

DISCUSSION PAPER SERIES

IZA DP No. 13391

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Social Investment and the
Digital Transformation**

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ABSTRACT

Welfare States, Labor Markets, Social Investment and the Digital Transformation

Barely having had the time to digest the economic and social aftershocks of the Great Recession, European welfare states are confronted with the even more disruptive coronavirus pandemic as probably, threatening the life of the more vulnerable, while incurring job losses for many as the consequence of the temporal “freezing of the economy” by lockdown measures. Before the Covid-19 virus struck, the new face of the digital transformation and the rise of the ‘platform’ economy already raised existential questions for future welfare provision. The Great Lockdown - if anything – is bound to accelerate these trends. Greater automation will reinforce working from home to reduce Covid-19 virus transmission risks. At the same time, the Great Lockdown will reinforce inequality, as the poor find it more difficult to work from home, while low-paid workers in essential service in health care, supermarket retail, postal services, security and waste disposal, continue to face contagion risks. And although popular conjectures of ‘jobless growth’ and ‘routine-biased’ job polarization, driven by digitization and artificial intelligence, may still be overblown, intrusive change in the nature of work and employment relations require fundamental rethinking of extant labour market regulation and social protection. Inspired more by adverse family demography than technological change, social investment reform has been the *fil rouge* of welfare recalibration since the turn of the century. Is social investment reform still valid in the new era of ‘disruptive’ technological transformation in aftermath of Coronavirus pandemic that is likely to turn into the worst recession since the second world war? Empirically, this chapter explores how Germany, Italy and the Netherlands, in terms of the strengths and vulnerabilities of their labour market to digitization, together with their respective social investment aptitude, are currently preparing their welfare states for the intensification of technological change in the decade ahead.

JEL Classification: J21, J24, J42

Keywords: digital transition, social investment, technological change, Germany, Netherlands, Italy, COVID-19

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1 Introduction

Throughout history, technological change has been accompanied by both job destruction and employment creation. In hindsight, the net labour market effect of landmark industrial shifts has been positive, however, with important differences across time and space. At the onset of each technological breakthrough, think of the transition from agriculture to industry and from the latter to the service economy, the fear that jobless growth, of technological progress, such as the steam engine, electricity, and automation, would displace workers, featured in the headlines. Although past conjectures of jobless growth have thus far proved unfounded, this time it could be different. Inescapably, digitalization, artificial intelligence and the rise of the platform economy will have profound consequences of quality and diversity of future employment relations, if not on the quantity of such jobs. And given that extant welfare state policies, pension, health and unemployment benefits, have been raised on standard (male-breadwinner) employment relations of the postwar era, the digital platform transformation of work will trigger profound consequences for welfare provision.

The structure of the paper follows four steps. Section 2 takes stock of most recent research on the impact of technological change on employment in European countries. Next, Section 3 discusses how routine-biased job displacement and the proliferation of non-standard platform work put pressure on existing welfare state arrangements. Section 4 discusses the full range of social investment welfare reform, its trial and tribulations, since the turn of the century across Europe. Section 5 explores more in depth how three countries – the Netherlands, Germany and Italy – have pursued social investment welfare reform in the area of human capital ‘stock’ development, labour market regulation to ease the gendered ‘flow’ and intensity of contemporary labour and life-course transitions, and social protection ‘buffers’ to mitigate income volatility. In comparison to the Scandinavian vanguard social investment welfare state, the Netherlands, Germany and Italy, all sharing in a policy legacy of employment based social insurance, have experienced variegated social investment reform trajectories, with the Netherlands jumping on the social investment bandwagon after the Nordic example already in the 1990s, Germany following suit as a latecomer in the early 2000s, and Italy lacking an endogenous social investment reform impetus until very recently. Section 6 concludes

affirmatively on how social investment reform, inadvertently, has prepared the way for more effective and legitimate welfare reform options for more disruptive technological change.

2 The Changing Nature of Jobs in the Age of Digitalisation

European labour markets have always been in constant transformation due to changes in regulation, European and global integration as well as permanent structural change. More recently, however, the digital transformation has started to affect job content, business models and employment dynamics. One of the core features of digitalisation, understood as shifting the technological frontier of automation of job tasks, is a threat to jobs characterised by significant shares of routine tasks (that can be automated) and the responding change in task structures towards more non-routine tasks (interactive, analytical or manual) at either high or low levels of skills. In fact, recent research (Arntz, Gregory and Zierahn, 2016; Nedelkoska and Quintini, 2018; Figure 1) has pointed out that analytically tasks matter more than jobs and that - given the intra-occupational heterogeneity of jobs and tasks actually performed - the expected job displacement risk might be smaller as originally expected by authors such as Frey and Osborne (2013) while job change might be more important.

Moves towards jobs in labor intensive industries characterized by task content that is currently hard to automate imply observable, but also further shifts within and between sectors and occupations (see Figure 2). This tends to put particular pressure on traditional medium-skilled jobs (with above-average routine task shares) so that there is a risk of deeper labor market polarization to the detriment of medium-skilled occupations deeply embedded in social protection and industrial relations systems that form a core pillar of welfare state and labor market arrangements in many European countries. Yet, given cross-national differences in the industrial composition and the job/task structure within industries, countries face quite different levels of estimated risks of substitution and job change (see Figure 1) as well as labor market polarisation in recent decades in terms of growth of both high skill and low skill jobs at the detriment of the medium segment (see Figure 3). Some countries have already moved more

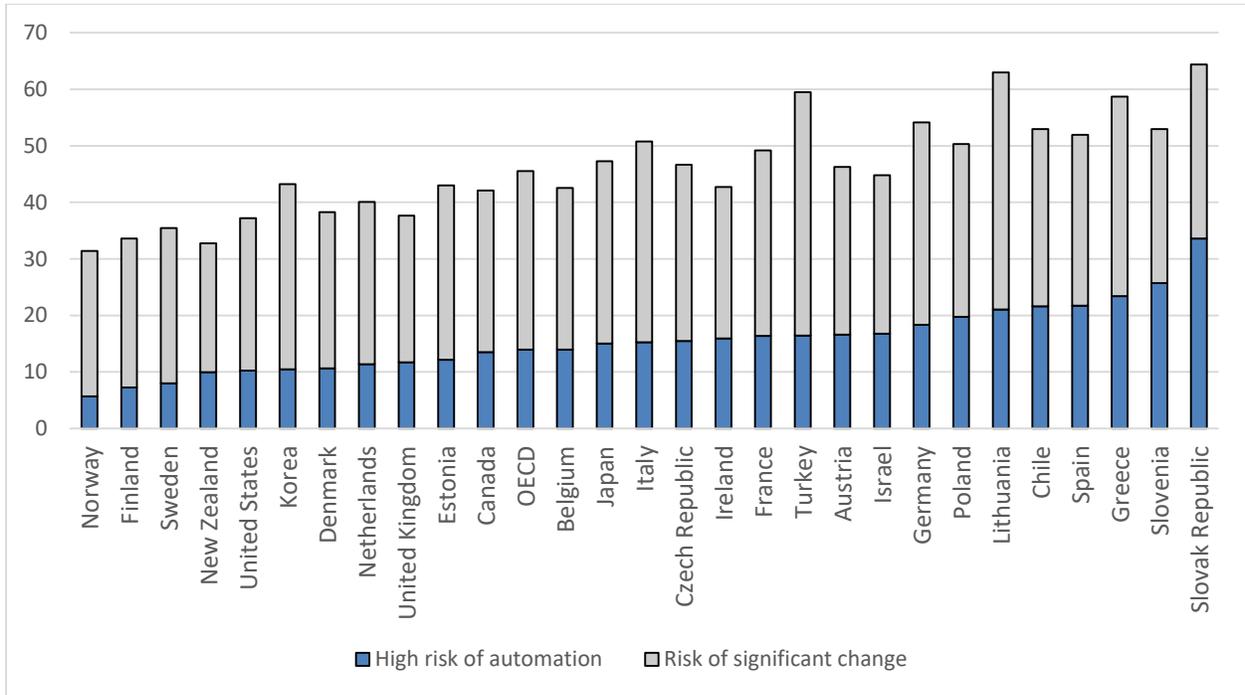
quickly into more automation-proof jobs while other still rely more heavily on routine-heavy (industrial) employment and appear therefore more vulnerable. Further, the digital transition may also be associated with a stronger reliance on both internally and externally flexible types of work, including temporary or freelance jobs and platform work so that the exclusion or inclusion of the social protection of self-employed or hybrid workers becomes even more relevant.

