduction in stress as a psychological phenomenon (Independent Staff 2017). Indeed, psychologists are increasingly making a public health case for UBI on account of its effect on mental health. Psychologists for Social Change (2017, 3) called for UK trials that incorporate 'psychological impact measurements, including the healthy social indicators of sense of agency and control; uncertainty and security;

connections with others; sense of meaning and purpose in life; and social trust and cohesion'. Interestingly, however, the Finnish trial did not provide funding for those in work (Kela 2018; The Economist 2018), which, as we will see, is a central source of stress.

Following on from this, some trials have begun to test hormonal markers of psychobiological stress in order to assess UBI's effect on stress-related illness. Haushofer and Shapiro's (2016; 2018) trial of unconditional cash transfers to low-income household units in Kenya illustrates this approach, using single measures of cortisol levels pre- and post-intervention. Again, the format of the trial differs radically from the form likely taken in UK trials and was designed in ways that preclude effective measurement of prospective impact on health (see Johnson, Johnson and Webber under review). That said, the study found that cortisol levels were significantly lower when transfers were made to the wife rather than husband, when they were a lump-sum rather than monthly and when they were large rather than small. This indicates that researchers are increasingly aware of the importance of evaluating psychobiological impact and that elements of the intervention – albeit of limited relevance to Labour's prospective trials and poorly measured – have the potential for impact.

For a number of reasons, each of these studies offer incidental evidence that can only be understood and substantiated through engagement with psychological and medical literature related to non-UBI studies. In what follows we outline two distinct explanations for an effect of UBI on health: i) that UBI promotes health-promoting behaviour; ii) that UBI reduces stress. Neither has been built optimally into existing trials, but both need to be considered fully and deployed as the basis for methodological design in order for an evidential justification for UBI to be developed.

Absolute poverty and decision making

UBI has often been promoted as a means of dealing with absolute poverty. Providing a universal, predictable source of income that raises individuals out of absolute poverty confers a range of benefits on recipients, particularly in an era of increased precariousness in employment and decreased social security. Indeed, many trials of programmes similar to UBI are deployed in developing countries and communities faced by grinding levels of resource scarcity. While those trials do not often attempt to place explanations for improvements in health at the heart of their work, there is an emerging, robust literature in the behavioural and social sciences that points towards changes in behaviour.

In the first instance, those in poverty face resource burdens that inhibit access to higher quality means of satisfying basic needs. Their food, drink, housing and healthcare are all compromised in ways that deprive individuals of important forms of nutrition, protection from the environment and medical treatment. Indeed, in such circumstances and as in the case of the inverse care law (Tudor Hart 1971, 7696; McLean, Sutton and Guthrie 2006), the need for those goods often increases as the ability of satisfying the need decreases (see Johnson, Geyer and Degerman 2018). Resource scarcity constricts absolutely the number of options to which individuals have access and inhibits relatively the ability of individuals to make good choices about which of those options to pursue.

There is an extensive evolutionary psychological and epidemiological literature that indicates a profound effect of resource scarcity and unpredictability on choice making. Frankenhuis, Panchanathan and Nettle (2016) demonstrate that such conditions foster short-term thinking that can harm long-term health and well-being. Indeed, exposure to such conditions in childhood causes cellular damage, inflicting permanent disadvantage on individuals in adulthood (Nettle et al. 2017). Indicating the dangers of downward social mobility, Frankenhuis, Panchanathan and Nettle argue that 'people from supportive environments, when exposed to harsh-unpredictable environmental cues, shift toward a present-orientation' (2016, 76). Essentially, this means that, while high Childhood Socio-

Economic Position can provide defence against the effects on health of low Adult Socio-Economic Position, the defence is not impenetrable (Nettle and Bateson 2017). The literature suggests that, when individuals believe their long-term survival is threatened, as with regard to hunger, they are more likely to be impulsive and to take risks (Nettle 2017).

