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TransEuroWorkS conceptual framework: on the combined effects of the green transition, digitalisation and migration [Deliverable 1.4]

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TransEuroWorkS Conceptual Framework: On the Combined Effects of the Green Transition, Digitalisation and Migration

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Table of Contents

Abstract.....	2
1. Introduction.....	3
2. The <i>big-three</i> labour market transformations	4
Digitalisation and automation.....	5
The green transition	6
Migration and internationalisation of the workforce	7
3. Welfare states and EU social protection in the context of the <i>big-three</i> transformations	8
4. A new theoretical framework	10
Interconnection of the big three: different transformation, same implications?.....	10
The big three and policy preferences.....	12
Political cleavages in a new world of work	15
5. Conclusion	17
6. References.....	18

Abstract

How are the three critical structural labour market transformations in Europe, i.e. the green transition, automation and digitalisation, and the Internationalisation of the workforce, interrelated and what are their common and distinct consequences on national and EU social protection schemes? In this paper, we provide a new theoretical framework to advance our understanding of the interconnection of these three major labour market transformations in Europe. While recent scholarly work in comparative political economy has provided first insights into the possible consequences of technological changes, climate policies, and mobility for the world of work, to date these structural changes have been addressed mostly independently from each other. Moreover, analyses of the implications of these transitions in terms of support for mitigating policies have been mainly focused on national social and labour market policies. The consequences of structural labour market transformations for policy making at the EU level remains heavily understudied, both empirically and theoretically. Filling these gaps, in this article we develop a more integrative understanding of how these fundamental changes relate to each other in terms of perceived labour market risk and skill requirements for workers, and their potential of shaping political support for enhanced social protection policies to mitigate these challenges. Our theoretical framework advances that the transnational character of current and future labour market risks brings in the potential to create new political support coalitions for trans- and supranational policy responses. Notably, we argue that when citizens are prompted to perceive labour market insecurities to be the consequences of a transnational phenomenon exogenous to European institutions, there is a potential for increased support for EU-level policy solutions to these structural insecurities over national mitigation measures. In that sense, these structural challenges provide a promising opportunity to overcome existing political cleavages between EU-sceptics and Europhiles.

1. Introduction

Over the last two decades, European countries have faced unprecedented structural changes encompassing digitalisation and automation, the internationalisation of the workforce, and the transition towards a green economy due to climate change. These systematic changes uncontestedly have important implications for the labour market by affecting the demand for labour, the skills required for production, and the type of jobs created in the economy.

Much of the attention has focused on the adverse effects of digitalisation and automation on employment in sectors such as agriculture, finance, and manufacturing (Olmstead and Rhode, 2001; Gallardo and Sauer, 2018; Staccioli and Virgillito, 2021). Likewise, analyses of green and brown jobs suggest that the green transition may lead to a reduced demand for labour in energy-intensive industries, like the steel and chemical sectors, and construction (Scholl et al., 2023; Shapiro & Metcalf, 2023). At the same time, investments in renewable energy, green infrastructure, and new technologies are also expected to create new jobs across various sectors. In outlining the “twin transition” to a green and digital economy, the European Green Deal highlights job creation across a wide range of industries (European Commission 2021b).

There is broad consensus that mitigating the negative impact of these transformations and tapping the full potential of new employment opportunities involves addressing the mismatch between the skills possessed by workers and the skills required for these new jobs (OECD, 2019, 2023a). As workers across a wide range of industries face heightened job insecurity, there is a growing need for reskilling and retraining opportunities, and for workers to move more easily across sectors. Accordingly, these structural transformations potentially affect workers’ demand for social protection and calls for revising the existing policy framework to tackle these labour market insecurities and shortcomings.

Recent scholarly work in economics and comparative political economy has provided first insights into these possible consequences of technological and digital innovations, climate change, and mobility for the world of work (Crespy & Munta, 2023; Dermont & Weisstanner, 2020). However, this body of research has two major shortcomings. First, much of the work has thus far examined structural labour market changes mostly independently from each other (as an exception see Busemeyer et al., 2023). Yet, there is reason to believe that these transformations are interrelated at various levels, making it relevant to take into consideration their joint effects on labour market risks when studying changes in social protection preferences and new policy needs. This is exemplified by the evidence that technological innovations directly facilitate and boost the shift towards a green and climate neutral economy which further stimulates digitalisation and automation processes (De Felice & Petrillo, 2021; Mondejar et al., 2021; Yang et al., 2022). In addition, the shift to such greener knowledge economy likely has imminent effects of increased intersectoral, national and intra-European mobility of workers due to a mismatch between skills present and skills required in transformed economies (Gençsü et al., 2020).

Second, existing analyses of the implications of these transitions in terms of support for mitigating policies have been mainly focused on national-level social and labour market policies. The consequences of structural labour market transformations for policy-making at the European level remains heavily understudied, both empirically and theoretically. Yet, the implications of these systematic transformations are of crucial importance for EU policy-making. In addition to the transnational character of these structural changes, the increasing integration of economic activity and intra-European mobility have contributed and continue to contribute to a common European labour market. It is therefore reasonable to assume that addressing those challenges in a joint manner presents benefits from both an efficiency and equality perspective.

