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Basic Income, Automation, and Labour Market Change

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Introduction

Motivation and research questions: the robots are coming?

The relationship between technology and support for basic income – via the intervening causal mechanism of labour market change – is an obvious topic to examine in the current era of digitisation. Popular accounts suggest that basic income is practically inevitable as automation renders redundant an increasing proportion of the labour force. Basic income turns a dystopian future of mass unemployment into a paradise of robot-assisted leisure.

Recent years have seen significant investments of ‘political capital’ in basic income, with ongoing and upcoming experiments in a number of countries, and mainstream parties (e.g. Labour in the UK) conducting consultations into the merits of the policy. Labour market change, including but not limited to the spectre of technological unemployment, appears at least partly responsible for driving increased public and media interest in the idea.

Basic income is characterised by several distinct advantages over existing traditional modes of welfare delivery. These relate to a range of circumstances in which individuals fail to maintain ‘adequate job assets’. Basic income provides flexibility in the face of the proliferation of low-paid and insecure employment – including the emergence of ‘gig work’ and the ‘platform economy’ – as well as requiring a less costly and intrusive income support administration, in the context of occupational restructuring and widespread (frictional as well as long-term) unemployment. At the macro level, these same labour market dynamics – coupled with a declining labour share of value driven by the rise of ‘Superstar’ firms and platform economies associated with technological change – are exacerbating other forms of inequality. Basic income could be an appropriate response by providing an efficient way to redistribute income with minimal behavioural distortions.

While it has a number of distinct advantages, basic income is characterised by profound concerns relating to (among other things) ethical and normative issues, fiscal affordability, and the threat of labour market exodus. Specific concrete modes of implementation are subject to important trade-offs between alternative policy goals. Though it attracts backing from across the political spectrum, basic income is also characterised by the ‘persistent political division’ of its supporters (De Wispelaere, 2016). Then there is a reality that current trajectories of welfare reform – towards social investment, activation, and retrenchment – seem to run entirely counter to the principles of basic income. Politically speaking, and in terms of its congruence with existing welfare institutions, basic income appears somewhat of a distant prospect.

In this context, several crucial questions emerge:

1. Is basic income a feasible solution to forthcoming dynamics of labour market change?
2. How do automation and associated labour market risks affect public opinions towards basic income, and the potential for constituencies of support to coalesce around the idea?
3. Is basic income affordable, and how do its distributional implications compare with pre-existing configurations of the welfare state?

A comparative political economy approach

This report takes a comparative political economy approach to these questions. The political economy approach is concerned with the patterns of winners and losers that basic income might generate, and therefore, the potential emergence of constituencies and coalitions of support and opposition. In this sense, the research aims to contribute to the literature on electoral dynamics, strategic party behaviour and the (determinants of) voter preferences, and more comprehensive integration of the latter within institutional frameworks of analysis (e.g. Häusermann et al., 2013; Beramendi et al., 2015; Manow et al., 2018).

In terms of the comparative focus, the IPR's research suggests that arguments for (different forms of) basic income are likely to vary across specific welfare systems. Following Martinelli and De Wispelaere (2017), the framework has two core conceptual features. Firstly, the idea of basic income as a simple, unified concept is rejected in favour of an understanding of basic income as a multidimensional policy proposal that varies extensively in terms of goals, design features, and implementation trajectories. Secondly, incorporating the comparative literature on the politics of the "new welfare state", the role of pre-existing welfare state constellations and trajectories in determining congruence with basic income proposals, and thus structuring (delimiting and potentiating) basic income's political prospects, is explored. The upshot is that welfare states vary with respect to their functions and goals, the structure of existing welfare provisions (and thus, the scope for adjusting them to generate fiscal space to fund the basic income), and the extent to which they alleviate poverty and inequality. Countries also diverge in relation to existing labour market challenges, and the extent of the threat posed by automation.¹ All of these factors are likely to affect the appropriateness of basic income as a response to automation and labour market change in different welfare state contexts.

1. Countries diverge with respect to their occupational structures, and the prevalence of 'automatable' tasks within those structures, but also with respect to the likelihood that particular occupations or tasks will be automated (Arntz et al., 2016; Nedelkoska and Quintini, 2018).

This analytical approach frames two main strands of empirical work: analysis of labour market status and automation risk as determinants of preferences for basic income; and microsimulation of basic income's cost and distributional effects in comparative perspective. It is thus informed by, and aims to contribute to, a number of related literatures:

- political science literature on *technological change, labour market change, and associated political dynamics*; and
- social policy and welfare state literature on the *comparative political economy of welfare reform* – relating to basic income's congruence with existing political and institutional dynamics as they vary across structurally diverse welfare states.

Our arguments in each of these empirical areas are briefly summarised below.

Analysis of labour market status and automation risk as determinants of basic income support

While intuitively appealing and clearly capable of piquing public and media interest in basic income, the idea that basic income is an inevitability in light of ongoing technological and labour market change has two main limitations. Firstly, it relies on an apocalyptic interpretation of the evidence on the future trajectory of labour market change. In fact, the evidence is highly ambiguous. Secondly, it fails to address the mechanisms through which basic income might emerge or to tackle the profound political barriers to implementation.

Arguments in favour of basic income are bolstered by recent high-profile predictions that around a *half* of occupations are at risk of automation and that the labour share of value is in long term decline (see section 2). However, such claims, which suggest that the current era is qualitatively different from previous episodes of technological change, are highly controversial. Other accounts suggest that even though widespread technological unemployment is unlikely, technological change will lead to occupational restructuring, redundancy of skills, wage polarisation, and an increasing prevalence of non-permanent (insecure) work. These phenomena are likely to have profound political implications, even if they are solely frictional and markets clear in the longer term. Disruptive effects may be mitigated and adjustment facilitated by strong policies and institutions – such as those relating to welfare provision and skills development – but may still last for decades. Thinking about these trends requires a 'future-oriented perspective' – predicting the likely consequences for labour markets – as well as understanding and interpreting the historical evidence on previous episodes of automation and labour market change. Section 2 reviews the theoretical and empirical evidence on these crucial debates.

While the mechanisms through which basic income will arise are often left implicit, several possibilities emerge. Reform may be driven by political and economic elites, due to a fear of populist ‘pitchforks’ (Standing, 2011; Freedman, 2016) or simply according to a ‘functionalist’ argument that basic income is better suited to the logic of contemporary advanced capitalism and the demands of a globalised knowledge economy (as discussed in section 3). In this understanding, redistributing income from the owners and operators of capital to the general population may be the only way to maintain aggregate demand in the economy, and to maintain the stability of the system. An alternative is that pressure will build from below; that is, that basic income may emerge as a consequence of growing public support, as automation and technological change shape the material and normative interests of voters via labour market change. In this view, the number of voters who are predisposed towards basic income will swell until they are a sufficient constituency (or coalition) to command the attention of political parties and influence the formation of policy proposals. It is this latter mechanism that IPR’s research addresses directly, as summarised in section 4.

We note that relationships between labour market outcomes and welfare preferences are complex and ambiguous – with some studies finding that low and insecure incomes lead to stronger preferences for redistribution, and others findings that economic disruption leads to distrust of welfare institutions, opposition to incumbents and mainstream social democratic parties, and support for radical populist parties. Our own analysis suggests that automation may generate new constituencies of support for basic income, since ‘precarious’ workers are more likely to support basic income, although workers in routine occupations are generally not. Highly educated but precarious individuals are most supportive of all. This implies that as (if) technologically induced labour market disruption spreads from low skill, routine to high skill, cognitive tasks, this could significantly enhance basic income’s political prospects.

Comparative microsimulation of basic income’s fiscal and distributional effects

Turning away from the dynamics of individual welfare preferences and basic income support, the next strand of empirical research compares the fiscal and distributional effects of a range of basic income ‘implementation modes’ across the EU28 through microsimulation modelling. The findings connect other aspects of political feasibility – relating to the notions of affordability, policy design trade-offs, and institutional ‘fit’. For different payment levels, different ways to adjust existing benefits and pensions to offset the gross cost of the basic income payment are modelled. A flat tax on remaining disposable incomes at a level sufficient for revenue neutrality is also introduced.

The findings reported here contribute to a better understanding about the nature of these policy design trade-offs between fiscal and distributional goals. The results support arguments that a substantial basic income – paid at levels approximately sufficient to meet basic needs without additional welfare provisions – is practically unfeasible under current circumstances. If existing benefits are retained, then costs (and associated tax rises) are unaffordable. On the other hand, if existing benefits are eliminated wholesale, then many poorer households face income losses, leading to unacceptable increases in poverty. Adjusting non-means-tested benefits and pension levels downwards, rather than eliminating them wholesale appears to be the most feasible strategy of the options examined here.

The results also illuminate the extent to which and how fiscal/distributional trade-offs vary across structurally diverse welfare states. The manner in which different forms of basic income could substitute for the existing functions of the welfare state, the desirability of changes to the net income distribution, and the fiscal implications of replacing existing provisions with basic income are likely to vary widely. An inconvenient political paradox is that for specific schemes, countries that exhibit relatively favourable distributional effects (driving political ‘demand’) also tend to have more limited capacities to implement basic income.

Structure of the report

After this introductory section, the structure of this report is as follows. Section 2 provides an overview of current debates on the nature of technologically-induced labour market change. The sections consider what is distinct about ongoing processes of automation and digitalisation – if anything – compared to previous eras of technological change. It assesses the extent to which technological unemployment can be expected to arise, assess the nature and extent of occupational restructuring – who it has affected, and who will be affected in the future – and examine the phenomenon of growing job insecurity. The section also considers the macro effects of technological change. As well as exacerbating labour market inequality, technological change is argued to increase market concentration and thus – in combination with financialisation, globalisation, and a more permissive (‘neoliberal’) policy environment – to erode the labour share of value added vis-à-vis the capital share.

Section 3 situates basic income in the preceding discussion in terms of its congruence with labour market restructuring and systemic economic change. Potential beneficiaries and functionalist arguments in favour of basic income are reviewed, followed by crucial caveats and objections. These include normative objections, issues of affordability, and possible barriers to political feasibility. This section also addresses the manner in which basic income’s political supply and demand conditions vary cross-nationally, and looks at patterns of labour market dysfunction and automation risk in the European context.

Sections 4 and 5 summarise the two main empirical contributions of our research. Section 4 provides an overview of the empirical analysis of labour market status and automation risk as determinants of basic income support. The section starts by reviewing existing literature on labour market risk and welfare preferences, before setting out our theoretical expectations and hypotheses, and presenting key findings. Section 5 provides an overview of our comparative microsimulation of basic income's fiscal and distributional effects.

Section 6 concludes with a round-up of the key findings of this report and the wider implications for basic income's political feasibility are discussed.

2

Labour Market Implications of Technological Change – Theory and Evidence

Technological change, automation and digitalisation

Technological change – simply understood as improvements in the way that factors (capital, labour, and land) are combined using tacit and formal (codified) forms of knowledge to make goods and services – has been the driving force behind economic growth throughout human history: the “deep cause” of productivity growth (UNIDO, 2005). Processes of technological change can be captured analytically by the trilogy of invention, innovation, and diffusion. Arguably, a great deal of income and wealth inequality both within and between countries can be explained by actors’ differential capacities – their technological capabilities – to create and master the use of technology (Lall, 1992). Indeed, the uneven accrual of the rewards of technological change, as well as its disruptive effects, are recurring themes in the literature despite general acknowledgement that it has enhanced global welfare.

There are two distinct manifestations of technological change that have profoundly influenced labour market structures and outcomes: ‘automation’ and ‘digitalisation’. The former term has typically referred to the mechanisation of tasks previously carried out manually, but increasingly embraces the use of digital technologies to carry out cognitive tasks as well. In this way, automation overlaps with the concept of ‘digitalisation’, which describes the transition to a new and distinct phase of capitalism, characterised by expansion in the use of computers and digital technologies and associated changes to socio-economic structures: what Freeman and Louçã (2001) call the ‘information revolution’.² Digitalisation invokes a broader range of phenomena to automation, indicating a generalised structural shift towards high-tech and knowledge-intensive activities in the economy.

Thus, we can distinguish two main ways that technological change is affecting labour market outcomes: by providing technological substitutes for human labour (automation) and through the enablement of organisational change and the appropriation of cumulative technological gains through the exploitation (and creation) of high market entry barriers (digitalisation). Both phenomena appear to have polarising effects.

Highly-skilled labour – employed in the creation and marketisation of new technologies but also in professions to which new technologies are complements rather than substitutes – are advantaged vis. unskilled labour (the functions of which automation can more effectively replace, and which already tend to occupy

2. Other terms capture the essence of the same phenomena by emphasising the implications for labour market skills and highlighting the dominance of ‘intangible’ investment and services in economic activity – for example, ‘cognitive capitalism’ (Lucarelli and Fumagalli, 2008) and ‘the knowledge economy’ (Hope and Martelli, 2019). This era has also been characterised simply as ‘Post-Fordist’. Whichever term is preferred, however, the paramount role of digital and information technology in shaping the nature of the emergent industrial system is explicitly acknowledged.

a position of weakness in bargaining for a better deal). Due to the interplay of supply and demand conditions (as discussed below), substitution of technology for human labour raises the risk of unemployment for the relatively unskilled – especially those in routine-intensive occupations – and places downward pressure on wages at the bottom (and middle) of the income distribution.

Three forms of labour market dysfunction?

Digitalisation, meanwhile, empowers capital vis. labour (and thus affects labour market outcomes) through several mechanisms, relating to organisational change and market structure respectively. Organisational change facilitated by digitalisation involves new ways of ‘coordinating and monitoring economic activity’. In turn, this enables firms to externalise subordinate labour processes via outsourcing and offshoring – thereby enabling globalisation, by intensifying processes of agglomeration and fragmentation in production networks (Lall, 2004) – and via new forms of digital organisation of working practices (known variously as the ‘gig economy’ or ‘Uberisation’). These developments may be positive for workers; advantages include greater flexibility over where and when they can work, the ability to identify and reach new customers and suppliers, and the emergence of opportunities to contract out or automate ‘undesirable’ tasks (OECD, 2016). In principle, these developments could boost employment levels, wages and conditions for some. But in cases where labour is weak, they enable firms to exploit their leverage over workers to transfer (non-wage) employment costs onto the former. Indeed, a number of studies (Degryse, 2016; Valenduc and Vendramin, 2016; Taylor et al., 2017) have concluded that the further expansion of online platforms is likely to have detrimental effects on employment security, as well as limiting workers’ opportunities for progression and providing low rates of job satisfaction. More generally, digitalisation also enables the proliferation of the ‘platform’ economy and ‘Superstar’ firms (and related increases in market concentration) (Autor et al., 2017; World Bank, 2019). The intrinsic properties of technology give rise to numerous and pervasive market failures (Lall, 1992; Lucarelli and Fumagalli, 2008). These market failures enable firms with various ownership-specific advantages (including transnationality, economies of scale and scope, and proprietary intellectual property) to dominate high-tech sectors, leading to increasing market concentration.

In sum, we identify three major forms of labour market dysfunction that appear likely to be exacerbated by technological change: unemployment, low wages, and insecure employment. In combination, these outcomes connect intimately to the notion of dualisation, a process which grants ‘insiders’ access to stable, well-paid employment (and associated social protections) and excludes outsiders (Rovny and Rovny, 2017: 163). Although explanations for these phenomena usually focus on their institutional determinants,

the latter clearly interact with broader structural factors such as technological change: automation and digitalisation contribute to the erosion of 'insider' jobs in routine occupations such as manufacturing, and increasing the prevalence of insecure (and poorly paid) service sector work in its place (Greve, 2017). Indeed, the expansion of temporary, zero-hour and other forms of insecure work is concentrated in segments of the labour market in which there are significant imbalances in bargaining power between workers and employers; for this reason, insecure work is also highly correlated with low pay (Gregg and Gardiner, 2015; Taylor et al., 2017). There are indications that the proportion of insecure work in total employment has grown and continues to grow (European Parliament, 2016).

What's new and so what?

The effects of technological change on work are not new. Following the Russian economist Kondratiev, Schumpeter (1939) argued that technological change generates 'long waves'³ of economic progress and decline (Freeman, 2004). Economic historians (Freeman and Louçã, 2001) have distinguished episodes of industrial change based on key underlying technological advances: water-powered mechanisation (1780–1848); steam-powered mechanisation (1848–1895); electrification (1895–1940); and motorisation (1940–1980).

New technological paradigms have severe and long lasting disruptive social effects, of which those pertaining to the labour market are perhaps most pertinent of all. As Perez (2004: 233) observes, in the past these have included:

the obsolescence of qualifications at all levels; the destruction of the livelihood of many; the geographic dislocation of people and activities; and the rapid growth of wealth at one end and poverty at the other end of the socio-economic spectrum, within each country and between regions and countries.

