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

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Introduction

Throughout history, technological change has been accompanied by both job destruction and employment creation. In hindsight, the net labor market effect of landmark industrial shifts has been positive, albeit with important differences across time and space. Although past conjectures of jobless growth have thus far proven to be off the mark, this time it could be different (see also the Introduction to this volume). Digitalization, artificial intelligence, and the platform economy will have profound consequences for the quality and diversity of future employment relations, if not on the number of jobs, by massively reducing transaction, coordination, and monitoring costs of employment relations (Weil 2014). Given that current welfare state policies, pension, health, and unemployment benefits were developed and drew on the standard (male breadwinner) model of employment relations of the postwar era, the digital transformation will have profound consequences for welfare provision.

In Section 2, we discuss how technological change puts pressure on existing welfare state arrangements, emphasizing the key role of social investment reform—broadly defined—as a policy response to the challenge of digitalization. Section 3 focuses on three countries—the Netherlands, Germany, and Italy—which are taking very different approaches to the adjustments required by the digital and knowledge economy. The section examines how these three countries have pursued reforms, following our conception of the social investment, in the area of human capital "stock" development; labor market regulation to ease the gendered "flow"; and securing contemporary labor and family life-course transitions, and social protection "buffers" to mitigate income volatility. The three countries, all of which share a policy legacy of employment-based social insurance, are experiencing variegated reform trajectories, with the Netherlands following

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the Nordic example and jumping on the social investment bandwagon as early as the 1990s, with Germany as a latecomer not following suit until the early 2000s, and Italy lacking the endogenous impetus for social investment reform until very recently. The concluding section reflects on how countries that adopted the social investment agenda early on have been more successful in transforming themselves into knowledge economies and digital societies. Social investment reform has inadvertently prepared the way for more effective and legitimate welfare reform options to accommodate potentially more disruptive technological change.

The Changing Nature of Jobs in the Age of Digitalization and Social Investment Reforms

European labor markets have constantly been undergoing transformation due to the dynamics of regulation 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 levels on a more fundamental level. As discussed in Chapter 2 of this volume, digitalization threatens jobs largely characterized by routine tasks and shifts task structures toward more non-routine tasks, both at high and low levels of skills. Recent research (Arntz et al. 2016; Nedelkoska and Quintini 2018: Figure 4.1) shows that, given the intra-occupational heterogeneity of jobs and the tasks actually performed, the expected job displacement risk might be smaller than originally expected, while job change might in fact be more important.

Moves toward jobs in labor-intensive industries characterized by task content that is currently hard to automate imply observable changes, but also further

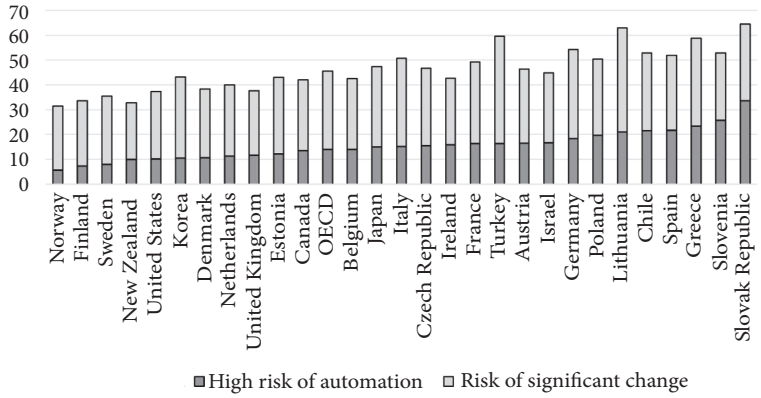

Fig. 4.1 Comparative estimates of job automation risk in percent, 2013.
Source: OECD calculations based on the Survey of Adult Skills (PIAAC) in Nedelkoska/Quintini (2018).

shifts within and between sectors and occupations (OECD 2019a). However, given cross-national differences in the industrial composition and the job/task structure within industries, the levels of estimated risks of substitution and job change as well as polarization vary considerably between countries (OECD 2019b). Technological change tends to put particular pressure on traditional medium-skilled jobs (with an above-average share of routine tasks). Consequently, there is a risk of ever deeper labor market polarization to the detriment of medium-skilled occupations deeply embedded in social protection and industrial relations systems, the core pillar of European welfare states. Some countries have already shifted quite rapidly toward more automation-proof jobs, while others still rely more heavily on routine-intensive (industrial) employment and therefore appear to be more vulnerable.