What this shows is that the actual impact of the digital transformation may affect countries differently, highlighting the crucial role of the given jobs/tasks structure as a starting condition, but also institutional factors that can either facilitate or inhibit certain paths of adaptation.

As of now, concerns of a radical increase of unemployment or jobless growth due to technological change do not appear to be particularly realistic: While there is job destruction, many existing jobs are being transformed, jobs are being created due to innovation and in entirely new fields. Historically, we can observe positive net effects of technological revolutions on employment and increase in most OECD countries in parallel with rapid technological changes (e.g. OECD, 2019a; Gregory et al., 2019). This can be explained via spillover effects of technologies to other sectors: Enhanced productivity and decreasing consumer prices enable increasing demand and employment in both particularly innovative/productive parts of the economy, spilling over to other, but linked industries that benefit from increasing demand and to entirely new areas of work and production (Autor and Salomons, 2018). Acemoglu and Restrepo (2019) refer to a further positive channel resulting from technologies that generate new tasks which feature a comparative advantage of labor. According to the reinstatement effect, labor becomes more important in a higher scope of tasks with the implication that the task content within the production benefits labor. Recent data rather shows a neutral if not positive development of employment rates and hours worked in (most) developed countries, with some cyclical variation (Figure 4).

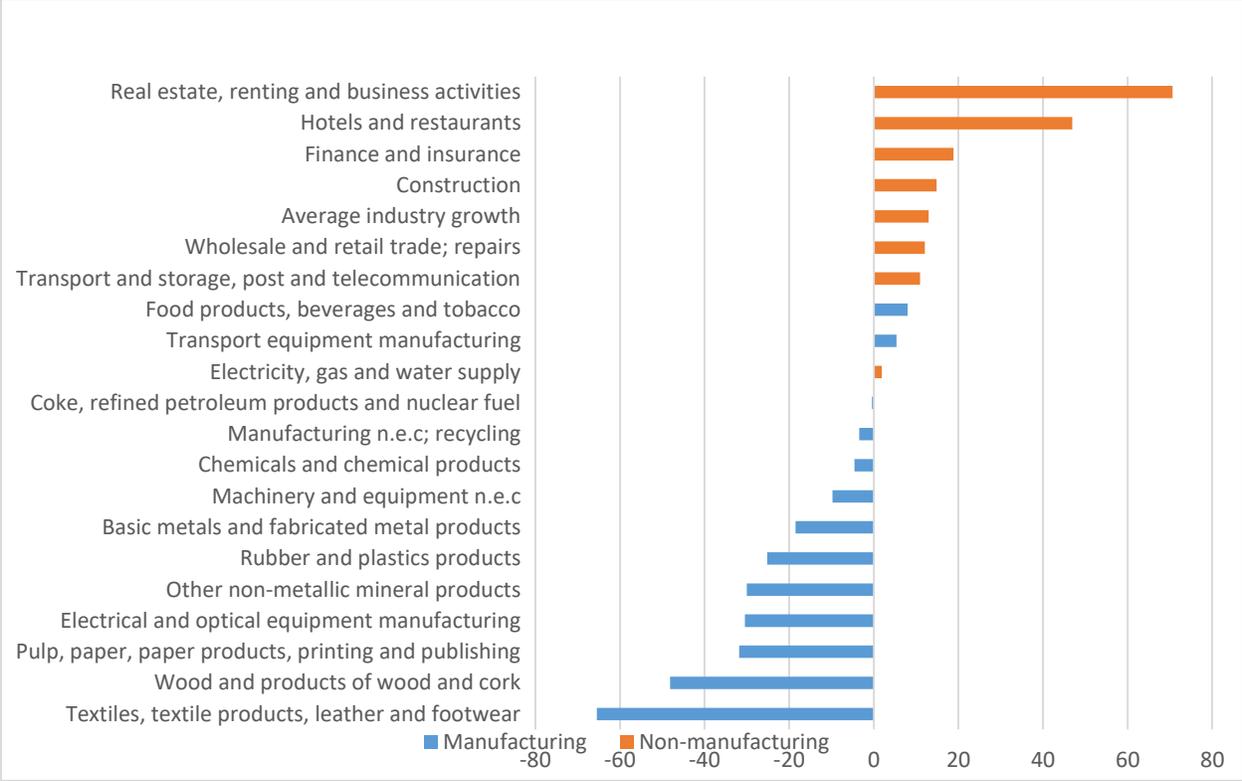
As the extent of actual technical change and its implications on employment depend on several parameters such as institutional regulation patterns, relative prices of capital and labor, consumer and societal preferences global scenarios are of limited reliability. In fact, the more precise forecasts look, the more we can be sure about them being wrong.

Figure 1: Comparative estimates of job automation risk in percentage, 2013



Source: OECD calculations based on the Survey of Adult Skills (PIAAC) (2012), <http://www.oecd.org/skills/piaac/>; Nedelkoska and Quintini (2018).

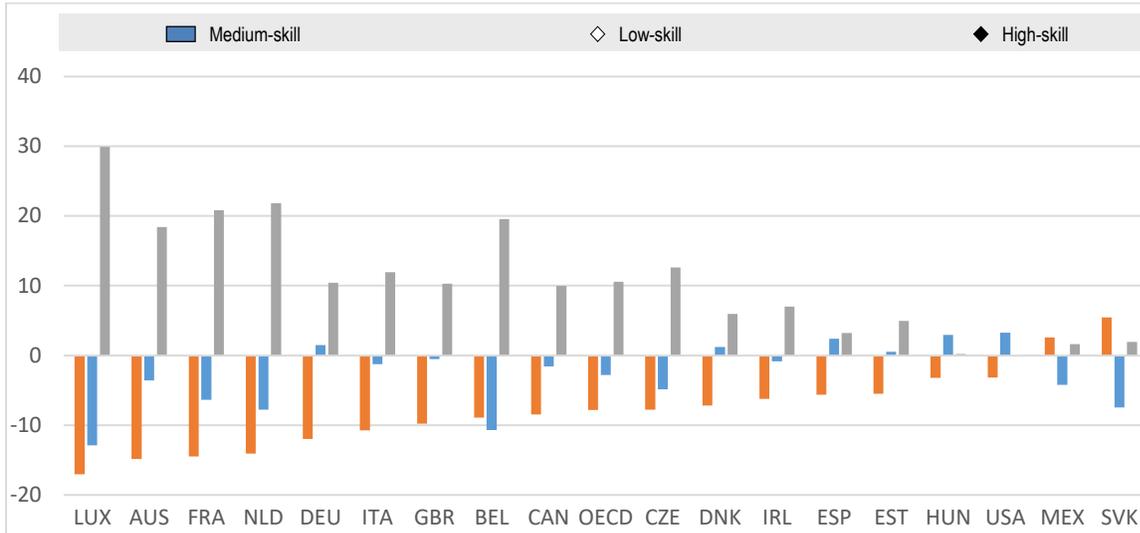
Figure 2: Sectoral change- Percentage change in total employment within industry for selected OECD countries, 1995 to 2015



Note: The results are obtained by pooling together employment in each industry across all the countries analysed. The average industry growth (red bar) is a simple unweighted average of changes in total employment across industries.