On aggregate, disruptive effects may be offset by gains, even in the short term. For each redundant worker in a displaced sector, at least another job is created in the dynamic sector. Or at least, this has been the case in past episodes of automation. It is worth noting that Keynes (1930) predicted technological unemployment prior to the Fordist era, when he referred to "discovery of means of economising

3. Such episodes occur in 'long waves' because of the success of a new technology is subject to economic and institutional complementarities. Initially, coordination failures preclude the new technology from taking off – consider the case of the automobile demand in the absence of a road and fuelling network – but once a critical mass has been achieved, expansion is rapid. In each case, revolutionary innovations create "entirely new opportunities for investment, growth and employment" followed by "the erosion of profits and the slow-down of growth in the previous wave of technology" as new entrants flood the market and "the disruptive effects of the emergence of new technologies and a new infrastructure" (Freeman, 2004: 244).

the use of labour outrunning the pace at which we can find new uses for labour". But in the event, as we now know, demand for labour kept pace with supply, with the heyday of Fordism characterised by historically high (indeed 'full') employment.

So why the concern, if technological progress has net beneficial effects? We can identify three main reasons:

- 1. This time might be different.** One of the key arguments relates to the extent to which the present wave of technological change is different from previous waves. Already we have seen self-driving cars and machines capable of composing original music (Busemeyer et al., 2018). And yet, many of the purported effects of the current wave of technological change are yet to materialise. These relate to developments in AI and machine learning that render technology capable of carrying out a range of increasingly sophisticated, non-routine, abstract and cognitive tasks – necessitating skills in “reasoning, sensing and deciding” (Arntz et al., 2016) – that were hitherto the preserve of human labour (Frey and Osborne, 2013; Brynjolfsson and McAfee, 2014; Arntz et al., 2016). Thus, “computers and other digital advances are doing for mental power – the ability to use and understand and shape our environments – what the steam engine and its descendants did for muscle power” (Brynjolfsson and McAfee, 2014: 7-8). At its most extreme, the argument suggests that given the exponential acceleration of computing power (Kurzweil, 1999), there may come a time when robots can do everything that humans can at a marginal cost lower than a worker’s barest cost of subsistence (Alexander, 2018). In this case, the generation of new jobs cannot occur quickly enough to put off rising unemployment and labour market polarisation.
- 2. Disruptive short and medium term consequences, including growing inequality, are already too acute to ignore.** Mass technological unemployment is one possible labour market consequence of digitalisation, but it is not the only one. Historical evidence as well as speculative modelling of future labour market trajectories suggest that in contrast to previous episodes of technological advancement – in which low and middle class workers were able to capture a large proportion of productivity gains – automation and digitalisation will lead to greater wage polarisation, and growing inequality between labour and capital. Assuming that mass unemployment will either not emerge or will dissipate over time is a deeply inadequate response to these challenges. Frictional unemployment, skills redundancy, and job insecurity are still significant public policy issues. Automation may be contributing to a proliferation of non-permanent employment contracts and the dissolution of secure ‘insider’ jobs (Greve, 2017). In these ways, even if

aggregate employment levels are maintained in the longer term, technological change appears to be exacerbating labour market risk. Coupled with the concentration of disruptive effects among lower-middle class routine workers, increased risk is may have profound and concerning political implications (Kurer and Palier, 2019).

3. Adjustment requires appropriate policies and institutions. Relatedly, there is no reason to think that economic performance will be optimal under free market conditions. In the medium term, socio-institutional changes are required to compensate losers and help people to adjust to new realities. According to Perez's (2004) framework, disruption is caused by a mis-alignment of the 'techno-economic' and 'socio-institutional' spheres. Existing institutions might be unfit for purpose. More effective institutions – complementary rather than conflicting with new technological realities – may be required. However, it can take a long time for institutional changes to catch up with the new patterns of production and distribution (Perez, 2004). This requires the diagnosis of the appropriate policy solutions, and the mobilisation of the losers from technological change into sufficiently powerful and coherent coalitions to be able to implement them. This will not happen automatically, but through political struggle.

The following sections briefly review stylised optimistic and pessimistic accounts of technological and labour market change, focusing on unemployment, the distributional consequences of labour market polarisation, and inequality between labour and capital more generally.

Unemployment

Regarding expectations of technological unemployment, we contrast two polarised accounts of future labour market change: optimistic and pessimistic. We use these terms advisedly, in relation to the mainstream view that the maintenance of high rates of (quality) employment is desirable. In fact, a number of commentators, including prominent basic income advocates (Standing, 2005; Srnicek and Williams, 2015) counter that labour is not intrinsically desirable, and rather, is usually arduous and repetitive. Following Marxist critiques of capitalism, it is also subject to exploitation, domination and alienation. In this view, automation should be a positive political choice that aims to "liberate human beings from the drudgery of work while simultaneously producing increased amounts of wealth" (Srnicek and Williams, 2015: 109). Thus, 'pessimistic' refers to expectations regarding the inevitability of the redundancy of human labour, and

'optimistic' to expectations that *aggregate* employment levels will remain relatively unaffected, rather than to judgements about whether a post-work future is desirable *per se*.

Turning to the first account, the concern is that technology will provide viable, more cost-effective substitutes for an increasingly wide array of complex (non-routine and cognitive) tasks – with technological unemployment as an inevitable consequence. The past few years has seen a large number of academic and think-tank reports estimating the potential impact of automation for job losses (and some for employment creation) (Winick, 2018). Categorising occupations according to their susceptibility to computerisation, as discussed in the text box below, Frey and Osborne (2013) estimate that 47% of jobs could soon be 'computerised'. However, on the basis that automation provides technological substitutes for *tasks*, not whole occupations, Arntz et al. (2016) conclude that 9% of jobs are at high risk of automation. Other contributions have estimated the number of jobs likely to be lost due to technological change as between these two estimates (Nedelkoska and Quintini, 2018), with 14% of jobs at high risk of automation and a further 32% of jobs likely to undergo significant disruption. Using a similar method, PwC (2018) estimate that around 30% of jobs are at high risk of automation in the UK.

Estimations about the number of jobs that could plausibly be automated are not the end of the story, of course. Societal preferences for human labour may discourage automation in relation to certain tasks (Arntz et al., 2016). There may also be legal, ethical and institutional barriers to automation (PwC, 2018). It is also crucial to remember that alongside job destruction, automation and digitalisation are expected to lead to the creation of new jobs.⁴

At the aggregate level, productivity effects countervail against displacement effects in several ways.⁵ Acemoglu and Restrepo (2018) construct a model in which new productive tasks – in which humans have comparative advantage – may be created, so that aggregate employment levels exhibit stability despite ever-increasing scope of technological substitutes for human labour. Optimists point to historical evidence regarding the impacts of past episodes of technological change on aggregate employment trends (Autor, 2015). In particular, despite decades of declining employment within routine-intensive occupations, there are no clear signs

4. Based on a survey methodology, World Economic Forum (2016) estimates that jobs lost will outnumber jobs created, leading to a net loss of over 5 million jobs – mainly concentrated in routine white collar (admin) jobs – across the 15 economies in their sample. However, other reports (e.g. Manyika et al., 2017) suggest that there will be net employment gains, while others still are agnostic on the net effects on employment levels (PwC, 2018).

5. As Vivarelli and Pianta (2000) document, there are five compensatory employment effects that counteract technological unemployment: (1) new machines and products require workers to build and service them; (2) price decreases triggered by more efficient production processes stimulate demand for other products; (3) new investments are instigated by the higher returns on capital that arise from more efficient production; (4) higher wages in activities and sectors that complement technology can stimulate demand; and (5) lower wages in activities and sectors that substitute for technology can help labour markets to clear.

that aggregate employment levels have suffered. Thus, when considering automation's labour market effects we should not just focus on negative effects. As Kurer and Gallego (2019: 2) document, even "workers who stay in non-routine manual jobs and routine jobs become better off in absolute terms (even if not in relative terms) as their industry digitalizes" while only a small minority of affected routine workers actually end up unemployed.

Job polarisation and distributional effects

A more immediate concern is how disruptive effects will be distributed and how they might contribute to inequality with respect to labour market outcomes. The first step in conceptualising the labour market effects is to understand that technological change will have differential impacts across different spheres of activity – different tasks, jobs, occupations, and sectors. To the extent that labour enjoys a comparative advantage in more skilled tasks, "technology is biased towards raising the demand for high skills rather than replacing them" (Lauder et al., 2018: 496). Because of this, the effects on workers will depend upon their skill levels. It could increase demand in some specific segments of the labour market, such as those employed in high-tech sectors producing labour-saving technologies. Furthermore, many occupations will be able to achieve higher levels of productivity due to technological development; demand for these segments of the labour market should increase. Sectors such as ICT require highly skilled individuals such as programmers to create and operate advanced technologies; beyond this, technology can enhance the productivity of highly skilled workers such as those in professional, managerial and creative occupations, thus increasing demand for those professions. These premises form the basis of the skill-biased technological change (SBTC) hypothesis.

While demand for highly skilled labour increases in line with technological adoption – pushing up employment levels and putting pressure on wages to rise – demand for unskilled manual labour falls due to the availability of technological substitutes as well as lower relative levels of demand for 'low-tech' manufactures and commodities. Furthermore, increased supply of educated workers motivates employers to engage in technological upgrading according to a logic of cumulative causation (Lauder et al., 2018). Although this interpretation undoubtedly presents a rather positive picture, SBTC is consistent with reduced employment levels in the low skilled segments of the labour market, and increasing wage inequality between those with low and high skills. Nevertheless, the numbers of low skilled jobs is expected to fall in proportion to highly skilled employment.

A number of recent studies have shown that it is an oversimplification to state that technology is biased in favour of highly skilled labour *per se*; rather it is biased in favour of non-routine cognitive and manual tasks, regardless of skill level. Routine occupations include a raft of mid-skilled and relatively well-paid

jobs (bookkeeping, manually operating machinery and so forth). Thus, so-called 'routine-biased technological change' (RBTC) has had the effect of hollowing out 'middling' occupations, leading to occupational polarisation through the relative growth of 'lovely' and 'lousy' jobs (Goos and Manning, 2007; Autor and Dorn, 2013; Autor et al., 2014; Goos et al., 2014; Cortes et al., 2017).

The losers from the disappearance of low-skilled and routine jobs, and the nature of their loss, justify a particular focus. We do not need to assume that automation leads to the permanent disappearance of jobs without compensatory job creation to be concerned about the effects of the former; frictional unemployment, skills redundancy and distributional effects are all still important public policy issues irrespective of potentially benign long-term net employment effects. Alongside labour market transformation – whether skill- or routine-biased – certain competences will be subject to reduced demand, and “some people will not have the qualifications for those jobs that are or will be available... Even if they can find a job, this might be at a very low wage level” (Greve, 2017: 2). IPPR (2019) find that the automation is likely to affect women disproportionately, given gendered occupational patterns. Furthermore, those who are unlikely to find alternative work, due to relatively low education and skills mismatch with emerging digital economy are likely to be among demographics especially prone to right-wing populism (Cortes et al., 2017; Palier and Kurer, 2019; Im et al., 2019).

A final, further point is that in the future, depending upon the nature of technological change and the pace at which new tasks – in which labour retains a comparative advantage – can be generated, educated workers may increasingly also find themselves among the displaced (Michell, 2015). This could potentially usher in a larger and broader constituency of support for more radical policies aimed at mitigating the effects of rapid technological change.

A declining labour share

Concerns about technology's potentially detrimental effects on labour market outcomes are bolstered by empirical evidence that the labour share of value-added has exhibited long-term decline (Karabarbounis and Neiman, 2014; Piketty, 2014; Dao et al., 2017; Autor and Salomons, 2018).

For some, these observations call into question long-standing underlying assumptions of mainstream macroeconomic models that technological change will always be 'labour augmenting' at the aggregate level (Acemoglu, 2003). Recent contributions (Susskind, 2017; Acemoglu and Restrepo, 2018; Autor and Salomons, 2018) relax these assumptions in various ways.

Essentially, these studies examine the premise that technology will be able to carry out an increasing range of tasks – what Susskind (2017) calls 'task encroachment' – opening up the possibility of

a declining labour share. Additionally, Autor et al. (2017) examine the role of technology in the declining labour share via its manifestation in the growth of 'Superstar firms'.

A declining labour share is concerning not only for reasons of equity, but because of the likely macroeconomic effects of demand deficiency. Unemployment and low wages are problems in themselves but also instrumentally, to the extent that the capitalist system relies on maintenance of workers' purchasing power (Crocker, 2017). According to Michell (2014), inequality feeds also through into financial instability through a variety of mechanisms. These generate additional rationales for basic income, as described in section 3.

While a long-term decline in the labour share appears irrefutable, its significance is more contentious. Due to data and methodological limitations, it is difficult to tell what exactly is causing the observed decline – the extent to which it relates to technological *per se* – and thus, whether it is really permanent and inevitable feature of structural change or whether it can be reversed through purposive action. Rognlie (2015) and Gutierrez and Piton (2019) challenge the idea that technological change *per se* is driving a sustained fall in the labour share of value, arguing that much of the increased capital share relates to returns on housing (and also, the inclusion of self-employed income in the capital share). As Rognlie (2015) puts it, the capital share has indeed grown "but once disaggregated this increase turns out to come entirely from the housing sector: the contribution to net capital income from all other sectors has been zero or negative".

According to Gutierrez and Piton (2019), when correcting for "the inclusion of dwellings and the inclusion of self-employed workers" in the calculation of the labour share, major economies barring the US exhibit stable labour shares of value added. This suggests that the role of automation may be mediated by institutional factors, a view shared by Mućk (2017). In a similar vein, Stockhammer (2013) identifies a number of institutional factors as possible causes of increases in functional income inequality alongside technological change. Such accounts suggest that an ever-declining labour share is not inevitable, and can be mitigated through appropriate policies (regulating, taxing and disciplining capital). Even if technological change *is* unambiguously driving a declining labour share, it might thus be possible to improve outcomes, for example through a 'robot tax' or public ownership.

3

**The Case
for Basic Income
in Light of
Automation and
Technological
Change**

Basic income is not solely (or even primarily) motivated by concerns about automation. The policy has myriad valid goals and objectives relating to its potential advantages over existing systems of welfare delivery, including, *inter alia*:

- the extension of income security to all as a matter of *right* (Standing, 2004);
- the alleviation of poverty and unemployment traps (Gamel et al., 2006; Van Parijs, 2004);
- the valorisation of unpaid work (Van Der Veen and Groot, 2006);
- the minimisation of ‘exclusion’ errors (i.e. more comprehensive substantive coverage of the poor) (Goodin, 1992);
- the facilitation of flexible working patterns (Groot and Van Der Veen, 2000);
- the encouragement of entrepreneurship and creativity (Bregman, 2017);
- improvements in gender equality (McKay, 2001); and
- ecological benefits (Andersson, 2010).

These goals and objectives are relevant irrespective of the reality of automation and technological change, and its effect on labour markets. However, for the most part technological and labour market change strengthen arguments in favour of basic income. This is clearly the case with respect to aspects of the basic income that are tailored towards addressing labour market dysfunction, but also extends to arguments that basic income could drive positive social and economic change, provide the institutional underpinning for a new phase of advanced capitalism, and even help to usher in a post-capitalist future.

Advantageous features with respect to new patterns of labour market dysfunction

Basic income has long been supported on the basis that it is a way to overcome a ‘new social question’ consisting of “a growing number of households... unable to secure access to adequate job assets” (Van Parijs et al., 2000: 54) and as a solution to the growing problems of precarious work and ‘outsiderness’ (Standing, 2011; Birnbaum, 2012; Raventós et al., 2012). Basic income is seen as an ‘optimally flexible’ policy for the myriad forms of labour market dysfunction – and new labour market opportunities – that could conceivably arise in the emerging digitised economy (Pulkka, 2017). As the preceding literature review suggests, automation and digitalisation are already giving rise to profound occupation restructuring; frictional unemployment and skills redundancy in blue and white-collar routine occupations; the proliferation of poorly paid and insecure work; new opportunities within the knowledge-intensive IT, creative and professional service sectors; and new forms of flexible working practice. Individuals should gravitate to basic income as a ‘minimally presumptuous’ welfare policy that copes well with the vagaries of contemporary labour market

dynamics and facilitates the adoption of any conceivable pattern of employment, providing a secure income floor to which one can add income from intermittent and poorly paid work.

Plugging the gaps in the safety net

Conventional social security systems, which are based on a clear in-work/ out-of-work dichotomy are ill-equipped for intermittent and insecure working patterns. At best, claimants would have to make regular reapplications – although policies like the UK's *Universal Credit* are arguably better equipped for irregular work (in principle at least⁶). Furthermore, social security systems based on the contributory principle have become increasingly untenable as the proportion of labour market outsiders continues to grow in line with the decline of manufacturing and the increased prevalence of short-term gig economy work. Not only would growing numbers be unable to make regular social insurance contributions, they might soon exhaust their accumulated social insurance rights and cease to qualify for benefits, if periods of unemployment were frequent or long term. In this way, basic income could enable workers to adjust to changing economic realities more effectively than existing traditional provisions, whether based on targeting or contributory principles.