The digital transition may also be associated with heavier reliance on both internally and externally flexible types of work, including temporary or freelance jobs and platform work, meaning that the exclusion or inclusion of social protection for the self-employed or hybrid workers becomes even more relevant (see Picot, Chapter 13, in this volume).

As the extent of actual technical change and its implications for employment depend on several parameters, such as institutional regulation patterns, relative prices of capital and labor, and consumer and societal preferences, global scenarios are of limited reliability. Moreover, the impact of technological change goes beyond exogenous forces that governments, workers, and the social partners need to "respond to." Technological change should also be thought of as endogenous in the sense that technological applications are shaped by the institutional environment of existing employment relations and welfare arrangements. Managing the ongoing transformation toward an increasingly digital economy in an equitable and sustainable fashion touches on important functions of the welfare state, including income protection and social insurance, active labor market policies, education and training, and, more broadly, labor market institutions.

Advanced European welfare states share a common legacy, dating back to the "Golden Age" of economic and welfare growth in the postwar decades, when systems were put in place for social protection programs whose aim was to provide industrial workers with *ex-post* income compensation in case of sickness, injury, unemployment, and for old age, but these welfare states have also long been under pressure to adapt and develop new tools to keep up with changing economies, societies, and labor markets. In fact, over the past two decades, practically all European welfare states have been recalibrating the basic policy mixes upon which they were built to address new social risks of demographic ageing, the feminization of the labor market, and the shift to the service and knowledge society. Since the turn of the century, the notion of social investment (SI) has gained purchase as a novel welfare concept to address these postindustrial economic and social changes in an integrated fashion (Hemerijck 2017). SI reform tilts the welfare balance from *ex-post*

compensation in times of economic or personal hardship to *ex-ante* risk prevention, enhancing people's opportunity and ability to mitigate social risks *before* they materialize, while ensuring the high levels of (*quality*) employment (which are sustainable in the digital era) and income support necessary to sustain what John Myles (2002) has called the "carrying capacity" of popular welfare states.

In fact, three complementary policy functions underpin the SI edifice: (1) investing in quality education and training to raise and maintain the "stock" of human capital and capabilities throughout the life course; (2) easing the "flow" of contemporary labor market and life course transitions; (3) providing inclusive social safety nets to serve as income protection and economic stabilization "buffers." The complementarity of these three policy functions is key to reducing the adverse effects of the spread of the digital economy. Intrusive technological change underscores the importance of lifelong human capital "stock" and the continuous development of new skills over the life course. The emergence of new forms of employment, such as platform work, with growing numbers of *de jure* self-employed workers who are actually *de facto* dependent employees, sees policymakers confronted with the predicament of needing to update employment regulation to manage entirely new patterns of labor market "flows," while at the same time exposing outdated social insurance "buffers" tied to stable breadwinner employment patterns. There is a real need to explore new policy mixes of *stock* (building human capital), *flow* (managing labor market transitions), and *buffer* (providing income protection in times of need) for an entirely new class of workers who are not adequately covered by existing "stock," "flow," and "buffer" policies, such as pensions, unemployment benefits, and paid sick leave (Eichhorst and Rinne 2017).

There is ample evidence that SI reform is an effective tool for boosting employment, while mitigating inequality. Thanks to their relatively lean welfare states, the US and, to a lesser extent, the United Kingdom (UK) achieve relatively high employment levels at the cost of high inequality (see Figure 4.2; the size of the bubbles is proportional to welfare spending in the respective countries). By contrast, many welfare states in continental and northern Europe—countries where digitalization is progressing fast—have proven capable of reconciling the world's highest levels of employment with comparatively low levels of inequality (upper-right half of Figure 4.2), and are potentially also better prepared for the future challenge of creating knowledge-intensive jobs, while minimizing polarization. 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 percent (the dashed line in Figure 4.2). More worryingly, southern European countries fall short of both objectives: they face both low employment and high levels of inequality, despite substantial welfare spending.