Source: OECD (2019a), Employment Outlook 2019, Figure 2.13.

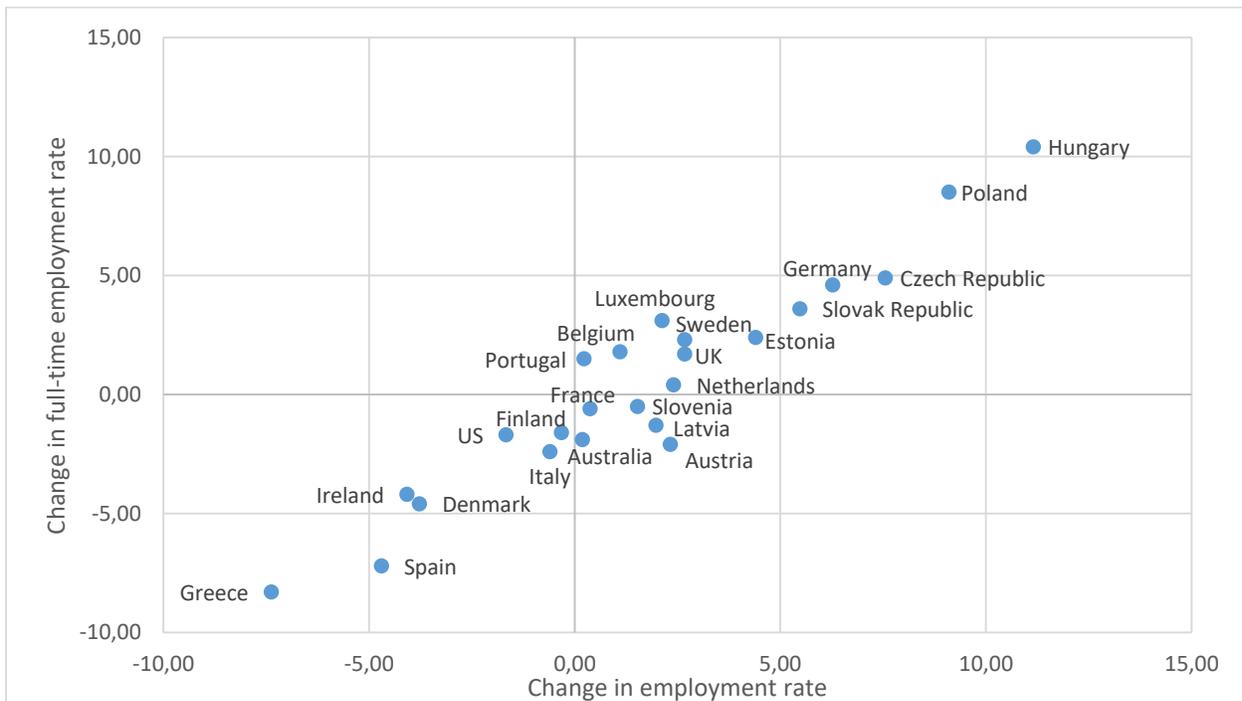
Figure 3: Job polarization- Percentage point change in share of total employment, 1995 to 2015



Note: Results at individual level for working adults.

Source: OECD (2019b), Under pressure: The squeezed middle class, Figure 3.3.

Figure 4: Percentage point change in employment rates and full-time equivalent employment rates, 2007 to 2017



Source: Own figure based on data from OECD.Stat

3 The social investment turn

Advanced European welfare states share a common legacy, dating back to the ‘Golden age’ of economic and welfare growth in the post-war decades, when systems of social protection programs were put in place whose aim was to provide industrial workers (typically male breadwinners) with *ex-post* income compensation in case of sickness, injuries, unemployment, and for old age. Over the past two decades, even though social spending levels have largely been consolidated over the past two decades, practically all European welfare states have been recalibrating the basic policy mixes upon which they were built after 1945, most importantly to address new social risks of demographic ageing, the feminization of the labour market and shift to the service economy. Since the turn of the century, the notion of social investment (SI) gained considerable purchase as a novel welfare compass to address post-industrial economic and social change in an integrated fashion (Hemerijck, 2013; 2017). In a generic sense, SI reform tilts the welfare balance from *ex-post* compensation in times of economic or personal hardship to *ex-ante* risk prevention. The objective is one of ‘capacitation’, hence strengthening human capital and improving work-life balance opportunities with a view of increasing female and older worker participation in the workforce.

Central to the long-term financial sustainability of the welfare state is the number (*quantity*) and productivity (*quality*) of current and future employees and taxpayers. To the extent that welfare policy in a knowledge economy is geared towards maximizing employability and productivity, this helps to bolster the economic sustainability of the modern welfare state. The objective is to enhance people’s opportunities and capabilities to resolve social risks typical of post-industrial societies *ex-ante*, while ensuring the high levels of (*quality*) employment (that is sustainable in the digital era) necessary to sustain what John Myles has called the ‘carrying capacity’ of popular welfare states (2002).

With the expansion of women’s employment over the past quarter century, the work-income-family nexus takes a central place in the social investment paradigm. More flexible labour markets and skill-biased technological change coupled with higher divorce rates and lone-

parenthood make economic independence and equal access to employment for both men and women a prerequisite. It was for these reasons that the agenda-setting interdisciplinary volume *Why We Need a New Welfare State* called for a 'social investment' renewal aimed at reinforcing social resilience over the family life-course, with a special attention to female employment and eradication of child poverty (Esping-Andersen et al., 2002).

The focus on supply-side, capacitating social policy goes along with the new social needs of postindustrial societies. While 'old' social risks could be addressed by passive policies such as unemployment benefits, new risks require a more diversified set of interventions. Policies such as early child education and care (ECEC); education and training over the life-course; (capacitating) active labour market policies (ALMP); work-life balance (WLB) policies like (paid) parental leave, flexible employment relations, and work schedules; lifelong learning (LLL); and long-term care (LTC) all share objectives that transcend the compensatory logic of income-support, originally developed to protect (predominantly male) workers and their (stable) families against market pitfalls. These policies aim to prepare individuals' human capital and improve work-life balance opportunities for working families, in particular for an increasing number of women in the workforce.

Three complementary policy functions underpin the social investment edifice (Hemerijck, 2017): (1) investing in quality education and training to raise and maintain the 'stock' of human capital and capabilities throughout the life course (*lifelong human capital stocks*); (2) easing the 'flow' of contemporary labor market and life-course transitions (*worklife-balanced flows*); and (3) granting inclusive safety nets as income protection and economic stabilization 'buffers' (*inclusive buffers*). *Stock* policies foster skill acquisition over the life course, generally leading to higher levels of productivity. *Flow* improves labour utilization by facilitating life-course and labour-market transitions, generally heading to higher levels of employment and lower wage gaps. *Buffer* policies make sure that individuals and families do not fall between the cracks of the economy when social and/or personal misfortune strikes, hence protecting past human capital investments while also supporting low-income families to safeguard human capital investments in their offspring, which positively affect employment and wages in later years. Throughout, human capital stock features prominently in the social investment debate, often focused on

education and training policies, in relation to the rise of the knowledge economy. By comparison, post-war Keynesian-Beveridgean welfare provision prioritised social protection buffers. The conservative-liberal critique of the interventionist welfare state of the 1980s gave primacy to flows, understood as efficient labour allocation, undistorted by the 'moral hazard' predicament of social benefits.