Compensating for low pay

Basic income should also provide more comprehensive *de facto* coverage and more adequate provision in relation to the alleviation of in-work poverty. Where in-work provisions are partial or non-existent, or where they are characterised by significant bureaucratic requirements and restriction on entitlements, low paid individuals are especially likely to favour basic income compared to existing provisions. Part of the reason for this is that basic income would provide a greater degree of income security: an unconditional floor. Other forms of minimum income guarantee, such as negative income taxes, make up the income shortfall *ex post* – and thus require means testing, even if they do not impose behavioural requirements.

Poverty, unemployment and bureaucracy traps

At the same time as topping-up low wages to alleviate in-work poverty, basic income has the advantage that, unlike means-tested benefits and those conditional on circumstances such as

6. Universal Credit is supposed to adjust automatically to individuals' circumstances, with a uniform withdrawal rate, such that labour market activity is always rewarded and at the same time, income shortfalls are corrected in a flexible manner. In fact, evidence suggests that there are significant implementation problems – including relating to the timing of wage payment schedules and their interaction with childcare payments – that lead to significant shortfalls in practice (Millar and Bennett, 2017).

unemployment, it is not withdrawn as recipients increase their earnings or enter employment. This implies that under basic income, individuals face positive financial incentives to take any form of work, including 'mini jobs' and short-term and irregular contracts. Basic income should also avoid so-called 'bureaucracy traps' – in which claimants are reluctant to enter employment due to risk aversion regarding job security and concern regarding delays in reapplying for benefit.

Less intrusive and burdensome for claimants (and the state)

Basic income may reduce the material and psychological burdens on recipients due to factors relating to labour market conditionality, bureaucratic effort, stigma, and the imposition of sanctions. Bureaucratic burdens such as these, as well as associated stigma, are likely to reduce take-up (Van Parijs, 2004) compared to basic income, which should approach substantive universality provided efforts are taken to ensure the coverage of marginalised groups (De Wispelaere and Stirton, 2013). Bureaucratic eligibility tests (especially means tests) are also very costly for the state (Van Oorschot, 2002; Torry, 2018), and look likely to become more so as labour market transitions, fluctuations in earnings – and thus, changes to qualification for benefit and the level of payment to which recipients are entitled – occur more and frequently.

Emerging realities of the digital economy

Education, innovation, and control of time

Aside from the numerous ways in which basic income is a more flexible and effective solution to a myriad manifestations of labour market dysfunction, it is also argued that it is more complementary to the emerging opportunities and realities of a high-tech, knowledge economy. According to Haagh (2019), the arguments in favour of basic income go far beyond the 'passive' management of labour market crisis. For her, basic income is ultimately emancipatory; it is about the promotion of democratic participation, enabling individuals and families to take positive control of their time, and engage in meaningful activities beyond work. Basic income provides security in the context of lifelong skills development, and of transitions between different jobs and different productive/reproductive roles.

The characteristics the 'knowledge economy' does much to recommend a basic income. People will increasingly need to engage in lifelong education and skills upgrading to participate in emerging dynamic sectors of the economy; basic income could facilitate that by allowing people to take time off work or reduce their hours. High-tech IT sectors such as software design and development require long periods of research – which represent large sunk costs – but could have very low marginal costs associated with their dissemination and use. In this context, a basic income could encourage people

to undertake innovative activities, underwritten by the income security that a basic income provides. A similar case can be made with respect to engagement in entrepreneurial self-employment – a phenomenon which has been increasing steadily in the era of the knowledge economy – and in creative and artistic work. Such work, like the ‘gig economy’, is usually atypical in terms of contractual arrangements, and involves a high degree of risk.

A new social contract between labour and capital?

Beyond the individual or micro-level advantages of basic income in relation to forthcoming labour market dysfunction and new working patterns, there are other justifications based on more macro concerns. As described in section 2 above, there are serious concerns that technological change is causing a long-term decline in the labour share of value, and encouraging a form of ‘winner takes all’ capitalism in which markets are increasingly dominated by powerful ‘Superstar’ firms. Due to the characteristics of high-tech production, significant advantages accrue to large firms due to networking effects, scale economies, and the advantages of multi-nationality. In democratic systems, the inequality to which capitalism gives rise can only be countenanced provided the majority also benefit from the arrangement; basic income is thus a “democratic reconstruction at a juncture of global crisis in governance” (Haagh, 2019: 3). Basic income is also justified on the grounds of entitlement to the fruits of the ‘commons’ (Van Parijs, 1992). Arguably, this includes an inherited body of knowledge that should belong to everyone but which has been appropriated for private gain. In light of the cumulative technological developments – especially with the kinds of productivity gains imagined under circumstances of exponential increases in computing power – the magnitude of this entitlement could conceivably grow to a very significant degree. In a more functionalist sense, a declining labour share of value is also problematic because of the relative propensities of labour and capital to spend money in the economy, and thus contribute to demand multiplier effects. A basic income would inject demand into the economy in much the same way as quantitative easing, only more effective and far more egalitarian (Standing, 2018a).

According to classical Marxian accounts (e.g. Offe, 1984), the modern welfare state emerged in response to the contradictions of capitalism. The welfare state ensured the consent of the proletariat and maintained minimal conditions of social reproduction. Essentially, the welfare state – at least, in its optimal social democratic form – represented a social contract between labour and capital. However, the contract was always an uneasy one; contradictions began to appear including the erosion of stable insider jobs upon which contributory entitlements are built, and the distortionary and intrusive effects of social assistance programmes that were brought in to cover gaps in the former. Thus, in the 1980s it emerged that welfare states could no longer fully manage the socio-political problems and conflicts

generated by late capitalist societies. The result is contradictory pressure to cover 'new social risks' in a climate of 'permanent austerity' imposed by political imperatives and hard fiscal constraints alike.

As Lucarelli and Fumagalli (2008) suggest, the social contract between labour and capital that emerged in the Fordist period was the product of political organisation by workers, which may be more difficult in the contemporary wave of 'cognitive capitalism' characterised "by forms of flexible accumulation that can integrate and connect highly diversified modes, times and places of production" (Zanini and Fadini, 2001: 15). In the Fordist period, the dominant mode of production (manufacturing) lent itself to unionisation and the establishment of formal social insurance provisions. However, everywhere the proletariat is "in numerical decline" (Standing, 2018b; see also Gingrich and Häusermann, 2015). Even if it were not the case that workers' bargaining power has been steadily eroded by structural economic transformation, labourist movements of the past already excluded large numbers from the bargain.

Basic income as saviour of neoliberal capitalism or systemic change?

While the 'losers' of economic structural change surely have an interest in finding a solution to these evident contradictions, so too, arguably, do the (economic and political) elites of capitalism, for two main reasons: because of their interest in maintaining the system *without* wholesale revolutionary change; and because of the complementarities between basic income and the need of the digital economy for a flexible, high-skill workforce.

In this context, basic income could represent a new social contract between labour and capital, in which individuals receive a (subsistence) income, underpinned by democratic mechanisms, while allowing the overarching ownership structures and market forces to remain intact. It is surely no coincidence that much vocal support for basic income, especially in the US context, comes from Silicon Valley entrepreneurs (Freedman, 2016) who are likely to be profoundly concerned about public acceptance of new technologies viewed – rightly or wrongly – as responsible for rising unemployment and income inequality. As Standing (2014) points out, the growing precariat are susceptible to 'populist sirens'. If unchecked, a populist backlash could threaten the global neoliberal economic system through the imposition of restrictions on trade and capital flows, public ownership, and other interventionist measures. In this sense, basic income can be seen as a means to retain public acquiescence to high levels of inequality, dissuade protest, and suppress more profound structural reforms.

Srnicek and Williams (2015) oppose such a vision, seeing basic income as one aspect of radical, systemic change towards a post-capitalist, post-work future. According to them, there is little hope for radical change through 'electoral reformism', which they see as "doomed simply to ameliorate capitalism" (p. 131). The most

fruitful political trajectory is to form a ‘counter-hegemonic project’ incorporating new forms of protest and ‘folk politics’. In this context, basic income is seen as part of wider systemic changes to the capitalist system, rather than its saviour. Together with a number of other pillars, including the democratisation of capital ownership – even, in some accounts, self-owning autonomous machines as a sources of funding (Latour, 2018) – basic income is thus viewed in utopian terms as a move towards a post-capitalist future: a world without work and without material deprivation.

Normative objections and political barriers

The preceding sections have introduced numerous ways in which basic income would overcome many of the shortcomings of existing welfare provision – and would be, if not inevitable or essential to the continuance of the capitalist system, then at least part of a desirable alternative vision. However, there are of course strong countervailing arguments, including normative objections and more pragmatic concerns around cost, affordability and labour market effects.

There is considerable normative opposition to basic income’s unconditional nature, and the way that it departs from accepted notions of fairness, embodied by the primacy of the principles of reciprocity and need in the provision of social welfare (Martinelli, 2017). There are also concerns that basic income is wasteful, and that given the potential fiscal burden, is not worth the effort. The ‘conservative’ objection is that associated tax rises are distortionary and unfair, and the ‘progressive’ objection is that resources would be better spent on other goals, including poverty alleviation through explicit targeting (Martinelli, 2019). The practical objection that a generous basic income would replace employment income and discourage labour market participation, thus becoming rapidly unsustainable, is also widespread. These arguments are important not only in their own right, but in relation to political feasibility. They influence the preferences of voters and the susceptibility of political parties – which embody established principles and values – to invest political capital in basic income as a specific solution to problems regarding welfare provision and labour market dysfunction, and as a positive vision of the future. Importantly, although basic income’s appeal spans the political spectrum, so too do these common normative and practical objections. Furthermore, although basic income may appeal rather broadly in the abstract, superficial agreement between political opponents tends to dissipate when discussion moves to specific schemes (Chrisp and Martinelli, 2019). Since “libertarian proposals for basic income linked with a smaller role for the state are the best known” (Haagh, 2019: 12), this will naturally discourage progressive support. These problems ultimately contribute to the political barriers characterised by De Wispelaere (2016) as *persistent division* and *cheap support*.

Notwithstanding support among the libertarian right, many of the arguments in favour of basic income – regarding more effective and less burdensome social security coverage, and about correcting power imbalances between labour and capital – relate to concerns most closely associated with the progressive left. Indeed, analysis shows that public support is stronger among those who self-identify as left-wing, and explicit support has most commonly come from parties of the post-productivist or libertarian ‘new left’ (Chrisp and Martinelli, 2019). Progressive proponents do not tend to see basic income as a wholesale replacement for insurance-based or targeted welfare provisions (Van Parijs and Vanderborght, 2017). Nor indeed do they deny the continued need for additional ‘capacitating’ services; basic income is no ‘silver bullet’ (Haagh, 2019). In these ways, basic income is viewed not as a replacement for the traditional welfare state, but as a natural extension to it.

However, as documented in Van Parijs (ed.) (2018), debate between basic income’s progressive advocates and critics is characterised by the oppositional perspectives of the ‘traditional’ social democratic and the emergent ‘new’ left – and indeed by the divergent interests of these actors’ core constituencies. For the labourist left, basic income is “capitulation to deregulation and exploitation, not a solution to it” (Coote and Yazici, 2019: 4). Navarro (2018) reasons that unemployment is not a consequence of economic variables (such as technological change) but of the “enormous weakness of labour”, something that a basic income would do little to address. From a Marxist perspective, it may be a ‘bad utopia’ that breaks insufficiently with the present, and in some respects making it worse, by “replacing a wage over which workers can lawfully bargain with a state administered monetary payment that creates a direct relationship of power between citizen and state, liquidating labor struggles” (Dinerstein and Pitts, 2018). More prosaically, basic income is criticised by progressives for:

- acting as a wage subsidy for low paying companies (Mestrum, 2018);
- entrenching disadvantage by enabling inactivity rather than aiding integration through active measures (Navarro, 2018); and
- eroding the solidarity principle that underpins the welfare state, thus aiding attacks on the provision of quality welfare services (Rothstein, 2018).

Turning to the specific issues of automation and digitalisation, Mayer (2018) argues that basic income will do nothing to tackle entrenched inequality between “a new underclass stuck at basic income level and an economic elite that would reap the greatest benefits” (p. 91). It is worth noting that many of basic income’s critics endorse a ‘social investment’ model of welfare state reform; rather than providing passive compensation, social investment reforms actively promote labour market integration, by enhancing human capital and facilitating labour market and life course transitions (Hemerijck, 2017). Furthermore, there are other ways to tackle growing inequality between labour and capital at the root,

including strengthening labour market institutions (Jaumotte and Osario Buitron, 2015), reforming global governance structures in relation to corporate regulation and tax (Picciotto, 2011), and new models of capital ownership (IPPR, 2017) – even if these solutions are undoubtedly politically fraught. The question is whether basic income is complementary to these efforts or ultimately distracts from them.

These criticisms embody existential dilemmas faced by the modern left regarding its very purpose, who it serves, and its underlying principles. Ultimately, the question is whether the revitalisation of the traditional tools of the left is sufficient for dealing with forthcoming challenges – or whether a more radical break with the past is required.

Debate extends beyond abstract ideological concerns and highlights the considerable political barriers basic income's advocates face in seeking a core constituency or party political platform. One of the key dividing lines that will determine basic income's feasibility is between labour market insiders – who potentially stand to lose out from the erosion of privileged access to generous contributory benefits and higher tax burdens – on the one hand, and basic income's various potential beneficiaries on the other. A key question, of course, is whether ongoing technological and labour market change are altering the arithmetic in this regard.

It may be helpful to view the feasibility of basic income through a framework of political supply and demand. Following Beramendi et al. (2015), Martinelli and De Wispelaere (2017) outlines a number of important features that are pertinent to the possibility of basic income's success, and the forms it might take.

On the demand side we are concerned with, *inter alia*, the preferences, risk profiles and normative values of voters; the number of potential beneficiaries and losers from proposed reforms and their power resources, and the prospects of forming meaningful constituencies of support and opposition. We expect the strength of calls for reform – and the specific and possibly competing stipulations of different constituencies – will depend upon the nature and magnitude of prevailing political economy concerns (e.g. in terms of labour market dysfunction and the failure of existing welfare provisions to provide adequate income security for a sufficient proportion of the population). The supply side relates to the 'policy solutions' that political actors can feasibly offer to address voters' demands, given constraints arising from fiscal capacities, bureaucratic capabilities, sunk costs of previous policies, institutional legacies, and the manner in which their own values and commitments map onto prevailing ideological cleavages and electoral strategies.

Research at the IPR considers both aspects of this political equation. On the demand side, this includes research into the micro-level determinants of public preferences – and the significance of automation and labour market risk in this context – as well as cross-national research into the distributional gains offered by basic income compared with the *status quo* of existing welfare provision.

On the supply side, microsimulation research provides insights into the constraints imposed on political actors on their capacities to offer basic income as a concrete workable solution. These constraints relate to practical issues of policy design: to trade-offs between countries' capacities to finance basic income, and the desirability of the resulting distributional effects. We turn to these issues in the following sections.

4

Analysis of Labour Market Status and Automation Risk as Determinants of Basic Income Support

This section summarises arguments developed in Chrisp and Martinelli (2018), examining the extent to which automation and labour market precarity may be driving public support for basic income at the individual level. Empirical literature on this question is rather limited, partly due to the lack of quality data on public preferences for basic income. However, a series of analyses has followed the publication of wave 8 of the European Social Survey (ESS, 2018) (e.g. Adriaans et al., 2019; Parolin and Siöland, 2019; Vlandas, 2019). However, none of these studies extend to automation risk *per se*, or examine interactions between labour market dynamics and human capital development.

Because of the lack of direct empirical evidence, theoretical expectations are based on the broader political economy literature on the relationships between labour market risk and welfare preferences. Being generally understood as an expansive welfare state reform, support for basic income is expected to share important features with support for redistribution more generally; at the same time, it has a number of idiosyncratic advantages and disadvantages for specific demographic and risk groups. This section outlines a framework of analysis before briefly summarising key empirical findings.

Labour market risk and redistribution preferences

At risk of oversimplification, explanations for political and welfare preference formation have usually centred on two main groups of factors: material self-interest and the role of values and principles. The self-interest argument simply holds that potential recipients of redistributive policies are more likely to favour their provision and expansion. Support for higher government spending on social welfare is motivated by a desire to insure against risk (the consumption smoothing or ‘Piggy Bank’ functions of the welfare state) as well as potentially indicative of a desire for vertical (inter-group) redistribution (Cusack et al., 2006; Alesina and Guiliano, 2009; Rehm, 2009, 2011).

Empirically, indicators of labour market risk include those rooted in individuals’ current status, while other indicators are based on the aggregate risk profiles of different socio-economic classifications. Empirical work has shown that unemployment, low income and precarious work all tend to predict preferences towards redistributive welfare state policies (Naumann et al., 2015; Alesina and Guiliano, 2009; Marx, 2014). Cusack et al. (2006) demonstrate that individuals’ preferences will be influenced by occupational unemployment rates as well as skill specificity (because more specific skills make re-employment more difficult).