For our in-depth case studies, we decided to focus our analysis on two social investment "bandwagon" countries and one "latecomer." The Netherlands, a country at the forefront in terms of digitalization, adopted a more comprehensive strategic

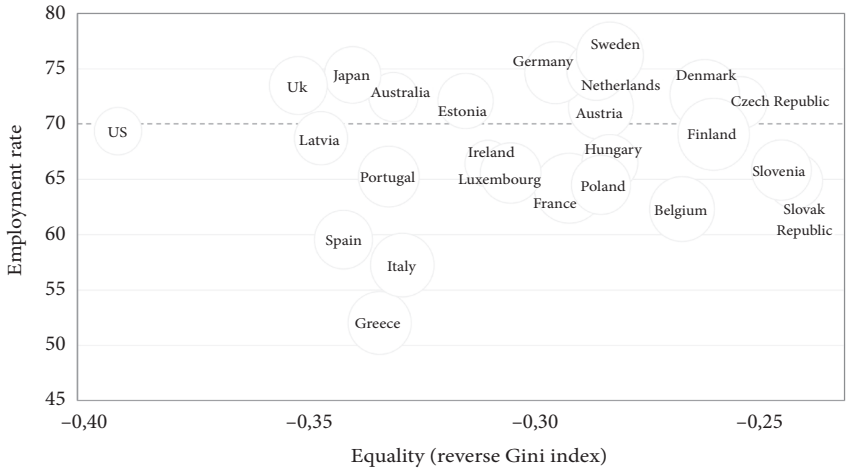

Fig. 4.2 Employment rate, equality, and welfare spending, 2016.

Note: the size of the bubbles in the graph is proportional to welfare spending in each country, measured by government spending on education and social protection. The dashed line indicates the Lisbon employment target (increase employment to or above 70 percent).
Source: own figure based on data from OECD.Stat.

approach to welfare restructuring and employment creation with the revitalization of corporatist agreements between the social partners and the government from the 1980s onwards. Germany, which scores above the EU average in the digital economy and society index, had moved toward SI by the mid-2000s; Italy—a laggard in the challenge of digitalization—with its strong traits of the familialist southern European model, has not (yet) moved away from the welfare-without-work policy conundrum. As one of the largest European welfare states in terms of spending, it retains a bias toward passive compensation and traditional labor market and social services.

As the following case studies will show, countries that adopted the SI agenda early on have been more successful in moving toward digital economies and societies: national strategies for human capital growth, together with public and private investment in education and research and development (R&D), have strongly influenced the different paths of institutional change of the three countries (see Table 4.1).

The Netherlands

In terms of labor market vulnerability to technological change, the Dutch labor market seemed quite resilient before the onslaught of the COVID-19 pandemic.

Table 4.1 ICT usage indicators, 2019.

	Companies that employ ICT specialists*	Persons in jobs using computers and requiring access to Internet*	Persons with at least basic Internet skills (2020)	Scientists and engineers**	Persons employed in science and technology**	Persons with tertiary education (ISCED) and/or employed in science and technology**
EU-28 (2013–2020)	20	55	20	5	22.1	35.4
Netherlands	26	69	27	7.4	29.9	42.9
Germany	19	59	24	5.4	28.1	39
Italy	16	50	15	2.6	17	24.4

Source: Eurostat, percent of active population; * not including financial sector; ** percent of total population.

Its relatively good performance in employment, education, and skills, and inclusive social protection, however, is not simply a matter of policy virtu, but also of sectoral *fortuna*. The Netherlands is a trading, services-based economy with a relatively small, but highly competitive industrial base (Nedelkoska and Quintini 2018). The Dutch labor market is flexible, underpinned by a strong regulatory framework of gender-balanced *flow*, supported by comprehensive, if expensive, childcare provision. With respect to the *buffer* function of the social investment welfare state, the Dutch social security system is based on compulsory unemployment insurance and two universal provisions: mandatory health insurance for the entire population (*Zorgverzekeringswet*), paid for by each individual, and a basic pension scheme paid out of taxes. Over the years of the Great Recession, as might be expected, the *stock* function of the Dutch welfare state has been neglected, with Programme for International Student Assessment (PISA) scores falling below the EU average.

Historically, the social partners, coming together in bi- and tripartite policy platforms, such as the Foundation of Labour and the Socio-Economic Council, have been strongly involved in the introduction of new technologies ever since the 1950s. The 1970s stagflation crisis, which hit the Netherlands pretty badly, brought industrial policy into disrepute. This was accompanied by a decline in political interest in technology. Over the course of the 1980s and 1990s, the social partners and the government aligned wage restraint and cuts in social benefits geared toward activation with the expansion of flexible, part-time service sector jobs, which boosted female employment (Visser and Hemerijck 1997). Dutch trade unions responded to the sustained erosion of standard employment relations by making sure, in consultation with employers and the government, that nonstandard employment relations were well regulated. With respect to part-time work, this strategy was a resounding success. In the Netherlands, in terms of labor market flow, many employees want to work part-time, especially women working in care, education, and the public sector. However, the normalization of part-time work did not make it cheap for employers. Despite the long-term success of the Dutch *polder* model, a new fault line thus emerged, in part as an unintended consequence of effective job protection and inclusive social security for part-time and full-time work. From 2004 to 2015, flexible contracts as a share of total labor market contracts rose from 15 percent to 22 percent (CBS and TNO 2016), while at the same time the number of self-employed, own-account workers also grew to over a 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 regime, and the number of people in independent work (which was not covered) ballooned.