This paper aims to address these two gaps by bridging different strands of literature. Notably, we provide a new theoretical framework to advance our understanding of the interconnection between the mentioned three major transformations in how they affect European labour markets. In addition, this framework includes how these transformations may shape political support for enhanced EU social protection policies. We argue that climate change, the shift to a knowledge economy through automation and digitalisation, and the internationalisation of the workforce share important similarities concerning their transnational character, the consequences that they have on workers, employers, and labour markets, and the complexity they present to individuals attempting to grasp the scope of their effects on individual and national economy risks. Consequently, they result in similar policy needs in terms of supporting sectoral, national and cross-border mobility, reskilling efforts, and social protection against unemployment. We advance that this has important implications on preferences for social protection and brings in the potential to create new political support coalitions for trans- and supranational policy responses.

The article is structured as follows. In the next section, we provide a thorough overview of the existing literature on the implications of the green transition, the digitalisation and automation, and the internationalisation of the workforce on existing labour markets. We then discuss previous scholarly work on the existing policy framework to address those structural changes in an altered world of work. Building upon this existing work, we then introduce a new theoretical framework that bridges these three transformations and their implications on political preferences for social protection.

2. The *big-three* labour market transformations

European countries face important structural changes. First, the adoption of new and widespread digital technologies. Second, the move towards a more climate neutral economy. Third, increased mobility of labour, not only within but also across the EU. What are the consequences of these changes in European societies for workers, employers, and national economies? In which ways do these implications create new policy needs and affect preferences for social protection? In the next section, we provide an overview on the

existing scholarly work examining those questions for each of the big three transformations.

Digitalisation and automation

Digitalisation refers to the process of adoption of digital technologies, i.e. electronic devices, systems, and tools that store and process data signals and information (Creutzig et al. 2022). Since the last quarter of the 20th century, digitalisation is having a strong impact on different aspects of human life. Notably, it has a relevant impact on the economy through its contribution to automation, which is broadly defined as the introduction of technologies to reduce human intervention in production processes (Ravazzi and Villa, 2009). In this way, digitalisation influences how goods and services are produced, how production is organized, and the characteristics of the final products themselves (Goldfarb and Tucker, 2019). This has implications for the labour market by affecting the demand for labour, the skills required for production, and the type of jobs created in the economy.

Although there have been recurring expectations of mass unemployment as a result of labour-replacing technology, these have never materialized (Mokyr et al. 2015), automation and digitalisation have had profound impacts on the labour market. Existing empirical evidence shows that, over more than a century, there has been widespread substitution of labour for new technologies which replaced and/or changed the nature of many tasks previously solely performed by labour. For instance, the implementation of automation technologies in agriculture and manufacturing have implied a dramatic reduction in the number of people employed in these sectors (Brynjolfsson and McAfee, 2011, 2014; Autor and Salomons, 2018; Bessen et al., 2023; Olmstead and Rhode, 2001; Gallardo and Sauer, 2018; Staccioli and Virgillito, 2021). However, this process has been compensated by the creation of new, mostly high-skill jobs, that did not previously exist, typically in the service sector and the knowledge economy (Powell and Snellman, 2004; Nicoletti et al., 2020, Millán et al., 2021, Bresnahan et al. 2002; Bessen, 2019; Autor, 2019). In addition, digitalisation has significantly altered the task content of existing jobs (Bührer & Hagist, 2017; OECD, 2019, 2023a). Nevertheless, the evidence does not reveal a clear-cut link between recent wages of digitalisation and labour productivity (van Ark, 2016; Gal et al., 2019; Brynjolfsson, et al., 2021).

In contrast, scholars broadly agree that digitalisation tends to increase the demand for high-skilled workers through its effect on jobs and tasks. Consequently, research shows that it tends to generate wage premiums for individuals at the upper end of the wage distribution, contributing to job polarisation and wage inequality (Goos et al., 2009, Michaels et al., 2014, Autor, 2015, 2022; Thewissen et al., 2018). Although recent developments in generative artificial intelligence suggest that in the future digitalisation might actually have negative effects on the demand for high-skilled labour, for instance in sectors such as finance and manufacturing (Tolan et al. 2021; Georgieff and Hye, 2021; Acemoglu et al., 2023). In addition, recently digitalisation has contributed to the rise of the so-called gig economy which is characterized by low wages for workers, flexible work arrangements,

and low degree of unionization (De Stefano, 2015; Drahokoupil and Fabo, 2016; OECD, 2019; Oyer, 2020; Ilsøe and Larsen, 2020). In this way, digitalisation further contributes to labour market segmentation and economic inequality (OECD, 2023a; Lane et al., 2023).