A fundamental understanding of redistributive preferences posits a degree of solidarity between those in similar situations (Svallfors, 2006). Individuals not at risk of falling into low-paid and/or precarious work or of becoming unemployed *per se* may still be supportive of welfare arrangements that are most beneficial

to those who are at risk or who have already suffered adverse labour market outcomes – especially if they have witnessed the effects of such outcomes on their close peers.

Schwander and Häusermann's (2013) operationalisation of 'outsiderness' – relying on the logic that "people form identities and preferences not on the basis of a momentary labour market status, but with regard to their general, expected employment biography" (p. 251) – is based on age, sex and occupational class.⁷ They find that outsiders favour increased spending on active employment creation as well as on passive unemployment benefits. Rehm (2009) finds that being poor, having a low level of education, and being female all significantly increase preferences for redistribution.

Preferences are also likely to be affected by existing welfare institutions and how well they mitigate social risk. As Dallinger (2010: 333) puts it, "cross-national variations in support for redistribution are the aggregate effect of a demand of rational actors" reacting to the risks they face. Faced with more pronounced systemic risks, people may also be more likely to support redistributive reforms on the grounds of solidarity and less likely to attribute poverty to individual moral failings, given its more widespread incidence (Blekesaune and Quadagno, 2003; Pfeifer, 2009).

Thewissen and Rueda (2019) and Sacchi et al. (2019) consider the risks of automation explicitly. They find that the routine-intensity of tasks within an occupation significantly increases support for redistribution. Support for redistribution among these workers thus suggests their enhanced motivation to insure against labour market risk. However, automation risk does not translate straightforwardly into preferences for welfare expansion. Some recent studies suggest that the decline of middle-income routine manufacturing jobs is fuelling support for right-wing populism and the radical right (Frey et al., 2018; Im et al., 2019). These groups may be opposed to the expansion of unconditional income security to 'undeserving' groups, despite potentially benefitting from it in material terms.

Preferences for basic income

As described in section 3, basic income may offer an improvement on existing social welfare provisions to the unemployed, low-paid, and insecurely employed – and those at risk of experiencing these adverse conditions – for several reasons. The shortcoming of conventional social security systems with respect to these include, inter alia:

7. According to Kitschelt and Rehm (2014: 1670), occupations are sites of political preference formation in part due to exposure to common risks, but also because people "apply the kinds of reasoning, heuristics, and problem solving techniques they learn and use at work in all realms of life". This suggests that the congruence of preferences within occupational groups is as much to do with acquired values as self-interest or solidarity.

- the burdens on recipients of labour market conditionality (stigma, bureaucratic effort; sanctions) for both out-of-work and in-work welfare recipients;
- inadequate provision for the alleviation of in-work poverty (combined with bureaucratic burdens and restrictions on entitlements);
- difficulties accruing contributory entitlement rights, and relating to the inflexibility of existing entitlement conditions, in the context of the rise in non-standard employment contracts (i.e. for those in intermittent or insecure circumstances).

As Pulkka (2017) notes, while the problems to which automation gives rise – and which appear to be exacerbated by globalisation and deindustrialisation more generally – do not necessarily require a basic income *per se*, the argument is that this policy is more (optimally) flexible than other conditional benefits. However, the precise mechanisms of political demand are usually left implicit. Our central assumption is that faced with heightened risk, individuals may gravitate to basic income as a ‘minimally presumptuous’ welfare policy that copes well with the vagaries of contemporary labour market dynamics and facilitates the adoption of any conceivable pattern of employment – through the ‘reshuffle effect’ and the elimination of poverty, unemployment and bureaucracy traps. Conventional social security systems are ill equipped for intermittent and insecure working patterns. When periods of employment are intermittent, claimants may need but not qualify for support. Furthermore, social security systems based on the contributory principle have become increasingly untenable as the proportion of labour market outsiders (with inadequate contributions) continues to grow.

On the other hand, people may still oppose basic income on normative grounds of fairness or reciprocity, particularly if it was extended to “undeserving” groups. It is plausible that certain precarious demographics would favour basic income’s distributive implications in the abstract but oppose the erosion of the reciprocity principle, the lack of conditions, and the implied extension of the political community to which welfare rights should extend. Following Vlandas (2019), basic income can be viewed as an outsider policy. Individuals ‘at risk’ of precariousness (as opposed to having a precarious status) might view basic income as relatively costly and ineffective if existing measures perform well at insulating them from unemployment and other labour market risks. Importantly, basic income lacks the insurance function provided by earnings-related benefits. As Standing (2014: 383) acknowledges, “the core of the old working class may have difficulty in supporting a right to a basic income, seeing their short-term interest in defending the old social security system”. The nature of the risk, and the prospects for re-entering employment quickly and at a comparable level of remuneration, are key to determining how labour market change will shape the preferences of labour market insiders. If automation and technological change gives rise to profound occupational

restructuring and job polarisation, then basic income might be again preferred even by those who would conventionally favour social insurance.

Obviously, education has important effects. Human capital development is generally associated with reduced labour market risk, due to the increased ability to find varied employment; and because human capital is strongly related to earning potential, highly skilled individuals are less likely to demand the redistributive functions of welfare policies (Checchi and Filippin, 2015). Given the high fiscal burden associated with basic income, those with relatively well-paid occupations might prefer social insurance, especially if they consider their prospects of rapidly re-entering employment to be relatively high. This is likely to be the case for more highly educated individuals, for whom human capital serves as insurance against labour market risks, but also potentially for routine workers with relatively well-paid jobs.

On the other hand, education has been observed to be the main determinant of cultural preferences (Häusermann and Kriesi, 2015). Regarding welfare preferences a studies have found that support for conditionality is negatively correlated to education (Achterberg et al. 2014). This is likely to be especially important in the case of basic income. Individuals with high levels of human capital thus appear 'cross-pressured' by characteristics that affect their welfare preferences in a contradictory manner (Häusermann et al., 2015).

As an alternative to the status quo, support for basic income is likely to be higher when existing provisions perform poorly at mitigating risk, for example due to inadequacy (low level of payments), non-coverage (for example due to dualistic structures), or excessively burdensome punitive conditionality regimes. In contrast, "as a more expansive welfare state will likely have a wider array of policies in place it will also have a larger number of policy constituencies with an interest in maintaining these policies" (Parolin and Siöland, 2019: 9). On the other hand, comprehensive universal welfare provision may actually shore up normative support for redistributive policies (Svalfors, 1997; Gelissen, 2000; Larsen, 2008) according to a logic of institutional path dependence. As Vlandas (2019) puts it, "if this logic travels to a [basic income], we should expect higher support" within the most redistributive welfare states. The corollary is that fewer people may demand radical change to the *status quo*. As Vlandas (2019: 2) writes, support for a basic income depends "on the extent to which existing unemployment benefits decommodify unemployed individuals effectively.... if respondents expect a [basic income] to replace unemployment benefits which were very generous, they may be more likely oppose it." These contentions have received some attention in the literature. As Parolin and Siöland (2019) and Vlandas (2019) both report, higher levels of support for basic income tend to be found in countries with less developed welfare states, but the evidence is far from conclusive on the causal drivers of preferences for basic income at the country level.

Does automation and labour market risk drive support for basic income?

Chrisp and Martinelli (2018) carried out multivariate probit regressions using wave 8 of the European Social Survey (ESS), which covers 23 countries and around 44,000 respondents surveyed in the year 2016. Wave 8 of the ESS is the first large-scale cross-national survey to poll respondents on their attitudes to basic income per se. Basic income was defined to respondents in the following way:

A basic income scheme includes all of the following: The government pays everyone a monthly income to cover essential living costs. It replaces many other social benefits. The purpose is to guarantee everyone a minimum standard of living. Everyone receives the same amount regardless of whether or not they are working. People also keep the money they earn from work or other sources. This scheme is paid for by taxes.

Respondents were asked if they were ‘strongly in favour’, ‘in favour’, ‘against’ or ‘strongly against’ basic income. This was recoded into a binary variable, with ‘in favour’ and ‘strongly in favour’ equal to one, and ‘against’ and ‘strongly against’ equal to zero.

The main independent variables of interest were *labour market status and automation risk*, as well as interactions between these variables and tertiary education and household income. A range of individual-level covariates, standard in the empirical literature, were used. Country fixed effects were used to account for institutional heterogeneity. The assumption is that the effects of the individual level covariates are constant across countries, but that there may be unobserved heterogeneity driving differences in the country-level intercepts (or the aggregate level of support in each country).

The results for the covariates are mostly as expected: age and income are both significantly associated with opposition to basic income, although gender does not have a significant effect. In the absence of controls, education does tend to reduce support for basic income, as noted by Vlandas (2019). However, the effect largely disappears when controls such as age and income level are introduced, perhaps suggesting that the conflicting effects of education – on economic self-interest and cultural preferences – cancel one another out. This also confirms Adriaans et al. (2019), who examining the case of Germany across four surveys, found that supporters tend to be young, well-educated, and in lower income groups.

Turning to the main variables of interest, labour market status significantly predicts basic income support. Compared to the base category “permanent employee”, unemployed people have the highest support levels. The ‘inactive’, those on temporary contracts, and students also have significantly higher levels of support. On the other hand, solo self-employed have levels of support that do not differ significantly from the base category, while employers are significantly more opposed to a basic income. These findings are

perhaps unsurprising, given the compositional differences between these groups, related to skills, income and age. However, unemployed and temporary workers are still significantly more supportive of basic income once these controls are added.

The picture is more mixed for indicators of automation risk; effect sizes and significance levels vary across the different indicators, but Chrisp and Martinelli (2018) conclude that there is scant evidence of an independent effect of automation risk on preferences for basic income. Just as “more welfare will be an insufficient response to satisfy exposed workers” (Kurer, 2017: 4), so too is basic income unsatisfactory for this potential constituency.

To draw out the dynamics further, Chrisp and Martinelli (2018) explore interactions of labour market status and automation risk with tertiary education and income. The key findings are two-fold. First, there is a significant positive interaction effect between tertiary education and certain forms of precarious work, specifically temporary work and solo self-employment. This implies that ‘high-skilled outsiders’ (Häusermann et al., 2015) motivated by both insecurity and cosmopolitan values could be a central important constituency of support for basic income. Second, routineness interacts with income: routineness is associated with support for basic income among relatively poor respondents. These findings contrast with evidence of *positive* interactions between routineness and income with respect to support for redistribution (Thewissen and Rueda, 2019). This suggests that routine workers with higher income levels may demand redistribution for insurance motives (and thus disfavour basic income). The lack of support for basic income among those facing automation risk may also reflect the pertinence of non-economic (cultural) in the formation of political and welfare preferences (Inglehart and Norris, 2016). The findings connect to the wider literature on the political economy of welfare preferences (Rovny and Rovny, 2017; Kurer, 2017; Wiertz and Rodon, 2019) which distinguishes between the political consequences of labour market *risk* (in probabilistic terms) and *status* (in terms of the realisation of adverse labour market outcomes).

5

**Comparative
Microsimulation
of Basic
Income's
Fiscal and
Distributional
Effects**

As suggested in the previous section, basic income's fiscal and distributional effects connect closely with political supply and demand. Demand relates to the people who would stand to gain from the redistribution that basic income entails, and numbers of people invested in the *status quo*. Supply relates to fiscal and institutional capacities to implement specific proposals, and coalitions of opposition comprised of potential net contributors (including those who stand to pay more in increased taxes than they receive as a basic income, and those who stand to lose access to more generous benefits if the latter are withdrawn). While voters might demand radical expansive welfare reform, there is a tension because political actors need to consider the votes they could lose in addition to those they stand to attract. Furthermore, they must consider practical implementation issues (including affordability), in deciding whether to invest concrete political capital into the 'supply' of basic income proposals. This section summarises and extends arguments developed in Martinelli and O'Neill (2019), using EUROMOD (Sutherland and Figari, 2013).⁸

Trade-offs in policy design

Basic income has a large number of distinct features with respect to more traditional (conditional) modes of welfare delivery, but crucial among them is that it should reduce (indeed, eliminate) gaps in coverage. Whatever the level of the basic income – whether adequate on its own or simply an unconditional floor to be supplemented with conditional benefits as appropriate – basic income should reduce poverty via the extension of basic income security to all. This gives rise to basic income's favourable distributional effects. Even if there are other advantages that also accrue to net contributors, it stands to reason that potential beneficiaries are more likely to favour the policy.

In these terms, basic income would have highly desirable distributional consequences; but practical issues of financing must also be considered. To simplify somewhat, redistribution to (some) households can be funded in a combination of two ways: increases

8. The results presented here are based on EUROMOD version H1.0+ (EUROMOD is maintained, developed and managed by the Institute for Social and Economic Research (ISER) at the University of Essex, in collaboration with national teams from the EU member states). We are indebted to the many people who have contributed to the development of EUROMOD. The process of extending and updating EUROMOD is financially supported by the European Union Programme for Employment and Social Innovation 'Easi' (2014–2020). We make use of microdata from the EU Statistics on Incomes and Living Conditions (EU-SILC) made available by Eurostat (59/2013-EU-SILC-LFS); the national EU-SILC PDB data for Greece, Poland, Italy, Austria and Slovakia provided by respective national statistical offices; and the Family Resources Survey (FRS) for the UK made available by the Department of Work and Pensions via the UK Data Service. Data are for 2015, except Germany and the UK, for which 2014 data are used. The results and their interpretation are the authors' responsibility.

in payroll tax revenue⁹ and reductions in spending on existing benefits. This gives rise to adverse distributional effects in proportion to the fiscal burden of the policy.

As a result, issues of policy design are crucial in determining basic income's political feasibility.¹⁰ There are basically two ways to offset the additional net costs associated with basic income through the reduction of existing levels of expenditure: by eliminating specific benefits entirely, and by adjusting their payment levels downwards to take into account the basic income transfer (Martinelli, 2019). Then there is a choice regarding which benefits should be eliminated and/or adjusted, and which should be left intact.

As explored in the UK case, there appears to be a 'trilemma' between the goals of affordability, adequacy, and securing the advantages that motivates basic income in the first place (Martinelli, 2019).

- If benefits were left intact, the policy would be unaffordable;
- If some benefits were (partially) retained and adjusted downwards, offsetting savings would be limited and many of basic income's expected advantages (in terms of simplicity and income security) would fail to materialise; and
- If all benefits were removed, the policy would be inadequate to cover the lost benefits, resulting in poor distributional outcomes *unless* paid a very high level (in which case, it would be unaffordable).

Comparing alternative basic income schemes

Martinelli and O'Neill (2019) examine the fiscal and distributional effects of basic income schemes with a range of compensating adjustments to existing benefits across the EU28. The research aimed to deepen understanding of the policy trade-offs beyond the UK context, and understand how the associated political challenges and opportunities vary across structurally diverse welfare states.

9. Some advocates point out that basic income does not necessarily require payroll tax increases. Possible alternatives include dividends from state-owned utilities such as the Alaska Permanent Fund (Widerquist and Howard, 2012); more effective taxation of corporate 'rents' (Standing, 2017); and neo-Keynesian approach to money creation (Crocker, 2017). Even if funded through unconventional means such as these could feasibly fund a significant basic income payment – which according to Van Parijs and Vanderborght (2017) is doubtful – this might have superior distributional implications but the fiscal resources would still be subject to opportunity costs (since the revenue could be generated and used for other purposes).

10. These effects clearly relate to political dynamics. When the IPR surveyed 1,111 of the UK population regarding their views on basic income in 2017, net support dropped substantially when it was specified that schemes would be funded through tax rises or benefit cuts (Ipsos Mori, 2017).

Ordered from minimal to maximal level of changes to other benefits, the 'modes of implementation' examined are as follows:

- Mol1.** No adjustment to any benefits.
- Mol2.** Adjustment of means-tested benefits; retention of other benefits and pensions intact.
- Mol3.** Adjustment of all benefits and pensions.
- Mol4.** Elimination of means-tested benefits; adjustment of other benefits and pensions.
- Mol5.** Elimination of all benefits and pensions.

The study simulated revenue neutrality by imposing a flat tax on all intermediate (pre-basic income) disposable income (i.e. after adjustments to existing benefits and pensions), in order to capture distributional effects more holistically in a manner that also permits cross-national comparison. See Martinelli and O'Neill (2019) for full discussion of how the schemes (and the revenue-neutral tax) were modelled using EUROMOD.

In the following, analysis is extended to include a range of payment levels. These are expressed as percentages of national (relative) poverty lines (based on a single person living alone). Payments levels are as follows:

- PL1.** 75% for adults, 30% for children.
- PL2.** 50% for adults, 20% for children.
- PL3.** 25% for adults, 10% for children.

The findings show that there is a direct trade-off with respect to the fiscal and distributional effects of alternative modes of implementation, and a similar trade-off apparent with respect to the level of payment. The net cost as a percentage of original market income, percentage reduction in existing benefit expenditure, percentage change in the relative poverty rate, and percentage change in the Gini coefficient are shown in appendices 1–4 respectively, by combinations of implementation mode and payment level.