Due to its large financial sector, the Dutch economy was hit especially hard by the Great Recession. Overnight, the Dutch state had to bail out four out of its

six largest financial corporations. As a consequence, the budget deficit went up from practically zero in 2007 to 5.4 percentage points of gross domestic product (GDP) in 2009, while public debt rose from 42 to 58 percent within a year. Fiscal dire straits made austerity reform, under the auspices of the Stability and Growth Pact (SGP), imperative. Austerity reform was supported by the social partners in different political coalitions. By 2009, the Balkenende IV Cabinet, a coalition of Christian Democratic Appeal (CDA), *Partij Van De Arbeid* (Labor Party, Netherlands) (PvdA), and ChristenUnie (CU), agreed to respect existing dismissal protection and unemployment benefit duration, in exchange for lower subsidies to childcare for high-income brackets, while trade unions agreed to restrain wages.

In the fall of 2010, a short-lived minority coalition of the *Volkspartij voor Vrijheid en Democratie* (Dutch: People's Party for Freedom and Democracy; Netherlands) (VVD) and the CDA, supported in parliament by the Party of Freedom, led by the Islamophobic Geert Wilders, came to office. In June 2011, the populist *Partij Voor de Vrijheid* (Party For Freedom; the Netherlands) (PVV) refused to support the pension deal negotiated with the social partners a year earlier, and the Rutte I government resigned. In the 2012 elections, the VVD and PvdA became the two largest parties and decided to form a new government. In the coalition agreement, the regressive mortgage interest rate tax subsidy, popular with VVD voters, was traded for a relaxation of dismissal protection, a typical PvdA stronghold. Moreover, the social democrats were bent on restoring relations with the social partners, especially the trade unions. After three months in office, on April 11, 2013, the Rutte II administration signed a Social Pact, negotiated in secret sessions between the leaders of the main employer organization Confederation of Netherlands Industry and Employers (VNO-NCW) and the Federation of Dutch Trade Unions (FNV). For the PvdA and the trade unions, a key impetus behind the 2013 social accord was to stem the tide of "excessive" flexibilization of the Dutch labor market. Yet, the VVD and PvdA continued to hold divergent views, especially on platform work. For the liberal VVD, in the digital age, platform work represented a novel entrepreneurial initiative. For the PvdA, own-account work would remain precarious if not covered by inclusive social protection. 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. In June 2019, the Rutte III cabinet, made up of 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 earlier and secured with a four-billion Euro government investment fund. The retirement age will rise to 67 in 2024, but on a gentler incline than agreed in 2009.

In 2018, the Organization for Economic Co-operation and Development (OECD) identified the uncontrolled rise of nonstandard work as a fundamental change to the Dutch welfare state. Subsequently, two leading reports were published on the future of work and welfare in the Netherlands. In 2019, the