This has profound implications for health, as demonstrated by Adams et al.'s (2015, 1) study that showed that 'Lower anticipated survival was associated with decreased probability of adopting healthier patterns of physical activity, and increased probability of becoming a smoker at follow up' (Adams et al. 2015, 1). This is true even when that anticipation is derived from social circumstances, such as when individuals are exposed to, often subtle, 'extrinsic mortality cues' that convey increased risk of death. Evolutionarily, we are predisposed to invest less in long-term health if an early death is anticipated (Páal, Carpenter and Nettle 2015). This plays out as a 'preference for immediate payoff… delivered by an evolved psychology attuned to cues of extrinsic mortality, delivering adaptively patterned shifts in behaviour, which then become propagated through social transmission' (Pepper and Nettle 2014, 236-237). Perhaps most powerfully, Pepper and Nettle (2014, 238) argue that public health efforts to raise awareness of the dangers of health-impeding behaviours may actually promote those behaviours by diminishing subjective perception of life-span.

However, it is not just that individuals are less likely to make good decisions, it is that they are less able (see Mani, et al. 2013). Choices are constrained relatively with regard to more affluent cohorts by virtue of what Mullainathan and Shafir (2014) have termed the cognitive 'bandwidth tax'. Just like computers, every individual has a limited capacity for dealing with tasks. When overloaded with tasks, the mind lacks the necessary psychological resources by which to function effectively. The key contribution of the cognitive bandwidth tax is that it demonstrates that, when overloaded, people are incapable of identifying strategies to promote their interests and, in fact, make decisions that actually undermine those interests.

Mullainathan and Shafir (2014, 48-51) use a range of thought experiments to demonstrate that those with lower incomes are significantly less able to respond to Raven's Matrices problems, which measure fluid intelligence, 'The capacity to think logically, analyse and solve novel problems, independent of background knowledge' (Mullainathan and Shafir 2014, 48). This diminution in the capacity to exercise 'executive control' is attributed to limitations in bandwidth and renders us 'less insightful, less forward-thinking, less controlled' (Mullainathan and Shafir 2014, 13). The tax increases as resources decrease, meaning that even those beyond absolute poverty can fail to promote interests if the scale of pressure on their resources is sufficient. In effect, resource scarcity deprives individuals of fluid intelligence, compounding the disadvantage conferred by lives of poverty. It is this fluid intelligence that is needed to ensure that individuals make decisions that uphold their interests by investing in health (and every other part of their lives). Given that those investments are often costly, it is clear that the absolute constraint of resource scarcity, combined with the bandwidth tax, render individuals less likely to be able to make health-promoting decisions. These theories of choice making are of particular importance in a UK context by virtue of emerging trends in our employment and welfare systems.

UBI as a means of improving health choices

Johnson, Geyer and Degerman (under review) have worked with GPs practising in areas of deprivation in the North East to analyse the prospective effect of UBI on three cohorts afflicted by particular socio-economic pressures. They engage with the work of Guy Standing to distinguish between the lives of those i) with low levels of education who fulfil low-paid, short-term, zero-hours contracted work, ii) with higher levels of education in short-term or zero-hours contracted work, and iii) those with low levels of education in long-term receipt of working-age benefits. Each of these groups can be afflicted by the cognitive bandwidth tax,

but their specific health challenges are different. These specific challenges represent 'patient-side barriers' (see Jimmy and Jimmy 2011) that prevent individuals accessing health-promoting healthcare.

Group one may struggle with lengthy and costly commutes, be unable to plan non-work activities for fear of being unable to fulfil work obligations that would lead to termination, and are ineligible for working age benefits. In these circumstances, they may be unable to make investments in health in terms of time to visit medics and money to purchase prescriptions. With no long-term interests to uphold – as Standing (2011) puts it, no 'shadow of the future', they may simply patch themselves up, meaning that more serious health conditions go unidentified and unaddressed. Their short-term pressures inflict a series of extrinsic mortality cues that inhibit health-promoting choices. As one GP quoted in Johnson, Geyer and Degerman (under review) states,

> These patients tend to see their long-term chronic conditions as far less important than their more pressing and immediate health needs such as lack of income, risk of losing their homes, chaotic family situations and low mood. They are unlikely to prioritise quitting smoking, reducing their alcohol intake, improving their diet, and other risk factor management over issues which have a palpable impact on their current quality of life.

