

The London School of Economics and Political Science

**The Political Economy of Social Investment Policies:
Evidence from the OECD Countries**

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A thesis submitted to the Department of Social Policy of the London
School of Economics for the degree of Doctor of Philosophy
London, May 2022

Declaration

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Abstract

Since the mid-1990s, Organisation for Economic Co-operation and Development (OECD) countries have developed social investment policies that include active labour market policies (ALMPs) and work-family policies (WFPs). Employing qualitative as well as quantitative methods, this thesis investigates the effectiveness and determinants of social investment policies.

The first paper tests the Matthew effect of social investment in terms of employment. It shows the existence of so-called Matthew effect that childcare and training benefit medium-educated workers in getting jobs more than lower- and higher-educated workers in fifteen European countries in the period 1992-2013.

The second paper, motivated by the intersectionality between class and gender, explores whether WFPs have the negative consequences in terms of gender equality and how the effects are different by women's education level. This means the welfare state paradox and gendered trade-offs argument. Using macro-level data on fifteen European countries for 1992-2013, this paper finds that childcare and maternity and parental leave increase gender occupational segregation.

Unlike the first and second papers, the third paper, focusing training, investigates the causal mechanism of how different skill preferences and different attitudes over training costs between employers, trade unions, and the state. An in-depth case study of South Korea shows that segmentalist coalitions of the three players play important role in changing institutions, skill formation systems, resulting in either an incremental institutional change or a transformative change of institutions.

Three broader contributions can be suggested. First, social investment policies may bear on the recent growth of atypical employment and dualisation of the labour market. Second, the WFPs in particular may be related to the growth of glass ceiling and female ghettos with possibly considerable gender inequality. Third, the detrimental distributional outcomes may be contingent upon unequal power relations between political actors and their segmentalist cross-class coalitions.

Acknowledgements

In the academic journey of my PhD study, I have benefited from the help and support many people along the way. I would like to start by thanking my two supervisors of MSc and PhD at LSE, Timo Fleckenstein and Lucinda Platt. They helped me not only to develop research designs and methods, but even to proofread manuscripts and prepare for presentations in many seminars at LSE and international conference. It is fair to say that I might not have started and completed the PhD without their support. Sonia Exley and Brian Nolan, the examiners, gave me valuable insights into the knowledge and made the thesis more advanced through the viva and examiners report. That being said, all errors are mine.

I would like thank all those of the Department of Social Policy at LSE who have given me feedback on my work. Professors Jane Lewis, Anne West, and Thomas Biegert as well as my fellow students Niccolo Durazzi, Samuel Mohun-Himmelweit, Ellie Suh, Valentina Lemmi, Julia Philipp, and Sang-Jun Kim. Especially, Niccolo read all my papers in draft and gave insightful comments to me. I am also grateful to Shuma Begum in PhD Academy for always giving careful consideration given to me when I struggled with completing my PhD thesis while hard-working in South Korea.

For research visit for Paper 3, I am grateful to In-Hoe Ku and many PhD students for their hospitality and help in the Institute of Social Welfare at Seoul National University for six amazing months. I am also grateful to all interviewees of Paper 3. Not only useful interview data, they provided constructive criticisms and useful suggestions for enhancing my understanding the training and skills formation systems in South Korea.

Lastly but mostly, my family has encouraged me with love and support. My wife and son, Sun-Jung and Jae-Yoon, always made me happy in hard times in London and Seoul. My parents have convinced me that I was making the right decision in time of doubts and helped me with various issues I was facing. This thesis is for them.

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INTRODUCTION

The Effectiveness and Determinants of Social Investment Policies

“At any rate, properly designed social investment policies have the potential to promote social inclusion and social capital as well as social cohesion.”

Morel, Palier and Palme (2012: 374)

Starting in the mid-1990s, Organisation for Economic Co-operation and Development (OECD) countries realised that old welfare state settlements needed to adjust to the challenges of post-industrialisation and globalisation, as well as the social and demographic shifts in economy and society. A new economy marked by the explosive growth of information and communications technology (ICT) is more strongly dependent on the use of knowledge than ever before across the advanced capitalist democracies (OECD, 1996b). Meanwhile the male breadwinner model of men working to earn and women caring for the young and the old declined and a number of women entered the labour market (Lewis, 2001). The socioeconomic transformation brought out new social needs and demands in the workplace and family life, which are labelled ‘new’ social risks.

According to Bonoli (2005) and Taylor-Gooby (2004), new social risks are generally related to three factors: (1) the problem of reconciling work and family life (care for child or frail elderly family members) as a result of the massive entry of women into

the labour market; (2) the risk of being unemployed or paid in a low wage due to his or her low/obsolete skills; (3) the risk of being insufficiently protected in social security schemes for workers engaged in atypical jobs like part-time and temporary work. The new social risks would most seriously affect vulnerable groups such as low-skilled workers, especially women. They are different from ‘old’ social risks in the heydays of the industrial society— the risk of sickness, unemployment, and retirement of the male breadwinner, which are protected by social insurances (unemployment insurance and pensions) contingent upon his full-time employment.

In the face of socioeconomic transformation, the advanced capitalist democracies have modernised their welfare state settlements because ‘passive’ social policies such as income protection via cash-transfer programmes did not suffice to address the new social risks. Central to this attempt is social investment perspective. The idea has been developed by OECD (1996a: *‘New Social Policy Agenda’*), Esping-Andersen (1999, 2002: *‘New Welfare State’*) and Giddens (1998: *‘The Third Way’*). The European Union (EU) has encouraged member states to implement social investment policies through launching a series of the European Employment Strategy (EES; 1997), the Lisbon Agenda (2000), and the Social Package for Growth and Social Cohesion (2013). Inspired by the idea, some politicians, such as Tony Blair (1997–2007) in the UK and Gerhard Schröder (1998–2005) in Germany, highlighted investment in education and skills as a ‘productive factor’ of social policy since the late-1990s (Blair and Schröder, 2000). The social investment perspective was therefore expected to be a new welfare state paradigm that replacing the Keynesianism of welfare state expansion and the Neoliberalism of the retrenchment (Hemerijck 2012, 2018; Hemerijck et al., 2013; Jenson and Saint-Martin, 2006; Morel et al., 2012; Morgan, 2012). In either academic or political arena, social investment has become a ‘buzzword’ during the last two decades.

Existing literature on social investment is divided in two main strands (Busemeyer et al., 2018; Hemerijck, 2017; Garritzmann et al., 2017). The one strand analyses the *effectiveness* of social investment on socioeconomic outcomes such as employment, economic growth, poverty, and income inequality. The other strand explores the *determinants* of transformation towards social investment and the varieties across countries, especially in terms of the politics. Despite a growing number of literature, our knowledge on the effectiveness and determinants of social investment is very limited. On both theoretical and empirical grounds, there are hugely contentious debate but little compelling evidence on the following questions. Why is the redistributive capacity of the welfare states less improved despite the ‘social investment turn’? Why are national trajectories of social investment systematically different across advanced capitalist democracies? Why does not a country proportionately develop social investment policies?

This introductory chapter sets out to investigate why these questions are important and how we need to seek the answer. Section 1 introduces conceptions and rationales of the social investment perspective and defines the scope of social investment in this thesis. Section 2 reviews trends of labour market outcomes and existing debate on the effectiveness of social investment policies. Section 3 shows patterns of social investment policies and existing theories of the determinants. Finally, section 4 concludes the chapter by presenting the research question and brief summary of argument.

1. What is Social Investment?

1.1. Conceptions and rationales of the social investment perspective

According to the definition by Morel et al. (2012: 2), the social investment perspective is intended to ‘invest in human capital development [...] and make efficient use of human

capital [...], while fostering greater social inclusion [...]. Consequently, the social investment perspective rests on policy tools promoting human capital investment and labour market participation. The policy intervention would be best when it is directed to earlier stages in one's life course, but it should be also needed at different phases of the life course. The prime example is active labour market policies (ALMPs) and work-family reconciliation policies (WFPs). ALMPs contribute to investment in human capital (e.g. training) and promoting labour market re-entry (e.g. counselling of jobseekers, direct job creation). Childcare, for example, is expected to not only allow children to improve cognitive and non-cognitive ability through high-quality early childhood intervention, but also help mothers to engage in paid work.

The social investment perspective is based on two rationales: economic rationale and social rationale (Brettschneider, 2008). The economic rationale is to focus on economic returns of social investment. As a supply-side strategy, the notion emphasises a well-educated and high-skilled labour force and their productivity. The volume and quality of the workforce are indispensable to the economic sustainability of the welfare state. Human capital investment such as early childhood education and care (ECEC), education, and training is more productive in terms of economic returns. The other side of justifying social investment perspective is based on the assumption that welfare states can achieve equality and social inclusion through universal labour market inclusion. ALMPs and WFPs help low-skilled workers and women who are excluded in the labour market to get a job.

However, the conceptions and rationales of social investment perspective are still contentious in academics: between social democratic scholars such as Gøsta Esping-Andersen and his colleagues and the Third Way intellectuals of 'Anglo-liberal' view of social policy such as Anthony Giddens (Morel et al., 2012; Hemerijck et al., 2013; Mahon, 2013). The contention refers to the conceptions and rationales of social investment perspective,

thus entailing conceptual ambiguities and tensions. First, there is a different understanding of the notion of ‘investment’ (Morel et al., 2012; Nolan, 2013). According to the Third Way approach, traditional protection policies such as unemployment benefits are counted as ‘consumption’ that are unproductive in terms of investment returns. The social democratic investment approach, conversely, regards them as a form of investment which can protect human capital of workers during unemployment period (Hemerijck, 2017).

Second, the understanding of ‘equality’ varies between the groups (Morel et al., 2012). The Third Way pays much attention to ‘equality of opportunity’ over the life course and see inequalities of outcomes as a necessary evil for the economic growth, while social democratic intellectuals explicitly consider ‘equality of outcome’ as a precondition for economic growth (Esping-Andersen, 2002; Giddens, 1998; Vandenbroucke and Vleminckx, 2011).

Third, the two groups also have different views on ALMPs: ‘positive activation’ originated from Nordic countries and ‘negative activation’ developed in English-speaking countries (Taylor-Gooby, 2004; Bonoli, 2012). The social democratic investment approach emphasises extensive investment in human capital through upskilling and training to support entry into labour market (positive activation), while the Third Way approach emphasises the strong negative incentives such as benefit reductions and sanctions to push people from social protection into employment (negative activation).

In short, the social investment perspective was developed with the dual ambition to not only address new social risks in the wake of socioeconomic transformation, but also to achieve economic growth and social inclusion. Pivotal of the idea is thus the idea to improve productivity and employability by investing in human capital and facilitating the labour market participation. However, it is still contentious which policies are social investment and what scope of the envisaged results is.

1.2. Measuring social investment

A critical starting point in analysis about the effectiveness and determinants of social investment policies is how to measure the ‘new policies’ differentially from other forms of ‘old policies’, that is, traditional protection policies. The OECD Social Expenditure Database (SOCX) provides reliable and internationally comparable social expenditure data for 36 OECD countries since 1980. In dealing with the SOCX, researchers take a slightly different view on the coverage of social investment policies, ranging from very narrow to quite broad.

Some scholars emphasising the new social risk policies narrow social investment policies to ALMPs and WFPs, while old age and unemployment policy are categorised to ‘industrial’ social policies (Bonoli, 2006, 2007; Kim and Choi, 2019). By focusing on ‘investment’ of social investment policies other than ‘consumption’, others include education into social investment policies (De Deken, 2012; Häusermann, 2012; Meeusen and Nys, 2012; Nikolai, 2012; Vandenbroucke and Vleminckx, 2011). From a life course perspective, some highlight social investment policies targeted at different population (childhood and youth, family formation, prime working age, and old age) along the life course (Hemerijck, 2017, 2018; Kuitto, 2016; Leoni, 2015). In particular, Hemerijck (2017) and Leoni (2015) include social protection policies into components of social investment, by differentiating stock (human capital development, e.g. childcare, education, and upskilling), flow (activation, e.g. ALMPs), and buffer (income protection or social insurance). Focusing on ‘service-oriented’ social investment, Ahn and Kim (2015) regard all in-kind benefits social spending as social investment policies.

However, the most extensive scopes might interfere with an efficient capturing of social investment policies. The identifications are so broad that every social policy becomes categorised into social investment. Although there is no consensus across the scholars, we can encapsulate the salient trait of social investment policies from the literature review: (1) new social risks orientation from ‘old’ to ‘new’ social policies; (2) investment orientation from ‘ex-post’ remedies toward ‘ex-ante’ prevention; (3) services orientation from ‘cash benefits’ to ‘social services’ (De Deken, 2013; Vandenbroucke and Vleminckx, 2011).