Holding payment level constant, the more extensive the adjustments to existing benefits, the less favourable are the distributional effects, but the more fiscally feasible the schemes become (and also, the more completely they radically streamline the welfare system). Adjusting means-tested benefits downwards (by a maximum of the basic income payment) means that reforms are relatively progressive compared to adjusting all benefits downwards or eliminating benefits entirely, but they are also rather expensive, as well as implying the full retention of existing systems. Similarly, holding the mode of implementation constant, higher payments imply higher net costs but improved poverty alleviation.

The analysis allows us to identify combinations of implementation mode and payment level that appear relatively feasible.

Across the EU28 as a whole, net costs range from around 54% of aggregate income for a large basic income payment with no offsetting

adjustments (Mo1, PL1), to net *reductions* in benefit expenditure (of for schemes in which a low-level basic income replaces all benefits (Mo15, PL3). Of course, in the latter scheme, there are substantial increases in poverty and inequality rates due to absolute reductions in welfare spending coupled with the basic income's reduced 'target efficiency'. A generous basic income with no offsetting adjustments would almost eliminate poverty with an average reduction of 88%, but would be clearly unaffordable. Both of these extreme visions of basic income are highly unrealistic.

Less extensive adjustments to the benefit system require less generous basic incomes to achieve favourable fiscal and distributional outcomes. Of course, the corollary is that such schemes would not offset a very significant proportion of the basic income's gross cost through benefit reductions. For modes of adjustment in which only means-tested benefits are adjusted downwards (and other benefits and pensions left fully in payment) – Mo12 – fiscal costs are high and offsetting benefit reductions rather marginal. Given that average poverty effects are highly favourable across all payment levels, combining Mo12 with payment level PL3 appears relatively feasible, since it restricts the fiscal burden to an average of 15.4% of original market income. Only around 8% of existing benefit spending can be offset against the gross costs of this scheme.

At such payment levels, modes of adjustment in which all benefits are adjusted downwards (Mo13) would be undesirable from a distributional perspective, with *increases* in poverty rates of around 2% on average – although they would be highly affordable, costing around just 6% of original market income to implement. In this case, it would be necessary to increase the payment level to PL2 to achieve both (fiscal and distributional) criteria simultaneously. At this level of payment, such a scheme would cost an average of 17.3% of original market income, and would enable over half (55%) of benefit spending to be offset against the gross cost of the basic income.

Mo14 is similar to Mo13 in fiscal terms, but clearly inferior in its distributional consequences, since due to the elimination of means-tested benefits, poor household could lose more in existing entitlements than they gain in basic income payments. The only option that avoids significant average increases in poverty levels is the most generous payment level (PL1). This costs around 30% of original market income on average and reduces poverty levels by an average of 18.5%. Against the high fiscal burden, a positive feature is that this scheme permits nearly three-quarters (72.7%) of base benefit expenditure to be clawed back.

For Mo15 (in which all benefits and pensions are eliminated), PL3 actually results in fiscal *savings* compared to the base system. However, such schemes unsurprisingly have highly unfavourable distributional consequences, with poverty rates nearly *doubling* on average. The most feasible option in this regard – although poverty rates still increase by an average of 34.5% – is the most generous payment level (PL1). By offsetting 100% of existing benefit spending, this scheme has a net cost of 22.4% of original market income on average.

These four 'illustrative schemes' can be contrasted in terms of their average effects for different demographics (appendix 5). Schemes with more modest payments and fewer offsetting reductions ensure that fewer poor households (quintile 1) lose out by a significant amount – only around 2% – but at the same time average increases in income are smaller for the same demographic (at around 14% of previous income). In contrast, schemes in which all benefits are eliminated lead to average increases in equivalised disposable income of nearly 50% of previous income, but around 12% lose at least 10% of their previous income.

The picture is similar for households in which at least one member is unemployed or inactive due to sickness or disability. However, for this group, the proportion of households losing out is higher, and average income gains are much smaller, for each scheme. Although households losing out in this way are a minority, under schemes with extensive offsetting benefit reductions (MoI3, MoI4 and MoI5) they are quite common, with over 15% of such households losing at least 10% of their previous income in each case.

Under the same schemes (MoI3, MoI4 and MoI5), pensioner households lose a significant amount of their existing income on average (around 10%, 11% and 20% respectively). Indeed, for these modes of implementation, well over half of pensioner households lose at least 10% of their previous income. In this way, households who may have received generous payments and would stand to lose from their replacement by a basic income include large and politically powerful demographics: pensioners and labour market insiders who stand to lose privileged access to contributory benefits.

Cross-national diversity in fiscal and distributional effects: a demand-capacity paradox

The characteristics of different types of welfare provision – for example, the level and structure of benefits, the contingencies and categories covered by different provisions, and how the system is funded – affect the distribution of gains and losses of reforms across different demographic groups, and thus who are likely to support and oppose them. If benefits are comprehensive and generous, then further distributional improvements will be relatively slim for a given level of expenditure. Furthermore, under modes of implementation that replace some or all existing provisions, benefit-reliant households are more likely to lose income compared to the status quo. Correlations between changes in relative poverty rates and the generosity of minimum income payments (appendix 6), and between changes in relative poverty rates and non-coverage of income support measures (appendix 7), illustrate the manner in which distributional effects vary by these characteristics of welfare provision. The probability that low-income households will lose out significantly from the conversion of existing benefits into a basic income (plus additional tax liabilities) is much higher in countries in which benefits

are effectively targeted towards the poor (appendix 8). Indicators of basic income's distributional effects at the country level correlate with aggregate public support for basic income, suggesting a link between distributional effects and political dynamics.

The structure of the welfare state also determines the potential for savings through offsetting benefit reductions, and the extent to which households might lose out through a combination of withdrawn benefits and increased tax. The larger the aggregate income shortfall¹¹ – whether due to low benefit levels or lack of coverage – the more substantial tax increases will need to be for an equivalent level of basic income. A relative lack of existing welfare provisions means that, for modes of implementation that claw back a proportion of the basic income's gross cost through benefit withdrawal, net costs will be larger compared to countries with comprehensive and generous welfare.

In an abstract sense, there is thus an incongruence between fiscal and distributional feasibility. The aggregate change in net social transfers relates directly to the additional fiscal effort required to implement a basic income. Under the constraint of the revenue neutrality, aggregate net losses must approximately equal aggregate net gains – there cannot be 'winners' without some households becoming poorer – and thus, it is whether the requisite tax rises are 'affordable' for the households burdened with higher liabilities that determines whether a basic income scheme is fiscally feasible.

Appendix 9 shows the fiscal and distributional trade-offs involved in each illustrative scheme, with countries grouped into 'welfare regimes'. As shown, there is a general relationship within each scheme: countries either exhibit relatively favourable distributional implications or relatively favourable fiscal outcomes. In general, the members of the Eastern and Southern regimes (indicated by the red and green observations) occupy positions to the upper left of each panel of the figure. This suggests that broadly speaking, basic income would have favourable distributional consequences but would be relatively unaffordable. The more established welfare states – typified by the Conservative, Liberal and Social Democratic regimes – are more prevalent towards the bottom right of each panel. Countries with patchy and highly dualistic benefit structures may face more favourable trade-offs in principle, since they can (in principle) offset a large proportion of net fiscal cost by converting generous benefits and pensions to a flat rate basic income – especially for MoI5 – without the corresponding large increases in poverty that arise in other contexts. This suggests a possible 'window of opportunity' for basic income, although in these instances, losses among pensioner households are clearly unacceptably high (as shown in appendix 10) and poverty levels still increase. There are substantial political barriers to reforming earnings-related, contributory benefits and pensions, as beneficiaries would strongly resist any erosion of

11. That is, the number of households experiencing an income shortfall compared to the relevant poverty line, multiplied by the average size of the shortfall.

their entitlements. It is striking that pensioners face substantial losses under MoI3 and MoI4 as well as MoI5 in many countries.

Building on Parolin and Siöland (2019), these considerations suggest an inconvenient political ‘demand-capacity’ paradox: that those countries with the most to gain (large number of potential beneficiaries and implicitly, the highest latent levels of support) typically face the greatest challenges in ‘supplying’ basic income. This connects to wider literatures on the political economy of welfare reform: on the roles of existing institutions and fiscal capacities in potentiating expansionary reforms such as basic income. Recent contributions to the literature (e.g. Manow et al., 2019) focus on the interactions between these institutional and structural factors on the one hand and political parties and electoral systems on the other; understanding the nature of these interactions is crucial to assessing basic income’s political feasibility. According to the welfare regime approach, existing institutional configurations delimit the prospects of radical reform via a logic of path dependence. In this view, higher levels of spending, relatively permissive behavioural conditions, and normative acceptance of universal citizenship entitlements – features that are generally lacking in the less-developed Eastern and Southern welfare regimes – indicate greater capacity to implement reforms such as basic income (Parolin and Siöland, 2019: 22). Relatively dualistic regimes are likely to see especially strong opposition from trades unions and labour market insiders, who anyway appear rather sceptical (Van Parijs and Vanderborght, 2017). Besides those with substantial contributions opposing the erosion of their privileged entitlements, there may also be supply-side constraints, due to the funding mechanisms and administrative management of corporatist social insurance schemes, which may grant actual or de facto veto power to ‘social partners’ (Noguera, 2001). State fiscal capacities are a function of economic resources (GDP per capita) as well as factors relating to revenue systems (for which revenue as a proportion of GDP, and income tax as a proportion of total revenue, serve as important proxies) (Berry and Fording, 1997; Rogers and Weller, 2014). Again, the countries with high demand tend to have lower levels of income, less developed tax systems, and greater reliance on social insurance contributions and non-payroll taxes compared to income tax.

To the extent that technological change looks set to shape labour market outcomes in the future, it seems likely to exacerbate this apparent demand-capacity paradox. Countries that stand to gain most in distributional terms from basic income’s implementation tend to face a more pronounced threat of automation, as shown in appendix 11. This could increase demand from potential net beneficiaries, while placing greater strain on fiscal capacities, if the effect of automation is to displace jobs to other (more technologically advanced) countries and regions and to increase concentrations of income and wealth.¹²

12. Countries with relatively low automation risk have already engaged in structural transformation (‘de-routinisation’) in which the prevalence of advanced sectors and workplace ICT penetration are endogenous factors (De La Rica and Gortazar, 2016; Górká et al., 2017).

6

Conclusion

This concluding section synthesises the preceding arguments, aiming to draw out the broader implications of the analysis with respect to political feasibility, and reconnect with the main research questions.

1. Is basic income a feasible solution to forthcoming dynamics of labour market change?
2. How do automation and associated labour market risks affect public opinions towards basic income, and the potential for constituencies of support to coalesce around the idea?
3. Is basic income affordable, and how do its distributional implications compare with pre-existing configurations of the welfare state?

As discussed in section 2, future trajectories of labour market change – and the roles of different aspects of technological change (automation, robotisation, digitalisation) therein – are highly uncertain. In this context, it is not clear how the case for a basic income will evolve. Apocalyptic scenarios of mass technological unemployment appear to offer the strongest justification. A new institutional framework would be required to cope with demand deficiency, and extreme inequality between capital and labour, that would arise in the presence of exponential growth in the capabilities of robots and AI to replace human labour. Basic income (or something like it) would arguably be an essential part of such a framework, if living standards and basic levels of equality were to be maintained. However, such scenarios are very distant and not certain to transpire; although technological advancement is seemingly relentless, human capacities to reap productivity gains and develop ‘comparative advantages’ in new tasks and activities are also constantly improving. People may continue to favour human labour to carry out certain (interpersonal and creative) tasks, and there may be legal and institutional barriers to the complete replacement of human labour.

More immediately probable scenarios – job polarisation, occupational disruption, and frictional unemployment – also provide strong arguments for basic income. Evidence regarding public attitudes towards basic income suggests that ongoing labour market change will continue to enhance basic income’s political prospects. Risk of automation *per se* does not strongly predict basic income preferences, but precarious status does. If increased risk translates to widespread labour market dysfunction, support will likely increase, compared to circumstances in which disruption is merely predicted to occur. ‘High-skilled outsiders’ appear to be an important growing constituency of support. If labour market disruption spreads to relatively skilled jobs, such that large number of graduates face permanently uncertain futures, basic income may continue to attract further support.

Public support for basic income may be an important indicator of political feasibility, but it also has limitations. Asking respondents for their position on abstract welfare preferences is limiting because we do not know the strength of their convictions – if they would be

willing to expend political capital or not – or if they are fully aware of the implications and trade-offs involved with their choice. In the case of basic income, of which respondents lack concrete examples, we would expect high level of ‘non-attitudes’ in survey responses. Awareness of trade-offs – specifically, the likely implications for tax rates and cuts to other welfare provisions – inevitably reduces support (Ipsos Mori, 2017).

In any case, considering that over half the population are supportive of basic income in principle, political supply lags behind demand (Chrisp and Martinelli, 2019). It appears that political parties – or those which are serious contenders to take power, at least – take issues of implementation and affordability even more seriously than do the general public in decisions regarding concrete proposals for welfare reform. Here, the trade-offs analysed in section 5 come to the fore.

Ultimately, feasibility depends upon the priority afforded to different goals: the levels of expenditure – and the associated tax burdens – deemed acceptable to attain given improvements in rates of poverty and inequality. Feasibility also depends upon the level and structure of existing provisions, how effectively they tackle poverty and reduce inequality, and the extent to which their adjustment or elimination translates into household losses for specific groups, such as low-income households, pensioners, and unemployed and disabled people. In the context of ongoing labour market change, and if the labour share of value is subject to long-term decline, it is difficult to see how countries that undergo the most profound and widespread risks will be able to afford a basic income, even as they tend to have the highest levels of support for one. Indeed, the uneven nature of technological change suggests that capacities to raise revenue may be diminished in precisely the countries and regions in which the need to adjust to new forms of labour market dysfunction will be most profound.

Generous basic incomes require rather large tax increases and/or cuts to existing expenditure. In either case, powerful constituencies would oppose reforms. This is not to suggest that basic income is not feasible in any of these contexts. A modest, partial basic income is the most realistic option, perhaps as a stepping stone to a more generous full basic income, as most progressive advocates accept (Van Parijs, 2018). Given that basic income is motivated in part by a desire to drastically streamline the benefits system, such schemes may exhibit relatively favourable combined fiscal and distributional outcomes but fall short of achieving some of basic income’s implicit goals and would hardly ‘solve’ profound labour market dysfunction or even very drastically reduce poverty and inequality.

Despite these inevitable concessions, such schemes would still require politically difficult tax rises. Furthermore, if the issue is adjustment to new labour market conditions rather than a ‘post-work future’, it is not clear that basic income – or any form of compensatory welfare provision – would be the most appropriate solution. Other policies could be more politically viable given the large fiscal burdens

that basic income entails. These include policies associated with the 'social investment' agenda, such as lifelong skills development policies, and policies aimed at generating high quality jobs. More generally, inequality between labour and capital would need to be tackled through a combination of measures aimed at the root causes: strengthening labour market institutions; regulating and taxing corporations more effectively; and democratising ownership of capital more generally.

Such efforts are not necessarily opposed to basic income, and indeed would arguably be more effective in combination with the latter. As most progressive advocates accept, basic income is not a 'silver bullet' (Haagh, 2019). It would still arguably be necessary to address labour market dysfunction and growing inequality in other ways even were a basic income to be established, and to retain much of the apparatus of existing welfare provisions. Advocates should continue to align themselves with broader progressive policy goals and counter narratives that basic income is a replacement for a comprehensive welfare state, strong labour market institutions, capacitating social services, and broader efforts to redistribute income and wealth. If public demand continues to grow, and advocates can coalesce behind modest and realistic proposals, then basic income could well be part of a broader package of measures to address forthcoming dynamics of labour market change.