Individuals in Group two face similar concerns with regard to unpredictability, but they have at least a formal capacity for social mobility. These individuals often view their precariousness as a temporary phase in a long-term aspirational pathway of personal development. They are more likely to come from more highly educated, affluent backgrounds that would insulate them partially from temporary pressures and enable them to develop health-promoting relationships and strategies with GPs. Indeed, as Johnson, Geyer and Degerman (under review) state,

> there seems good reason to believe that highly educated, well-remunerated professionals in precarious forms of employment will bring different resources to their approach to health. In particular, they are less likely to be burdened as heavily by psychological bandwidth taxes and may be more able to develop tactics to engage with GPs, particularly with regard to overcoming inter-personal "provider-side barriers".

Moreover, given that skilled precarious employment can still be well-remunerated (see Chapman 2017), there is the likelihood that the experience of absolute poverty among individuals in Group two is reduced.

The individuals of most concern fall into Group three (see Standing 2015, 4). Not only do such individuals face absolute poverty, they are often bereft of the education, opportunity and mainstream aspiration capable of fostering social mobility and attendant health-promoting circumstances. This condition is often trans-generational and replete not just with trauma, but extreme extrinsic mortality cues. For those within it, life often consists of predictable drudgery (see Johnson 2016). Quite aside from GPs' perceptions creating 'provider-side barriers' to treatment (Lester and Bradley 2001; Neale, et al. 2008), the UK's needs- and means-based welfare system compounds this by offering perverse incentives to demonstrate long-term ill-health in order to sustain welfare-based income. The GPs in Johnson, Geyer and Degerman's (under review) study cited the 'benefits trap' phenomenon in expressing concern that patients 'view consultations as means of legitimizing welfare claims', seeking, for example, potentially dangerous treatments, such as opiate pain killers, since '"Requiring morphine" was seen as a marker of severity'. As one GP put it, 'you want to prove to the state that you're as ill, and

disabled, and incapable as you possibly can otherwise your kids might starve'. Once in that condition, it is likely that individuals begin to identify themselves in '"the sick role", being exposed to extrinsic mortality cues that make 'them more likely to pathologise symptoms that others may not' (Johnson, Geyer and Degerman under review).

The perverse effect of this system on those most in need of health-promoting behaviour is profound. Activity Alliance's *The Activity Trap* report (Johnson and Spring 2018)suggests that those in receipt of needs-based welfare are substantially less likely to engage in activity, whether in formal or informal sporting or leisure activity, than they would be were they to receive payments not made conditional to their being demonstrably disabled or in ill-health. Across a range of primarily physical impairments, participants in the study reported fearing losing benefits or being seen as 'too independent for a disabled person' were they to be more active. One participant – a manual wheelchair user – stated that

> I'm always afraid of doing too much as it could have a negative impact on my disability benefits entitlement. This is partly from the forms, but also because I had a friend who tried doing a little more than I do now, to try and help with her pain management, and they took away half her benefits and told her she was capable of going to work as she was capable of doing so much exercise – despite her having regular fits etc.! She was told that to stand any chance of getting them back she'd have to give up all but one class and maintain that level for six months. You'd think we'd be encouraged to reduce pain using non-medication routes, but apparently not!

As a consequence of this activity trap, those who need to be active in order to manage impairments, maintain autonomy and retain or even improve their health are forced into a position in which they are more likely to make choices that impede their health. With many of these disabled people having personal experience or knowledge of benefits being reduced or removed due to being active, it is no surprise that inactivity may be chosen over being stripped of benefits and forced to seek employment that is unsuitable for their impairment or condition.

UBI offers clear means of dealing with each of these social pathologies. In the first instance, if sufficiently generous, it offers the potential to raise individuals out of absolute poverty and to mitigate the cognitive bandwidth tax. Indeed, Forget (2011, 2) argues that the health benefits of MINCOME were secured via a reduction in poverty, while The Public Health Agency of Canada (2016) notes the importance of 'upstream investments' that address 'social, economic and environmental conditions'. By transforming those conditions and the welfare system in particular, UBI has the potential to ensure that individuals are no longer confronted by extrinsic mortality cues, while incentives to make choices that make them appear, or, in fact, be, as ill as possible are removed.

While this is of great importance to those in such particular socio-economic conditions, the psychobiological account of ill health indicates much broader potential health benefits of UBI.