1.3. The scope and manipulation of social investment in this thesis

In this thesis, I narrow down social investment policies to ALMPs and WFPs. This is because it helps to find a clear causal mechanism in analysing the effectiveness and determinants of social investment. As discussed below, this thesis takes stock of labour market outcomes of social investment policies and critical factor of training and skill formation systems. ALMPs and WFPs are expected to contribute to human capital investment and activation in the labour market, and work-family reconciliation on the one hand, while their patterns and changes are likely to be affected by labour market institutions on the other.

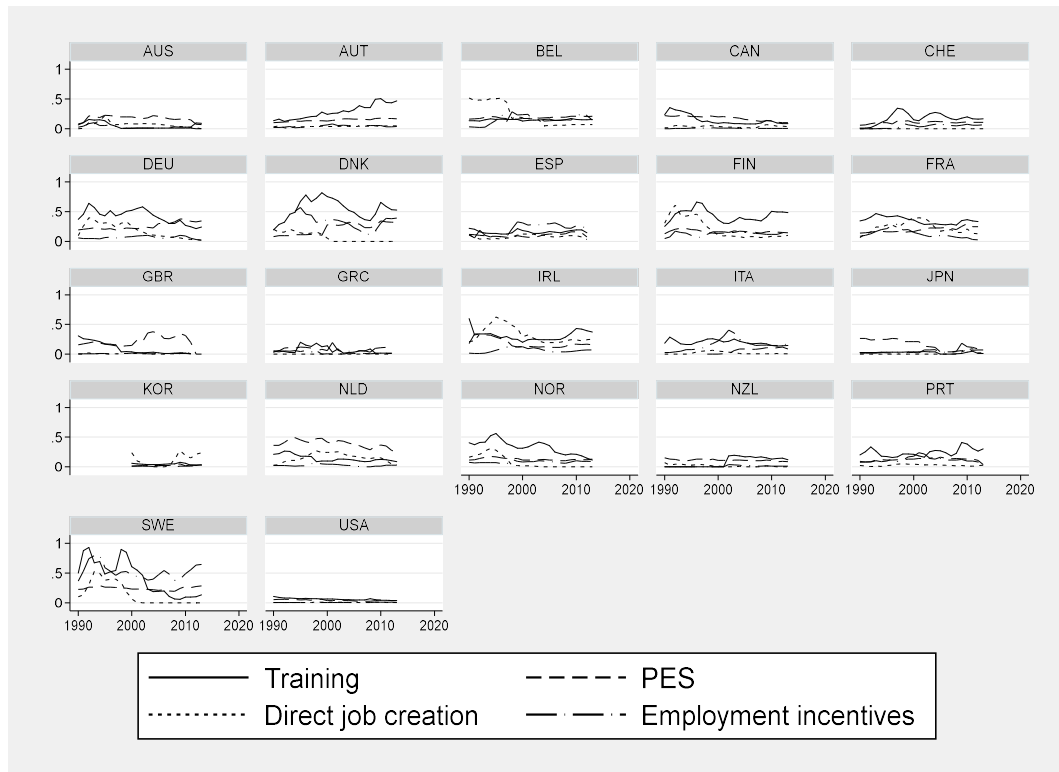
In this regard, education is excluded in the analysis of the thesis despite the archetype of human capital investment. Education (primary, secondary, and tertiary education) takes too long time to find the consequences in the labour market. Along the same lines, the thesis focuses on the effect of childcare on maternal employment, not on the child’s employment in adulthood. Instead, we consider education as a proxy variable for socioeconomic status or class to find whether the effect of ALMPs and WFPs varies across educational groups.

Furthermore, I disaggregate ALMPs and WFPs at the programme level, particularly in analysing the effectiveness. This is because the impact of ALMPs and WFPs on labour market outcomes is likely to vary depending on the programmes. According to Bonoli (2010, 2012), ALMPs encompass different policy tools: (1) ‘training’ programme which raises the human capital of jobless people with obsolete skills are most developed in Nordic countries; (2) ‘direct job creation’ which prevents the depletion of human capital by creating public sector jobs are used mainly by Continental European countries; (3) ‘incentive reinforcement’ (in-work benefits and sanctions) which forces recipients not to settle for unemployment; and (4) ‘employment assistance’ (counselling and matching services) which increases the likelihood of the unemployed quickly finding a job, are strong in English-speaking countries, even though they have become common everywhere. In line with this insight, this thesis decomposes ALMPs into four major programmes on the basis of OECD SOCX classification: training, direct job creation, employment incentives, and public employment services and administration (PES).¹

The same holds true for WFPs. The main locus of the extension of WFPs is childcare, but maternity and parental leave seems to have divergent pattern with childcare and different effect on labour market outcomes (see Hegewisch and Gornick, 2011; Misra et al., 2011). Figures 1 and 2 show the recalibration of ALMPs and WFPs (the spending as a percentage of GDP) at the programme level across 22 OECD countries. We can see different trends in the configuration between programmes even in a country.

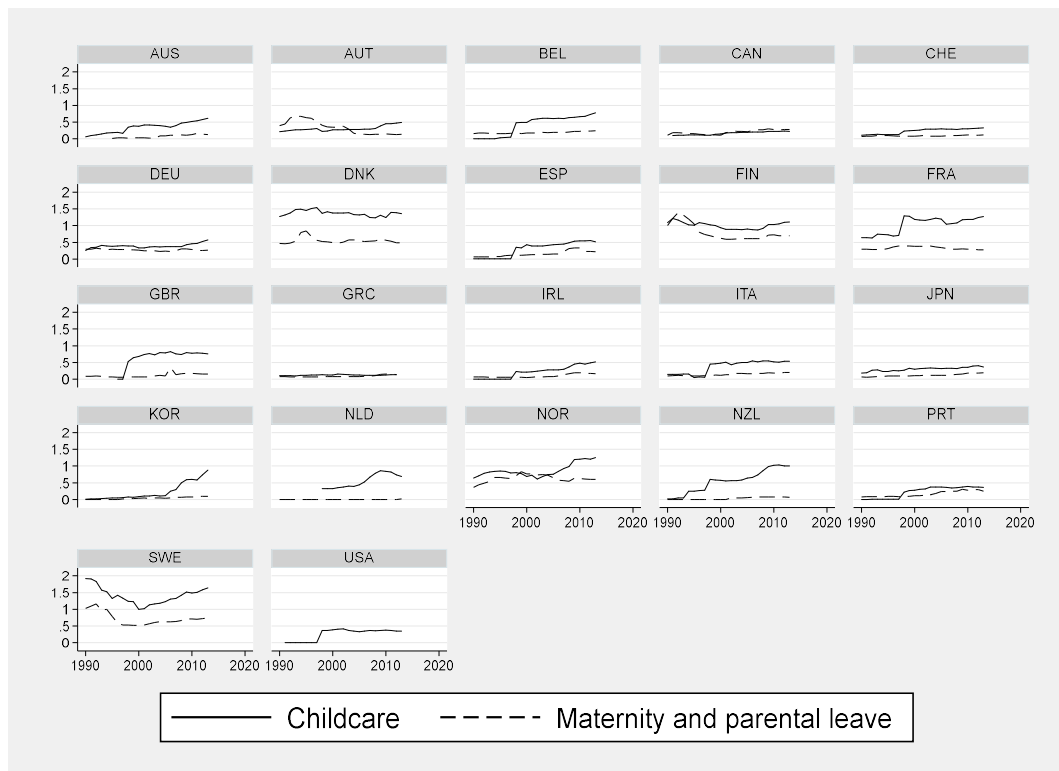
¹ The OECD SOCX classifies ALMPs into seven programmes: PES, training, job rotation and job sharing, employment incentives, supported employment and rehabilitation, direct job creation, and start-up incentives (Adema et al., 2011).

Figure 1. ALMPs at the programme level in 22 OECD countries between 1992 and 2013



Source: OECD SOCX (% of GDP).

Figure 2. WFPs at the programme level in 22 OECD countries between 1992 and 2013



Source: OECD SOCX (% of GDP).

2. The Effects of Social Investment Policies

2.1. Trends in labour market outcomes

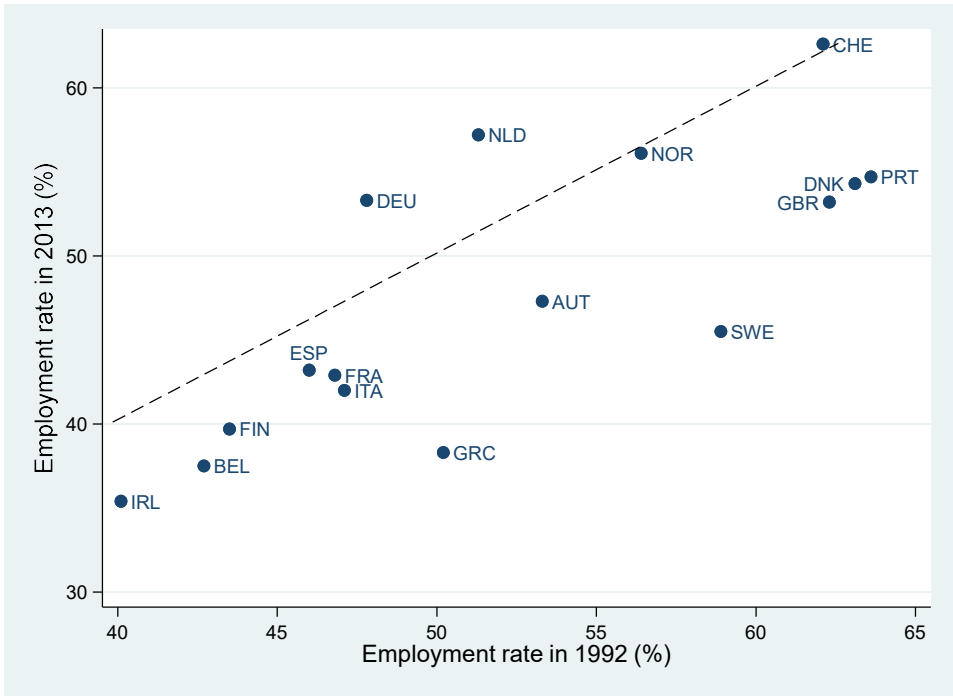
In times of labour market deregulation and social investment turn of welfare states, empirical data from different sources show that although overall employment has increased, income inequality and poverty has not reduced (e.g., Brandolini and Smeeding, 2009; De Beer, 2007; Fredriksen, 2012; Kenworthy, 2008; OECD, 2008; Taylor-Gooby et al., 2015). This implies the possibility that: rising employment does not benefit all workers, especially low-educated and low-skilled workers; and the employment growth is associated with low-paid jobs, thereby increasing in-work poverty.

Figures 3, 4 and 5 show the unequal growth of employment across educational groups between 1992 and 2013 from the OECD World Indicators of Skills for Employment (WISE) database.² For the purpose of exposition, I report the employment rates for only the selected years. Overall, Figures show that the higher level of education, the higher level of employment rate. However, the change of employment rate from 1992 to 2013 is different by educational attainment. Employment rate of low-educated workers decreased in many countries except Germany, the Netherlands and Switzerland (see Figure 3). Employment rate of high-educated workers increased in some countries and decreased in others, especially in Southern Europe (see Figure 5). The highest growth of employment was for medium-educated workers (see Figure 4). In most countries except France, Greece, Denmark, and the UK, their employment rate increased.

² Based on the International Standard Classification of Education (ISCED, 2011), the educational groups are divided into three: low-educated (ISCED levels 0–2: early childhood education to lower secondary education), medium-educated (ISCED levels 3–4: upper secondary education to post-secondary non-tertiary education), and high-educated workers (ISCED levels 5–8: tertiary education).

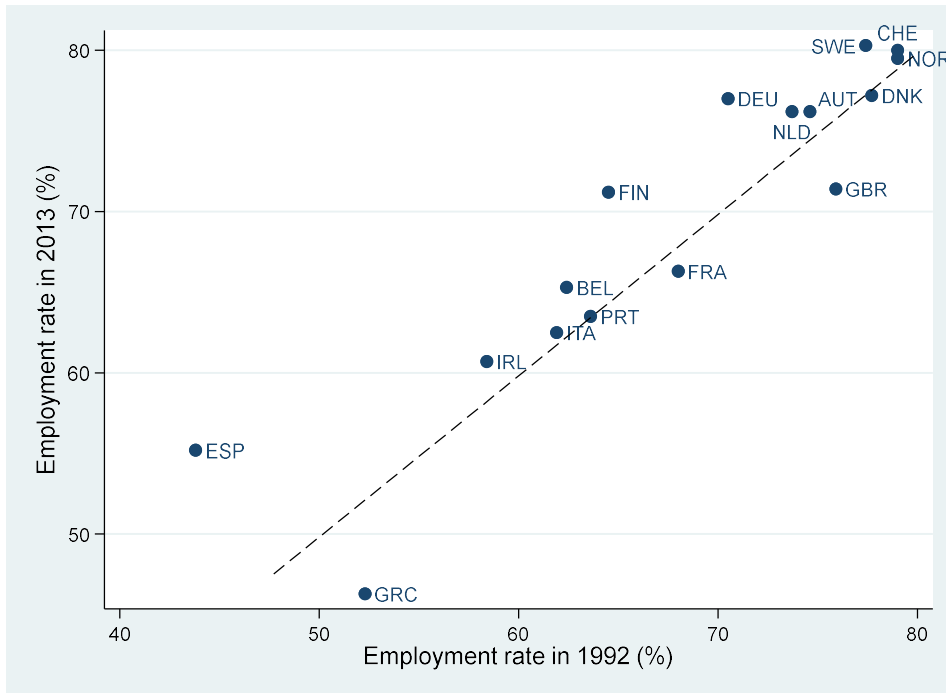
This shows a striking contrast with job polarisation argument that recent skill-biased technological change (SBTC) replacing labour in routine tasks decrease medium-skilled jobs relative to high-skilled and low-skilled jobs mainly in the US labour market (Author, 2010; Author et al., 2006; Goos and Manning, 2007; Goos et al., 2014). However, job polarisation argument refers to the association of SBTC with the quality of jobs by skill level, not with the quantity of employment by education level. One plausible explanation is that the employment of medium-educated workers is centralised in low-skilled jobs, crowding out low-skilled jobs of low-educated workers, which is known as ‘downward job mobility’ (see, for example, Author, 2015; Mouw and Kalleberg, 2010).