Scientific Council for Government (WRR) published *Het Betere Werk. De Nieuwe Maatschappelijke Opdracht* (The Better Job. The New Societal Imperative). On January 20, 2020, a high-level state commission published *In Wat voor Land Willen we Werken? Naar een Nieuw Ontwerp voor de Regulering van Werk* (What Country Do We Want to Work In? Toward a New Design for Labor Regulating) advocating mandatory social insurance for the self-employed (Borstlap 2020). Notably, both reports touched on digitalization and the need for permanent upskilling. The main conclusion of the Borstlap Commission was that that, over the past two decades, employers have increasingly opted for independent work subcontracting, as (semi-)permanent employment proved more and more costly. According to the commission, the growing share of independent employees in the working-age population is bound to become a drag on Dutch competitiveness. Without using the functional triad of social investment "stock," "flow," and "buffer" provision, the report intimates that, if uncorrected, current labor market conditions will result in less inclusive social security buffering, fragmentary and less flexible labor market transitions, and huge underinvestment in human capital. In the view of the Borstlap Commission, in terms of flow, sustainable (semi-)permanent employment relations should reemerge as the dominant norm in the labor market, with a stronger emphasis on improving internal flexibility in employment organizations. In terms of regulation, more transparency is called for across three distinct types of career path: (1) the norm of (semi-)permanent contracts; (2) part-time employment and temporary work, and (3) independent self-employment. The choice between (permanent) employment, temporary work, and entrepreneurship, should be based on substantive grounds, and not driven by tax or regulatory (dis)incentives. It is imperative, in terms of stock, that workers, 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 a foundation of inclusive social security and income protection for all, independent of career modalities. This implies a further transition from selective "Bismarckian" social insurance principles toward "Beveridgean" public social security for unemployment, sickness and disability, and skill depletion, beyond the public social assistance and basic pension provisions that already exist. The new aspect is that independent entrepreneurs will have to pay into the Beveridgean funds for basic social security for disability and skill depletion. Another concrete recommendation is to contain external flexibility by making temporary agency work more expensive, based on a clear-cut delineation of the "temporary" nature of agency work, whereby the de facto employer should be the legal one. The aim here would be to disincentivize excessive sub-contracting.

Before the COVID-19 pandemic, the vocal high-skill segment of the Dutch self-employed strongly opposed integration into a social security regime for all. As many independent jobs were under immediate threat, the Dutch government has stepped up to soften the blow for freelancers and platform workers. The upshot

is that the Rubicon is crossed, and the self-employed will be covered by a hybrid Dutch Beveridgean-Bismarckian welfare state, as suggested by the Borstlap Commission. Because of the intrusive austerity drive launched in 2009, the Netherlands took a backseat on social investment reform. Beyond regulatory overhaul, a debate on social innovation in relation to digitalization, along the lines of the German *Industry 4.0* initiative, to which we now turn, is sorely lacking.

Germany

Comparative estimates of substitution risks caused by technology show that jobs in Germany are highly vulnerable to such a risk. In fact, Germany exhibits one of the highest substitution risks of all OECD countries (Nedelkoska and Quintini 2018). This particularly applies to the manufacturing sector, which continues to be the backbone of the German employment model and is still larger than in many other OECD countries. Hence, while the overall number of jobs is likely to remain more or less stable or even slightly increase in the digital era, profound changes within and between sectors, occupations, and jobs are expected. This raises doubts about the existing organization of work and the sectoral structure which contribute to the high exposure to automation. Furthermore, lifelong learning in Germany, considered a key priority for human capital stock, is institutionally fragmented and biased in favor of better skilled and younger people, as well as company-initiated training provided to core staff. Collective bargaining and firm-level worker participation (codetermination) might help facilitate change, but the scope of both of these mechanisms has been on the decline over the last decade. Large parts of the service sector are not covered by collective bargaining, with the same applying to many smaller firms, while the metal and chemical sectors continue to be strongholds 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 increases (although this type of work remains very limited so far).

In response to these challenges, the early 2010s were dominated by a state-sponsored research and industrial policy which aimed to look into innovative business processes (Industry 4.0), with a focus on the engineering core of the economy (see Buhr and Frankenberger, Chapter 19 in this volume). Only somewhat later, encouraged by trade unions becoming increasingly aware of the challenges to the manufacturing sector, did attention shift toward labor market and social policy issues. This triggered a government-initiated institutional dialogue between the Federal Ministry of Labour and Social Affairs, the social partners, academic experts, and the wider public. The main goal was to explore the need and possibility of modernizing the labor market and human resource and social policies in light of the digital transformation. This was based on broad stakeholder participation,

ultimately aimed at stimulating an iterative policymaking process, starting with a Green Paper put forward by the ministry in April 2015, defining a set of policy priorities, and concluding with a White Paper published in early 2017 (Federal Ministry of Labour and Social Affairs 2017).

The stakeholders involved identified four main topics: (1) Lifelong 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 increase business flexibility, as well as employee autonomy, while addressing the issue of a potential dissolution of the boundary between working time and leisure. (3) Social protection of the self-employed was perceived as a contentious issue as the lines between employment and self-employed work are increasingly blurred, such 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 opportunity that could only be used to the full by organizing work in new ways and adapting workers' skills. However, a closer look at actual policy initiatives shows a certain tension between the priorities identified and the reforms implemented in practice over the last few years.

Taking a broader and longer-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. 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 labor market where state policies are more important (see Table 4.2).