Stress-related ill-health

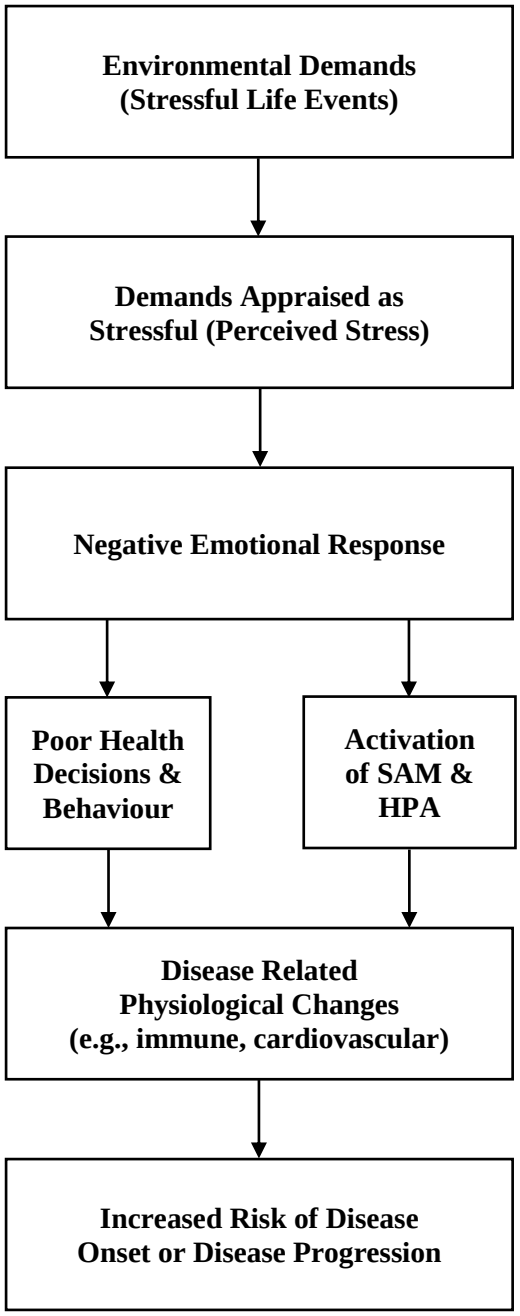
Johnson and Johnson (2018) have sought to present UBI as a means of dealing with the UK's crisis in stress-related ill health. In 2017/18, stress was responsible for '44% of all work related ill-health cases and 57% of all working days lost due to ill-health' (Health and Safety Executive, 2018, 2) up from 37% and 45% in 2015/16 (Health and Safety Executive, 2016, 2). In 2012, the Department of Health estimated that more than a quarter (30%) of all people in England, some 15 million, suffered from long-term chronic stress-related health conditions such as heart disease, stroke, cancer, type 2 diabetes, arthritis and depression (2012, 5). Caring for patients with such long-term conditions accounted for 70% of NHS England spend,

representing 50% of all GP appointments, 64% of outpatient appointments and 70% of all inpatient bed days (2012, 3). While stress is an evolutionary adaptation that permits individuals to respond first psychologically and then biologically to threatening stimuli, the medical literature strongly suggests that it also contributes to at least some of these instances of ill health (see Cooper & Quick, 2017; Cohen et al., 2012; Schneiderman, Ironson & Siegel, 2005; Dhabhar, 2009; Henderson & Baum, 2004; Everly Jr & Lating, 2013; Thoits, 2010; Cf. Liu, et al., 2016).

Stress effects a cascade of biological changes that prime the body to respond to physical and existential harm (see Smith & Vale, 2006). In normal circumstances, in which a healthy individual faces only occasional threats, this response is considered adaptive (Smith & Vale 2006, 383; Schneiderman, Ironson & Siegel, 2005, 612; Henderson & Baum, 2004, 72). Through a process of nervous and endocrine activation (Chrousos & Gold, 1992, 1245-1246; Hartzell, Dodd, & Gatchel, 2017, 211; Henderson & Baum, 2004, 72), physiological changes are effected including 'increased cardiovascular tone, respiratory rate, and intermediate metabolism, along with inhibition of general vegetative functions such as feeding, digestion, growth, reproduction' (Smith & Vale, 2006, 383; see also Henderson & Baum, 2004, 72). Acute stress can also enhance innate and adaptive immune responses to 'prepare the immune system for challenges (e.g. wounding or infection) that may be imposed by a stressor (e.g. predator or surgical procedure)' (Dhabhar, 2009, 300).