Figure 3. Employment rate of low-educated workers in 16 OECD countries between 1992 and 2013



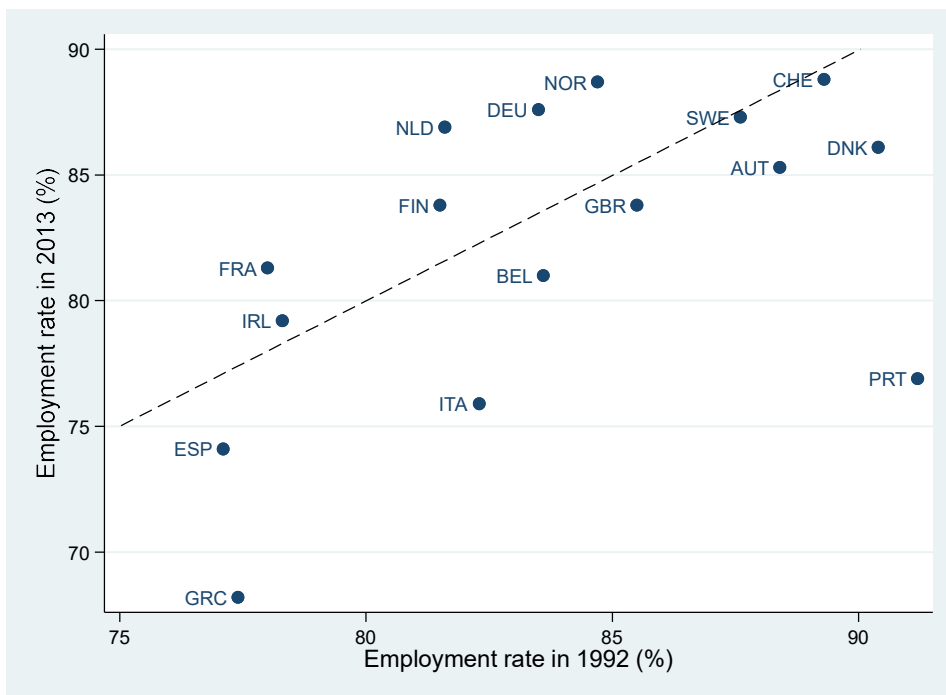
Source: OECD WISE.

Figure 4. Employment rate of medium-educated workers in 16 OECD countries between 1992 and 2013



Source: OECD WISE.

Figure 5. Employment rate of high-educated workers in 16 OECD countries between 1992 and 2013



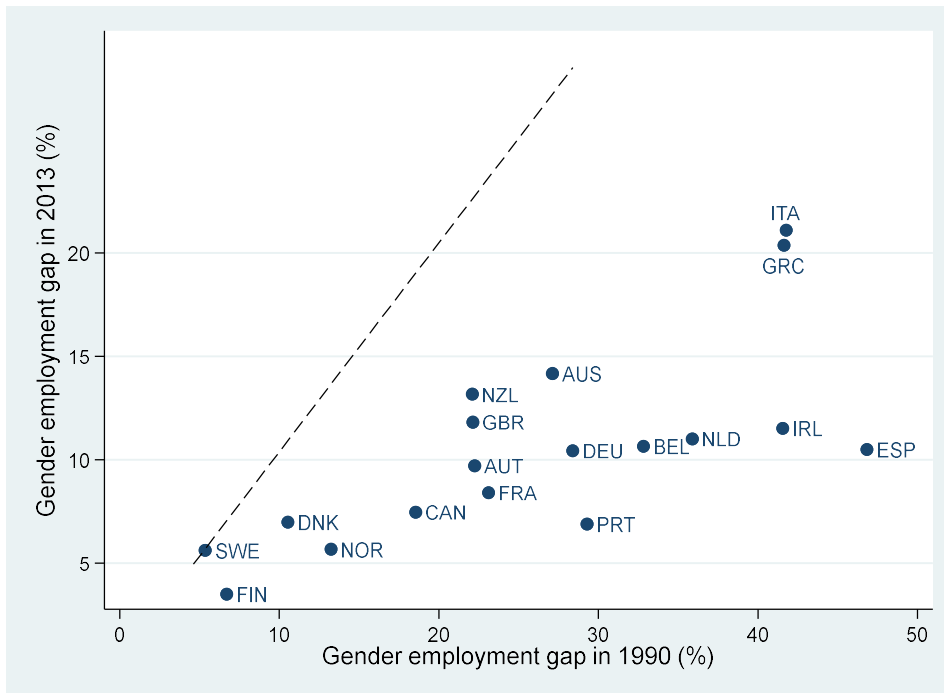
Source: OECD WISE.

Another important trend in labour market performance over the past two decades is the growth of female employment. The rising trend that Goldin (2006) terms a ‘quiet revolution’ has been continued since 1970s in the context of the expansion of WFPs. The increase in female employment rate is prominent relative to male employment rate so that it contributes to reducing gender disparity in employment. Figure 6 plots the gender employment gap (i.e., male employment rate minus female employment rate) in 18 OECD countries between 1990 and 2013 from the OECD WISE. Gender employment gap is lowest in 4 Nordic countries in both years and it has hugely decreased in Southern European countries between two years.

Likewise, gender wage gap extracted from the OECD Labour Force Statistics (LFS) has narrowed in 14 OECD countries between 1990 and 2013 in Figure 7. Gender wage gap is measured by the difference between median wage of men and women relative to median wage of men for full-time employees. The most changing countries throughout the period are Germany, Ireland and the UK. It is interesting to note that Finland and Sweden among Nordic countries show relatively high level of gender wage gap, while Denmark and Norway have smallest gender wage gap in both years.

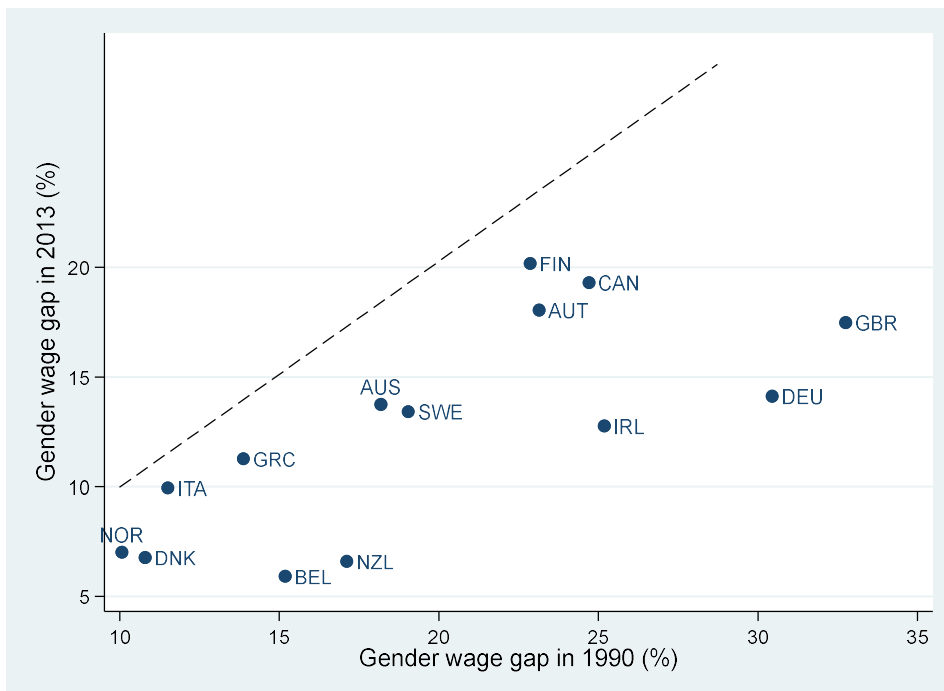
In short, during the last two decades employment rate has increased. The rise of employment is observed among medium-educated workers and accompanied by women’s broader access to labour market. Consequently, it exacerbates income inequality and relative poverty, but contributes to gender equality in terms of employment and wage. Therefore, our interest heads towards the issue of whether ALMPs and WFPs are associated with the trend to some extent.

Figure 6. Gender employment gap in 18 OECD countries between 1990 and 2013



Source: OECD WISE, own calculations.

Figure 7. Gender wage gap in 14 OECD countries between 1990 and 2013



Source: OECD LFS.

2.2. Matthew effects and gendered tradeoffs of social investment

In terms of employment and gender equality, there are some critiques that social investment policies generate perverse outcomes. Here I introduce the critiques and explain why it is important to address them to understand the effectiveness of social investment policies.

The first critique lies in a question of why growth in employment does not necessarily lead to reduction in relative poverty and income inequality across European countries where social investment strategies are promoted through the Lisbon Strategy in 2000 (Fredriksen, 2012). This problem is well known as ‘a paradox of the social investment state’ by Cantillon (2011). Some plausible explanations for the declining redistributive capacity of social investment states are suggested (Bonoli, 2013; Cantillon, 2011; Vandenbroucke and Vleminckx, 2011). The first explanation is a *resource competition hypothesis* that social investment states have moved their resources from social protection policies which relied on traditional income support through cash transfers to work-related and service-oriented social investment policies which are less redistributive. However, a lot of research does not support this (e.g., Noël, 2017; Vandenbroucke and Vleminckx, 2011; Van Lancker and Ghysels, 2013). The exception is Ronchi (2018) who finds that spending on social investment policies crowds out the spending on social protection after the financial crisis.

The second explanation is a *recommodification hypothesis*: irrespective of the shift of resources, the emphasis on activation and ‘making work pay’ of social investment policies weakens traditional social protection, especially resulting in retrenchment in unemployment benefits. de la Porte and Jacobsson (2012) argue that the EES increasing employment rates allowed member states to prefer recommodification rather than social investment because the former is less costly than the latter.

The last, but most contentious, explanation is that social investment policies themselves might have a perverse effect on equality outcomes irrespective of any change in traditional protection policies, which is so-called Matthew effect hypothesis. Proponents of this hypothesis argue that social investment policies disproportionately benefit middle and higher class at the expense of more vulnerable groups (Bonoli et al., 2017; Cantillon, 2011; Cantillon and Van Lancker, 2012). It cites a verse of the Gospel according to St. Matthew (Matthew 25:29): ‘For to him who has will more be given; and from him who has not, even what he has will be taken away’. According to them, a social bias in access to ALMPs and childcare is in favour of middle and higher class rather than low class (e.g., Bonoli et al., 2017; Bonoli and Liechti, 2018; Van Lancker and Ghysels, 2013). For instance, higher-income households benefit childcare more than lower-income households because the former is likely to have a strong motivation to work and thereby a high demand for childcare use.

The second critique, put forward by feminist scholars, has to do with gender equality in terms of WFPs. Mandel and Semyonov (2005, 2006) and Pettit and Hook (2009) argue that WFPs increase women’s labour force participation and economic independence on average, but paradoxically limits women’s opportunities for powerful and high-paid jobs, which is so called ‘welfare state paradox’ and ‘gendered-tradeoffs’ argument. Meanwhile, many women are disproportionately ‘ghettoised’ into female-typed occupations such as the public care service sector. This exacerbates gender occupational segregation and gender wage gap. According to the scholars, the unanticipated and negative effects of WFPs occur due to employers’ discrimination against women who are likely to leave the workplace for childbirth and care or due to self-selection of women who prefer family-friendly jobs.