The green transition

The green transition refers to the shift towards an economy no longer reliant on fossil fuels and the overconsumption of natural resources. This transition is one of the biggest contemporary challenges facing Europe and the world. The importance and necessity of the green transition is acknowledged by the European Union, and it is reflected in the so-called European Green Deal, which has the overarching aim of making the EU climate neutral by 2050 (European Commission, 2019). The societal transformations emanating from the green transition are expected to have widespread effects throughout the economy. For instance by providing opportunities for job creation and transformation, as well as challenges related to adapting skills to new jobs and tasks (OECD, 2017; Bowen et al., 2018; Popp et al., 2020).

The literature on the job creation potential of the green transition points out that investments in renewable energy, energy efficiency, and green infrastructure are expected to create jobs across various sectors, including waste management, manufacturing, repair and installations, energy, utilities, construction and agriculture (Wijkman & Skånberg, 2015; Esposito et al., 2017; Cambridge Econometrics, 2018. Unay-Gailhard & Bojnec 2019, Ram et al. 2020, Popp et al. 2020). In addition to job creation, several studies point at the tendency of the transition to foster innovation and entrepreneurship (Bogoslov et al., 2022), which has the potential to lead to new industries and the expansion of existing ones.

Notwithstanding the promising potential for job creation, there is also evidence that the green transition will lead to less demand for labour in some sectors (Shapiro and Metcalf, 2023). Differentiating between so-called green and brown jobs has been an important step in this literature to better understand the impact of the green transition and identify the sectors most affected (Bohangerberger, 2022, Urban et al., 2023, Janser, 2018, Bowen et al., 2018, ILO, 2013). Regarding the skills required in green jobs, the literature emphasizes technical expertise in areas such as renewable energy, energy efficiency, and environmental management (Consoli et al., 2016; Kizu et al. 2018; Burger et al., 2019), as well as “soft” skills such as adaptability, problem-solving, and collaboration (Nikolajenko-Skarbalè et al., 2021; García Vaquero et al., 2021). Adapting skills to match the requirements of newly created green jobs is perhaps one of the biggest labour market challenges related to the green transition, especially given that the set of new skills required are heterogeneous across jobs and sectors (Vona et al. 2015; Burger et al., 2019).

Similar to digitalisation, the green transition may not lead to a massive increase in unemployment. The literature shows that sectoral relocations can lead to income and job losses if not coupled with targeted reskilling programmes to meet the technological skills required in a green economy (Walker, 2013). This is particularly true for vulnerable

communities such as migrants and lower skilled workers, as the literature shows that they often have a relatively higher share of employment in brown jobs and a lower capacity to reskill (Galgóczi, 2023).

Migration and internationalisation of the workforce

Alongside digitalisation and the green transition, migration is widely considered among the main drivers of labour market transformation in Europe (van Vliet et al., 2021). Migration is linked to changes in wage and employment levels, as well as labour market rigidities such as employment protection, minimum wage, and welfare spending (Brady & Finnigan, 2014; Burgoon et al., 2012; Fenwick, 2019, Edo et al., 2018). The direction and magnitude of these associations typically depend on factors such as the timing and composition of migration (Dustmann & Frattini, 2014; Peri, 2010), general labour market conditions (Kogan, 2006), welfare state characteristics and policies (Alba & Foner, 2015; Corrigan, 2015; Devitt, 2011; Grimshaw et al., 2014), and composition of immigrant and native populations (Ballarino & Panichella, 2015; Dustmann & Frattini, 2012; Platt et al., 2022).

Despite the complexity of its effects on the labour market, the free movement of labour remains at the heart of the EU agenda. Migration is often portrayed as not only a benefit but even a necessity for Europe (Riso et al., 2014; Rojas-Romagosa & Bollen, 2018). Labour mobility in Europe is anticipated to reduce labour market imbalances by supplying human capital to countries with higher labour demand; foster economic growth by increasing demand for goods and services; provide a partial solution to the aging populations of Western Europe; as well as lead to convergence of income and employment differentials across countries (Bagavos, 2023; Dorn & Zweimüller, 2021).

Existing scholarship, however, has yet to reach a consensus about the costs and benefits of labour migration (Nannestad, 2007; Pekkala Kerr & Kerr, 2011). Some studies highlight the ways in which immigration can lead to a decrease in wages or even an increase in unemployment among native-born workers, while others examine the skill upgrades that native-born workers experience as a result of immigration (Edo et al., 2018, Angrist & Kugler, 2003; Glitz, 2012). A related stream of literature examines the effect of immigration on the welfare state, namely whether immigrants are a net burden or contribution to national welfare schemes (Barrett & McCarthy, 2008; Dustmann et al., 2013, 2016, 2017; Edo, 2019; Glitz, 2012; Nannestad, 2007; Razin & Wahba, 2015, Boeri, 2010; Giulietti et al., 2013; Martinsen & Pons Rotger, 2017; Suari-Andreu & van Vliet, 2023; Boffi et al., 2024a, 2024b).

Ultimately, the impact of immigration on wages and employment depends on multiple factors, including the skill composition of the immigrant population, the degree of substitution between immigrants and natives, and the flexibility of local and national labor markets. In addition, these effects differ in the short- and long-term (Beerli et al., 2021; Kahanec & Zimmermann, 2010; Ortega & Verdugo, 2014; Peri, 2014, Docquier et al., 2014; Platt et al., 2022). Finally, more recent work draws attention to the ways in which

the effects of immigration depend on the institutional context, suggesting that the relative costs and benefits of immigration can be better managed by social policy.