However, the medical literature also suggests that when the feedback systems within the endocrine system are disrupted, the effects on health can be significant (Dhabhar, 2009, 301; Henderson & Baum, 2004, 72; Everly Jr & Lating, 2013, 40-43; Schneiderman, Ironson & Siegel 2005, 616-617). Chronic psychological stress is 'associated with a greater risk of depression, cardiovascular disease (CVD), diabetes, autoimmune diseases, upper respiratory infections (URIs), and poorer wound healing' (Cohen et al., 2012, 5995; see also Henderson & Baum, 2004, 73). While the reasons for this is debated between those who believe that this is due to long-term (over)activation of the SAM and HPA systems (McEwen, 1998, 171-172; see also Cohen, Gianaros and Manuck, 2016, 457) and those who propound that 'glucocorticoid resistance' renders anti-inflammatory instructions from glucocorticoids to (immune) cells insufficient (Cohen et al., 2012, 5995; Miller, Cohen & Ritchey, 2002, 538), it is clear that stress can increase inflammation and autoimmunity and, as a consequence, disease (Cohen et al., 2012, 5997). Cohen, Gianaros & Manuck (2016, 460) provide a simplified representation of the primary potential procedural pathways to account for this.

Figure 1: A heuristic model of the stress process illustrating potential integration of environmental, psychological, and biological definitions



Source: Cohen, Gianaros, & Manuck, 2016, 460

While there are many causes of stress (van der Kolk 2014), in modern Britain work is often cited as being particularly important.

Work-related stress and non-domination

For example, in a survey by Mind (2013), significantly more respondents (34%) reported that their work life was either very or quite stressful than did financial problems (30%) or health (17%). These are often individuals who are *not* in absolute poverty and their stress is not always a consequence of their being poor. Rather, evidence is beginning to suggest people feel that their existence is threatened by hierarchical working arrangements that are seen to be central to the success of organisations (Kastelle 2013). This is apparent with regard to several factors identified by the UK Health and Safety Executive (2017) as being sources of stress in work: excessive demands from employees are a natural consequence of the drive for *per capita* productivity (Standing, 2011, 49-50); a lack of real control over workload and performance can

stem from belief in the need for decisive management and competition both between managers within a company (see Rajan & Zingales, 2001, 808-809) and between companies (see Syverson, 2011); unacceptable behaviour and bullying can stem from individuals needing to uphold their status and authority within a competitive system that emphasises the importance of hierarchy (see Hales, 2001, 24-38; 120, and implications of Fast, Halevy & Galinsky, 2012); worker consultation and input during times of change is regarded as contrary to organisational prioritisation of efficiency (see van Elteren, 2017, 6; 158, etc.), and job losses and diminution of work conditions and pay reflect the need for flexibility (see Gordon, 1996).

This 'corporate experience' renders employees, in Guy Standing's terms, 'denizens': 'partial insider[s]' with some economic, but few or no political rights, subject to '"unaccountable domination"' (2011, 7-8; 9). In effect, individuals are subject to 'arbitrary interference', by managers or employers, who is 'in a position to choose… or not choose…, at their pleasure', with choices made 'without reference to the interests, or the opinions, of those affected' (Pettit, 2006, 225). The consequence is that individuals are perpetually in a state of preparedness for threat; always at risk of having their existential interests undermined (see Howard, 2005, 621-622) and often adopting tactics to uphold those interests irrespective of how unnatural those tactics may appear. Given the diminution and limitations of the welfare system with regard to unemployment (see Department for Work and Pensions, 2016), the cost of upholding rights through employment tribunals (Standing 2011, 9; Hirsch 2017) and the likely effect of being seen as uncooperative on promotion prospects (see Vodanovich & Piotrowski, 2014), individuals see no viable alternative to remaining in stress-promoting conditions. In effect, domination serves as a cue for 'extrinsic mortality' by invoking two existential threats – resource scarcity and unpredictability. Being dominated lowers anticipated lifespan and raises anticipation of imminent harm. The consequence is two-fold: people face stress and associated illness and adopt 'adaptively patterned shifts in behaviour, which then become propagated through social transmission' (Pepper and Nettle, 2014, 236-237).