The perverse effects of social investment policies, either Matthew effects or gendered tradeoffs, are problematic in terms of both economic and social rationale. If the

harmful side effects are present, low-educated, low-skilled workers and women lose the chance of participating in the labour market, working in high skills jobs, and developing human capital. Although the presence or absence of the perverse effects is meaningful to understand the effectiveness of social investment, empirical studies yield contradictory findings. For instance, some literature disagrees with the presence of Matthew effects by showing that social investment policies such as childcare and ALMPs reduce poverty and income inequality (Burgoon, 2017; Hemerijck et al., 2016; Rovny, 2014; Vaalavuo, 2013; Verbist et al., 2012), while other literature finds no paradoxes and tradeoffs phenomenon (Brady et al., 2019; Gasser and Liechti, 2015; Korpi et al., 2013; Mun and Jung, 2018; Mustosmäki et al., 2017).

3. The Determinants of Social Investment Policies

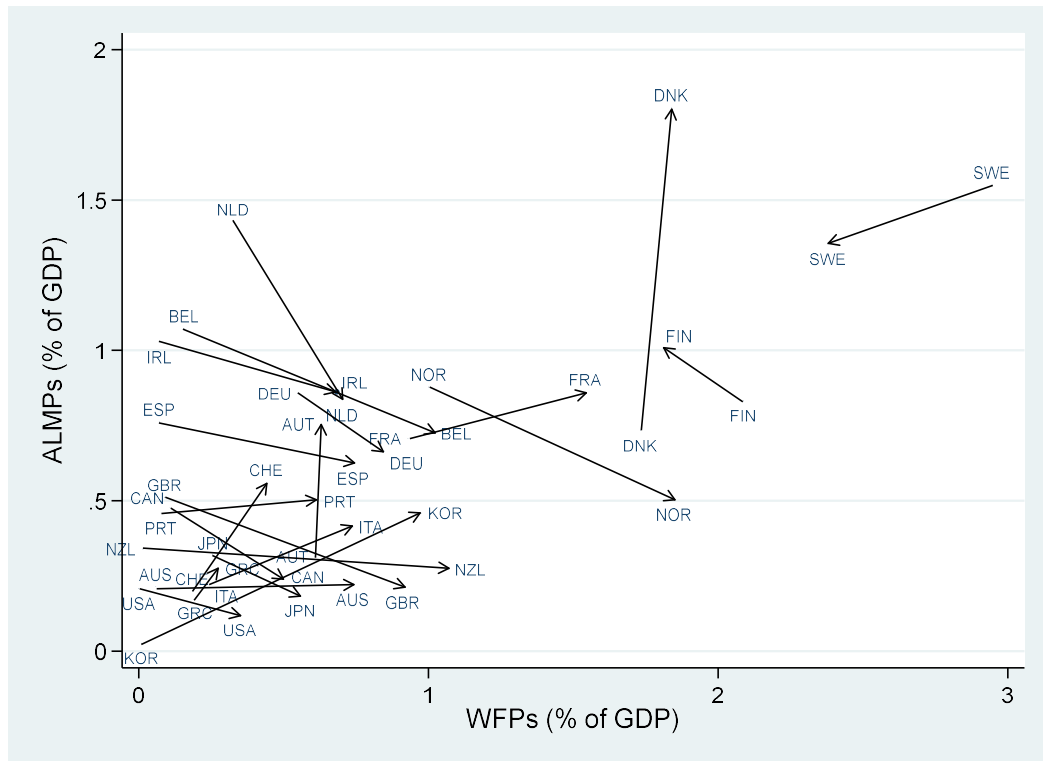
3.1. Patterns of social investment policies in the OECD world

Although social investment policies in terms of expenditure have increased across the OECD countries as shown in Section 1, the question remains why the pattern of change not only vary across welfare states but also vary across social investment policies. Figure 8 plots the change in ALMPs and WFPs from 1990 to 2013 in 22 OECD countries, using data from the OECD SOCX. Nine countries, namely, Australia, Austria, Denmark, France, Greece, Italy, Korea, Portugal and Switzerland, have increased both ALMPs and WFPs. Eleven countries, namely, Belgium, Canada, Germany, Ireland, Japan, New Zealand, the Netherlands, Norway, Spain, the UK and the US, have WFPs-oriented development. Both policies have decreased in Sweden, while Finland has increased ALMPs rather than WFPs.

When it comes to training and childcare, the configuration slightly changes but the change is more clear-cut. In Figure 9, twelve countries, namely Canada, France, Germany, Greece, Italy, Japan, Korea, the Netherlands, Norway, Spain, the UK, the US, have increasing relevance of childcare accompanied by decreasing levels of training, while nine countries, namely Australia, Austria, Belgium, Denmark, Finland, Ireland, New Zealand, Portugal, and Switzerland, have invested in both training and childcare. It is worthwhile to note that Australia, Belgium, France, Korea, New Zealand, Norway, Spain and the UK have developed the investment in childcare to major extent, while Austria, Denmark, and Finland have more focused on training.

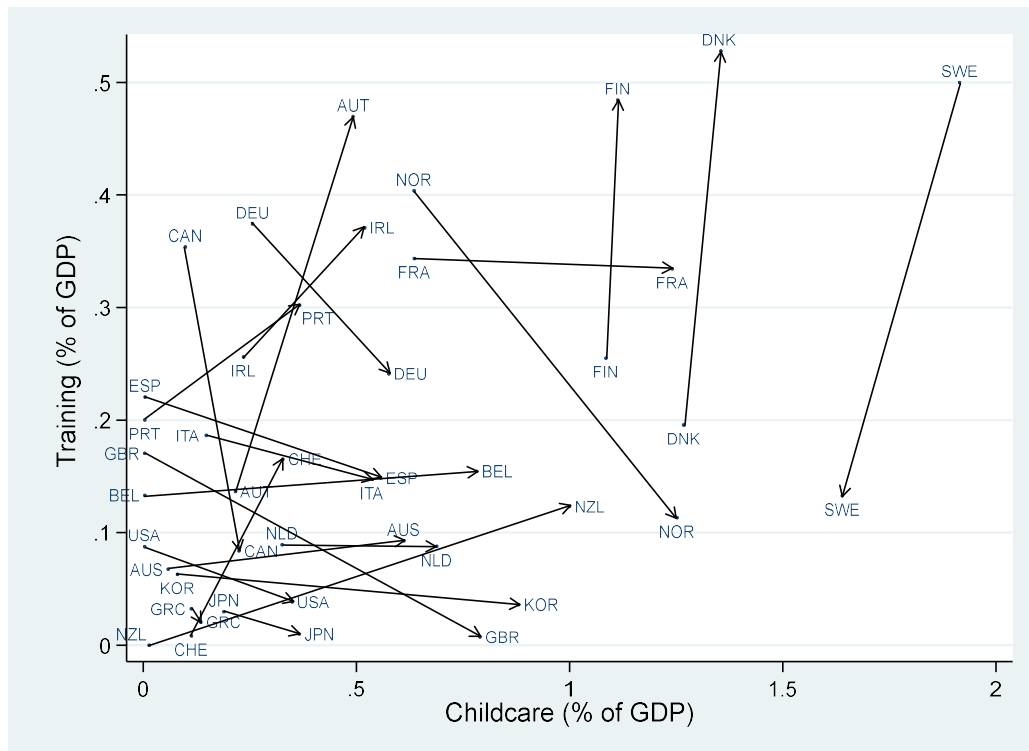
Taken as a whole, we know that the main attention of welfare states has focused on WFPs, especially childcare, rather than ALMPs. This implies that a convergence of social investment policies between countries is easily observed in the area of WFPs, in accordance with the findings of Nikolai (2012).

Figure 8. ALMPs and WFPs in 22 OECD countries between 1990 and 2013



Source: OECD SOCX, own calculations.

Figure 9. Training and childcare in 22 OECD countries between 1990 and 2013



Source: OECD SOCX.

3.2. *Social investment politics*

What forces have driven the ‘social investment turn’? How can we explain why some countries have gone farther than others in social investment reforms? How about the varieties of development between social investment policies in one country? Although a wide body of literature has analysed political, institutional and socio-economic factors in the development of social policies (for a literature review, see Kittel and Obinger, 2002; Myles and Quadagno, 2002), little is known about social investment agendas and policy reforms. No theory is universally and completely applicable to the politics of social investment, while existing research struggles to find the evidence on the determinants in a specific policy field (for a literature review, see Garritzmann et al., 2017). Here I introduce two dominant theories as well as the main empirical evidence on ALMPs and WFPs.

In the heyday of welfare states expansion, a highly influential approach was *Power Resources Theory* (PRT) by Walter Korpi (1983). According to PRT, the evolution and diversity of welfare state depend on the relative success and strength of left parties, particularly social democratic parties, aligned with class-related distributive interest of trade unions (Esping-Andersen, 1990; Huber and Stephens, 2001; Korpi, 1983, 2006; for hypothesis tests on PRT, see Bradley et al., 2003). In other words, left parties fight for low-paid working class who holds strong preferences for redistribution and, as a result of the ‘democratic class struggle’ over capital, welfare states are expanded. PRT thus would expect left parties to play an important role in developing social investment policies targeting at new social risk constituencies, vulnerable groups.

However, PRT seems less plausible in a time of permanent austerity. Pierson (1996) argues that PRT is of little avail in terms of the politics of welfare state retrenchment because constituency of left parties resists the retrenchment. Furthermore, Rueda

(2005, 2007) finds that recent left parties with a heavy reliance on voting support of insiders (unionised regular workers) often ignore the interests of outsiders (non-unionised, irregular workers and the unemployed). Some scholars, from a rational choice approach to political parties, point out that ‘party competition’ for votes or office can shape their policy choices, which implies that the partisan effects disappear because non-left parties can promote a specific social policy (Strøm and Müller, 1999; Kitschelt, 2001; for a literature review, see Häusermann et al., 2010).

Another salient strand of comparative political studies is employer-centred approaches, inter alia, *the Varieties of Capitalism* (VoC) approach (Estévez-Abe et al., 2001; Hall and Soskice, 2001; Iversen and Soskice, 2001; Iversen, 2005). Emphasising the importance of ‘institutional complementarities’, Hall and Soskice (2001) divide advanced capitalist democracies into two types of economies: coordinated market economies (CMEs) and liberal market economies (LMEs). In CMEs such as Germany, employers and workers are willing to invest in firm- and industry-specific skills that can mainly be used in one specific firm and one particular trade, and acquired by on-the-job training and apprenticeship training in the context of high level of employment and unemployment protection. In contrast, in LMEs such as the US, employers prefer workers with general skills that are highly portable and mainly acquired through tertiary education in the absence of (un)employment protection. Instead of political parties and trade unions, VoC approach emphasises the role of employers in initiating and maintaining welfare state institutions. Although it is not straightforward to operationalise the VoC framework in social investment politics, we can expect employers to play an important role in ALMPs and WFPs in line with vocational training and education.

However, in VoC theory change of welfare state institutions is most likely to be path-dependent, and an equilibrium-breaking shift occurs only by exogenous factors such as economic shock due to the institutional complementarities among vocational training,

social protection, industrial relations, inter-firms relations, and financial systems (see Deeg, 2005; Hancké et al., 2007; Streeck and Thelen, 2005). This means that the VoC framework has difficulties in explaining a significant path-shifting towards social investment turn, especially WFPs. Recently, a group of scholars suggest that a divide between employers (larger employers and small employers) and their segmentalist coalition with state agencies and trade unions determine the cause and pattern of institutional change, especially training and skill formation systems (Culpepper, 2007; Culpepper and Thelen, 2008; Emmenegger and Seitzl, 2018; Thelen and Busemeyer, 2008, 2012; Trampusch, 2010a, 2010b). Their analytical instrument of segmentalism is useful to explain that institutions can endogenously change despite the absence of exogenous factors. Our knowledge about the ‘micro-foundations’ of why the political actors build the segmentalist coalition and how the coalitional pattern affects the development of training and skill systems, however, is rather limited so far.

A number of research studies are concerned with identifying the determinants of ALMPs and WFPs. Some rediscover the role of left parties in the expansion of ALMPs and childcare (Bonoli and Reber, 2010; Hieda, 2013; Huo et al., 2008; Iversen and Stephens, 2008). Others present different determinants though. In terms of childcare, women’s participation in parliament and the centralisation of employers are identified as key factors rather than left parties (Lambert, 2008). The two factors are also identified in Bonoli and Reber (2010) and Seeleib-Kaiser and Fleckenstein (2009), respectively. Recently, party competition is considered as decisive for the understanding of childcare expansion among latecomer countries (Leitner, 2010; Fleckenstein, 2010; Fleckenstein and Lee, 2014). When it comes to ALMPs, Martin and Swank (2004, 2012) emphasise the role of employers’ organisation as well as left parties, while Bonoli (2013), Rueda (2005) and Vlandas (2013) disprove the effectiveness of partisanship.