In terms of the core labor market, a publicly supported industrial policy aimed at increasing investment, productivity, and competitiveness through the

Table 4.2 Dualized labor markets and reform activity in Germany.

	Core labor market (with collective bargaining)	**Margin of the labor market**
Human capital formation	Employer-funded continuing vocational education and training, extended via collective agreements	Increasing role of public employment agency/ALMP in training for employed people
Regulatory issues	Collectively agreed or company-based arrangements for mobile working, flexible working times etc., reorganization of work	Statutory minimum wage, reregulation of nonstandard work, steps toward expanding coverage of social insurance

development and application of digital technologies continues to be combined with company-sponsored training for skilled workers and increasingly widespread collective agreements with training components with a view to maintaining high levels of productivity. This is being complemented by new forms of internal and functional flexibility, such as a more flexible organization of working time, internal collaboration, and new forms of work, partly embedded in sectoral or company-level agreements, or driven by firms directly. In this segment, only a very limited role is played by legislation or policy intervention, such as new legislation on temporary part-time work for parents or the potential, but still highly controversial, reform of working time legislation. As was the case during the Great Recession, the COVID-19 pandemic has resulted in well-established instruments, such as publicly sponsored short-time work, being used heavily, thus avoiding or at least postponing layoffs. Short-time work is also available to smaller firms and to the service sector, but implementation there is less able to rely on established procedures, and the link between short-time work and training remains quite weak, with the same applying to policies that could help ease the flow from declining sectors or firms to areas with more robust labor demand.

As for the margins of the labor market, the last few years were characterized by reregulatory policy reforms correcting some of the deregulatory steps taken in the 2000s, such as the introduction of a statutory minimum wage in 2015 and stricter regulation of temporary agency work in 2017. This can be interpreted as a response to growing public concerns about inequality and "precarity" in the labor market (Marx and Starke 2017). There has been some debate, albeit so far without concrete outcomes, on the boundary between dependent and self-employed work as regards the redefinition of the dependent worker status and/or the inclusion of the self-employed in social insurance. Notably, as a direct response to COVID-19, ad hoc support for freelancers and small companies was made available to help them maintain liquidity, ultimately putting the issue of a contributory unemployment insurance for the self-employed or for those combining different types of income on the agenda.

Lastly, in Germany, there is increasing intervention from public Active Labour Market Policy (ALMP) to promote training of employed people, in particular medium- and low-skilled workers in small and medium enterprises (SMEs). However, a stronger institutional base for a more universal regime of lifelong learning is still absent. This latter point illustrates the difficulties in creating a more egalitarian lifelong learning environment in a county with fragmented adult learning. While there has been a broader expansion of childcare and quality improvements in schooling (more or less in line with social investment) in Germany over the last two decades, the realm of lifelong learning is still characterized by fundamental divides between company-initiated training addressing core (skilled) staff, public ALMP generally 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. The first national adult learning strategy, adopted in mid-2019, was the result of a difficult and complex process. The strategy has the potential to lead to better coordination, higher transparency, and more universal access to adult learning, but in terms of concrete implications it remains rather limited.

A preliminary assessment shows that the main issues debated in Germany in the Work 4.0 context have long been topics of labor market and social policy, but they have been reframed and given new urgency, motivated by current and imminent technological change and automation. An earlier focus on stimulating innovative production technology was linked to social innovation as actors from trade unions and the area of social policy entered the discourse. The German experience shows that a "flexible" tripartite approach at different levels seems feasible due to shared interest in productivity, innovation, and jobs, as well as the joint interests of both labor and business. 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 of and pension coverage for self-employed work. In fact, while there have been longer-term policy trends toward reregulation of the labor market and more emphasis on education, *direct* social policy responses to digitalization are hard to find.

Italy

As in Germany, in Italy too, the substitution risk due to technology is above the OECD average (see Figure 4.1) and particularly affects the manufacturing sector. Based on SMEs in typical "Made in Italy" sectors, manufacturing is mostly associated with low and medium technology activities and clustered in industrial districts which are characterized by a deep regional divide. The northern "Industrial Triangle" (Milan-Turin-Genoa) is oriented toward capital, high-tech, and knowledge industries, in the northeastern and central regions, family enterprises mostly specialize in low-skilled light manufacturing, while the south relies mainly on tourism, with high levels of informality, and youth and female unemployment.