Importantly, this creates a relative, rather than absolute, facet of ill-health. There has been long-standing concern about the social health gradient and the importance of promoting policy based on reducing 'health inequalities, the structural conditions that put people "at risk of risks"', such as 'discrimination, poverty, residential segregation, inadequate schools, unemployment' (Thoits, 2010, S47). Although it is the threat of having poverty inflicted upon them that lies behind their preparedness, in this account, individuals are made unwell by virtue of their being in unequal relationships, rather than conditions of absolute resource scarcity themselves.

This is supported empirically by the Whitehall Study of UK Civil Servants (see Marmot et al., 1978), which revealed that health followed a social gradient (Marmot, Shipley & Rose, 1984): 'the lower the position in the social hierarchy, the higher the mortality from cardiovascular disease and from a range of other major causes of death' (Marmot and Steptoe, 2008, 42). Civil Servants are illustrative insofar as they are not subject to objective levels of absolute poverty, so could not suffer from resource scarcity, while standard risk factors for mortality (cholesterol, smoking, systolic blood pressure, glucose intolerance and diabetes) explain only a third of social gradient's predictive power (van Rossum et al., 2000). A follow-up study, Whitehall II, indicated that those of lower socioeconomic status (SES) experienced delayed recovery and prolonged activation of stress markers after tasks had ended (Steptoe, et al., 2002; Marmot and Steptoe, 2008, 48). The levels of other markers were greater for those in lower occupational grades on workday mornings. Markers included those for ambulatory blood pressure (Marmot and Steptoe, 2008, 48; Steptoe, et al., 2003), which has been associated with increased risk of cardiac events (Giles, 2006), and cortisol awakening response (Kunz-Ebrecht, et al., 2004), which has been found in those experiencing depressive symptoms and work and financial stress (Pruessner, et al., 2003) and appears to be an indicator of stress-

related hypothalamic-pituitary-adrenal dysfunction (Chida & Steptoe, 2009). Both an excessive secretion of cortisol in response to stress and a slow recovery from its effects after repeated exposure are consistent with Cohen's model of the development of glucocorticoid resistance.

Indeed, Tang, et al.'s (2016, 1) meta-analysis indicates that this health gradient, specifically with regard to coronary artery disease, hypertension, diabetes and dyslipidaemia, with a trend toward increased odds of obesity, is compounded by low Subjective Social Status (SSS), or an individual's perceived position in a hierarchy, 'due to internalization of perceptions of inferiority resulting in activation of stress-related neuroendocrine mechanisms, and increased tendency to participate in behaviours that may negatively influence health' (Tang, et al., 2016, 2).

In keeping with the ground-breaking work of Wilkinson and Pickett (2009) and the Equality Trust, this all suggests that inequality must be seen, alongside poverty, as being a key causal factor in explaining ill health, not least because it affects those in work who are not poor. The stress-based explanation for ill health holds that it is the ever-increasing lack of resilient non-interference that renders individuals unwell. By providing a safety net, UBI offers, *prima facie*, a clear means of promoting and upholding non-domination (see Pettit 2006, 225), depriving employers of at least some 'capacity to interfere in' their employees' 'affairs on an arbitrary basis' (1999, 165). It enables employees to refuse to acknowledge arbitrary managerial demands and resign from positions safe in the knowledge that their basic needs will be satisfied (see Pettit, 2007, 6). Although Birnbaum and De Wispelaere (2016) are right to hold that resignation imposes serious costs, those costs are much lower than under the present system. Indeed, it offers the potential for organisations to be transformed, with those in the hierarchy considering more fully the interests of those below them in order to avoid their leaving.

Stress and the evidential gap

However, despite proponents of UBI's awareness of such factors, existing studies either neglect to measure markers of psychobiological stress or do so in ways that preclude substantive evidential development. For example, Haushofer and Shapiro's (2016; 2018) study has two key methodological deficits: first, by transferring cash to the heads of households, the study did not challenge the underlying structural reasons for stress within the communities. At the very most, it simply averaged out differences between those where the wife was given increased potential autonomy with a direct transfer with those where it was provided to the husband; second, the study focused on overall levels of cortisol, which are a poor predictor of disease risk, rather than patterns across the day (and between days), which is an indicator of both future likelihood of ill health and hierarchically-driven stress (see Johnson, Johnson and Webber under review).