Beyond the PRT and VoC, recently scholars suggest different potential politics. Some research identifies *public opinion* toward social investment, inter alia, political preferences of middle class (Busemeyer, 2017; Busemeyer et al., 2017; Häusermann and Palier, 2017; Garritzmann et al., 2018; Gingrich and Häusermann, 2015; Kitschelt and Rehm, 2014). The educated middle class being different from a traditional working-class constituency of left parties tends to prefer social investment policies over traditional protection policies. This is because they are more likely to ‘harvest the distant and insecure fruit of investment’ for themselves and their children through human capital investment and employment (Husermann and Palier, 2017: 348; Kitschelt and Rehm, 2014) and have the clear interest in work-care reconciliation particularly in terms of gender (Gingrich and Häusermann, 2015: 62). Both parties of left and right therefore develop social investment policies attracting their votes, thereby sometimes generating party competition. Here coalitional politics is also applicable. According to Häusermann and Palier (2017), middle class allies with employers (‘a middle-class–business alliance’) in Switzerland and with trade unions (‘a middle-class–working-class alliance’) in Germany. The former is easily implemented by right parties, whereas the latter is by left parties (Gingrich and Häusermann, 2014).

The approach based on public opinion of middle class has a potential to be a powerful explanation on how many countries in the context of the decline of the working-class and business organisational power develop social investment policies, which is not addressed by PRT and VoC. That being said, the politics need to be developed theoretically and supported empirically. Although some existing evidence shows that middle class is the main *supporter* of social investment policies, in particular education (e.g., Busemeyer, 2017; Garritzmann et al., 2018), there is little evidence whether the middle class is also the main *beneficiary* of social investment policies.

The literature review on the determinants of social investment policies tells us there being no ‘one-size-fits-all’ approach. The determinants differ between ALMPs and WFPs and between training and childcare across production regimes. The varieties make it difficult for researchers to explore the politics of social investment, compared to the analysis of the effectiveness. Given this inherent multidimensionality with respect to determinants, we need to take stock of the positions and roles of relevant political actors—political parties (or the state), employers, trade unions, and even middle class as well as the coalition between them.

4. Research Question, Methods, and Brief Summary of Papers

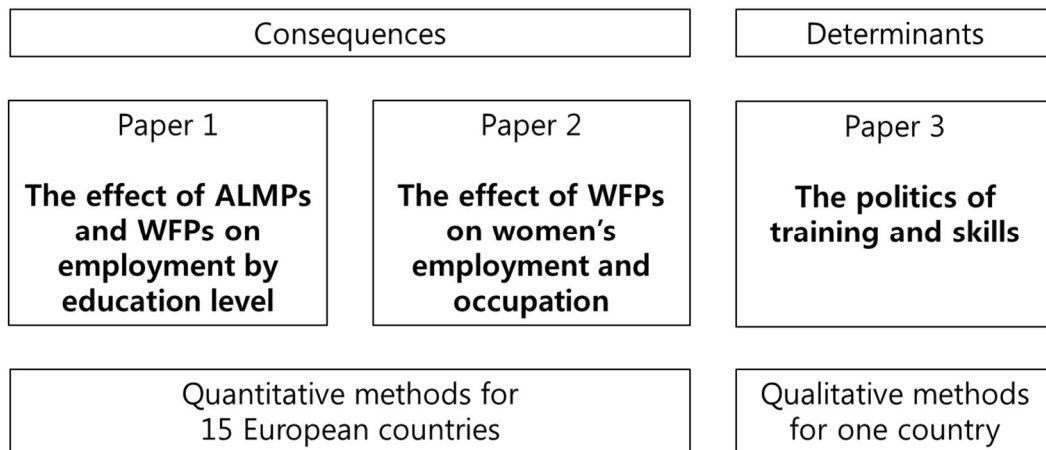
4.1. Research question and methods

The literature review and snapshot tell us that the issues on causes and effects of social investment policies are still inconclusive. The overarching research question of this thesis therefore is: what are the effectiveness and determinants of social investment policies? More specifically, do social investment policies work well by class and gender on the one hand, while under what political and institutional factors do social investment policies develop on the other? Analysing the effectiveness of social investment policies by class and gender is of importance for understanding the determinants of social investment. This is because the most beneficiaries of social investment policies are more likely to be the main proponents of social investment.

The thesis consists of three papers except introductory and concluding chapters. The first two papers refer to the effectiveness of social investment policies. The first paper analyses the effect of ALMPs and WFPs on employment by education level, focusing on the question of whether the Matthew effects are present or not. The second paper examines

the effect of WFPs on employment and occupation by gender and by education level, asking whether the paradoxes and tradeoffs argument is correct or not. The third paper explores how the relations between employers, trade unions and the state affect the development of training and skill formation systems. Figure 10 depicts the outline of the thesis.

Figure 10. Outline of thesis



For seeking an answer to these questions, I use quantitative and qualitative methods. In the first two papers (the effectiveness of social investment policies), I use regression method, especially error correction model (ECM) for macro-level data on 15 European countries between 1992 and 2013. This is because most of the existing literature on the Matthew effects argument and the gendered tradeoffs argument contends with evidence in Europe or Europe plus some non-European Anglo Saxon countries such as Australia, Canada, New Zealand, and the United States (e.g., Bonoli et al, 2017; Cantillon, 2011; Mandel and Semyonov, 2005, 2006). Focusing on European countries in this paper help us compare our results with the previous findings.

Unlike the previous influential literature relying on micro-level cross-sectional survey data for a single point in time, I use the time-series and cross-sectional analysis (TSCS) to consider a change over time. The two methods have pros and cons. The former

is useful for researchers to control various individual factors such as age, marital status, and number of children, but is limited to consider macro-level institutional, socio-economic factors which might affect the outcomes of social investment. Therefore, it is intriguing to see whether a result at the macro level is different from that at micro level. Moreover, through the inclusion of country dummies in the ECM, we eliminate differences across countries but assess the change over time within a country.

In the third paper (the determinants of social investment policies), I employ qualitative methods which enable us to better understand the importance of preferences and roles of political actors in a specific policy. While many scholars of politics prefer qualitative analysis of two or four countries rather than large N countries (e.g., Culpepper, 2007; Fleckenstein and Lee, 2014; Kinderman, 2016), I employ the case study approach for a single country (e.g., Busemeyer, 2011; Crowley and Stanojevic, 2011; Emmenegger and Seitzl, 2018; Trampusch, 2010b). Despite its limitations of generalisation, the approach provides an in-depth description of the particular institutional arrangements, the relations between them (i.e., institutional complementarities), and their historical development within which political actors' preference and behaviour take place in a given national context.

I study the case of South Korea which has experienced a huge range of varieties of changes such as industrialisation, democratisation, economic liberalisation, globalisation and post-industrialisation in the very short period since 1960s and now suffers from hierarchical production regime and labour market dualisation. In analysing interview data with 22 experts from employers' associations, trade unions, think tanks, and public organisations in terms of vocational training, I use triangulation to facilitate validation of interview data by comparing information through juxtaposing document analysis, secondary literature analysis and survey data.

The rest of this section gives an overview of question and argument of the three papers, respectively.

4.2. Paper 1: The effect of ALMPs and WFPs on employment by education level

The first paper investigates the effectiveness of ALMPs and WFPs on employment by education level. The aim and rationales of social investment policies are to improve human capital accumulation and employability among all categories of citizens, especially low-skilled workers and women who face with new social risks. However, some scholars argue the presence of Matthew effects which mean that social investment policies are likely to benefit the advantaged rather than the disadvantaged such as low-skilled (female) workers (Bonoli et al., 2017; Cantillon, 2011; Van Lancker, 2013, 2018; Van Lancker and Ghysels, 2013). Focusing on the unequal access to childcare service by income group, they show that the main beneficiaries are the higher income groups. By contrast, other scholars argue there being little evidence of the perverse effect (Burgoon, 2017; Hemerijck, 2016; Taylor-Gooby et al., 2015; Vaalavuo, 2013; Van Vliet and Wang, 2015). They find that social investment policies are negatively associated with poverty and income inequality which means that the policies benefit low income group.

With respect to the debates on Matthew effects, the first paper asks whether ALMPs and WFPs have heterogeneous effect on employment by education level. More specifically, who are the most beneficiaries in terms of employment among people with various educational attainments? Does the result vary by programme of ALMPs and WFPs? How about the result by welfare regime?

Focusing on training and childcare, I disaggregate the social investment policies at the programme level. Using TSCS analysis, this paper confirms that training and childcare are subject to the Matthew effects, more specifically that those policies benefit medium-educated workers in getting a job more than low- and high-educated workers.

Additionally, employment incentives and maternity and parental leave also have Matthew effects, while public employment services and direct job creation are not the case. Last but not least, the presence or absence of Matthew effects of training and childcare is different across the welfare state regimes. Matthew effects does not exist in Nordic countries, but is pronounced in Southern and Liberal European countries, while continental European countries are between the two groups.

4.3. Paper 2: The effect of WFPs on employment and occupation by gender

The second paper explores the effectiveness of WFPs on gender equality. Despite recent development of WFPs, there are widespread concerns about unanticipated and negative consequences on women's employment opportunities, which are well known as 'welfare state paradox' (Mandel and Semyonov, 2005, 2006) and 'gendered tradeoffs' (Pettit and Hook, 2009). More specifically, childcare and maternity and parental leave encourage women to participate in the labour market, but paradoxically segregate women into lower-skilled jobs while restricting them to enter higher-skilled, higher-paid jobs. The proponents of paradoxes and tradeoffs argument explain that generous WFPs lead to the gender occupational segregation and gender wage gap due to employer discrimination against women (Mandel and Semyonov, 2005, 2006, 2014; Mandel and Shalev, 2009; Misra et al. 2011; Pettit and Hook, 2009; Shalev, 2008). By contrast, others denied the argument (Brady et al., 2019; Gasser and Liechti, 2015; Korpi et al., 2013; Mun and Jung, 2018; Mustosmäki et al., 2017).

With respect to the debates on paradoxes and tradeoffs argument, this paper asks whether WFPs have heterogeneous effect on employment and occupational segregation by gender. More specifically, who are the most beneficiaries in terms of employment and who are the most victims in terms of occupational segregation among people with various

educational attainments? Does the result vary by childcare and maternity/parental leave? How about the result by welfare regime?

Based on TSCS analysis of macro-level data, the paper broadly supports the paradoxes and tradeoffs argument with specifically different implications between different policy indicators and different kinds of equality. The findings suggest that childcare increases the employment of medium-educated women rather than high- and low- educated women, whereas its effects on gender occupational segregation are larger for low-educated women, increasing their gender occupational gap and their representation in low-skilled jobs. By contrast, maternity and parental leave has negative effects on women's employment and occupational choice: especially, the negative employment effect is larger for low-educated women, but the negative effect on occupational choice is larger for high-educated women. Furthermore, the negative effect for high-educated women is larger in Nordic countries than in non-Nordic countries, which is in accordance with the paradoxes and tradeoffs argument.

4.4. Paper 3: The politics of training and skill formation systems

The third paper investigates the determinants of vocational training and skills system. Segmentalist theories of business cleavages in training and skill systems have enhanced our understanding of the patterns and causes of endogenous institutional change by analysing how segmentalist coalitions of large employers and the state (or trade unions) play important role in changing institutions. In these theories, however, the causal mechanism and micro-foundations of how different skill preferences and different attitudes over training costs between employers affect changes of training and skills system how trade unions cleavages combining business cleavages affect them is less developed.

This paper asks what the micro-foundations that determine preferences and behaviours of employers and trade unions in terms of collective skill formation system is. Why is strategic capacity of the organisations so crucial to building cross-class coalitions? What affects the strategic capacity of the organisations? How do employers and trade unions cleavages develop and change training and skills system? How about segmentalist coalitions between them?

An in-depth case study of South Korea shows that strategic capability of employers' associations and trade unions is critical to cross-class coalition formation for collective skill formation system. In Korea, in particular, weak strategic capability of employers' associations and trade unions leads to the fragmentation of collective skill formation systems. In the fragmentation process, the pattern of institutional change depends on relative power of large employers to the state: the segmentalist coalition between large employers and state actors, if the former becomes economically strong but less powerful than the latter, results in an incremental institutional change, while if the former is more politically powerful than the latter, the coalition promotes a transformative change of institutions towards a less collective one, something like in a liberal market economies.

It also suggests that in order to understand the directionality of a transformative change in transition countries experiencing democratisation and economic liberalisation, one has to investigate how the legacies of strategic capacity of employer and union groups before the transition affects the change. Weak strategic capability of Korean employers' associations and trade unions generates hierarchical production regime and dualism in the labour market, thereby hindering the development of collective skills formation system.