3. Welfare states and EU social protection in the context of the *big-three* transformations

As outlined in the previous section, labour markets in advanced industrial economies have undergone significant transformations, primarily driven by these three structural changes of automatization and digitalisation, green transition, and internationalisation of the workforce. These changes have ushered in new challenges for workers that welfare states are grappling with. They include new social risks that are becoming increasingly prevalent. These are for instance job insecurity, mismatch between the supply of skills among workers and those required in the economy, and sectoral and international mobility of workers (Taylor-Gooby, 2004). How have national governments and the European Union reacted to those challenges by way of social policy? What are the consequences of this big three transformations on preferences for national and supranational social protection? This section provides a short overview of the existing social policy efforts (both at the national and EU-level) to tackle the effects of climate change, digitalisation, and internationalisation of the workforce on labour insecurities.

At the national level, recent decades have seen a paradigmatic shift in the orientation of social policies by European governments. European welfare states were initially developed with a focus on passive income replacement programmes for workers in conventional jobs and residing in traditional family structures (Esping-Andersen, 1990). However, new social policies are increasingly centred on proactive labour market participation and the development of human capital (Bonoli and Natali, 2012; Bonoli, 2013; Bakker and van Vliet, 2022). Notably, governments have increasingly shifted to educational programs and vocational training, initiatives that have become especially important as a growing share of workers find their skills obsolete due to technological change (van Doorn and van Vliet, 2022; Rodrik and Stantcheva, 2021).

In addition to these new social policies, there have been attempts to expand existing contributory, social protection schemes such as unemployment benefits to cover a diversified workforce that includes those in new forms of employment (Nienhueser, 2005, Hemerijck and Ronchi, 2021). Moreover, governments have introduced and expanded non-contributory social assistance programmes, or the provision of a guaranteed minimum income with the aim to protect individuals who are either disengaged from the labour market or are precariously engaged and subject to working poverty.

These national policy efforts can help tackle challenges arising from the *big three* transformations mentioned above. They are complemented by an increasing awareness by the European Union that a more transnational response to labour market transformations

may be necessary (European Commission, 2021). Although the EU has historically made limited interventions in the realm of social policy, this changed with the introduction of the European Pillar of Social Rights in 2017 (van Staaldunen et al., 2023). In aiming to guarantee all EU citizens the right to social and economic security, the EU has significantly expanded its social policy initiatives to include an ambitious minimum wage directive, proposals to significantly expand the protection of platform workers, as well as billions of euros of investment in education and training programs (European Commission, 2021a). Notwithstanding these advancements, social policy at the EU level is largely a patchwork of initiatives to supplement national welfare schemes. A more expansive role for the EU in the realm of social policy would present significant design and implementation challenges, as well as a new political project.

National governments and the European Union are increasingly cognizant of employment insecurities and labour market inefficiencies in the contexts of the green transition, digitalisation, and labour mobility. However, there are also significant gaps in the current policy responses to these transformations. Evidence from research on public preferences for social protection in this new world of work, however, remains ambiguous when it comes to what kinds of policy responses would be preferred. While some evidence suggests that workers in routine task intensive occupations with objective higher occupation risks display a higher demand for redistribution (Thewissen & Rueda, 2019), other correlational and experimental analyses indicate that workers at risk often do not comprehend these transformation and are not more likely to demand compensation (Gallego et al., 2022). Likewise, the scarce evidence on the impact of climate change on social protection preferences offers contradictory findings. Some evidence suggests that perceptions of individual- and labour market-level risks due to climate change are positively correlated with support for social policy responses (Busemeyer et al., 2023) and that people with less transferable skills are less likely to prioritise the economy over the environment (van Doorn and van Vliet, 2023), while in other contexts employment risk in the coal industry has been linked to support for less government intervention (Egli et al., 2022).

These mixed findings suggest that there may be untapped public support for alternative policy routes to alleviate employment insecurities in the context of the big three transformations at the European level. The existing scholarly work on support for EU social policies is relatively limited in contrast to national level policy preferences. However, most recent studies reveal that there is support for extending EU social policy-making but to a varying degree across policy areas and different group of respondents (Mau, 2005; Kuhn and Kamm, 2019; Kuhn et al., 2020; Baute, 2021; Burgoon, 2009; Gerhards et al., 2016; Lee, 2018). Yet, these studies have heavily understudied, both empirically and theoretically, the consequences of structural labour market transformations for policy making at the European level. The very scant existing empirical evidence suggests, however, that *the big-three* pose a profound potential to transform citizens' attitudes towards a greater involvement of the EU in addressing labour market risks. For instance, Beaudonnet (2014) shows that economic insecurities fuel support for a common EU social protection scheme, while Ronchi et al. (2023) find that citizens who perceive their

employment to be negatively affected by digitalisation and globalization are found to give priority to EU social protection policies over policies addressing the green transition.