Although digitalization is characterized by sectoral specificities associated with the skills required for particular professions, the employment shares of high-skilled workers are growing and a phase of reprofiling of conventional jobs is expected, further increasing job polarization and internal disparities (Cirillo et al. 2019). In recent years, a growing awareness of the need to ensure the regulation of the labor market is in step with the knowledge society and the digital era has driven significant legislative initiatives. However, there are many constraints that have put a brake on change, including: weak state-sponsored industrial and innovation policies combined with low private investment in R&D; delegitimized social dialogue; a lack of policy complementarity and administrative capacity. Taken

together, these features represent a weak institutional setting for the development of SI responses to digitalization. Such shortcomings have been exacerbated by the prolonged public underfunding of education and research, which contributed to making Italy one of the European countries with the lowest levels of schooling and human capital and with the highest school dropout rate and young people Neither in Employment or Education or Training (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).

Yet, in spite of very difficult fiscal and economic circumstances in the wake of the 2008 crisis, since 2014 Italy has passed a range of reforms to realign its socioeconomic policy strategy. The government relaunched its consultation with stakeholders to improve the responsiveness and inclusiveness of the labor market and provide the country with the essential technological infrastructure and skills to allow innovation to progress. Recent reforms addressed four main policy domains: (1) Labor 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 various stages. Stakeholders have been consulted to finetune measures, but non-institutionalized industrial relations, in a context of political instability, do not allow unions and employers to develop stable institutions and contribute to policymaking, leaving governments acting alone.

The 2014 *Jobs Act* has been particularly heavily criticized by unions due to its introduction of a new open-ended contract with dismissal costs increasing in proportion to seniority and removing the reinstatement provided for in the workers' statute for dismissals without just cause in companies with more than 15 employees. An 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 those working in digital labor platforms were included in its scope.

A shift toward activation measures was also enforced: the link between benefit conditionality and activation was strengthened and the scope and duration of wage supplement schemes for industrial crises was limited. The National Agency for Active Labour Market Policies was created to harmonize standards and practices. However, territorial and policy fragmentation, combined with weak administrative capacity, greatly reduce the effectiveness of such measures. One 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 poorly equipped to provide adequate

support for job reintegration. The training that is offered is not targeted, being neither linked to job demand or 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, important inequalities persist in terms of employment protection and the generosity and coverage of unemployment benefit.

To address digital competences and a shortage of job-related skills, the 2015 Good School Act funded infrastructure interventions to develop ICT-based learning environments (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 education system, the School-Work Alternation scheme was developed, making traineeships compulsory in the last three years of upper-secondary education. However, there have been very few concrete initiatives to foster the local implementation of this measure (i.e. support for schools to establish partnerships with firms and work-based learning). Only "virtuous" schools and companies benefited from these policies, while most were not affected, especially in regions where there are fewer companies able to provide high-quality work experience.

To facilitate the transition to digital technologies among firms, the 2016 Industry 4.0 Plan set up a network of technological hubs. The aim was to engage a broad range of actors, including large private players, universities, research centers, SMEs, and start-ups to promote the adoption of technologies in key industrial sectors. In fall 2017, the second phase of the plan, entitled Enterprise 4.0, was launched and then expanded in 2020 with the Transition 4.0 program. 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 structural transformation was developed to expand digital infrastructures and collaboration between the public and private sector in fostering innovation.

These policy packages represent a major effort to stimulate the digitalization of the economy and lead technological change. However, Italy's investment in R&D is still the second lowest of the EU-15 countries and policies are still primarily based on indirect subsidies and tax incentives to firms, rather than direct state funding, which have limited capacity to promote private investment in skills and innovation (Burroni et al. 2019). Although private R&D expenditure has been on the rise in recent years (in 2018 it reached 0.86 percent of GDP), it remains well below the EU average. Restricted access to credit, low foreign direct investment (FDI), and limited venture capital markets are unfavorable conditions for the growth of R&D-intensive companies. Moreover, the low share of people employed in R&D in both the public and private sector and the weak 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, entitled Citizens' Income Benefit but more similar to a guaranteed minimum income, has been launched. This targets jobseekers and low earners who agree to sign an employment pact declaring that they are 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 retraining and effective job matching.

Since March 2020, unprecedented economic efforts have been undertaken to guarantee social safety nets and employment-related measures in response to the COVID-19 crisis. The government developed expansionary measures to support the health care system, households, workers, and firms affected by the pandemic (i.e. expansion of the ordinary wage guarantee; income support for workers not covered by any social safety net; dismissal 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. It is too early to evaluate the effectiveness of these measures, but the implementation of these emergency policies alone confirmed the weakness of the administrative system, and two months after the beginning of lockdown, these measures had not been implemented due to institutional layering and a lack of coordination.