It should be emphasized that the post-war welfare state with its bias towards demand stabilization through social security expanded over a glorious period of male breadwinner full employment. This windfall allowed for massive investment in education and health care. In line with Keynesian economic doctrine, progressive taxation was viewed to contribute to economic efficiency and to provide revenue for universal access to high quality health care and education, and income redistribution on the basis of equity concerns. In other words, one should be careful to dismiss post-war reformers, such as Keynes and Beveridge, as single-mindedly expanding 'passive' welfare states. Their social investment record should be considered as historically impressive (Myles, 2017).

By contrast, the neo-liberal turn in the 1980s ushered in an anti-tax revolution and a decline in trust in government, together with the a more general sense of risk-aversion and cost-containment in private and public investment with the effect of subdued productivity increases. By the mid-1990s, the OECD (1994) conjectured a tragic trade-off between jobs and equality, arguing that a little more inequality reinforced by lower taxes and lower benefits would recoup employment and productivity growth. In its wake, Third Way reformers like Tony Blair and Gerhard Schroeder, naively beckoned social investments in education, training and activation to replace traditional income protection in due course. Today, the OECD (2015) recognizes that inequality is bad for economic growth, and that governments should pursue carefully designed social protection and social investment policy mixes together with more progressive taxation to reverse inequality and secular stagnation. The OECD acknowledges that social investment is no panacea per se. Dual-earner family earning have been rising because of higher female employment even though earnings of young adults have stagnated. The implication is that single-earner families have been falling behind. In addition, marital homogamy has been deepening a

cleavage between educationally advantaged families with high earnings and lower risks of unemployment, and educationally disadvantaged families with lower wages and more precarious jobs, thereby raising household inequality.

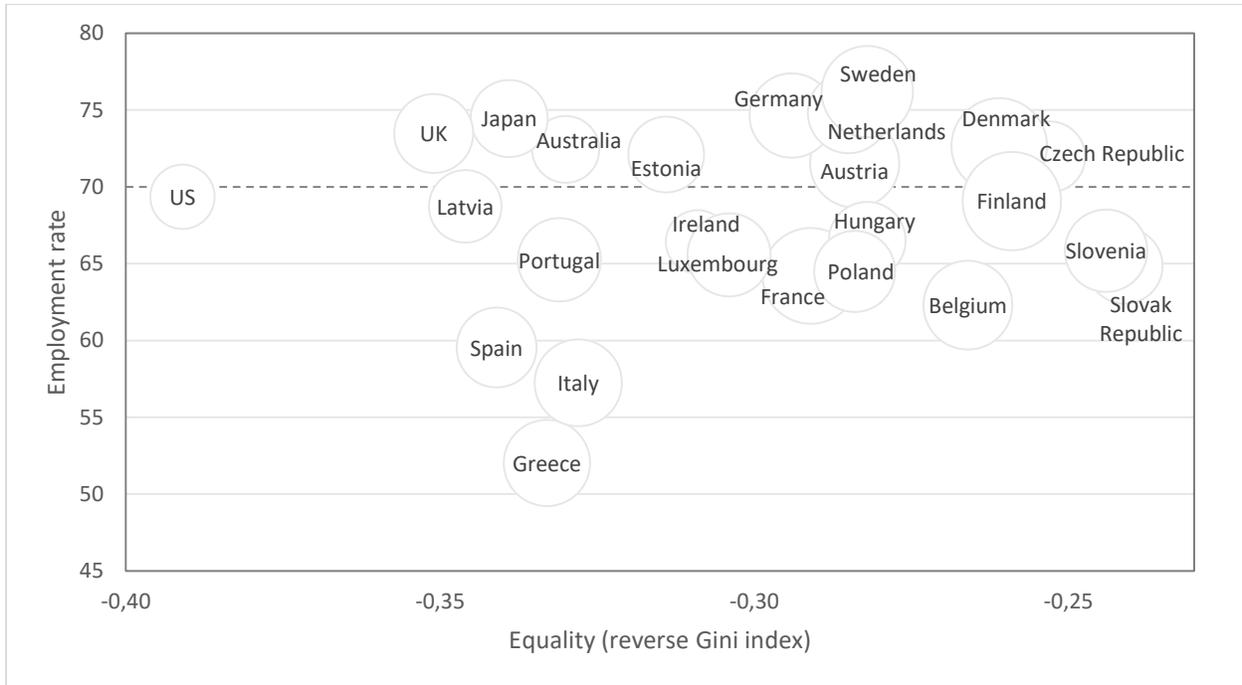
The upshot of for social investment is the relationship between the functions of *stock*, *flow* and *buffer* is more intimate than in previous welfare paradigms. In addition, each of the three functions individually takes on a specific substantive disposition. While buffers in the post-war era took the form of employment-related shock-absorbers in relatively homogeneous industrial labour markets, today they are required to undergird more volatile post-industrial labour markets. As such, the substantive emphasis of the social investment perspective is on ‘inclusive’ income protection rather than employment-related social insurance for labour market insiders. Similarly, while flows in the conservative-liberal critique are premised on lean social protection and deregulated labour markets, satisfactory flows in the social investment perspective are inherently related to work-life balance, which entails an important element of (re-)regulation of (gendered) employment relations. Finally, human capital stock in both the Keynesian-Beveridgean welfare state and the conservative-liberal edifice did not reach far beyond compulsory primary and secondary education. By contrast, the stock effort in the social investment perspective embraces a ‘lifelong’ commitment to human capital acquisition from early childhood development and active ageing.

Policy provisions that at face value privilege one of the three functions typically back up the other functions in an interconnected fashion: for example, poverty alleviation, principally a ‘buffering’ policy, can smooth labour market *flow*, as a consequence of mitigated pressure and background financial stability to accept any job on offer, with the potential benefit of better job matching and less human capital *stock* depletion. By the same token, high-quality childcare *stock*-investment facilitates labour market *flow* especially for working mothers. As such, the concept of ‘institutional complementarities’—to borrow a term from the *Varieties of Capitalism* (VoC) perspective (Hall and Soskice, 2001; Hall and Gingerich, 2009)—strongly features here. In the VoC literature, a ‘set of institutions is said to be complementary to another when its presence raises the returns available from the other’.

Following the logic of complementarity, SI can be seen as a ‘life-course multiplier’ whereby cumulative SI returns over the life-course plausibly generate a cycle of well-being, in terms of employment opportunities, gender equity, and a significant mitigation of intergenerational poverty (Hemerijck, 2017, p. 26). The cycle initiates from early investments in children through high quality ECEC, which translate into higher levels of educational attainment, which in turn, together with more tailor-made vocational training, spills over into higher and more productive employment in the medium term. To the extent that employment participation is furthermore supported by effective work-life balance policies, including adequately funded and publicly available childcare, higher levels of (female) employment with potentially lower gender gaps in wages and employment can be foreseen, protecting households against worklessness and poverty. Higher and more productive employment, in turn, implies a larger tax base to sustain overall welfare commitments. Needless to say, the social investment portfolio requires both solid social protection foundations and comprehensive, well-coordinated investments in human capital and WLB policies reforms in order to be activated. *Lifelong human capital stock, worklife-balanced flows and inclusive buffers* are all of key importance to produce desired policy synergies.