PAPER 1

What works and for whom: Social investment and the Matthew effect in fifteen European countries

Abstract

A prominent debate regarding the redistributive effects of social investment concerns the Matthew effect, whereby social investment policies are likely to benefit the better-off rather than the worse-off, such as lower-income, lower-skilled people. In this article we test the Matthew effect of social investment in terms of employment, rather than of access to services and of redistributive outcomes. Among social investment policies we focus on training and childcare, disaggregating active labour market policies (ALMPs) and work-family policies (WFPs) at the programme level. Our results, gleaned from an error correction model (ECM) suggest that training and childcare are subject to the Matthew effect. This means that such policies benefit medium-educated workers in getting jobs more than lower- and higher-educated workers in fifteen European countries in the period 1992–2013. Additionally, employment incentives and maternity/parental leave also show the Matthew effect, while public employment services and direct job creation do not. Finally, the existence of the Matthew effect differs across welfare state regimes. It does not exist on training and childcare in Nordic countries, but is pronounced in Southern and Liberal European countries, and exists only on training in Continental European countries.

1. Introduction

Since the mid-1990s, the countries within the Organisation for Economic Co-operation and Development (OECD) have developed social investment policies that include active labour market policies (ALMPs) and work-family policies (WFPs) in response to the emergence of a knowledge-based economy and new social risks (Bonoli, 2005; Morel et al., 2012; Taylor-Gooby, 2004). Despite the substantial contribution of such policies to employment growth, there is a debate on whether these policies are biased toward or against vulnerable groups such as lower-skilled workers and women, who are more susceptible to the socio-economic transformation. The potentially regressive distributive effects between classes are designated as an example of the Matthew effect by Bea Cantillon and her colleagues (Bonoli et al., 2017; Cantillon, 2011; Cantillon and Van Lancker, 2012; Ghysels and Van Lancker, 2011).

Proponents of the Matthew effect argue that employment-centred and service-oriented policies likely profit those already participating in the labour market (middle- and higher-income households), while lower-skilled individuals who are unemployed or employed in precarious jobs (lower-income households) are less likely to benefit from such policies. This could widen the gap between the poor and the rich. It seems natural to argue, consequently, that an unexpected negative outcome of social investment is at least partially responsible for the persistence of poverty and the rise of income inequality over the last two decades (Cantillon, 2011; Cantillon and Van Lancker, 2012).

Existing studies on the Matthew effect focus on equal opportunities to use the social investment services (particularly childcare), which supports the existence of Matthew effect in terms of a disproportionate use between classes (e.g. Bonoli and Liechti, 2018; Van Lancker, 2013, 2018), and the association with equality of outcomes such as

poverty rate and income inequality, with conflicting results (e.g. Hemerijck et al., 2016; Taylor-Gooby et al., 2015; Vaalavuo, 2013; Van Vliet and Wang, 2015).

The Matthew effect has not been sufficiently explored in terms of employment. Existing literature examines the effect of social investment on overall employment, without focusing on class divides in employment. This omission is surprising, given that social investment can be recognised as directly affecting the redistributive outcomes by social class in the labour market. This is in line with the Lisbon Agenda and the Europe 2020 Strategy, which highlights employment growth through social investment as a good means of economic growth and social inclusion. Looking at the Matthew effect in the labour market thus bridges the gap by examining how biased use (if any) may ultimately increase relative poverty and income inequality.

Accordingly, this paper tests the Matthew effect hypothesis of social investment in terms of employment, rather than of access to services and of redistributive outcomes. It suggests which social investment policies work (or do not) in the labour market and who wins and loses between socio-economic classes. Based on recent progress in social investment literature (e.g. Bonoli, 2010; Vlandas, 2013), we disaggregate ALMPs and WFPs at the programme level, and highlight training and childcare which are part and parcel of social investment. Using an error correction model (ECM) and macro time-series cross-section (TSCS) data on fifteen European countries between 1992 and 2013, this paper analyses the presence or absence of the Matthew effect in the advanced welfare states and across welfare state regimes.

2. Social investment and the Matthew effect

Cantillon (2011) argues that there is ‘a paradox of the social investment state’ which means the discrepancy between employment growth and poverty reduction. This is due to the social stratification of the work intensity between households despite increasing individual employment. In other words, employment growth benefits households where some members are already in work but does not benefit jobless and work-poor households. Scholars are curious about whether social investment policies themselves have a weak or perverse redistributive effect, irrespective of the retrenchment or re-commodification of traditional protection policies. This is the so-called Matthew effect.³

In terms of social investment, the Matthew effect means that middle- and higher-income class disproportionately benefit from the policies at the expense of more vulnerable groups. Current research is unclear why this may be. Not only does the presence or absence of the Matthew effect depend on the method used and policies involved, it also shows considerable variation between countries and time periods. Access to services, especially childcare and ALMPs, can be unequal, too and this may result in the social stratification of work intensity between households. There is good evidence to believe that children from higher-income and dual-earner households are over-represented in formal childcare use. Using data from EU-SILC (European Union Statistics on Income and Living Conditions) 2009 for twenty-seven European members, Van Lancker (2013) concludes that lower-income parents use childcare services less than higher-income parents, and the inequality in childcare use is greater in countries with low levels of overall services

³ The Matthew effect was a term proposed by the sociologist Robert K. Merton (1968), who described an unequal allocation of reputation and credit for jointly authored papers between Nobel Prize laureates and junior scientists in science (the eminent figure gets greater credit and fame, while the lesser-known one gains little credit and prestige). The effect gets its name from a verse of the Gospel according to St. Matthew (Matthew 25:29): ‘For to him who has will more be given; and from him who has not, even what he has will be taken away.’

use. He confirms through TSCS analysis on twenty-three European countries over the period 2006–2012 that more spending on childcare is linked to higher childcare participation rates, but not directly to higher levels of equality in childcare use (Van Lancker, 2018). A similar finding is in in-depth case studies, for instance, of Flanders region in Belgium (Van Lancker and Ghysels, 2012) and the UK (Campbell et al., 2018).

When it comes to ALMPs, research on the disproportionate use of overall services is slight compared to research on childcare usage – see only Bonoli and Liechti (2018). A review of literature evaluating eighty-seven ALMPs during 1998–2013 finds that lower-skilled workers and migrants are under-represented in ALMP participation. They also find different access biases between ALMP programmes; lower-skilled workers, for example, suffer in accessing training and job subsidies, (although not in job creation).

The impact of social investment on the equality of outcomes, such as relative poverty and income inequality, has been studied but with rather inconsistent evidence. Most quantitative micro-analysis based on static evaluations using the EU-SILC dataset reveals little evidence of this perverse effect, which shows larger redistributive effects for poorer group (Burgoon, 2017; Vaalavuo, 2013). Recent TSCS studies on aggregate data, however, provide less positive or less consistent results on the hypothesis. For instance, Van Vliet and Wang (2015) show that higher spending on social investment (aggregating parental leave, elderly care, childcare, ALMPs and education) is negatively linked to poverty and income inequality in fifteen European countries in 1997–2007. Interestingly, the sensitivity analysis excluding Nordic countries (Denmark, Finland, Norway and Sweden) suggests a positive relationship between them, even though the reason why the Nordic countries differ from the other eleven countries is not explained in detail. Taylor-Gooby et al. (2015), using data during 2001–2007 for seventeen European countries, show that ALMPs, especially training, reduce employment and increase poverty. In Hemerijek et al. (2016),

childcare appears to significantly reduce poverty rates but ALMPs do so only in an interaction with social security transfers in twenty-two OECD countries.

The underlying common logic of both research groups is that if the better-off benefit more from the services, disproportionate use of the services could generate considerable class differentials in employment and result in income inequality. For instance, due to the Matthew effect of childcare, the opportunities to develop cognitive and non-cognitive ability in children from lower-income families and to improve the mothers' access to the labour market and jobs are limited in the short term. The families do not find way out of poverty, which gets passed on to the next generation in the long term. In the same vein, any social bias in access to ALMPs might hamper universal labour market participation for all groups, and thereby generate inequality in employment and income. Therefore, employment provides a link (or a vehicle) between the access bias and the inequality outcomes.

However, the former group stops short of analysing class effects on labour market participation and employment, which are more closely related to the equality outcomes. Focusing on specific policies (mainly childcare) most literature does not consider how a variation of childcare spending over time affects the take-up rate of care use and equality between social classes, with the exception of Van Lancker (2018) using the TSCS method. The latter group is difficult to justify a causal relationship between social investment and equality outcomes because other channels exist between them. The causality problem also results from the use of a single aggregated spending variable consisting of various policies or the inclusion of some policies such as education and health care which need a very long time to have an effect.

We therefore need to determine to what extent the impact of social investment on employment is socially stratified. The labour market contains the clearest locus of employment-oriented policies outcomes, thus this approach provides a better understanding of underlying causal mechanisms of biased access of the services to income inequality. These efforts will crystallise the idea of Cantillon (2011) of the social stratification of employment in a more systematic way.

There is another advantage of examining the Matthew effect as social inequality in employment. A growing body of literature argues for better identifying an insider/outsider divide in the labour market. Labour market institutions such as employment protection legislation (EPL), trade unions or traditional welfare benefits might disproportionately favour insiders who work in permanent, full-time employment at the core of the labour market, and marginalise outsiders in precarious work or unemployment (Emmenegger et al., 2012; King and Rueda, 2008; Palier and Thelen, 2010). Lower-educated workers and women can be regarded here as typical outsiders. According to the literature, ALMPs and childcare are expected to be pro-outsider policy. If the policies benefit more insiders than outsiders (i.e., the Matthew effect) against the expectations, they could be at least partly responsible for the recent rising duality of labour market.

3. Social investment and social inequality in employment

The proponents of the Matthew effect expect a negative association, and the opponents expect a positive association between social investment and employment for lower-skilled workers. It has been well documented that there is a positive association with total employment (For a literature review on ALMPs and WFPs, see Martin (2014) and Hegewisch

and Gornick (2011), respectively). However, the Matthew effect on employment differentials between classes has not been theoretically discussed and empirically proven so clearly.

If there is a class difference in childcare access due to the lack of availability or affordability, childcare does not seem to greatly affect the employment of the lower-income class, especially women. Poor availability of centre-based childcare would hinder those with lower-educated backgrounds from accessing it because they do not easily utilise information on the childcare system and location (Van Lancker, 2013; Van Lancker and Ghysels, 2012). The same is true when childcare costs are not fully subsidised by the government. Affordability becomes a particular concern to lower-income families who are likely to be unable to pay higher fees (Abrassart and Bonoli, 2015). The middle- and higher-income brackets are in sharp contrast with the lowest income group. They are likely to be the work-rich households who tend to have the most to gain from childcare services by nature (Van Lancker and Ghysels, 2012). In the case of extreme shortage of centre-based childcare availability, they may benefit more from additional childcare centres. This is because the centres are located in areas where higher-income and dual earner families live, especially in countries relying on the role of the private childcare (Van Lancker, 2018). There is, however, an ambivalence of the effect on higher-income households. They may be influenced little by additional childcare provision, if they have a strong motivation to work regardless of the availability of public childcare or use private, more expensive and higher-quality childcare due to their higher earning capacity (Stadelmann-Steffen, 2011; Troger and Verwiebe, 2015). Consequently, the middle class is most likely to be the main beneficiary of childcare provision in terms of employment, compared to their two counterparts.

When it comes to ALMPs, one could be less sceptical towards the existence of the Matthew effect because lower-skilled people who are in the long-term unemployed are

much more likely to participate in ALMPs. Literature provides conflicting evidence of employment for the lower-skilled, however — the positive effect (Escudero, 2018; Biegert, 2017; Hemerijck et al., 2016) and the negative effect (Abrassart, 2013; Bonoli and Liechti, 2018; Taylor-Gooby et al., 2015). But there are similar reasons why ALMPs generate the employment disadvantage of lower-educated workers. First, unskilled and lower-educated persons are less likely to participate in the programmes which require some capabilities such as cognitive and non-cognitive skills (Bonoli and Liechti, 2018). Additionally, they take no heed of the skill development, weak motivation and the lack of basic information on where and how to access ALMPs (Almeida et al., 2012: Chapter 5). Secondly, even if lower-educated workers participate, they are also less likely to benefit from ALMPs and successfully get a job due to low cognitive skills (Abrassart, 2013). Thirdly, civil servants who have direct contact with programme participants (e.g. case workers) may decide to prioritise a promising individual with higher employment probabilities, such as higher education or strong motivation (Bonoli et al., 2017; Bonoli and Liechti, 2018). This discrimination may be greater in training and job subsidies whose access biases are the most severe, as Bonoli and Liechti (2018) show. In contrast, some categories of ALMPs, such as information services for job seekers, are expected to be more beneficial to highly-skilled workers transitioning between jobs. Consequently, speculation over which class benefits more from ALMPs or less varies across ALMP programmes, which is not manifested by the measure of total ALMPs spending.