Despite significant policy reformism, poor implementation capacity and institutional weakness reduce policy effectiveness and efficiency. This is crucial also when it comes to shaping the impact of digitalization. Up till now, innovation and skills policies have been marginal and lifelong learning and policies aimed at facilitating female employment have been neglected. Mario Draghi publicly addressed these weaknesses in his first speech in parliament after his new government had taken office in February 2021, during which he pledged to employ the planned EU recovery fund to speed up plans for the digitalization of the different economic sectors, skills expansion, and the ecological transition.

Conclusion and Outlook

Arguably, digitalization and the welfare state jointly saved Europe from economic meltdown when the Covid-19 pandemic struck and continued to smolder in 2020. Thanks to digitalization, most working-age adults were able to shift to working online. In addition, the welfare state proved proficient in buffering the economic costs of extended lockdowns. Supported by accommodating monetary and fiscal policy, precious time was bought to develop effective vaccines. On a less salutary note, the pandemic exposed many of the preexisting fault lines inherited from the

Great Recession, ranging from excessive inequality, wage stagnation for frontline public and private service workers, exacerbating fault lines in the work-life balance, especially for working mothers, and diminishing employment opportunities for the millennials.

Our overall argument is that the digital revolution has had more of an incremental than a disruptive effect on welfare regimes. In comparative research, welfare state resilience, measured in terms of social protection spending, has often been wrongly understood as policy immobilism *tout court*. We concur with a more dynamic notion of welfare state resilience, bringing together two critical elements. On the one hand, there is the shock absorption capacity of social security buffers in times of recession. On the other, there is the dimension of adaptive change to more slow-burning social and economic challenges, such as technological innovation and demographic ageing. As a whole, the welfare state serves as an incremental catalyst and facilitator of structural change. Beyond immediate crisis-contingencies and more medium-term functional pressures, welfare regimes, which channel close to 30 percent of GDP across the EU, have a life of their own, shaped by idiosyncratic interactions between political actors, including governments, political parties, interest groups, and individual policymakers, each with their own views on the merits and limitations of digitalization and welfare provision. Our case studies thus illustrate institutionally bounded trajectories of regime adaptation rather than punctuated change. This should come as no surprise, because digitalization is part and parcel of the longer-term trend of the growth of the knowledge economy in ageing European societies. Unquestionably, the COVID-19 pandemic has accelerated the digital transformation of the way we work and organize our lives. Equally, if not more importantly, the disruptive nature of the pandemic has brought home just how imperative competent welfare states and resilient health systems are. Against the backdrop of an existential recognition of human frailty, normative arguments about social fairness across risk groups have been rekindled. And since COVID-19 knows no boundaries, the pandemic has highlighted the need for more effective EU cooperation and fiscal solidarity, policy ingredients that was sorely lacking over the decade of the Great Recession.

In summary, the Covid-19 predicament reinforced the need for:

1. inclusive *buffer* policies in order to minimize the social and economic costs (scarring effects, depreciation of human capital) of high and persistent unemployment in a downturn;
2. gender-balanced *flow* policies in order to maximize employment and facilitate effective homeworking, together with economic adjustment (e.g. quick and painless reallocation of workers from declining industries to growing ones);
3. lifelong *stock* policy commitment to support a high-skill/high-productivity/high-wage equilibrium;

4. an E(M)U governance regime that effectively supports strong, inclusive, and smart welfare states.

As the in-depth analysis of our case studies reveal, Germany and the Netherlands have moved in the direction of SI, largely driven by proactive adaptation to the reality of expanding services and a more heterogeneous labor force. With its strong rebound in exports in the aftermath of the global financial crisis, Germany significantly improved its social investment, catching up with the Netherlands, which, after 2009, took something of a backseat on social investment driven by a cross-party commitment to fiscal austerity. Italian policymakers tried to contain the trend toward labor market dualization and improve coverage for those most at risk. However, these reforms were enacted against the background of the sovereign debt crisis, which left Italy little fiscal leeway to upgrade social investment. Here, domestic institutional weaknesses in combination with macroeconomic imbalances related to eurozone asymmetries, and especially the austerity drive proposed by EU institutions in the immediate aftermath of the Greek sovereign debt crisis, arguably weakened the resilience of health and welfare provision before the pandemic struck in northern Italy in January 2020.

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