References

- Acemoglu, D. (2003). "Labor and capital augmenting technical change." *Journal of the European Economic Association*, 1(1): 1–37.
- Acemoglu, D., and Restrepo, P. (2018). "The Race between Man and Machine: Implications of Technology for Growth, Factor Shares, and Employment." *American Economic Review*, 108(6), 1488–1542.
- Achterberg, P., Van Der Veen, R., and Raven, J. (2014). "The ideological roots of the support for welfare state reform: Support for distributive and commodifying reform in The Netherlands." *International Journal of Social Welfare*, 23(2), 215–226.
- Adriaans, J., Liebig, S., and Schupp, J. (2019). "In Germany, Younger, Better Educated Persons, and Lower Income Groups Are More Likely to Be in Favor of Unconditional Basic Income." *DIW Weekly Report (DIW Berlin, German Institute for Economic Research)*, 9(15): 127–134.
- Alesina, A., and Giuliano, P. (2009). "Preferences for Redistribution." *NBER Working Paper Series*, no. 14825. Cambridge, MA: NBER.
- Alexander, S. (2018). "Technological Unemployment: Much More Than You Wanted To Know." *Slate Star Codex blog*. <http://slatestarcodex.com/2018/02/19/technological-unemployment-much-more-than-you-wanted-to-know/>.
- Andersson, J. (2010). "Basic income from an ecological perspective." *Basic Income Studies*, 4(2): 1–8.
- Arntz, M., Gregory, T. and Zierahn, U. (2016), "The Risk of Automation for Jobs in OECD Countries: A Comparative Analysis", *OECD Social, Employment and Migration Working Papers no. 189*, OECD Publishing: Paris. <http://dx.doi.org/10.1787/5j1z9h56dvq7-en> [accessed 1/6/2019].
- Autor, D. (2015). "Why Are There Still So Many Jobs? The History and Future of Workplace Automation."
- Autor, D., and Dorn, D. (2013). "The growth of low-skill service jobs and the polarization of the US labor market." *American Economic Review*, 103(5), 1553–97.
- Autor, D., and Salomons, A. (2018). "Is automation labor-displacing? Productivity growth, employment, and the labor share." *Brooking Papers in Economic Activity Conference Drafts*. March 2018.
- Autor, D., Dorn, D. and Hanson, G. (2015). "Untangling trade and technology: Evidence from local labour markets." *The Economic Journal*, 125(584), 621–646.
- Autor, D., Dorn, D., Katz, L. F., Patterson, C., and Van Reenen, J. (2017). "The fall of the labor share and the rise of superstar firms." *NBER Working Papers no. 23396*. National Bureau of Economic Research.
- Beramendi, P., Häusermann, S., Kitschelt, H., and Kriesi, H. (eds.) (2015). *The Politics of Advanced Capitalism*. Cambridge University Press.

- Berry, W., and Fording, R. (1997). "Measuring state tax capacity and effort." *Social Science Quarterly*, 78(1), 158–166.
- Birnbaum, S. (2012). *Basic Income Reconsidered: Social Justice, Liberalism, and the Demands of Equality*. Palgrave Macmillan.
- Blekesaune, M., and Quadagno, J. (2003). "Public Attitudes toward Welfare State Policies: A Comparative Analysis of 24 Nations." *European Sociological Review*, 19(5): 415–427.
- Bregman, R. (2017). *Utopia for Realists*. London: Bloomsbury.
- Brynjolfsson, E., & McAfee, A. (2014). *The second machine age: Work, progress, and prosperity in a time of brilliant technologies*. WW Norton & Company.
- Busemeyer, M., Kemmerling, A., Marx, P., and Van Kersbergen, K. (2018). "Digitalization, Automation and the Welfare State". Background paper for *Digitalization, Automation and the Welfare State* workshop, Bremen, January 2019.
- Caputo, R. (ed.) (2012). *Basic Income Guarantee and Politics: International Experiences and Perspectives on the Viability of Income Guarantee*. Palgrave Macmillan.
- Checchi, D., and Filippin, A. (2015). "An Experimental Study of the POUM Hypothesis", in Cowell, F. (ed.) *Inequality, Welfare and Income Distribution: Experimental Approaches*. Published online: [https://doi.org/10.1016/S1049-2585\(04\)11006-5](https://doi.org/10.1016/S1049-2585(04)11006-5) [accessed 1/6/2019].
- Chrisp, J. and Martinelli, L. (2018). "The robots are coming! Can the threat of automation drive public support for basic income?" *ESPAnet Conference*, Vilnius, September 2018.
- Chrisp, J. and Martinelli, L. (2019). "Neither Left nor Right." in Torry (ed.) *The Palgrave International Handbook of Basic Income* (in press).
- Coote, A., and Yazici, E. (2019). *Universal Basic Income: A Union Perspective*. London: New Economics Foundation.
- Cortes, G., Jaimovich, N., and Siu, H. (2017). "Disappearing routine jobs: Who, how, and why?" *Journal of Monetary Economics*, 91: 69–87.
- Crocker, G. (2017). "The Affordability of Basic Income: A radical heterodox economics view." *IPR blog*. <http://blogs.bath.ac.uk/iprblog/2017/10/10/the-affordability-of-basic-income-a-radical-heterodox-economics-view/> [accessed 1/6/2019].
- Cusack, T., Iversen, T. and Rehm, P. (2006). "Risks at work: The demand and supply sides of government redistribution." *Oxford Review of Economic Policy*, 22(3): 365–389.
- Dallinger, U. (2010). "Public support for redistribution: what explains cross-national differences?" *Journal of European Social Policy*, 20(4), 333–349.
- Dao, M., Das, M., Koczan, Z., and Lian, W. (2017). "Why is Labor Receiving a Smaller Share of Global Income? Theory and Empirical Evidence." IMF Working Paper.
- De La Rica, S. and Gortazar, L. (2016). *Differences in Job De-Routinization in OECD Countries: Evidence from PIAAC*. IZA Discussion Paper no. 9736. www.iza.org/publications/dp/9736/differences-in-job-de-routinization-in-oecd-countries-evidence-from-piaac [accessed 1/6/2019].

- De Wispelaere, J. and Stirton, L. (2013). "The Politics of Unconditional Basic Income: Bringing Bureaucracy Back In." *Political Studies*, 61(4): 915–932.
- Degryse, C. (2016). Digitalisation of the Economy and its Impact on Labour Markets. *ETUI Research Paper, Working Paper no. 2016/02*.
- Department for Work and Pensions (DWP) (2016). *Family Resources Survey, 2014-2015*. National Centre for Social Research, Office for National Statistics, Social and Vital Statistics Division. UK Data Service. SN: 8013, <http://doi.org/10.5255/UKDA-SN-8013-1> [accessed 1/6/2019].
- Dinerstein, A. and Pitts, F. (2018). "From post-work to post-capitalism? Discussing the basic income and struggles for alternative forms of social reproduction." *Journal of Labor and Society*, 21(4): 471–491.
- European Commission (2016). *The coverage rate of income support measures in the EU: Measurement and challenges*. European Commission, Directorate-General for Employment, Social Affairs and Inclusion, Working Paper 2/2016.
- European Parliament (2017). *Minimum Income Policies in EU Member States*. Directorate General for Internal Policies. Policy Department A: Economic and Scientific Policy. Document IP/A/EMPL/2016-22, April 2017.
- European Social Survey (ESS) (2018). Wave 8, edition 2.0, published May 2018. www.europeansocialsurvey.org/data/download.html?r=8 [accessed 1/6/2019].
- Eurostat (2018). *EU Statistics on Income and Living Conditions, 2014–15*.
- Freedman, D. (2016). "Basic Income: A Sellout of the American Dream." MIT Technology Review, June 13th 2016. www.technologyreview.com/s/601499/basic-income-a-sellout-of-the-american-dream/ [accessed 1/6/2019].
- Freeman, C. (2004). "Income inequality in changing techno-economic paradigms." in Reinert, E. (ed.) *Globalization, Economic Development and Inequality: An Alternative Perspective*.
- Freeman, C., and Louçã, F. (2001). *As Time Goes by: From the Industrial Revolutions to the Information Revolution*. Oxford: Oxford University Press.
- Frey, C., and Osborne, M. (2013). *The Future of Employment: How Susceptible are Jobs to Computerization?* University of Oxford.
- Frey, C., Berger, T., and Chen, C. (2018). "Political machinery: did robots swing the 2016 US presidential election?" *Oxford Review of Economic Policy*, 34(3): 418–442.
- Gamel, C., Balsan, D., and Vero, J. (2006). "The impact of basic income on the propensity to work: Theoretical issues and micro-econometric results." *The Journal of Socio-Economics*, 35(3): 476–497.
- Gelissen, J. (2000). "Popular support for institutionalised solidarity: a comparison between European welfare states." *International Journal of Social Welfare*, 9(4): 285–300.
- Gingrich, J., and Häusermann, S. (2015). "The decline of the working-class vote, the reconfiguration of the welfare support coalition and consequences for the welfare state." *Journal of European Social Policy*, 25(1), 50–75.

- Goodin, R. (1992). "Towards a Minimally Presumptuous Social Welfare Policy" in Van Parijs, P. (ed.) *Arguing for Basic Income: Ethical Foundations for a Radical Reform*.
- Goos, M., and Manning, A. (2007). "Lousy and lovely jobs: The rising polarization of work in Britain." *The review of economics and statistics*, 89(1): 118–133.
- Goos, M., Manning, A., and Salomons, A. (2014). "Explaining job polarization: Routine-biased technological change and offshoring." *American Economic Review*, 104(8): 2509–26.
- Górka, S., Hardy, W., Keister, R., and Lewandowski, P. (2017). "Tasks and skills in European labour markets." *Background paper for the World Bank report: Growing united: Upgrading Europe's convergence machine*. <https://ibs.org.pl/en/publications/tasks-and-skills-in-european-labour-markets-background-paper-for-the-world-bank-report-growing-united-upgrading-europes-convergence-machine/> [accessed 1/6/2019].
- Gregg, P. and Gardiner, L. (2015). *A steady job? The UK's record on labour market security and stability since the millennium*. London, Resolution Foundation.
- Greve, B. (2017). *Technology and the future of work: The impact on labour markets and welfare states*. Cheltenham: Edward Elgar Publishing.
- Groot, L. and Van Der Veen, R. (2000). "How Attractive is a Basic Income for European Welfare States?" in Van Der Veen and Groot (eds.)
- Gutiérrez, G., and Piton, S. (2019). *Revisiting the Global Decline of the (Non-Housing) Labor Share*. http://germangutierrezg.com/GutierrezPiton_LaborShare_2019.pdf [accessed 1/6/2019].
- Haagh, L. (2019). *The Case for Universal Basic Income*. Cambridge: Polity Press.
- Häusermann, S., and Kriesi, H. (2015). "What do voters want? Dimensions and configurations in individual-level preferences and party choice" in Beramendi et al. (eds.) *The Politics of Advanced Capitalism*.
- Häusermann, S., Kurer, T., and Schwander, H. (2015). "High-skilled outsiders? Labor market vulnerability, education and welfare state preferences." *Socio-Economic Review*, 13(2): 235–258.
- Häusermann, S., Picot, G. and Geering, D. (2013). 'Rethinking party politics and the welfare state—Recent advances in the literature.' *British Journal of Political Science*, 43(1): 221–240.
- Hemerijck, A. (ed.) (2017). *The Uses of Social Investment*. Oxford: Oxford University Press.
- Hope, D., and Martelli, A. (2019). "The Transition to the Knowledge Economy, Labor Market Institutions, and Income Inequality in Advanced Democracies." *World Politics*, 71(2): 236–288.
- Im, Z. J., Mayer, N., Palier, B., and Rovny, J. (2019). "The 'losers of automation': A reservoir of votes for the radical right?" *Research & Politics*, 6(1). <https://doi.org/10.1177/2053168018822395>.
- Inglehart, R., and Norris, P. (2016). "Trump, Brexit, and the Rise of Populism: Economic Have-Nots and Cultural Backlash." *HKS Working Paper no. RWP16-026*. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2818659 [accessed 1/6/2019].

- Institute for Public Policy Research (IPPR) (2017). *Managing Automation Employment, inequality and ethics in the digital age*. IPPR Commission on Economic Justice Discussion Paper. www.ippr.org/files/2018-01/cej-managing-automation-december2017.pdf [accessed 1/6/2019].
- Institute for Public Policy Research (IPPR) (2019). *The future is ours: Women, automation and equality in the digital age*. IPPR Centre for Economic Justice. www.ippr.org/files/2019-07/the-future-is-ours-women-automation-equality-july19.pdf [accessed 1/6/2019].
- Ipsos Mori (2017). *Polling into Public Attitudes to Basic Income*. Questionnaire written and developed by Joe Chrisp, and commissioned by the Institute for Policy Research (IPR). www.ipsos.com/ipsos-mori/en-uk/half-uk-adults-would-support-universal-basic-income-principle [accessed 1/6/2019].
- Jaumotte, F., and Osario Buitron, C. (2015). "Inequality and Labor Market Institutions." *IMF Staff Discussion Note SDN 15/15*.
- Karabarbounis, L., and Neiman, B. (2013). "The global decline of the labor share." *The Quarterly journal of economics*, 129(1), 61–103.
- Keynes, J. (1930). *Essays in Persuasion*. London: Palgrave Macmillan [2010 reprint].
- Kitschelt, H. and Rehm, P. (2014). "Occupations as a site of political preference formation." *Comparative Political Studies*, 47(12): 1670-1706.
- Kurer, T. (2017). "The declining middle: Political reactions to occupational change." Paper presented at *ECPR General Conference*, Oslo, Norway, September 2017. https://thomaskurer.files.wordpress.com/2018/04/decliningmiddle_kurer.pdf [accessed 1/6/2019].
- Kurer, T., and Palier, B. (2019). "Shrinking and shouting: the political revolt of the declining middle in times of employment polarization." *Research & Politics*, 6(1). <https://doi.org/10.1177/2053168019831164> [accessed 1/6/2019].
- Kurzweil, R. (1999). "Spiritual machines: the merging of man and machine." *The Futurist*, 33(9): 16. Lall, 1992
- Lall, S. (1992). "Technological capabilities and industrialization." *World development* 20(2): 165–186.
- Larsen, C. (2008). "The institutional logic of welfare attitudes: How welfare regimes influence public support." *Comparative Political Studies*, 41(2): 145–168.
- Latour, H. (2018). *How Self-Owning Autonomous Machines Can Generate a Basic Income for Mankind*. <http://hildelatour.nl/how-self-owning-autonomous-machines-can-generate-a-basic-income-for-mankind/> [accessed 1/6/2019].
- Lauder, H., Brown, P. and Cheung, S. Y. (2018). "Fractures in the education–economy relationship: The end of the skill bias technological change research programme?" *Oxford Review of Economic Policy*, 34(3): 495–515.
- Lucarelli, S. and Fumagalli, A. (2008). "Basic Income and Productivity in Cognitive Capitalism." *Review of Social Economy*, 66(1): 71–92.
- Lucarelli, S. and Fumagalli, A. (2008). "Basic Income and Productivity in Cognitive Capitalism." *Review of Social Economy*, 66(1): 71–92.

- Manow, P., Palier, B., and Schwander, H. (eds.) (2018). *Welfare Democracies and Party Politics: Explaining Electoral Dynamics in Times of Changing Welfare Capitalism*. Oxford University Press.
- Martinelli, L. (2017). *Assessing the case for a universal basic income in the UK*. Bath: Institute for Policy Research, University of Bath. www.bath.ac.uk/publications/assessing-the-case-for-a-universal-basic-income-in-the-uk/ [accessed 1/6/2019].
- Martinelli, L. (2019). "A basic income trilemma: affordability, adequacy, and the advantages of universal and unconditional welfare." *Journal of Social Policy*, published online June 2019: DOI: <https://doi.org/10.1017/S0047279419000424> [accessed 1/6/2019].
- Martinelli, L., and De Wispelaere, J. (2017). *A New Universalism? Varieties of Basic Income and Welfare State Reform*. ESPAnet Conference, Lisbon, September 2017.
- Martinelli, L., and O'Neill, K. (2019). "A comparison of the fiscal and distributional effects of alternative basic income implementation modes across the EU28." *Euromod Working Paper Series no. 14/19*. www.euromod.ac.uk/sites/default/files/working-papers/em14-19.pdf [accessed 1/8/2019].
- McKay, A. (2001). "Rethinking work and income maintenance policy: Promoting gender equality through a citizens' basic income." *Feminist Economics*, 7(1), 97–118.
- Manyika, J., Lund, S., Chui, M., Bughin, J., Woetzel, J., Batra, P., Ko, R. and Sanghvi, S. (2017). *Jobs lost, jobs gained: Workforce transitions in a time of automation*. McKinsey Global Institute.
- Marx, P. (2014). "Labour market risks and political preferences: The case of temporary employment." *European Journal of Political Research*, 53(1): 136–159.
- Mestrum, F. (2018) "Why basic income can never be a progressive solution – A response to Van Parijs" in Van Parijs (ed.) *Basic Income and the Left: A European Debate*.
- Michell, J. (2014). "Factors generating and transmitting the crisis: Functional distribution of income." *Financialisation, Economy, Society and Sustainable Development (FESSUD) Working Paper no. 41*. Leeds: FESSUD.
- Michell, J. (2015). "Better skills will not save middle-class jobs from automation: Debunking the education versus technology myth." *The Broker*, April 28th 2015. www.thebrokeronline.eu/Articles/Better-skills-will-not-save-middle-class-jobs-from-automation [accessed 1/6/2019].
- Millar, J., & Bennett, F. (2017). Universal Credit: assumptions, contradictions and virtual reality. *Social Policy and Society*, 16(2), 169–182.
- Mućk, J. (2017). "Elasticity of substitution between labor and capital: robust evidence from developed economies." *Narodowy Bank Polski Working Paper no. 271*.
- Naumann, E., Buss, C., and Bähr, J. (2015). How unemployment experience affects support for the welfare state: A real panel approach. *European Sociological Review*, 32(1): 81–92.