4. A new theoretical framework

Taking the scholarly work outlined previously into consideration, in this article we bridge the literatures on labour market effects of digitalisation, the green transition, and internationalisation of the workforce with research on social protection policies and preferences. Building up on these streams of literature, we provide a new theoretical framework to study the joint effects of labour market transformations on workers, employers, and national economies and hypothesize on the implications for redistributive preferences, political behaviour, and social protection policies.

As outlined in Section 1, this framework makes two crucial contributions to the existing literature, which we address in the following sections. First, we explore to what extent and through which mechanisms these transformations are intertwined, contrasting with previous literature that mostly addressed these transformations separately. In a second step, we draw a link between labour market transformations and preferences for EU social policy, adding to recent research on redistributive attitudes at the national level. We argue that these structural transformations have important implications for existing political cleavages concerning EU integration and supranational social protection schemes.

Interconnection of the big three: different transformation, same implications?

The review of the literature on the effects of the green transition, digitalisation and internationalisation of the workforce indicates an important overlap in the effects that these transformations have on workers, employers, and national economies in Europe. Looking at the implications on employment, research shows that all three transformations increase job insecurity but display heterogenous effects across different sectors. While some sectors face a decline in the demand for labour, employment opportunities are created in others. Moreover, it becomes clear that the effects of one transformation on employment opportunities are reinforced by the joint presence of another structural change.

For instance, there is important evidence that technological innovations directly facilitate and boost the shift towards a green and climate neutral economy which further stimulates digitalisation and automation processes (De Felice & Petrillo, 2021; Mondejar et al., 2021; Yang et al., 2022). In addition, it is expected that the shift towards a greener knowledge economy likely has direct effects in terms of increased inter-sectorial, national and intra-European mobility of workers (Gençsü et al., 2020). On the other side, certain industries are simultaneously negatively affected by more than one structural change, such as the manufacturing industry for which it is expected that both the green and the digital transition will reduce employment (Olmstead and Rhode, 2001; Gallardo and Sauer, 2018; Staccioli

and Virgillito, 2021). Besides the impact on the labour demand per sector, the review of the literature clearly points out that both digitalisation and the green transition imply shifts in the skill composition required in national economies. As mentioned in Section 2, existing work on the green transition emphasizes the need for a range of skills, including technical expertise in areas such as renewable energy technologies, energy efficiency, and environmental management (Consoli et al., 2016; Kizu et al. 2018; Burger et al., 2019). The creation of new skills is also an important factor in the context of the green transition, where (skilled) labour shifts are required from declining brown sectors to expanding green ones (Bowen et al., 2018). Likewise, technological innovations and digitalisation have contributed to creating new, mostly high-skill jobs that did not previously exist and for which new skills have to be acquired (Bresnahan et al. 2002; Bessen, 2019; Autor, 2019).

Job insecurity and retraining needs due to changes in the required skill compositions in the workforce relate as well to the third large transformation we consider: the internationalisation of the workforce. Previous work shows that globalization and digitalisation have increased the relative demand for high-skilled immigrants in recent years (Peri, 2011). Thus, certain European countries have started to implement skill-selective labour immigration policies (Kolbe & Kayran, 2019). It is expected that the green transition and digitalisation further contribute to this demand for highly skilled labour to address current and upcoming mismatches in the skill composition of the workforce and the skillsets needed for a greener knowledge economy (Gençsü et al., 2020).

Next to the effect on high-skilled labour, digitalisation and the associated development of the platform economy increase the demand for low-skilled and low-paying jobs. Historically, immigration in the context of guestworker programs in Western Europe has been crucial in filling these jobs. Therefore, increased demand for low-skilled and low-paying job does not only call for revising social protection measures in general but also raises new policy needs that address social protection gaps of mobile workers. This need is further amplified by the fact that EU mobile citizens and third country nationals are more likely to be employed in sectors with a higher routine tasks intensity which are at higher risk of being replaced by automation (Biagi et al., 2018), as well as existing inefficiencies in providing coherent social protection to mobile workers in the EU (Rasnača, 2020; Vintila & Lafleur, 2020).

The above-mentioned scholarly work suggests thus that the green transition, digitalisation, and international mobility have similar and overlapping implications for labour market insecurities such as individual employment risks and skill mismatches. In addition, these effects on workers, employers, and national economies are reinforced by the interconnection of these transformations. On the one hand, the green transition, digitalisation, and international mobility enhance and shift unemployment risks. Certain jobs that previously displayed relatively low probability of unemployment, such as employment in the finance sector, now face risks of becoming partially obsolete due to automation and technological innovations (Filippi et al., 2023). On the other hand, these transformations imply the restructuring of entire sectors where the shift away from so-called brown industries and the introduction of new technologies systematically affect the

way certain tasks are undertaken. As a consequence, this involves the reskilling of the workforce at a higher level than precedent economic changes had required. It also significantly increases the need for labour flexibility of the workforce, both in terms of inter-sectoral and geographical mobility. Consequently, we argue here that these structural transformations create overlapping policy needs concerning their effects on individual employment risks and labour market insecurities. To address those concerns effectively, it is therefore essential to examine these transformations simultaneously with regards to their effects on social policy demand and the design of appropriate policy responses to meet those protection needs.