Evidence for the proficiency of social investment reform in boosting employment while mitigating poverty is readily available. The US and, to a lesser extent, the United Kingdom (UK) attain relatively high employment levels at the cost of high inequality, given their lean welfare states (the size of the bubbles in Figure 5 is proportional to welfare spending). By contrast, many welfare states in continental and northern Europe prove capable to reconcile the world’s highest levels of employment with comparatively low levels of inequality (upper-right side of Figure 5) and potentially better prepared for the future, reconciling the creation of knowledge-intensive jobs with low polarization. To be sure, the employment-equity success does not hold for all large European welfare states. Some big welfare spenders, such as France, do seemingly well in terms of redistribution but have failed to raise employment levels above the Lisbon employment target of 70 per cent (the dashed line in Figure 5). More worryingly, Southern European countries fall short of both objectives: they face low employment and high levels of inequality despite sizable welfare expenditure.

Figure 5: Employment rate, equality and welfare spending, 2016



Note: The size of the bubbles in the graph is proportional to welfare spending in each country, measured by the government expenditures on education and social protection. The dashed line indicates the Lisbon employment target (raising the employment to or above 70 percent).

Source: Own figure based on data from OECD.Stat.

4 A Deeper Look into Country Experiences

More often than not, practical social policy—and politics—deviates from the ideal-typical social investment reform trajectory. Historical policy legacies that consolidated different welfare regimes have had a strong influence on the trajectories of reform (Esping-Andersen, 1990, 1999). Although starting from different institutional structures and policy programs, some of which unfavourable to the social investment turn, all EU welfare states have striven to adjust policy provision to new social risks, such as those of working women and changing family patterns, and now face mounting economic pressures to upkeep human capital and employment levels. Based on the different timing, pace, and intensity of adjustments, we can group advanced European countries into four clusters of social investment trajectories: ‘vanguards’, ‘bandwagoners’, and

'latecomers'. The Nordic 'social-democratic' welfare states were the forerunners of the social investment turn. Denmark, Finland, and Sweden have traditionally strong, inclusive income *buffers* with universal coverage and all citizens entitled to basic capacitating social services in the areas of child care, health care, education and elderly care.

After Nordic welfare states paved the way, countries with more conservative male-breadwinner policy legacy of employment-related social insurance started to follow suit round 2000. For the remainder of this paper we focus on the Netherlands, Germany and Italy. The Netherlands belongs to the group of social investment 'bandwagon' countries, as it was the first Continental welfare state to adopt a more encompassing strategic approach to welfare restructuring and employment creation with the revitalization of corporatist agreement between the social partners and the government from the 1980s onwards, based on an political exchange of wage moderation and labour market flexibility for more inclusive social protection and the expansion of family services for dual earner families. Germany moved towards social investment a little later, by the mid-2000s, before the outbreak of the economic crisis. Contrary to the Netherlands and Germany, Italy, with strong traits of the familialist Southern European model, has not (yet) moved away from the welfare-without-work policy conundrum. Today one of the largest European welfare states in terms of social spending, Italy seems to retain a bias to passive compensation over active, employment-enhancing labour market and social service reform. We briefly discuss core features of welfare reform for each cluster, focusing on the re-configuration of *stock*, *flow*, and *buffers* policy portfolios in each of these cases. Due to long-standing labour market and welfare state dualisms we expect particular vulnerability of these countries in making education and training (stocks) as well as transition arrangements (flows) and social security (buffers) more inclusive and egalitarian.

4.1 The Netherlands

In terms of labour market vulnerability to technological change, the Dutch labour market seemed quite resilient before the onslaught of the Coronavirus pandemic. Its relatively good performance

in employment, education and skills, and inclusive social protection, however, is not simply a matter of policy virtue, but also of sectoral fortuna. The Netherlands is a trading, service-based, economy, with a relatively small, but highly competitive, industrial base (Quintini and Nedelkoska 2018). The Dutch labour market is flexible, anchored on a strong regulatory framework of gendered-balanced *flow*, supported by comprehensive, but expensive, childcare provision. With respect to *buffer*-function of the social investment welfare state, the Dutch social security system rests on two basic universal provisions, mandatory health insurance for the entire population (Zorgverzekeringswet), paid for by every individual, and a basic pension (AOW) scheme paid out of taxes. Over the years of the Great Recession, more problematic is that the *stock*-function of the Dutch welfare state has been neglected, with PISA scores falling behind the EU average.

Historically, the Netherlands was the first Bismarckian welfare state to adopt an encompassing approach to welfare reform and employment creation with the revitalization of corporatist negotiations between the social partners and the government from the 1980s on. Dutch policy makers aligned wage restraint, cuts in social benefits towards activation, with the expansion of flexible, part-time service-sector jobs, which boosted female employment (Visser and Hemerijck, 1997). Over time, Dutch part-time work was normalized, based on collective bargaining and access to health insurance and pensions.

Due to its large financial sector, the Dutch economy suffered tremendously from the Great Recession. Overnight, the Dutch state has to bail out four out of its six large financial corporations. As a consequence, the budget deficit went up from practically zero in 2007 to 5.4 percentage points of GDP in 2009, while public debt rose from 42 to 58 percent within a year. Fiscal dire straits made austerity reform, on an orthodox reading of the Stability and Growth Pact (SGP), imperative. Austerity reform was supported by the social partners under different political coalitions. The Balkenende IV Cabinet, a coalition of CDA, PvdA and ChristenUnie (CU), agreed to respect extant dismissal protection and unemployment benefit duration, championed by the PvdA, in exchange for lower subsidies to childcare for high-income brackets, proposed by the CDA, while trade unions agreed to restrain wages. The Balkenende cabinet fell in February 2010 over military involvement under NATO in Afghanistan. The rump Balkenende cabinet, without

the PvdA, formulated an additional retrenchment effort to cut public spending by 35 billion euros by 2015. A proposal to prolong working ('langer doorwerken') by raising the retirement age from 65 to 67 year was reluctantly agreed to by the social partners.

After lengthy negotiations, in the fall of 2010, a minority coalition of the VVD and the CDA, with Mark Rutte as prime minister, supported in parliament by the Party of Freedom (PVV, 24 seats), led by the Islamophobic Geert Wilders, came to office. By June 2011, it became clear that the populist PVV would not support the pension deal negotiated with the social partners a year earlier, and Rutte I government resigned. In the 2012 elections the VVD and PvdA became the two largest parties, with respectively 41 and 38 seats in parliament. With a (small) majority in the Second Chamber, these two parties decided to form the new government, on the basis of breaking with long cherished mutual taboos. The regressive mortgage interest rate tax subsidy, popular with VVD voters, was traded for a relaxation of dismissal protection, a typical PvdA stronghold. On the initiative of the PvdA, the new government was bent to restore relations with the social partners, especially the trade unions. After three months in office, on the 11th of April 2013, the Rutte II administration signed a Social Pact, negotiated over secret sessions between the leaders of the main employer organization VNO-NCW and FNV, the principle trade union confederation. The agreement contained a reduction of the period during which people could receive unemployment benefits from 38 to 24 months, instead of the envisaged reduction from 38 to 12 months in the 2012 coalition agreement. The burden of financing unemployment benefits was shifted from the shoulders of employers to workers, by increasing employees' unemployment-benefit contributions (WW-premiums). In additional negotiations, social partners managed to secure a third year 'private' unemployment insurance, funded by employers.