- Navarro, V. (2018). "Why the universal basic income is not the best public intervention to reduce poverty or income inequality." in Van Parijs (ed.) *Basic Income and the Left: A European Debate*.
- Nedelkoska, L. and G. Quintini (2018), "Automation, skills use and training." *OECD Social, Employment and Migration Working Papers*, no. 202. Paris: OECD. <http://dx.doi.org/10.1787/2e2f4eea-en> [accessed 1/6/2019].
- Noguera, J. (2001). "Some Prospects for a Basic Income Scheme in Spain." *South European Society and Politics*, 6(3): 83–102.
- OECD (2016). *Automation and Independent Work in a Digital Economy*. Policy Brief on the Future of Work. Paris: OECD.
- Offe, C. (1984). *Contradictions of the Welfare State*. London: Hutchinson.
- Parolin, Z., and Siöland, L. (2019). "Support for a Universal Basic Income: A Demand-Capacity Paradox?" *Herman Deleeck Centre for Social Policy Working Paper no. 19.01*.
- Perez, C. (2004). "Technological revolutions, paradigm shifts and socio-institutional change." in Reinert, E. (ed.) *Globalization, Economic Development and Inequality: An Alternative Perspective*.
- Pfeifer, M. (2009). "Public opinion on state responsibility for minimum income protection: A comparison of 14 European countries." *Acta Sociologica*, 52(2), 117–134.
- Picciotto, S. (2011). *Regulating Global Corporate Capitalism*. Cambridge: Cambridge University Press.
- Piketty, T. (2014). *Capital in the Twenty-First Century*. Harvard University Press.
- Pulkka, V.-V. (2017). "A free lunch with robots – Can a basic income stabilise the digital economy?" *Transfer: European Review of Labour and Research*, 23(3): 295–311.
- Price Waterhouse Coopers (PWC) (2018). Will robots really steal our jobs? An international analysis of the potential long term impact of automation. www.pwc.co.uk/economic-services/assets/international-impact-of-automation-feb-2018.pdf [accessed 1/6/2019].
- Raventós, D., Wark, J., and Casassas, D. (2012). "Kingdom of Spain: Basic Income from Social Movements to Parliament and Back Again" in Caputo, D. (ed.).
- Rehm, P. (2009). "Risks and redistribution: An individual-level analysis." *Comparative political studies*, 42(7): 855–881.
- Rehm, P. (2011). "Social policy by popular demand." *World Politics*, 63(2): 271–299.
- Reinert, E. (ed.) *Globalization, Economic Development and Inequality: An Alternative Perspective*. Cheltenham: Edward Elgar.
- Rogers, M., and Weller, N. (2014). "Income taxation and the validity of state capacity indicators." *Journal of Public Policy*, 34(2), 183–206.
- Rognlie, M. (2016). "Deciphering the fall and rise in the net capital share: accumulation or scarcity?" *Brookings Papers on Economic Activity*, 2015(1): 1–69.
- Rovny, A. and Rovny, J. (2017). "Outsiders at the ballot box: operationalizations and political consequences of the insider-outsider dualism." *Socio-Economic Review*, 15(1): 161–185.

- Sacchi S., Guarascio D., and Vannutelli S. (2019). "Risk of technological unemployment and support for redistributive policies." Forthcoming in Careja, R., Emmenegger, P., and Giger, N. (eds.) *The European Social Model under Pressure*. Springer: Wiesbaden.
- Schumpeter, J. (1939). *Business Cycles*. New York: McGraw-Hill.
- Schwander, H. and Häusermann, S. (2013). "Who is in and who is out? A risk-based conceptualization of insiders and outsiders." *Journal of European Social Policy*, 23(3): 248–269.
- Srnicek, N., and Williams, A. (2015). *Inventing the Future: Postcapitalism and a World Without Work*. London: Verso.
- Standing, G. (2014). *A Precariat Charter: From denizens to citizens*. Bloomsbury Academic.
- Standing, G. (2004). "About time: Basic income security as a right", in Standing (ed.) (2004).
- Standing, G. (2005). "Why basic income is needed for a right to work." *Rutgers Journal of Law & Urban Policy*, 2(1): 91–102.
- Standing, G. (2011). *The precariat: The dangerous new class*. Bloomsbury Academic.
- Standing, G. (2018a). "Basic income pilots: a better option than quantitative easing" in Van Parijs (ed.).
- Standing, G. (2018b). "How to combat inequalities produced by global capitalism" in Van Parijs (ed.).
- Stockhammer (2013). "Why have wage shares fallen? A panel analysis of the determinants of functional income distribution". *Conditions of Work and Employment Series*, no. 35. International Labour Office.
- Susskind, D. (2017). "A model of technological unemployment". *Oxford University Economics Series Working Papers*, no. 819.
- Sutherland, H., and Figari, F. (2013). "EUROMOD: the European Union tax-benefit microsimulation model." *International Journal of Microsimulation*, 6(1), 4–26.
- Svallfors, S. (1997). "Worlds of welfare and attitudes to redistribution: A comparison of eight western nations." *European Sociological Review*, 13(3): 283–304.
- Svallfors, S. (2006). *The moral economy of class: Class and attitudes in comparative perspective*. Stanford University Press.
- Taylor, M., Marsh, G., Nicol, D., and Broadbent, P. (2017). *Good work: the Taylor review of modern working practices*. London: Department for Business, Energy & Industrial Strategy.
- Thewissen, S., and Rueda, D. (2019). "Automation and the welfare state: Technological change as a determinant of redistribution preferences." *Comparative Political Studies*, 52(2): 171–208.
- Torry, M. (2018). *Why we need a citizen's basic income*. Policy Press.
- United Nations Industrial Development Organisation (UNIDO) (2005). *Productivity in Developing Countries: Trends and Policies*. Vienna: UNIDO.
- Valenduc, G. and Vendramin, P. (2016). "Work in the digital economy: sorting the old from the new." *ETUI Research Paper, Working Paper no. 2016.03*.

- Van Der Veen, R. and Groot, L. (2006). "Post-Productivism and Welfare States: A Comparative Analysis." *British Journal of Political Science*, 36(4): 593–618.
- Van Der Veen, R. and Groot, L. (eds.) (2000). *Basic Income on the Agenda: Policy Objectives and Political Chances*. Amsterdam, Amsterdam University Press.
- Van Oorschot, W. (2002). "Targeting welfare: on the functions and dysfunctions of means testing in social policy", in Townsend, P. and Gordon D. (eds.) *World Poverty: New Policies to Defeat an Old Enemy*. Bristol, Policy Press.
- Van Parijs, P., and Vanderborght, Y. (2017). *Basic Income: A Radical Proposal for a Free Society and a Sane Economy*. Cambridge, MA, Harvard University Press.
- Van Parijs, P., Jacquet, L., and Salinas, C. (2000). "Basic Income and its Cognates." in in Van der Veen and Groot (2000). Van Parijs, 1992.
- Van Parijs, P. (2004) "Basic Income: a simple and powerful idea for the twenty-first century." *Politics and Society*, 32(1): 7–39.
- Van Parijs, P. (ed.) (1992). *Arguing for Basic Income: Ethical Foundations for a Radical Reform*. London, Verso.
- Van Parijs, P. (ed.) (2018). *Basic Income and the Left: A European Debate*. Wrocław: Social Europe.
- Vivarelli, M. and Pianta, M. (2000). *The Employment Impact of Innovation: Evidence and Policy*. London: Routledge.
- Vlandas, T. (2019). "The Politics of the Basic Income Guarantee: Analysing Individual Support in Europe". *Basic income studies*, 14(1): 1–17.
- Widerquist, K. and Howard, M. (eds.) (2012). *Alaska's Permanent Fund Dividend: Examining its Suitability as a Model*. New York, Palgrave Macmillan.
- Wiertz, D., and Rodon, T. (2019). "Frozen or malleable? Political ideology in the face of job loss and unemployment." *Socio-Economic Review*, mwz024, <https://doi.org/10.1093/ser/mwz024> [accessed 1/8/2019].
- Winick, E. (2018). "Every study we could find on what automation will do to jobs, in one chart." *MIT Technology Review*, January 25th 2018. www.technologyreview.com/s/610005/every-study-we-could-find-on-what-automation-will-do-to-jobs-in-one-chart/ [accessed 1/6/2019].
- World Bank (2019). *World Development Report 2019: The Changing Nature of Work*. New York: World Bank.
- World Economic Forum (2016). *The Future of Jobs Employment, Skills and Workforce Strategy for the Fourth Industrial Revolution*. www.weforum.org/docs/WEF_Future_of_Jobs.pdf [accessed 1/6/2019].
- Zanini, A. and Fadini, U. (2001). *Lessico Postfordista*. Milan: Feltrinelli. English translation by Arianna Bove. www.generation-online.org/t/postfordistintro.htm [accessed 1/6/2019].

Appendices

Appendix 1: Net cost as a percentage of original market income – by mode of implementation and payment level

Mode of implementation	Payment level			Mean
	PL1	PL2	PL3	
Mol1	53.8	35.9	17.9	35.9
Mol2	50.4	32.7	15.4	32.8
Mol3	30.1	17.3	6.7	18
Mol4	29.5	16.1	4.5	16.7
Mol5	22.4	4.4	-13.5	4.4
Mean	37.2	21.3	6.2	21.6

Source: author's calculations using EUROMOD with Eurostat (2018a) and DWP (2016) data.

Appendix 2: Percentage reduction in existing benefit expenditure – by mode of implementation and payment level

Mode of implementation	Payment level			Mean
	PL1	PL2	PL3	
Mol1	0	0	0	0
Mol2	10.4	9.7	7.7	9.3
Mol3	70.7	55.4	33.5	53.2
Mol4	72.7	59.5	41	57.8
Mol5	100	100	100	100
Mean	50.8	44.9	36.4	44

Source: author's calculations using EUROMOD with Eurostat (2018a) and DWP (2016) data.

Appendix 3: Percentage change in relative poverty rate – by mode of implementation and payment level

Mode of implementation	Payment level			Mean
	PL1	PL2	PL3	
Mol1	-88.8	-68.1	-36.6	-64.5
Mol2	-71.1	-41.6	-12.4	-41.7
Mol3	-26.3	-4.7	2.2	-9.6
Mol4	-18.5	6.7	20.6	2.9
Mol5	34.5	73.3	95.8	67.9
Mean	-34	-6.9	13.9	-9

Source: author's calculations using EUROMOD with Eurostat (2018a) and DWP (2016) data.

Appendix 4: Percentage change in Gini coefficient – by mode of implementation and payment level

Mode of implementation	Payment level			Mean
	PL1	PL2	PL3	
Mol1	-46.8	-31.9	-16.2	-31.6
Mol2	-42.1	-25.9	-10.5	-26.2
Mol3	-24.8	-10.8	-2.2	-12.6
Mol4	-23.5	-7.5	4.7	-8.8
Mol5	-13.1	12.8	35.7	11.8
Mean	-30.1	-12.7	2.3	-13.5

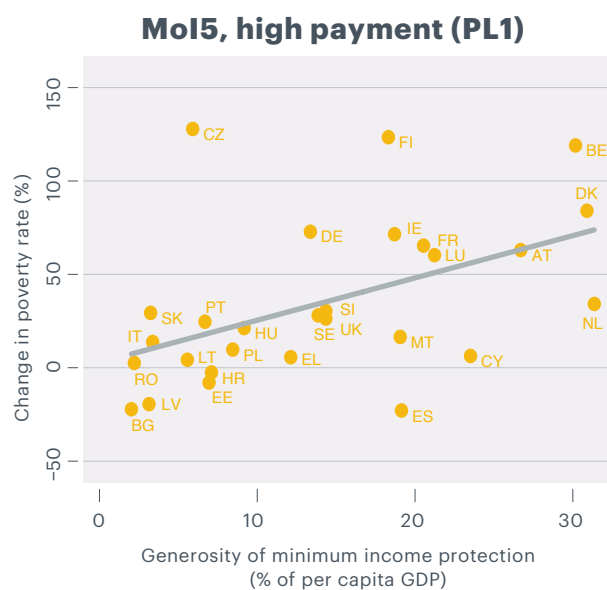
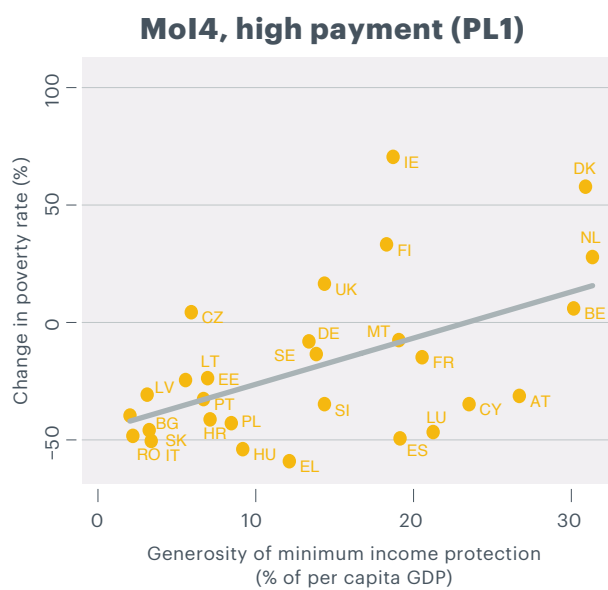
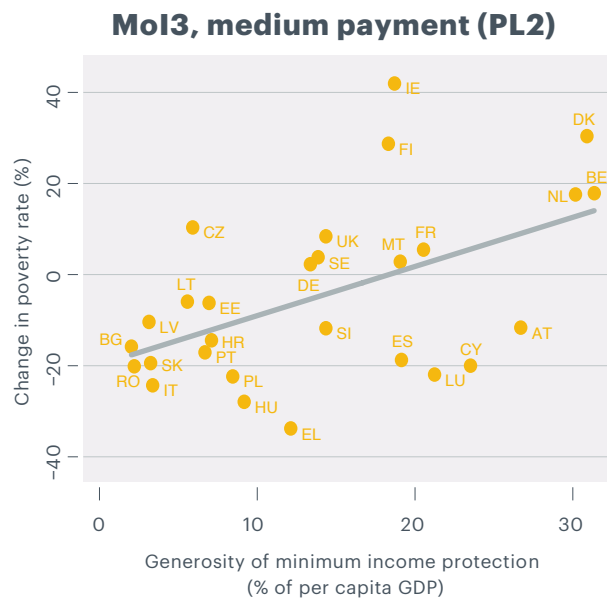
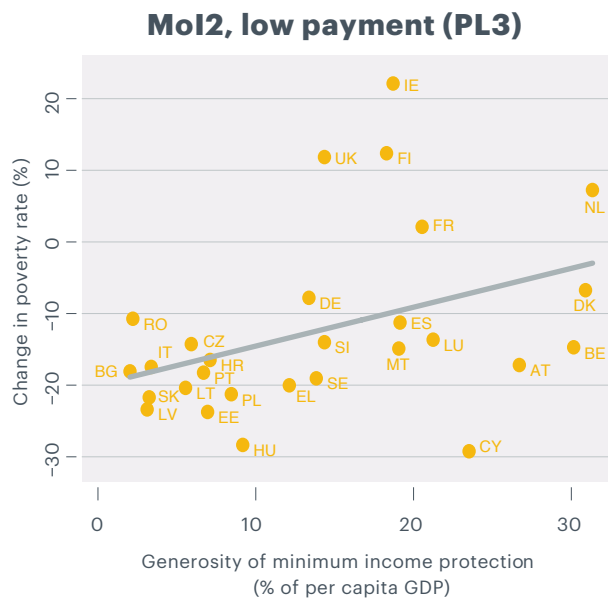
Source: author's calculations using EUROMOD with Eurostat (2018a) and DWP (2016) data.

Appendix 5: Distributional indicators, illustrative schemes

Indicator	Scheme			
	Mol2, PL3	Mol3, PL2	Mol4, PL1	Mol5, PL1
Percentage of quintile 1 losing at least 10% of equivalised disposable income	2.1	3.0	7.2	12.5
Percentage change in average equivalised disposable income, quintile 1	14.3	23.1	47.4	49.1
Percentage of households with unemployed or sick/disabled member losing at least 10% of equivalised disposable income	3.0	15.6	17.8	16.4
Percentage change in average equivalised disposable income, households with unemployed or sick/disabled member	4.3	5.7	13.4	15.9
Percentage of pensioner households losing at least 10% of equivalised disposable income	1.9	52.6	54.4	58.5
Percentage change in average equivalised disposable income, pensioner households	2.8	-9.6	-11.0	-20.5

Source: author's calculations using EUROMOD with Eurostat (2018a) and DWP (2016) data.