There is, however, a nuanced but important difference between childcare and ALMPs in the relationship between an increase in spending and the social stratification of employment. The bias in access to childcare is most likely to result from a limited affordability and availability, rather than an intrinsic problem of childcare service itself. Therefore, one could expect that more childcare spending, whatever the focus on the affor-

bility or availability, benefit lower-income families in the long run unless they are explicitly excluded by unemployment. This means that, even in late-coming countries with low spending on childcare (other than Nordic countries with universal childcare provision), lower-income households can benefit from childcare when the expansion reaches a certain threshold, which leads to higher levels of equality in childcare use, as Van Lancker (2018) infers. By contrast, the ALMP Matthew effect cannot be alleviated simply by increasing spending. The administration process to identify potential beneficiaries of ALMPs is more challenging unless lower-skilled workers voluntarily express their willingness to work and perform more additional tasks, such as the job centre interviews, while childcare is easily applied for if the age requirement is met (despite means testing in some countries).

Further analysis of the possible presence of the Matthew effect (and in configuration of the effectiveness of ALMPs and WFPs across welfare state regimes) is therefore needed. This is because countries sharing similar institutional structures are expected to show similar employment outcomes. Nordic countries come to prominence when it comes to accessibility and effectiveness of the programmes. These countries run more successful training programmes accessible to the lower-educated (female) workers and enable them to be more widely employed (Bonoli and Liechti, 2018; Card et al., 2015). Due to the universal and high-quality provision of childcare problem of rationing depending on social class does not exist (Van Lancker, 2013). The Matthew effect in late-comers such as Continental, Liberal and Southern European countries, which have ‘make work pay’ approach and suffer from the duality of the labour market (as well as the lack of childcare provision), sees the effect on employment for the disadvantaged severely limited (Bonoli et al. 2017).

4. Data and method

4.1. Data and variables

This paper uses a TSCS analysis of fifteen social investment states during 1992–2013. The sample among thirty-five OECD countries was selected using data from OECD World Indicators of Skills for Employment (WISE), one of reference database we compiled. Data was limited to the employment rates across education levels only for European countries and some European countries which do not provide at least ten-year uninterrupted series data are excluded here. Nonetheless, our sample of countries covers various welfare regimes: five Continental European countries (Austria, Belgium, France, Germany and the Netherlands), four Southern European countries (Greece, Italy, Portugal and Spain), two Anglo-Saxon (Liberal) countries (Ireland and the United Kingdom), and four Nordic countries (Denmark, Finland, Norway and Sweden).

Dependent variables as labour market outcomes are: the total employment rates and female employment rates split by educational attainment, as a proxy variable of socio-economic class, from the OECD WISE. The database classifies the classes by the criteria of educational attainment: lower-educated workers below upper-secondary (ISCED 0-2), medium-educated workers upper and post-secondary but not tertiary (ISCED 3-4), and higher-educated workers with tertiary education (ISECD 5-8), respectively. To control for demand-side variation in the share of occupations fitting each skill level, we include the share of employment in lower-, medium- and higher-skill occupations, respectively, from the ILO STAT. We can therefore exclude the case that a rise in employment rate of lower-educated workers, for instance, is driven by an expansion of lower-skilled jobs among all jobs, and not by social investment variation.

Two social investment policies from the OECD Social Expenditure (SOCX) are used as independent variables: the public and mandatory spending on ALMPs and WFPs

which are both part of social investment to combat new social risks and also of great relevance to the labour market outcomes we look at. Among ALMPs, training, public employment services and administration (PES), direct job creation and employment incentives are collected because the values of spending are large enough to be around 0.1% of GDP. For WFPs, we employ the early childhood education and care (ECEC), and maternity/parental leave. All the expenditure variables are represented as a percentage of GDP, divided by unemployment rates and the population ratio of 0–5, respectively.⁴ Our main independent variables are training and childcare, a major component of social investment. Training is most likely to improve the prospect of finding a job or increasing human capital for the unemployed and lower-skilled workers among ALMPs, while childcare affects the women’s labour market participation and parents’ work-life balance.

It is interesting to see to what extent other types of ALMPs and maternity/parental leave affect the dependent variables, as independent from training and childcare. In particular, ALMPs encompass different range of policy objectives from human capital investment to activation, and are derived from different roots (Bonoli, 2010) and have different short- and long-term effects between the specifics of the programmes (Card et al., 2015). The recalibration of ALMPs and WFPs at programme level shows different trends in configuration of programmes within a country as well as across countries (see Figures A1–A2 in Supplementary Appendix). Averaging them together will therefore dilute individual properties and potentially generate misleading results.

⁴ When we use the ratio of ALMPs to unemployment, the measure could go up if spending goes up but unemployment does not, compared to the previous year, or if unemployment goes down with spending unchanged. In any case, it can be interpreted that the average ALMP spending per unemployed individual goes up. However, the adjustment makes the size of ALMPs and WFPs independent variables smaller to the nearest hundredth. Therefore, we multiply them by 100 for convenience of interpretation on coefficients.

To create a control for structural factors affecting labour market outcomes, we include various institutional factors that have a significant effect on the level of employment and wage in previous literature (Huo et al., 2008; Nelson and Stephens, 2012; Abrasart, 2015). There are social contributions and payroll taxes, unemployment benefits, the index of EPL for regular and temporary contracts, union density, and the co-ordination of wage-bargaining, which are taken from the OECD database and the ICTWSS database (Visser, 2016). These factors enable us to analyse which institution is pro-insider or pro-outsider on the basis of the labour market dualisation. GDP gap and openness are economic control variables, while both percentages of the population younger than fifteen and older than sixty-four are demographic controls. More details on the definition, source and descriptive statistics of variables are in Tables A1–A2 in Supplementary Appendix.

4.2. Method

The most important concerns on TSCS data in the research of political science are to deal with nonstationary variables, thereby producing spurious regression problem (Beck and Katz, 2011). Because our dependent variables and main independent variables from panel unit root tests are non-stationary (see Table A3 in Supplementary Appendix), we use the single equation ECM which is superior to other TSCS model specifications in controlling for non-stationarity and in finding a proper long run relationship (Beck and Katz, 2011; De Boef and Keele, 2008; Podestà, 2006). This leads to:

$$\Delta y_{it} = \alpha + \beta_0 y_{it-1} + \beta_1 \Delta x_{ijt} + \beta_2 x_{ijt-1} + \varepsilon_{it}$$

i , j , and t refer to the country, independent variable and time, respectively (Δ is the first difference operator). The short-run change of y (Δy) in any period is a function of both the ‘change’ of x (Δx) and the change in the lagged ‘level’ of x (x_{it-1}). A more detailed description of the formulation presented here is explained in the Appendix on ECM.

The decision to use the ECM has several advantages. First of all, the ECM can not only capture dynamic adjustments in the short run (i.e., short-term effect, β_1), but catch the existence of a long-run equilibrium relationship among the variables (i.e., long-term effect, $\beta_2 / -\beta_0$), which is sometimes called the long-run multiplier (LRM). Here β_0 is between -1 and 0 if dependent variables converge to a long-term equilibrium between x_{it} and y_{it} . In discussing the results later, this paper focuses primarily on the LRM because we have an interest in the long-run effects of ALMPs and WFPs on the employment rates. Secondly, the approach enables us to deal with problems of endogeneity of explanatory variables, especially reverse causality (to some extent) by including the lagged independent and dependent variable in the right-hand side of the equation.⁵

We include country dummies in all of our ECMs to control for country-specific fixed effects. The inclusion eliminates differences in the levels of independent variables across countries and changes the nature of the model into within-country model. Although many comparative welfare research has an interest in cross-sectional difference, our model assessing the effectiveness of social policies needs country dummies because changes in employment and wage are more associated with the evolution of social expenditure within countries. This enables us to focus on the change over time rather than differences across countries. Additionally, country-fixed effects allow us to reduce (but not completely eliminate) the likelihood of endogeneity driven by an omitted variable that affects both dependent and independent variables and varies across countries. Finally, we apply panel-

⁵ Using the ratio of ALMPs to unemployment rate and childcare to 0–5 population rate as well as including unemployment benefits in our ECM minimises the reverse causality problem. Alternative approach addressing endogeneity issue is to utilise Generalised Method of Moments (GMM) estimator within a dynamic panel model using the LDV as instruments for past values of the regressors. When we test one-step System GMM model, the estimates show nevertheless a Matthew effect of training and childcare most favouring medium-educated (female) workers' employment [available upon request].

corrected standard errors (PCSEs) with an AR(1) correction (i.e., Prais-Winsten transformation) which are robust for both panel-specific autocorrelation, cross-country heterogeneity, and contemporaneous correlation. Consequently, our ECM with robust standard errors and country fixed effects tends to produce more conservative results.

5. Results

5.1. The Matthew effect: training and childcare

Table 1 presents results for the effect of ALMPs and WFP programmes on the employment rates across lower-, medium-, and higher-educated workers and the corresponding female workers in fifteen European countries. In terms of training, the positive short-term effect exists only for medium-educated (female) workers (Columns 3 and 4) and the long-term effect only for medium-educated female workers (Column 4). All other things being equal, a one-unit increase in training yields an immediate positive effect of 0.388%p of the employment rate of lower-educated female workers (that is, the coefficient of $\Delta Training_{it}$) and a lagged effect of 0.097%p (the coefficient of $Training_{it-1}$) in Column 4. The total long-run effect (i.e., LRM) incorporating both the immediate and lagged effect will increase the total employment rate by 0.372%p with a significant level of 0.05.⁶ The long-term effects for lower- and higher-educated (female) workers have negative sign, albeit the coefficients are insignificant. In particular, a possible negative effect for lower-skilled workers (Columns 1 and 2) seems to be in line with the findings of Abrassart (2013) and Bonoli and Liechti (2018).

⁶ The total long-run effect (that is LRM) is calculated from two estimates coefficients of the lagged independent variable and the lagged dependent variable, that is, $-\left(\frac{0.097}{-0.261}\right) = 0.372$. In order to calculate the standard error of the total effect coefficient, we use the Stata command *nlcom*, instead of Bewley transformation. The former is more convenient than the latter, but results are same.

The result of the full model is very different from a basic model analysing the impact of total ALMPs without distinguishing their components at the programme level: the positive and statistically significant effect of ALMPs on the employment (both in the short and long run) exist for both lower- and medium-educated (female) workers and the former is larger than the latter in the long run, *prima facie*, showing no Matthew effect (see Table A4 in Supplementary Appendix). The result of the basic model corresponds with conventional wisdom that ALMPs spending can spur employment, especially of lower-educated workers (e.g. Biegert, 2017; Hemerijck et al., 2016). The difference between the full model and the basic model justifies the reason why we should differentiate ALMPs at the programme level. Childcare, in Table 1, has a significant positive short-term effect on lower- and medium-educated (female) workers, but in the long run the positive effect is significant only on medium-educated (female) workers (LRM: 0.193 and 0.371), suggesting childcare plagued by the Matthew effect (Cantillon, 2011; Bonoli et al., 2017). For lower-educated workers, childcare provision by itself does not seem to be enough for their employment growth in the long run. Taken together, the result of Table 1 shows the presence of the Matthew effect, with the middle educated workers disproportionately benefiting from training and childcare.⁷ In other words, training and childcare are therefore likely to favour insider workers between different education levels, running counter to theoretical expectations and some evidence of literature that regards them as pro-outsider policy (Biegert, 2017; Rueda, 2005).

Columns 3 and 4 in Table 1 also reveal that both effects of training and childcare on medium-educated female workers (LRM: 0.372 and 0.371) are larger than on total medium-educated workers (LRM: 0.081 and 0.193), which implies larger effects for

⁷ Even when we replace ALMPs with training alone in order to avoid a possible multicollinearity arising between ALMPs programmes, the results for training and childcare show the Matthew effect to remain consistent (see Table A5 in Supplementary Appendix).

women than men. While childcare gives a greater advantage to women (which intuitively makes sense), it is interesting that training has a greater positive impact on female than on male workers. Some surveys of literature on the effects of ALMPs, especially training, support this finding (Bergemann and Van den Berg, 2006; Card et al., 2015). This is mainly due to two reasons according to Bergemann and Van den Berg (2006). Firstly, women's labour supply functions are more elastic with respect to the wage variation or other factors due to having alternatives other than work. Secondly, women typically have participated less in the labour market and more unemployed than men, which makes the employment effect larger for women.

Among the other ALMP programmes in Table 1, employment incentives displays the Matthew effect in favour of medium- and higher-educated workers, whereas PES brings about the opposite case, showing clearly positive and long-term effects on lower-educated workers. Direct job creation has no Matthew effect, reducing higher-educated workers' employment but with no significant adverse effect on lower-educated workers. Our result on job creation and employment incentive programmes is also compatible with the ALMPs review of Bonoli and Liechti (2018). The overall long-term impact of maternity/parental leave on employment rate is negative in sharp contrast with ALMPs and childcare, which is significantly larger for lower-educated (female) workers. This is analogous to the Matthew effect in that the detrimental consequence of maternity/parental leave on employment is inversely proportional to the educational attainment of women (see Del Boca et al., 2009; Hegewisch and Gornick, 2011). Interestingly, our results imply that social investment might generate gender inequality. While the Matthew effect of training and childcare benefits women more than men, other ALMPs and maternity/parental leave have more of a positive effect for men than for women or less of a negative effect for men than for women.