Although, issues of digitalization and the rise of the platform economy were discussed at the level of the tripartite Social and Economic Council (SER), the Rutte II administration was unable to make progress on this score. In June 2019, the current Rutte III-cabinet, made up by four political parties, VVD, D66, CDA and CU, finally, agreed to a pension pact with the social partners, largely based on the 2010 agreement discussed above, cemented with a 4 billion government investment fund. The retirement age will rise to 67 in 2024, however, on a less steep path than

agreed to in 2009. Meanwhile, a 'Fair Europe' agreement was negotiated in the SER, emphasizing the importance of sustainable growth, technological development, digitalization, and the renewal of lifelong education and vocational training.

Over the long-term success of the Dutch 'polder' model a novel fault line has proliferated, in part as an unintended consequence of good job protection and inclusive social security for part-time and full-time work. From 2004 to 2015, flexible contracts out total labour market contracts rose from 15% to 22% (CBS/ TNO, 2016), whereas also the number of self-employed own-account workers had grown to over one million out of a working age population of nine million, the fastest rise in Europe (OECD Gender Entrepreneurship Database). As a consequence, wage dispersion between those in regular employment, including part-timers, covered by the Dutch flexicurity regimes, and uncovered independent work ballooned (Milanez and Bretta, 2019). For all the cabinets in office over the Great Recession, consensual austerity cuts took precedence over investment. Although a key impetus behind the 2013 social accord, for the PvdA and the trade union, was to stem the tide of the 'excessive' flexibilization of the Dutch labour market and to improve the balance between permanent and temporary jobs, the reform-minded Rutte II coalition parties, the VVD and PvdA, continued to entertained divergent views on the platform economy. For the liberal VVD, platform work in digital age represented a novel entrepreneurial drive. For the PvdA, own-account work remained precarious if not brought under a roof of inclusive social protection.

On 20 January 2020, a high-level policy report was published on the future of work, advocating mandatory social insurance for the self-employed (Borstlap, 2020). The central diagnosis of the Commission is that that employers over the past two decades have increasingly opted for independent work subcontracting, as (semi-)permanent employment proved progressively costly. According the commission, the growing share of independent employees in the working age population is becoming a drag on Dutch competitiveness. As a consequence, it put the carrying capacity of the welfare state at risk, because independent workers do not pay their dues. Without using the functional triad of social investment stock, flow and buffer provision, the report intimates that current labour market conditions, if uncorrected, will incur curtailed social

security buffering, fragmentary and less flexible labour market transitions, and huge under-investments in human capital. Although the report is not concrete on policy proposals, its reception on the direction of labour market and welfare reform has received considerable support from political parties and the social partners. For the Borstlap commission, sustainable (semi-)permanent employment relations, in terms of flow, should resurface as the overriding norm in the labour market, with a stronger emphasis on improve internal flexibility in employment organizations. In terms of regulation, more transparency is called for across three distinct types of career paths: (1) the norm of (semi-)permanent contracts; (2) part-time employment and temporary work, and; (3) independent self-employment. The choice between employment, temporary work, and entrepreneurship, should be based on substantive grounds, and not driven by tax or regulatory (dis-)incentives. It is imperative that workers, in terms of stock, whether in semi-permanent employment relations or not, are provided with resources for lifelong human capital development. To improve overall social resilience, human capital development should be undergirded by an inclusive foundation of social security and income protection for all, independent of career modalities. This would imply a further conversion from selective 'Bismarckian' social insurance principles towards to 'Beveridgean' public social security for unemployment, sickness and disability, and skill depletion, beyond public social assistance and basic pension provisions that already exist. Novel is that independent entrepreneurs will have to pay into the Beveridgean funds for basic social security for disability and skill depletion. A more concrete recommendation is to decelerate external flexibility by making temporary agency work more expensive on a clear delineation of the 'temporary' nature of agency work, whereby the factual employer should be the legal one, this to disincentivize excessive sub-contracting.

Strikingly, the slow-burning fault line in the Dutch welfare state is currently being partially corrected by the COVID-19 crisis. Before the pandemic, the high-skill vocal segment of Dutch, self-employed strongly opposed integration into a social security regime for all. As many independent jobs came under immediate threat, the Dutch government has come forth to soften the blow for freelancers and platform workers. The upshot is that the Rubicon is crossed to bring

the self-employed under roof a hybrid Dutch Beveridgean-Bismarckian welfare state, as suggested by the Borstlap commission.

4.2. Germany

Comparative estimates of substitution risks due to technology show a high level of vulnerability threatening jobs in Germany. In fact, Germany exhibits one of the highest substitution risks in OECD countries (Quintini and Nedelkoska 2018). This is particularly relevant for the manufacturing sector that continues to be the backbone of the German employment model and still larger than in many other OECD countries. Studies point at the role of both the sectoral composition and the organisation of work in manufacturing (with above-average routine content) in explaining this finding. Hence, while the overall number of jobs is likely to remain more or less stable or marginally increasing in the digital era, according to forecasts, profound changes within and between sectors, occupations and jobs are expected (e.g. Vogler-Ludwig et al., 2016 ; Zika et al., 2018). This questions the existing organization of work and the sectoral structure that contribute to high exposure to automation. Furthermore, lifelong learning in Germany, considered a core priority regarding human capital stock, is institutionally fragmented and biased in favor of better skilled and younger people as well as firm-initiated training provided to core staff. In the context of Germany, collective bargaining and firm-level participation (co-determination) might help organize change, but the scope of both mechanisms has been on the decline over the last decade. Larger parts of the service sector are not covered by collective bargaining as well as many smaller firms while the metal sectors continues to be stronghold of industrial relations. Finally, the buffering function of a Bismarckian welfare state might be affected by a potential erosion of social insurance funding, in particular if self-employment/platform work grows (although very limited so far).

In response to these challenges, the early 2010s were dominated by state-sponsored research and industrial policy into innovative business processes (Industry 4.0), addressing the engineering core of the economy. Only somewhat later, promoted by trade unions that became increasingly aware of the challenges to the manufacturing sector, attention shifted towards labour market and

social policy issues. This motivated in particular a government-initiated institutional dialogue between the Ministry of Labor, the social partners, academic experts and the wider public. A main goal was to explore the needs and possibilities to modernize labour market, human resource and social policies facing the digital transformation. This was based on broad stakeholder participation, ultimately aimed at stimulating an iterative policymaking process, starting with a Green Paper raising questions, put forward by the ministry in April 2015, and concluding with a White Paper published in early 2017 (Federal Ministry of Labour and Social Affairs, 2017). Stakeholder involvement was characterised by the diversity of actors consulted, ranging from trade unions and employer associations to works councils, individual human resource managers, think tanks, independent experts and representatives of increasingly relevant groups such as freelancers.

Actors identified four main topics: 1. Life-long learning was considered essential in order to continuously keep up with rapidly evolving technological developments. 2. Flexibility at work and new working time arrangements were discussed in order to further business flexibility, but also employee autonomy while addressing the issue of a potential dissolution of the boundary between working time and leisure. Negotiated working time models and flexibility compromises were seen as increasingly important. 3. Social protection of the self-employed was perceived as a debatable issue as the lines between employment and self-employed work are increasingly blurred so that some actors argued that it was appropriate and reasonable to include self-employed individuals in the statutory pension insurance system alongside employees. 4. Industry 4.0 offers new opportunities to shape work and production processes and to relieve workers of routine activities, but this was seen as a potential that could only be tapped with new ways of work organization and adapting workers' skills. This phase of the broad public dialogue was continued with another round of consultations on the future of social policy (2018-19).