***H1a.** Digitalisation, the green transition and the internationalisation of the workforce create similar policy needs in terms of addressing employment insecurity and skill mismatches.*

***H1b.** Because of the interconnections of climate change, digitalisation, and international mobility in their effects on employment insecurities, it is essential to address these transformations simultaneously.*

The big three and policy preferences

The review of the literature on social policies outlined in Section 3 reveals an increasing awareness by national governments and the European Union of increased employment insecurities and labour market inefficiencies. At the same time, the body of research we refer to establishes important gaps in the current legislatures to address employment insecurities. This means that workers and employers are currently insufficiently protected against risks posed by the mentioned large transformations. How do workers and employers perceive their employment and business perspectives in this new world of work? And how do increased employment insecurities in the context of the big-three transformations translate into public preferences, in particular the demand for social protection? It is important to consider that policy efforts (both at the national and EU level) to mitigate the potential negative side-effects of the big three depend on public support to be politically sustainable and fulfil their goals. Consequently, it is crucial to understand to what extent and under what conditions citizens are supportive of new regulations to address labour market risks and supply-demand mismatches in the new world of work.

Concerning social protection at the national level, the literature suggests that transnational labour market transformations relate to public demand for redistributive policies through increased perceptions of employment insecurities. While being a very recent body of work, there is some evidence that workers with subjective and objective higher occupation risks due to digitalisation and climate change display a higher demand for redistribution (Busemeyer et al., 2023; Thewissen & Rueda, 2019). However, other studies reveal mixed or null findings regarding the link between digitalisation, green transition, and public preferences for national government interventions providing stronger social protection (Egli et al., 2022; Gallego et al., 2022).

These mixed findings could be attributed to the literature's focus on attitudes towards already existing policy efforts, that consist of expansion of contributory benefits and social investment policies. While these offer possible solutions to some of the negative consequences of the big three, the literature reveals potential consequences for workers, employers, and economies that remain unaddressed given the existing policy framework. For instance, it is expected that flexibility in terms of inter-sectoral, national and international mobility is required to address current mismatches between workers' skillsets and the skills required for production (Gençsü et al., 2020). Thus, possible policy solutions could include provision of mobility assistance that reduces information barriers that hinder employers trying to recruit across countries. That would reduce the up-front costs that prevent workers from moving, and reduce the bureaucratic barriers that prevent or slow the movement of skills and labour across sectors and borders (Gençsü et al., 2020). In addition, difficulties in accessing social protection schemes and intra-European transferability of social benefits, including pensions, have been identified to demonstrate a major obstacle to intra-EU mobility (Arnholtz & Leschke, 2023; Heindlmaier & Kobler, 2023).

We argue therefore that existing work on the link between social protection preferences and labour market transformations has understudied social policies that go beyond existing national-level policy efforts. Yet, individuals are more likely to demand policy responses that complement existing institutional arrangements rather than simply reinforcing previous schemes (Busemeyer & Tober, 2023). Based on these findings, we hypothesize that the joint effect of the transformations we consider creates a potential demand for new social protection schemes that deserves further study.

H2a. *Through their effects on job insecurity and skill mismatch, digitalisation, the green transition and the internationalisation of the workforce increase the demand for new social protection schemes.*

Contrary to research on the preferences for national social policy making, relatively little is known about citizens' attitudes towards common European social protection schemes. Such distinction between national and EU policy preferences is highly relevant: research shows that citizens do not necessarily hold the same attitudes towards national and EU-level policies when it comes to social interventions (Burgoon, 2009; Gerhards et al., 2016). To address this gap in the literature, there has been a recent increase in studies that investigate citizens' attitudes towards expanding the EU's scope of action in the social policy domain. These new studies often do so through new data gathering efforts that include survey experiments (Baute et al., 2017, 2018; Beetsma et al., 2022; Dolls & Wehrhöfer, 2021; Nicoli et al., 2020). These studies show that there is room for extending EU social policy-making. However, the support for enhanced EU intervention into social domains varies significantly across policy areas and population subgroups (Mau, 2005).

Traditionally, most political economy research on redistributive attitudes has indicated that the support for national social protection policies is driven by subjective economic self-interest calculations (Alesina and Giuliano, 2010; Alesina and La Ferrara, 2005; Iversen and Soskice, 2001; Romer, 1975). However, recent studies suggest that socio-economic

status appears to be only a weak predictor of support for EU social protection (Meuleman and Roosma, 2020). In addition, a survey experiment in Spain and the Netherlands reveals that economic left-right ideology does not systematically predict solidarity with unemployed citizens in other EU member states (Kuhn & Kamm, 2019). That is despite political ideology being an important predictor of attitudes towards national unemployment policies (Busemeyer and Neimanns, 2017).