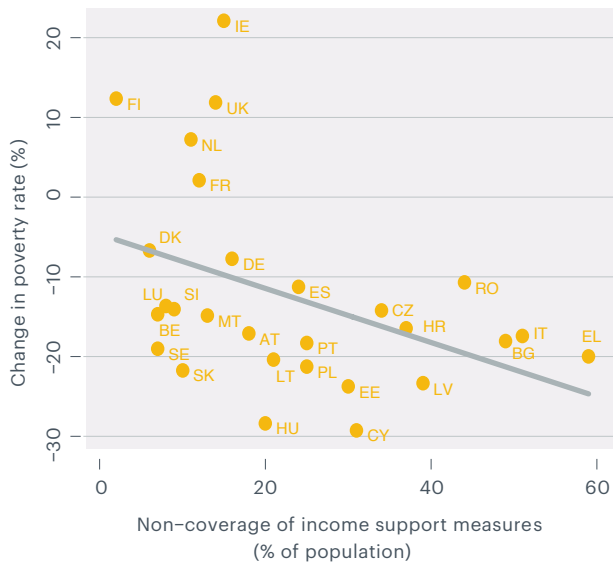
Appendix 6: Percentage change in poverty rate and generosity of minimum income payments, illustrative schemes



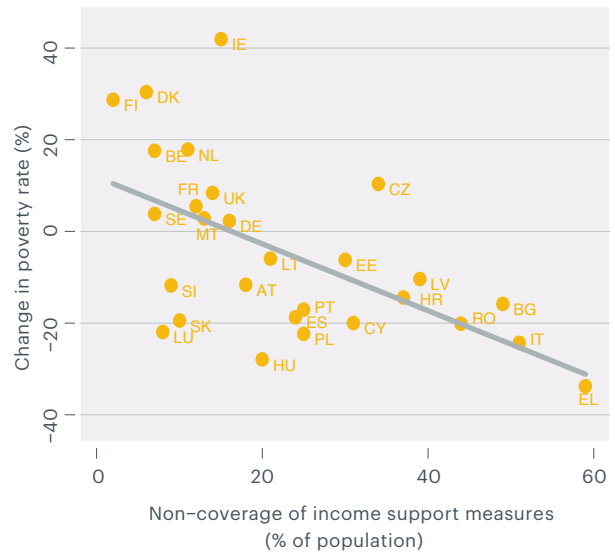
Source: author's calculations using EUROMOD with Eurostat (2018a) and DWP (2016) data. Minimum income is from European Parliament (2017).

Appendix 7: Percentage change in poverty rate and non-coverage of income support measures, illustrative schemes

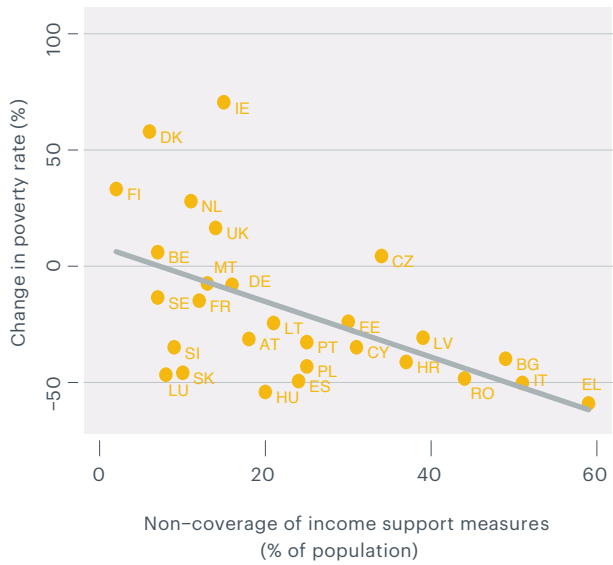
Mol2, low payment (PL3)



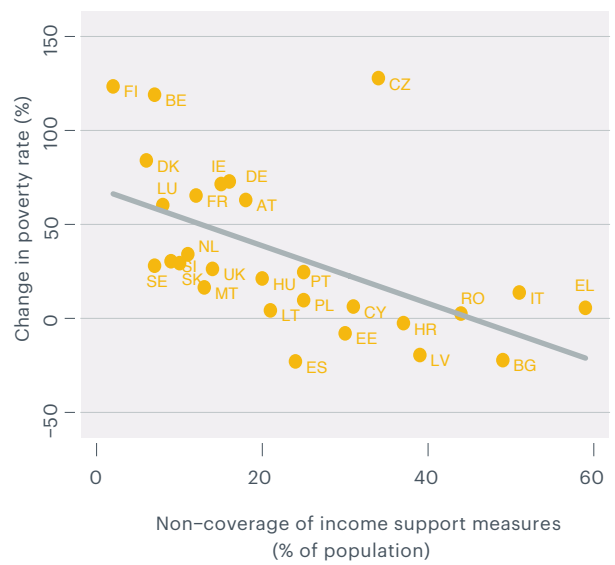
Mol3, medium payment (PL2)



Mol4, high payment (PL1)

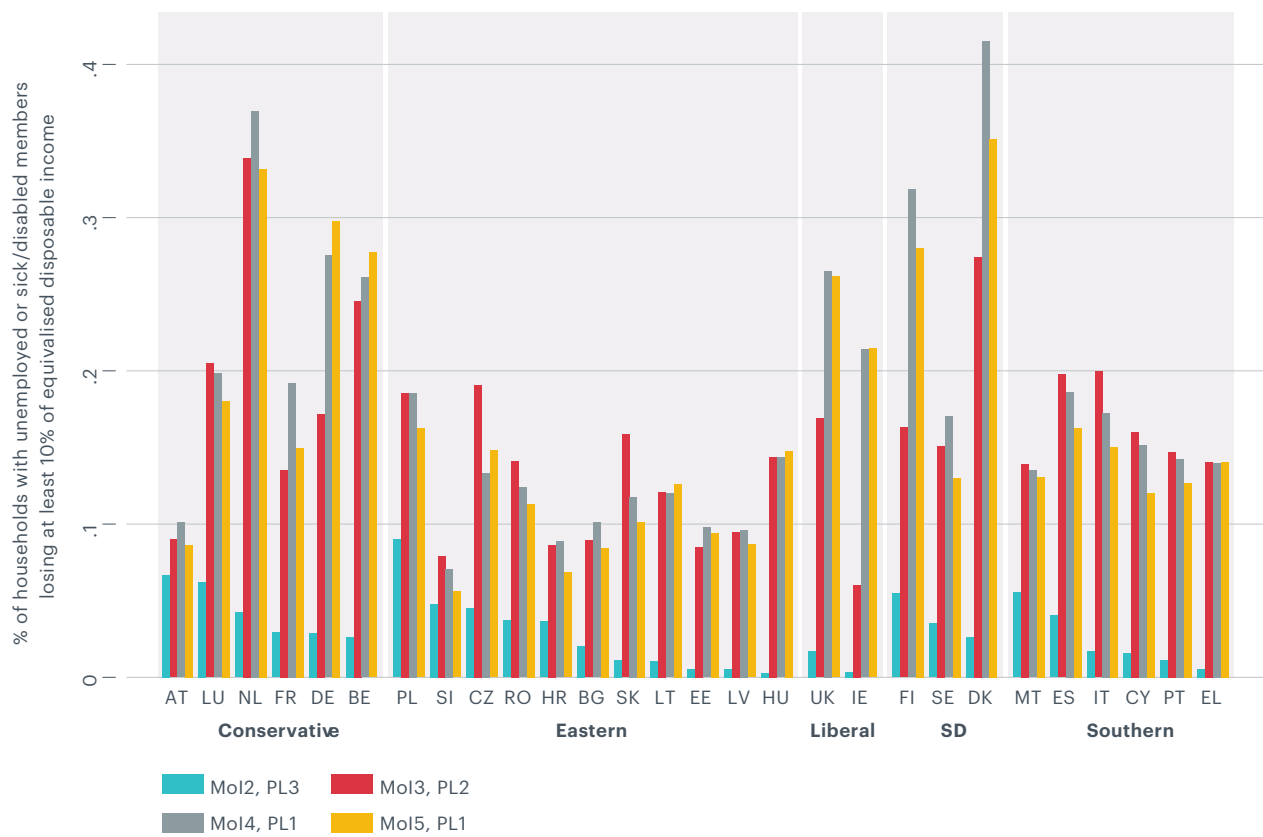


Mol5, high payment (PL1)



Source: author's calculations using EUROMOD with Eurostat (2018a) and DWP (2016) data. Non-coverage is from European Commission (2016).

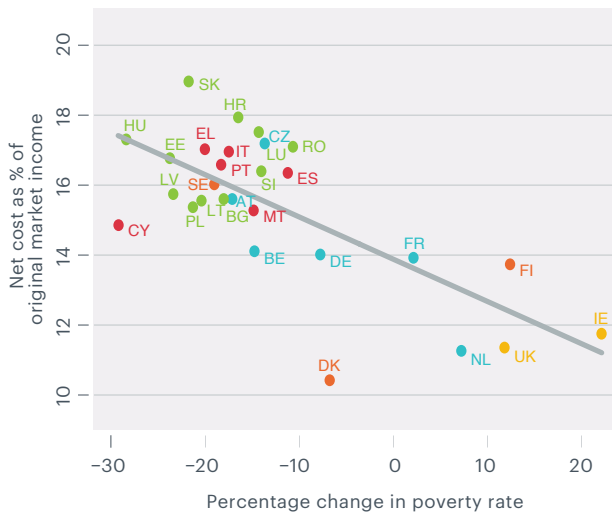
Appendix 8: Proportion of households with unemployed or sick/disabled members losing at least 10% of equivalised disposable income, by country and welfare regime, illustrative schemes



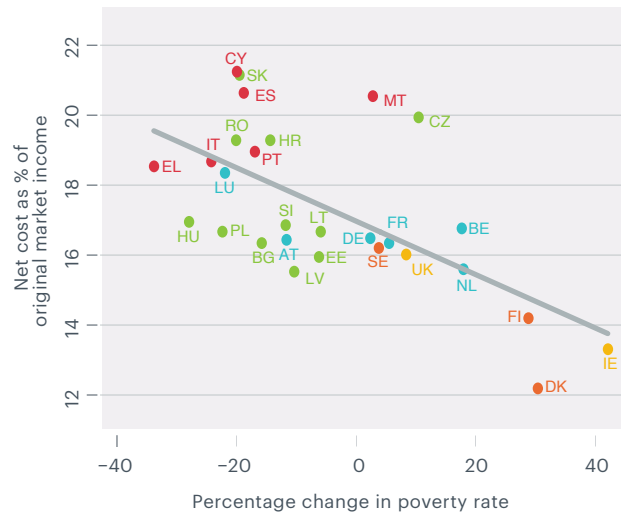
Source: author's calculations using EUROMOD with Eurostat (2018a) and DWP (2016) data. Operationalisation of welfare regimes as in Martinelli and O'Neill (2019).

Appendix 9: Fiscal/distributional trade-offs by welfare regime, illustrative schemes

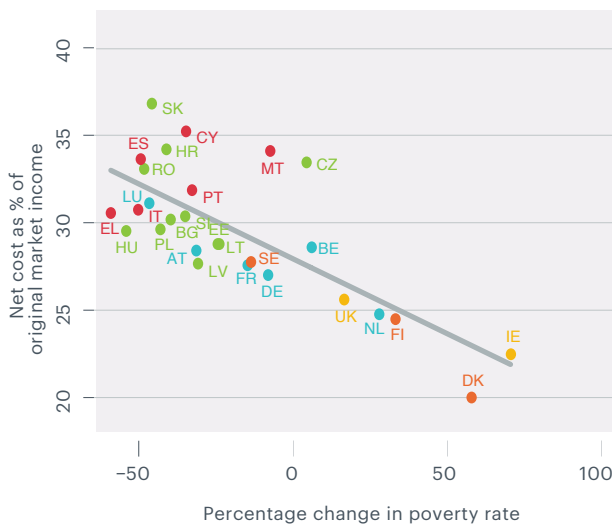
Mol2, low payment (PL3)



Mol3, medium payment (PL2)



Mol4, high payment (PL1)



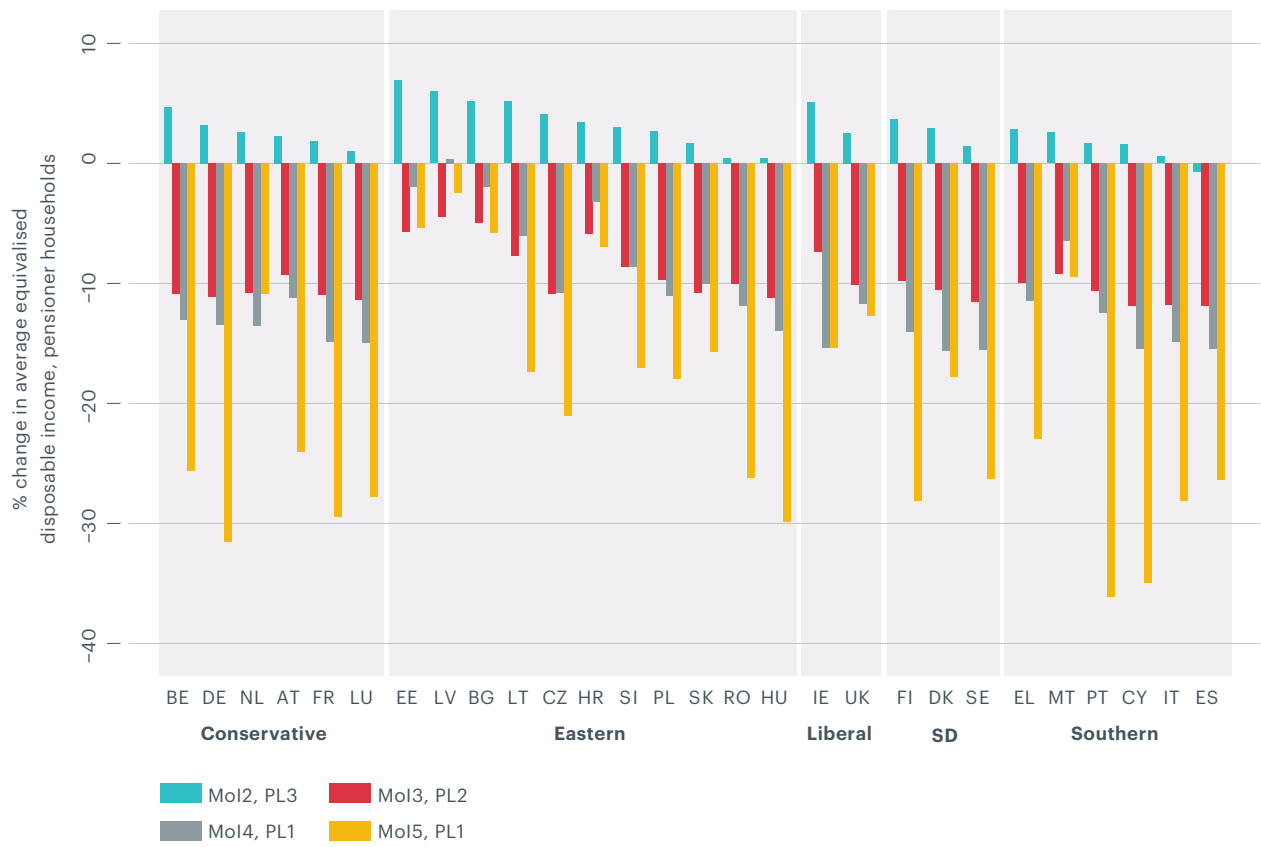
Mol5, high payment (PL1)



- Conservative
- Eastern
- Liberal
- Social democratic
- Southern
- Fitted values

Source: author's calculations using EUROMOD with Eurostat (2018a) and DWP (2016) data. Operationalisation of welfare regimes as in Martinelli and O'Neill (2019).

Appendix 10: Percentage change in average income, pensioner households, by country and welfare regime, illustrative schemes



Source: author's calculations using EUROMOD with Eurostat (2018a) and DWP (2016) data. Operationalisation of welfare regimes as in Martinelli and O'Neill (2019).

Appendix 11: Percentage change in poverty and median 'automatability', illustrative schemes

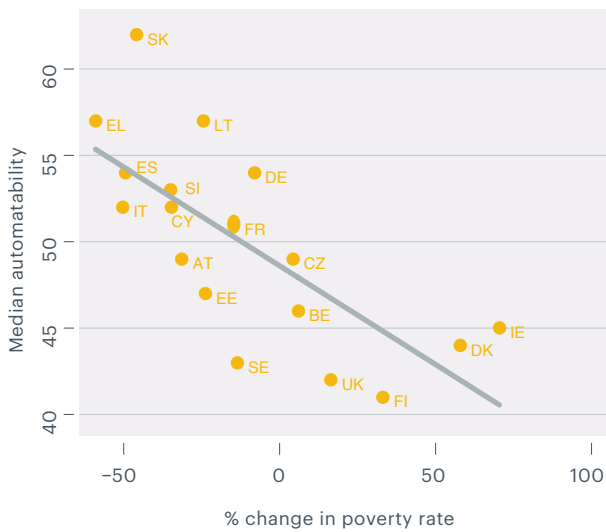
Mol2, low payment (PL3)



Mol3, medium payment (PL2)



Mol4, high payment (PL1)





Mol5, high payment (PL1)




Source: author's calculations using EUROMOD with Eurostat (2018a) and DWP (2016) data. Median automatability from Nedelkoska and Quintini (2018).

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