Table 1: Dualised labor markets and reform activity in Germany

	Core labor market (with collective bargaining)	Margin of the labor market
Human capital formation	Employer-funded continued vocational education, broadening via collective agreements	Increasing role of public employment agency / ALMP in training for employed people
Regulatory issues	Collectively agreed or firm-based arrangements on mobile working, flexible working time etc., reorganization of work	Statutory minimum wage, re-regulation of non-standard work, steps towards expanding coverage of social insurance

Taking a broader and more long-term perspective, we can distinguish two main areas of policy action that continue to be relevant in the digital context: human capital formation on the one hand and regulatory as well as social protection issues on the other hand. Furthermore, it is useful to consider the duality of the German labor market, divided between a core that is still governed by strong collective bargaining and the margin of the labour market where state policies are more important (table 1).

Regarding the core labor market, a publicly supported industrial policy regarding industry/manufacturing to increase investment, productivity and competitiveness through the development and application of digital technologies is combined with firm-sponsored training for skilled workers and increasingly widespread collective agreements with training component. This is being complemented by new forms of internal and functional flexibility such as a more flexible organisation of working time, internal collaboration and new forms of work, partly embedded in sectoral or firm-level agreements, otherwise driven by firms directly. In this segment, there is only a very limited role of legislation or policy intervention such as new legislation on temporary part-time for parents or a potential, but still highly controversial reform of working time legislation. With COVID-19 well-established instruments such as publicly sponsored short-time work are being used heavily as had been the case during the Great Recession, avoiding or at least postponing dismissals. Short-time work is also available to smaller firms and to the service sector, but the implementation there can rely less on established procedures.

As for the margin of the labor market, the last years were characterized by re-regulatory policy reforms such as the introduction of statutory minimum wage, stricter regulation of temporary agency work. Some debate, but so far without concrete outcomes, has evolved around the boundary between dependent and self-employed work as regards the redefinition of the dependent worker status and/or the inclusion of self-employed in social insurance, in particular old-age insurance, but to date no decision has been made. This would constitute another step towards inclusive social insurance buffer mechanisms (on top of means-tested income support). Notably, as a direct response to COVID-19 transfers to freelancers and small companies were made available to maintain liquidity.

Lastly, in Germany there is increasing public ALMP intervention to promote training of employed people, in particular medium- and low-skilled workers in SMEs. Yet, a stronger institutional base for a more universal lifelong learning regime is still missing. This last point exhibits the difficulties in creating a more egalitarian life-long learning environment in a country with fragmented adult learning systems. While there has been a broader expansion of child care and quality improvements in schooling (along the lines of social investment) in Germany over the last two decades, the life-long learning realm is still characterized by fundamental divides between firm-initiated training addressing core (skilled) staff, public ALMP mostly targeting the unemployed and a structural neglect of those groups that might be most at risk of skill obsolescence, in particular if they are not employed in firms covered by collective agreements with training components. While all actors agree on the importance of skill formation and skill updating when facing the digital transformation, a better articulation between the different subsystems has proven to be too complicated to date. The first national adult learning strategy, adopted in mid-2019, was the result of a difficult and complex process, potentially leading to better coordination, higher transparency and more universal access to adult learning, but in terms of concrete implications it remains rather limited. Most notable is also that with the COVID-19 the combination of short-time work and training, promoted as tool to prepare for structural change, does not seem to work, and training in ALMP has come to a full stop due to the non-digital format of these courses.

A preliminary assessment shows that the main issues debated in Germany in the ‘Work 4.0’ context have been long-standing topics of labor market and social policy, but they have received a new framing and some sense of urgency emerged, motivated by current and imminent technological change and automation. An earlier focus on stimulating innovative production technology was linked to social innovation as the actors from the trade union and social policy area entered the discourse. There is an apparent general openness to collect and assess evidence on current developments, allow for experiments and design potentially ‘innovative’ policy solutions. The German experience shows that a ‘flexible’ tripartite approach at different level seems feasible due to shared interest in productivity, innovation and jobs as well as a joint interest of both labour and business in public support, in particular for R&D, training and industrial policies. But this does not preclude conflicts and stalemate in critical areas such as the responsibilities for the design, delivery and funding of continuous vocational training or the regulation and pension coverage of self-employed work. In fact, while there has been a more long-term policy trends towards reregulation of employment and more emphasis on education, *direct* social policy responses to digitalization are hard to find.

4.3. Italy

Substitution risks due to technology is above the OECD average in Italy as well (Nedelkoska and Quintini, 2018). As in Germany, this affects particularly the manufacturing sector, the second largest in Europe. Based on SMEs in typical ‘Made in Italy’ sectors, manufacturing is associated with low-medium technology activities and clustered in industrial districts which mark a deep regional divide. The northern ‘Industrial Triangle’ (Milan-Turin-Genoa) is oriented to capital, high-tech and knowledge industries, in the North-Eastern and central regions family-enterprises are mostly specialized in low-skilled light manufacturing and the South relies mostly on tourism, with high levels of informality, youth and female unemployment.

Although digitalization is characterized by sectoral specificities associated with the skill content of professions, the employment shares of high skilled workers are the more growing ones and a

phase of re-profiling of conventional jobs is expected, increasing job polarization and internal disparities further (Cirillo et al., 2019).

Though, structural and institutional weaknesses are hindering a prompt evolution of the education-training system and welfare recalibration required to respond to digitalization. This is due to a delay in renovating training and social protection to new socio-economic conditions; weak state-sponsored industrial and innovation policies joined with low private investment in R&D; delegitimized social dialogue; deficiency of policy complementarity and administrative capacity. All these features combined represent a weak institutional setting to develop social investment responses to digitalization. These vulnerabilities have been exacerbated by the prolonged public underfunding of education and research, which contributed to make Italy one of the European countries with the lowest levels of schooling and human capital and with the highest shares of school drop-out and NEET (European Commission, 2018). Low levels of cognitive skills are combined with skills mismatch and surplus, reflecting ineffective regulation and low demand for skills (OECD, 2017).

Skill lack and mismatch have been long denounced by unions, ignored by politics, but also little claimed by business associations, which preferred other incentives. Only recently, digitalization has been included in the political debate and skills and innovation have started to be acknowledged by a - partially renewed - political class as one of the most significant weaknesses of the Italian labour market.

Since 2014, a phase of relevant policy reforms started. The different governments that took turn, initiated consultation with stakeholders to improve the responsiveness and inclusiveness of the labour market, and provide the country with essential technological infrastructure to allow innovation to progress. Significant reforms have been introduced in four main policy domains: 1. labour market (2014 *Jobs Act*); 2. education (2015 *Good School Act* and 2015 *National Plan for Digital Schools*); 3. industrial and innovation policy (2016 *Industry 4.0*, 2017 *Enterprise 4.0*, 2020 *Transition 4.0 and Italy 2025*); 4. social protection (2019 *Citizenship Income scheme*).

A neo-voluntarist social dialogue has gone through alternating stages. Stakeholders have been involved to finetuning policy measures. Unions have played a rather marginal role but were able

to deter the government from introducing the minimum wage (Pritoni and Sacchi 2019). Non-institutionalized social dialogue, accompanied by political instability, do not allow unions and employers to build up stable institutions and contribute to policy making, leaving governments acting independently.

The 2014 *Jobs Act* has been particularly criticized by unions because of the introduction of a new type of open-ended contract (*Contratto a tutele crescenti*) which increases labour market segmentation further. A mild attempt to expand social security was also made through a new unemployment benefit scheme (NASpI) introduced to extend benefits coverage to workers with atypical contracts. In 2019, the law was partially reformed and workers of digital labour platforms were included in its scope (Aloisi 2020).