To return to our initial review, those studies of programmes that resemble UBI do not have the same level of methodological sophistication found in non-UBI studies. The most compelling literature in various health-related disciplines has yet to shape trials to inform the sort of policy that Labour could pursue. As Johnson, Johnson and Webber (under review) have argued, there is every good reason to develop UBI trials in ways that build the two key theoretical accounts of health into the heart of studies. First and foremost, any trial of UBI must be concerned with payments to individuals. Second, trials must follow Whitehall II and recent studies that have built on its findings and measure patterns across and between days, including both the cortisol awakening response and the slope in its decline, as well as other indicators such as ambulatory blood pressure and heart rate. Third, Webber and colleagues (2014) describe the benefits of public health modelling and its power in leveraging policy change. Statistical modelling is an essential means by which to fill the evidence gap by simulating the

medium-and long-term impact of interventions if scaled up to a population level. At present, the design of trials is depriving modelling of accurate data by which to scale effect the impacts of interventions and it may be that designing a trial specifically with health impact in mind is the most effective means of creating the evidential basis for action. For example, the model created by Richardson, et al. (2018, 4) to examine the potential impact of income-based policies on health inequalities assumes a causal linear correlation between income and mortality. This means that an increase in income is anticipated to cause a decrease in mortality. While this may have some credibility based on global, historical trends, Whitehall II demonstrated that individuals exist within particular hierarchies that are distinct to their position within wider society and Tang, et al. (2016) demonstrated that the gradient was compounded by individuals' perceived position in their perceived hierarchy. Webber and colleagues highlight the opportunity, at a time of Brexit, to reshape our policies to make a transformative, cumulative impact in health. If Britain is to do this, UBI ought to be considered seriously.

Prospective impact

As Johnson and Johnson (2018) emphasise, the epidemiological case for UBI has seldom been considered fully in assessments of the policy. UBI has the potential to serve as an 'upstream intervention' for the 6.5% of the UK population at risk of persistent poverty and the 15 million people affected by long-term stress-related illness (Department of Health 2012, 5). Promoting health among such a large proportion of the population offers potential means of reducing the burden on the NHS and increasing workplace productivity. While UBI necessarily places a burden on state budgeting, calculations of cost do not account for the likely reduction in health and social care spending, which amounted to approximately £170bn in 2015/16 (Luchinskaya, Simpson, & Stoye, 2017, 142), and attendant improvement in productivity in light of the 139 million work days estimated to have been lost to sickness absences in 2015, specifically with regard to the 15 million regarded as being the direct result of stress, anxiety and depression (Office for National Statistics 2016b). While assessing cost and benefit is complex insofar as any increase in health will result in an increase in lifespan, which will lead to an increase in cost, the prospective savings remain significant. It is important to note that, in framing any trial with health in mind, it is essential to control for any needs-based monetary element for disabled participants insofar as this may sustain elements of the benefits trap. As such, there is good reason to favour a system based solely on a single, unconditional payment combined with increased investment in public health and care services for those in medical and social need that confer no monetary advantage on recipients (Johnson, Geyer and Degerman under review).

However, even with these qualifications, at a time in which UK public support for tax and spending is at its highest in over a decade (see Harding 2017, 3-5), it is essential that political parties exercise leadership in designing and deploying trials specifically with health impacts in mind.

Conclusion

While the literature on UBI trials indicates health impacts, those trials have seldom been developed in such a way as to measure and account for health impacts in their broadest form. The two models of impact noted above – behavioural and endocrinological – grant clear *prima facie* evidence for UBI to be trialled as an 'upstream intervention'. It is essential that that trial be designed and evaluated specifically with those models in mind. Otherwise, the impacts may not fully be accounted for and the full benefit of the policy to the public left opaque. Given that members of the public, and particularly those in work, are often intuitively opposed to UBI, it is essential that the benefits be demonstrated fully. It is only by effective design that the traction being seen among elements of academics and commentators will be translated into public consensus. In this light, we need to consider the transformative impact of the last great Labour

intervention into health: the creation of the NHS. This was a policy that was extremely costly at a time in which resources were scarce. It was politically difficult to advance, but serves as the basis for much modern British patriotism. UBI could well be Labour's great contribution to health in the 21st century. As our nation's circumstances become ever more perilous, it is essential that Labour demonstrates courage in trialling a policy that is as radical as the NHS and, in time, will make as much sense.

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