Interestingly, the few studies on support for EU-level social policy point towards two critical dividing lines. First, support for enhanced EU social policy seems to be closely linked to the emerging political cleavage of supporters and opponents of globalization and transnational policy arenas. This is the case because EU social policies broadens the boundaries of solidarity which have been set by nation states to a multilateral level. Such expectations are underlined by empirical research demonstrating that European identity and general attitudes towards the European integration and globalization are significantly correlated with attitudes towards EU social policies (Kuhn and Kamm, 2019; Kuhn et al., 2020). Individuals displaying stronger national and local identities are more sceptical about European social policies than those identifying as Europeans. Yet, they are not necessarily opposed to common policy schemes. For instance, they seem to be open to a European unemployment insurance that retains national oversight and avoids redistribution across countries (Dolls and Wehrhöfer, 2021; Nicoli et al., 2020).

Second, existing public opinion research on EU social policy-making finds an important North-South-divide. More generous national welfare provision tends to diminish individual support for EU-level assistance (Baute, 2021; Burgoon, 2009; Gerhards et al., 2016; Lee, 2018). Likewise, countries with high levels of social spending display significant public perceptions about EU integration having a negative impact on social security, which could explain reduced support for EU social policies (Baute & Meuleman, 2020; Baute, et al., 2018; Delsen & Schilpzand, 2019).

While these studies shed light on the general drivers of preferences for EU social policy, the extent to which the *big three* transitions, and the labour market risks associated with them, influence these preferences remains understudied. Yet, existing empirical evidence suggests that they can have a relevant impact on citizens' attitudes. For instance, Beaudonnet (2014) shows that economic insecurities fuel support for a common EU social protection scheme. Moreover, when faced with policy trade-offs, citizens who perceive their employment to be negatively affected by digitalisation and globalization are found to give priority to EU social protection policies over policies addressing the green transition (Ronchi et al., 2023). Therefore, it appears that digitalisation, the green transition, and increased labour mobility have a potential positive effect on the demand for EU social policies through the mechanism of augmented perceived economic insecurity. Indeed, first evidence indicates that citizens who are concerned about losing their job due to automation or global competition are more supportive of both EU social protection and social investment policies (Ronchi et al., 2023).

The argument for an increased demand for EU social protection is supported by previous work indicating that individuals are more likely to demand policy responses that complement existing institutional arrangements rather than simply reinforcing previous schemes (Busemeyer & Tober, 2023). As outlined above, the supranational nature of the big-three transformations imply that national level social policy may be inadequately prepared to handle the labour market effects of these transformations. This opens an opportunity for increased EU social intervention in the social policy domain.

This argument is reinforced by existing research indicating increased public support for EU-level social policy intervention. This literature recognizes that perceptions of the responsibility to intervene in a policy domain varies significantly across policy domains. Yet, responsibility of the European Union is considered particularly high for policies related to climate change, and to a lesser degree in the domain of immigration and mobility (Dean & Wilson, 2009; Hobolt & Tilley, 2014; Panarello & Gatto, 2023). Given these findings, we argue that citizens will likely attribute a higher level of responsibility to the European Union in addressing labour market risks that result of transnational transformations compared to locally generated labour market risks.

H2b. *Digitalisation, the green transition, and the internationalisation of the workforce increase the demand for new social protection schemes at the EU-level.*

Political cleavages in a new world of work

In addition to understanding how the *big three* impact support for EU-level social policy, it is also critical to assess how it affects existing political cleavages. Here, we are particularly interested in cleavages related to social protection and EU social policy preferences. As mentioned above, the political economy literature on redistributive attitudes demonstrates that the support for social protection policies is largely shaped by subjective economic self-interest, which is informed by demographic factors and labour-market position of individuals (Häusermann et al., 2015). Because new and old social policies cater to different social needs, preferences for social investment are independent from general redistribution principles, which are usually tied to income levels and left-wing orientations (Busemeyer and Garritzmann, 2022).

The literature reveals that main proponents of new social policies are the new middle classes, primarily consisting of younger and more educated citizens. These groups strongly support policies that facilitate employment, education, and life-long learning, as well as family services. At the same time, they are more favourable to redistribution and egalitarian principles (Häusermann et al., 2015; Hemerijck, 2013). Both orientations align with the creation and mobilisation of human capital and the expansion of social protection, the main foundations of new social policies mentioned in Section 3. Low-skilled and semi-skilled individuals, who are often in more precarious labour-market positions, are also interested in redistributive policies (Häusermann et al., 2015). However, their support tends to be more conditional, based on principles of welfare deservingness and chauvinism (van

Oorschot et al., 2017; Afonso and Rennwald, 2018). They also display moderate enthusiasm for active labour-market policies aimed at improving labour-market participation, but not necessarily skills (Iversen and Soskice, 2015; Rueda et al., 2015).