A shift towards activation measures was enforced: benefit conditionality linked to activation was strengthened and the scope and duration of wage supplement schemes for industrial crises (*Cassa Integrazione Guadagni*) was limited. The National Agency for Active Labour Market Policies was created to homogenize standards and practices. Yet, territorial and policy fragmentation, combined with weak administrative capacity, reduce greatly the effectiveness of such measures. An example of this is the lack of coordination between the National Institute for Social Security (which manages income support schemes) and regional employment services (responsible for ALMPs) which invalidates the conditionality mechanism; at the same time, regional employment offices are scarcely equipped to provide adequate support for job reintegration. Training offered is not targeted, poorly linked to job demand nor coordinated with firms.

The reconciliation of work and private life was also addressed in the *Jobs Act*: maternity leave was made more flexible and both parental and paternity leave were extended to all categories of workers. Despite these measures, salient inequalities persist in terms of employment protection and unemployment benefit generosity and coverage.

To address digital competences and job-related skill shortage, the 2015 *Good School Act* funded infrastructure interventions to develop learning environments based on ICT (i.e. technological equipment, administrative digitalization, staff professional development) and addressed the lack of cooperation between companies and vocational schools. Inspired by the German dual system,

the School-Work Alternation (*Alternanza Scuola-Lavoro*) was developed, making traineeships compulsory in the last three years of upper secondary education. However, no concrete initiatives have been carried out to foster the local implementation of this measure (i.e. support school to establish partnerships with firms and work-based learning). Thus, few virtuous schools and companies benefit from these policies, but most of them are not affected, especially in regions where there are fewer firms able to provide quality work experiences.

To enhance a transition to digital technologies among firms, the 2016 *Industry 4.0 Plan* set up a network of technological hubs (Digital Innovation Hubs, Digital Enterprise Points, and Competence Centres). The aim was to engage a broad range of actors including large private players, universities, research centres, SMEs and start-ups to promote the adoption of technologies in key industrial sectors. In the autumn of 2017, its second phase, under the name *Enterprise 4.0*, was launched and then expanded in 2020 with the program *Transition 4.0*. Incentives were made available for training start-ups and innovative companies using tax credits, and funding for digitalization vouchers for SMEs was increased. Finally, the 'Italy 2025' strategy for a structural transformation has been developed to expand digital infrastructures and collaboration between public and private sectors in generating innovation.

Despite these policy packages that apparently seek to govern technological change, actual investment in R&D in Italy is still the second lowest among EU-15 (0.5 % of GDP in 2018) and policies are still primarily based on indirect subsidies and tax incentives to firms, more than on direct state funding, which have a moderate capacity to promote private investment in skills and innovation (Burrone et al., 2019). Although private R&D expenditure has been increasing in recent years (in 2018 it reached 0,86 % of GDP), it remains well below the EU average (1,41 %) (Pianta et al. 2018). Difficult access to credit, low foreign direct investment and limited venture capital market are unfavorable conditions to make R&D-intensive companies growth. Moreover, low share of R&D workers in both public and private sectors and the lack of cooperation between universities and businesses slow down the transfer of knowledge and the sharing of risks related to R&D activities (Ramella, 2015).

In February 2019 a new income scheme, named *Citizens' income benefit* but more similar to a guaranteed minimum income, has been launched. This is addressed to jobseekers and low

earners who accept to sign an employment pact declaring themselves immediately available for work. Although beneficiaries are expected to retrain and get back into work, regional employment services complain that they do not have sufficient human and economic resources to offer re-training and effective job matching.

Between March and May 2020, an unprecedented economic effort was undertaken to guarantee social safety nets and employment-related measures in response to COVID-19. A series of expansionary measures to support the healthcare system, households, workers and firms affected by the emergency were developed (i.e. expansion of the ordinary wage guarantee; income support for workers not covered by any social safety net; firing procedures suspended; new income allowances for autonomous and seasonal workers; new parental leave and childcare allowance). Tax payments were suspended, a debt moratorium on bank loans was approved, and public guarantees on new loans to firms were increased. We cannot evaluate the effectiveness of these measures yet, but even in the implementation of these emergency policies, the weakness of the administrative system has been confirmed and two months after the beginning of the lockdown these measures were not delivered due to institutional layering and lack of coordination.

The significant policy reform that is characterizing Italy in the last decade is counterbalanced by poor implementation capacity and institutional weakness, which reduce policy effectiveness and efficiency. This is crucial also in shaping the impact of digitalization. The effect of innovation and skills policies is marginal, there is no life-long learning approach and policies aimed at facilitating female employment have been overlooked.

Increased flexibility without the expansion of effective upskilling and income support measures has triggered since the '90s a specific kind of employment growth, based on low-labour productivity, low-quality jobs, and weak capacity of innovation. This is enduring, despite considerable reformism, and is undermining the competitiveness of the country and its capacity to reply to technological change.

5 Conclusion and Outlook

It is clear to everyone how much the use of digital technologies has increased in the period of emergency due to the Covid-19. The last months have confirmed the key role played by widespread digitalization of services and the relevance of digital infrastructures, especially for disadvantaged areas. However, digitization and platformization require profound rethinking of 21st century welfare provision, both in terms of substantive policy outlays and with respect to revenue sustainability. Indeed, the digital transformation which is permeating our social and economic lives is here to stay and expand, generating a long term impact on the way work and live is organized. This is why digitalization requires to be structurally supported by a coordinated political response which must be transversal between different institutional arenas: labour market, skills development and welfare. The stock-flow-buffer mechanism on which the SI paradigm is built encompasses these different areas in a complementary way, providing a broad framework for reforms in the digitalized world.

As the in-depth analysis of case studies has shown, Germany and the Netherlands, which both steered a reform course in the direction of SI, seem better prepared than Italy, where SI reform never really reached the political agenda. We can clearly identify different degrees of 'capacitation' to digitisation across countries. This could reinforce widening gaps between technologically advanced countries, characterised by dynamic labour markets, modern welfare states and skilled and protected workers, and countries lagging behind.

However, SI reform in the Netherlands and Germany was not driven by technological change and the rise of the platform economy, but should be understood more in terms of long-standing and proactive adaptation to the new reality of family change and population ageing. Direct policy responses to the academic and political debate about the future of employment are scarce. It is obvious that the additional challenges of technological change require human capital *stock* upgrading, a better embedding of labour *flow* and labour market transitions and further universalization of social protection *buffers* consistent with the social edifice. However, with respect to the *stock*-function, (life-long) education and training systems tend to benefit less those who need them the most. In order to forstall downward job displacement many workers will

have to acquire new skills through requalification. In a context of uncertainty of the potential impact of digitalisation on the structure and sustainability of labour markets and social security systems, education policies (at all levels, for (pre-)school and university education as well as vocational training and re- training) may help to ensure positive complementary effects on the labour market and counteract a more unequal distribution of income. Life-long learning appears as the Achilles' heel in the countries studied here. To achieve a more inclusive adult learning environment that is also better articulated with the other areas of education, the governance of this subsystem has become under pressure of reform. That could mean a stronger of coordination and maybe governmental invention to align digitalization/innovation policies, education and adult learning policy with labour market developments, to reap positive synergy effects from extant institutional complementarities. This clearly questions traditional barriers between different segments of adult education and their relationships to the labour market. From a buffer point of view, progress to insurance models not based on employment status would be imperative as, in particular, different groups of self-employed workers remain at the margin of social insurance so far. Then there is the macroeconomic corollary for offering non-standard workers collective insurance so as to make buffers more effective in times of recession and to uphold a solid revenue basis for social protection stabilization in the digital age. More inclusive welfare provisions goes beyond social protection. It also touches on social services, such as health care, child care and elderly care, and housing, for which, surely, other forms taxation from wealth, real estate, emissions, and value added, while at the same time limiting tax competition and arbitrage, have to enter the welfare state cost-benefit equation.

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