The main opposition to new social policies comes from individuals with secure and stable employment, and with access to generous social protection benefits. For example, in manufacturing and public sectors. These groups are chiefly focused on preserving existing employment regulations and social protection programmes, to retain their benefits and insulate themselves from labour competition (Swank, 2020; Rueda, 2006). Individuals in these sectors, especially those with higher incomes, are also more likely to endorse workfare principles for accessing social protection benefits (Garrizmann et al., 2018). This body of research highlights the heterogeneous preferences towards new social policies among citizens, an important consideration for understanding the dynamics of welfare politics. One important observation is that public support for new social policies, particularly those designed to address the big three challenges, is often insufficient for enacting successful policy changes. Therefore, the introduction of such policies requires the formation of cross-class coalitions, resulting in conundrums for political representatives and different policy trajectories across countries (Häusermann and Palier, 2017).

It is possible that policies assisting the reskilling and training of workers affected by the big three reinforces this divide described in the existing literature between supporters and opponents of social investment policies. Yet, this division might also be affected by changes in employment insecurities across sectors. Such as elaborated in the first chapter of this article, new employment risks due to digitalisation, the green transition and the internationalisation of the workforce are expected to affect high- and low-skilled workers and a variety of sectors that do not necessarily fall into previous political cleavages. Moreover, if increased inter-sectorial and international mobility are considered as an option to address employment risks, this might shift preferences on mobility policies which currently discern those with high education/high income and low education/low income (Vasilopoulou & Talving, 2019).

Therefore, the mentioned structural changes in the world of work might imply important shifts in the distribution of social protection support among the electorate. This might be particularly true concerning the support for EU social policy. As elaborated above, support for EU social policies is closely linked to the emerging political cleavage of supporters and opponents of globalization and transnational policy arenas (Kuhn and Kamm, 2019; Kuhn et al., 2020) and is shaped by an important North-South-divide (Baute, 2021; Burgoon, 2009; Lee, 2018). Yet, a study by Ronchi and colleagues (2023) reveals that preferences towards addressing labour market risks associated with climate change on a multilateral level could create a new political cleavage. The authors find that so-called eco-social EU initiatives, which combine social policies with interventions towards a greener economy, are likely to be supported by a coalition of highly educated middle-class citizens. However, lower educated production workers, who have been most opposed to EU interventions in the past, and those who are concerned about losing their job due to globalization are less

favourable of the green priorities recently established by the EU and would prefer stronger social protection against climate change employment risks.

These findings suggests that in the context of increased labour market risks due to digitalisation, the green transition and internationalisation of the workforce, there is an opportunity to overcome existing political cleavages between EU-sceptics and Europhiles to form new support coalitions for new EU social protection schemes. Whether these new cleavages will form is also dependent on the European Union itself, as well as political parties and labour unions which play a crucial role in mobilizing electorates and influencing the salience of employment risks in contrast to other political issues in the first place. Their role in shaping support coalitions in the context of a changed world of work is particularly important given the complex and abstract nature of these labour market transformations. This makes it difficult for voters to assess the impact of the big three on employment risks and work satisfaction, subsequently affecting their policy preferences and political behaviour.

H3. Digitalisation, the green transition, and the internationalisation of the workforce shift existing political cleavages concerning the support for social protection at the EU-level.

5. Conclusion

To summarise, European labour markets are faced with unprecedented structural challenges in terms of *the big three*: digitalisation, the green transition, and the internationalisation of the workforce. These systematic changes uncontestedly have important implications for the labour market by affecting the demand for labour, the skills required for production, and the type of jobs created in the economy. While recent scholarly work in comparative political economy has already provided first insights into the possible consequences of these big three transformations for the world of work, the research to date displays two major shortcomings which we seek to address in the context of the TransEuroWorkS project.

First, these structural labour market changes have been addressed mostly independently from each other. Yet, there is reason to believe that these transformations are interrelated at various levels, making it relevant to take into consideration their joint effects on labour market risks when studying changes in social protection preferences and new policy needs. Second, the literature studying the implications of these transitions in terms of support for mitigating policies has been mainly focused on national policies. The consequences of structural labour market transformations for policy-making at the European level remains heavily understudied, both empirically and theoretically. Yet, the implications of these systematic transformations on EU policy-making is of crucial importance.

In this paper, we attempted to fill these gaps in the current literature by providing a new theoretical framework that guides the TransEuroWorkS project as well as future work in

this field of research. Building up on previous work in the political economy and EU integration literatures, we unpack the interconnection of these three major labour market transformations and their implications on shaping political support for enhanced EU social protection policies. We argue that climate change, the shift to a knowledge economy through automation and digitalisation, and the internationalisation of the workforce share important similarities concerning their transnational character and the consequences that they have on individual employment and national economy risks. We advance that this implies that these structural transformations create similar policy needs to address those effects on individual employment insecurities and labour market risks. Consequently, we put forward that it is essential to examine these transformations simultaneously with regards to their effects on social policy demand and the design of appropriate policy responses to meet those protection needs. In addition, we hypothesize that the transnationality of these transformations, the lack of adequate national policy responses, and the consequences of the big three in terms of increased mobility and flexibility of the workforce could result in higher support for EU social policy interventions, as well as the creation of new political support coalitions for trans- and supranational policy responses.

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