Table 1 also shows the effects of other labour market institutions on the employment differences by education. A higher unemployment benefits appears to aggravate the employment of medium- and higher-educated (female) workers, contrary to conventional wisdom that passive labour market policies (PLMPs) are seen as a tool to favour insiders. However, it appears that union density and coordination of wage bargaining have a strong insider orientation, showing positive effects for higher- and medium-educated workers, respectively. Regular EPL and temporary EPL show different effects: the stricter is EPL for regular employment, the lower the employment rates of medium- and higher-educated (female) workers, while a stricter EPL for temporary employment increases higher-educated workers' employment. The effects of the two EPL on lower-educated workers are not significant. According to dualisation literature, stronger protection against job losses of employees generates employers' hesitation in hiring (Berglund and Furåker, 2016). Our results show that the former is larger with respect to the EPL for temporary employment, while the latter is larger with respect to the EPL for regular employment.

Table 1. Estimated effects on the employment rates for 15 European countries

Independent variable		Dependent variable (first difference)					
		Lower-educated workers		Medium-educated workers		Higher-educated workers	
		(1) All	(2) Fe- male	(3) All	(4) Female	(5) All	(6) Fe- male
Training	First difference	0.047	-0.141	0.167*	0.388***	-0.037	-0.055
	Lag	-0.125	-0.108	0.024	0.097*	-0.053	-0.039
	LRM	-0.432	-0.558	0.081	0.372*	-0.189	-0.144
Childcare	First difference	0.286***	0.284***	0.132**	0.170**	-0.060	-0.140*
	Lag	0.052	0.067	0.058†	0.097*	-0.022	-0.021
	LRM	0.180	0.345	0.193†	0.371*	-0.079	-0.076
Public employment Services (PES)	First difference	0.357*	0.372†	0.135	0.245*	0.263**	0.285*
	Lag	0.219†	0.088	0.045	0.090	0.056	0.078
	LRM	0.756†	0.454	0.148	0.343	0.199	0.286
Direct job creation	First difference	0.061	0.159	0.158	-0.018	-0.032	-0.160
	Lag	0.002	0.081	0.063	-0.088	-0.125*	-0.198**
	LRM	0.008	0.421	0.209	-0.338	-0.443*	-0.726**
Employment incentives	First difference	-0.066	-0.155	0.059	-0.163	0.213*	0.142
	Lag	0.168	-0.020	0.243**	0.074	0.248**	0.193*
	LRM	0.580	-0.103	0.806**	0.284	0.879**	0.710†
Maternity and parental leave	First difference	-0.125	0.039	0.036	-0.057	0.074	0.017
	Lag	-0.501***	-	0.040	-0.037	-0.052	-0.075
	LRM	-1.729***	0.476*** -2.463**	0.134	-0.144	-0.186	-0.277

Unemployment	First difference	-0.064	-0.062	-0.006	-0.041	-0.076*	-0.084*
benefits	Lag	-0.072†	-0.012	-0.042*	-0.059*	-0.070***	-0.084***
Union density	First difference	-0.192	-0.267*	-0.305***	-0.245*	0.029	0.106
	Lag	0.078	0.006	-0.044	-0.005	0.116*	0.171**
Coordination of	First difference	0.350*	0.170	0.497**	0.220	0.129	0.027
wage bargaining	Lag	0.272	0.210	0.422**	0.485**	0.101	0.069
Regular EPL	First difference	-0.113	-0.466	0.321	0.753	0.300	0.158
	Lag	0.641	0.118	-1.051†	-1.045†	-1.213*	-0.774
Temporary EPL	First difference	0.558	0.436	0.177	0.032	-0.129	0.042
	Lag	0.303	-0.226	-0.005	0.054	0.338*	0.311
Output gap	First difference	0.373***	0.330***	0.358***	0.244***	0.201***	0.202***
	Lag	0.218**	0.163*	0.313***	0.278***	0.129***	0.152***
Openness	First difference	-0.012	-0.022	-0.015	-0.016	-0.028**	-0.040**
	Lag	0.017	0.024*	-0.002	0.005	-0.000	-0.001
Payroll taxes	First difference	0.513†	0.735*	0.025	-0.200	0.021	0.062
	Lag	-0.026	0.045	0.093	0.039	-0.205	-0.236†
Under-15 population	First difference	1.063	2.414*	1.307†	2.052**	-0.086	0.100
	Lag	0.003	0.271	0.181	0.179	-0.307	-0.445†
Over-64 population	First difference	-3.437**	-1.951†	-0.832	-0.514	-0.786	-0.829
	Lag	0.605**	0.322	0.498***	0.510***	0.289**	0.362**
Lower skilled jobs	First difference	0.124	0.127†				
	Lag	-0.203*	-0.091				
Medium skilled jobs	First difference			0.099*	-0.024		
	Lag			0.001	0.004		
Higher skilled jobs	First difference					-0.170***	-0.145***
	Lag					-0.020	-0.002
Total employment rate	Lag	-0.289***		-0.302***		-0.282***	
Female employment rate	Lag		-		-		-0.272***
			0.193***		0.261***		
Constant		5.756	0.849	12.454**	6.607	28.839***	25.680***
Observations		254	254	254	254	254	254
Number of countries		15	15	15	15	15	15
R ²		0.57	0.49	0.72	0.62	0.54	0.46

Notes: The estimated coefficients of country dummies are not reported for reasons of space; all models use a Prais-Winsten estimator which is more robust to the issues of autocorrelation, heteroscedasticity, and contemporaneous correlation in the error terms; all models use the panel-specific AR-1 autocorrelation structure and pairwise option allowing for the unbalanced panel; LRMs are presented only for main independent variables in terms of ALMPs and WFPs programmes due to space constraints; Statistical significance is based on two-tailed tests.

† p<0.1, * p<0.05, ** p<0.01, *** p<0.001.

Sensitivity analysis

To test the robustness of our findings, we carried out a number of sensitivity analyses for the parameters discussed. Firstly, our multivariate model contains many predictors for just fifteen countries. To see the results of the model with fewer controls, we used only seven expenditure variables, namely four ALMPs, two WFPs and unemployment benefits, while deleting the other ten controls. Secondly, one could argue that ALMPs and WFPs mainly affect the working age population aged twenty-five to sixty-four rather than the youth between fifteen and twenty-four. Therefore, we examined the distributional effects on the adult employment rate from the OECD WISE. Thirdly, we replaced the spending of unemployment benefits with another commonly used measure of unemployment protection, namely, the replacement rate of unemployment benefits from the Comparative Welfare Entitlements Dataset (CWED II, Scruggs et al., 2017) despite the loss of time series during 2012–2013. The Matthew effect's consequences of training and childcare benefitting only medium-educated (female) workers in the long run were independent of the changes (see Tables A6–A8 in Appendix).

Next, our results are based on unbalanced panels due to missing observations with respect to the employment rates by education level and the measures of job ratio by skill level during 1992–1994, particularly for the Nordic countries. The missing data for the Nordic countries with very high level of both spending on social investment and employment rate for all education levels could lead to biased results. Nevertheless, when we excluded the time period for fifteen European countries, the results for the Matthew effect of training and childcare held (see Table A9 in Appendix). When the Nordic countries were excluded, however, the Matthew effect was more pronounced in the non-Nordic countries, with training and childcare becoming most favourable for medium-educated (female) workers in both short- and long-term. Separate ECM results for the Nordic countries showed no Matthew effect. Training and childcare had positive effects on lower-

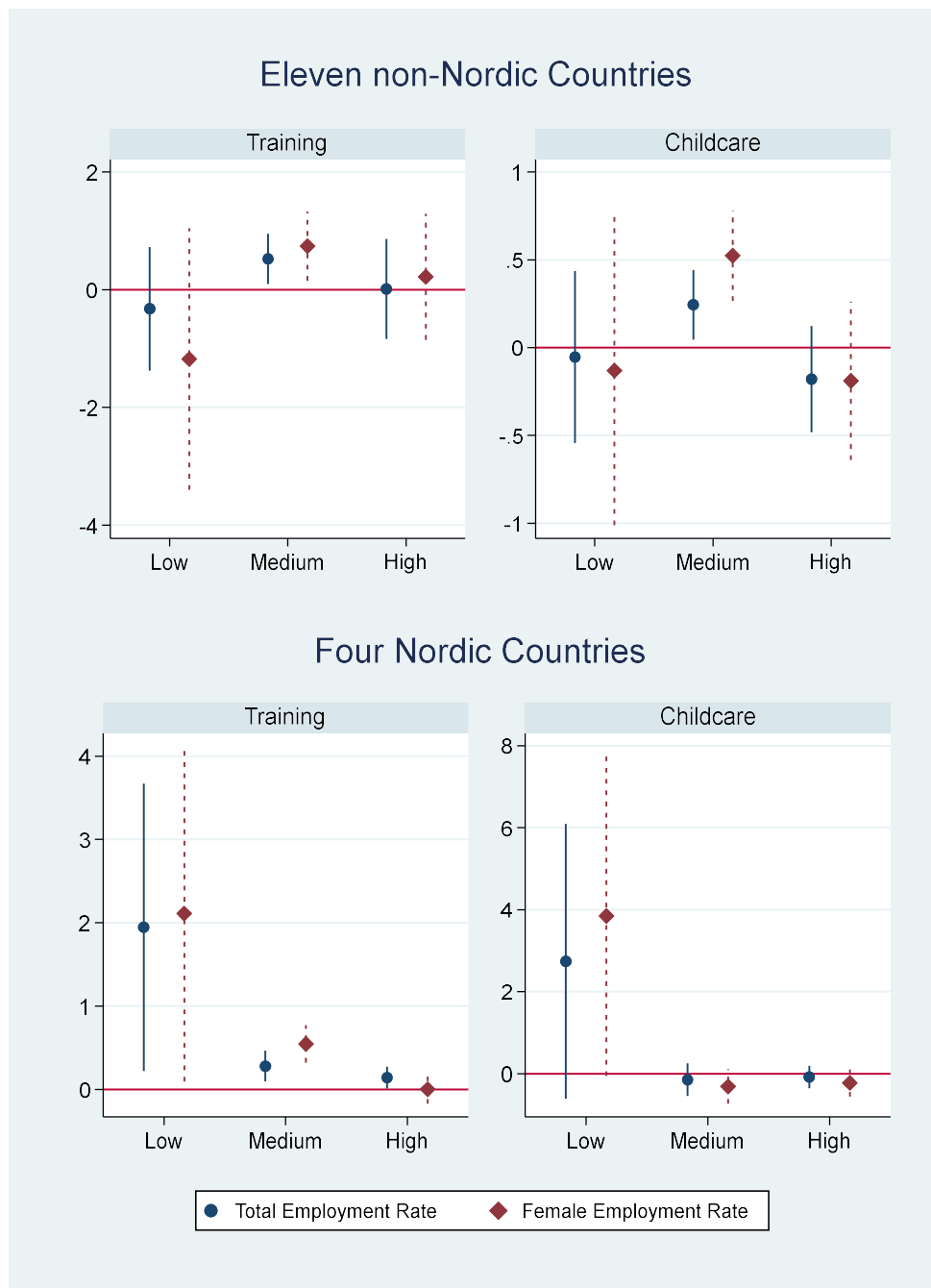
educated (female) workers, larger than those on medium- and higher-educated (female) workers. The positive effects for lower-educated workers in the Nordic countries were larger than those for medium-educated workers in the non-Nordic countries.⁸ Figure 11 displays the extreme difference between the two groups (cf. Tables A10–A11 in Supplementary Appendix). The dots represent the point estimates of the LRM, while the vertical lines crossing the dots depict 95 percent confidence intervals. This is, interestingly, in line with Van Vliet and Wang (2015) who find a positive relationship between spending on social investment and poverty and income inequality in eleven European countries when excluding the Nordic countries, which are exactly same sample of countries as ours.

To further analyse whether the existence of heterogeneity across welfare state regimes affects our results, we re-estimated the ECMs for three groups. In terms of the development of ALMPs and WFPS, four Nordic countries are the biggest spenders, six Southern and Liberal European countries are the lowest, and five Continental European countries fall somewhere in between. Table 2 summarises the LRMs of six main independent variables by regime in order to facilitate readability. Detailed regression tables are provided in Supplementary Appendix (Tables A11–A13). In six Southern and Liberal countries a significant positive effect of training and childcare was larger for medium- and higher-educated (female) workers than for lower-educated (female) workers, showing a clearer pattern of Matthew effect. It is worthy of note that higher-educated (female) workers also benefit from the policies.

⁸ Some could conceive a reason that employment rate of lower-educated (female) workers is ‘ex-ante’ higher in the Nordic countries than in the non-Nordic countries, and thus the workers are more likely to benefit from the policies by default. This is not true because the Nordic countries have much higher employment rates of medium- and higher-educated (female) workers than the non-Nordic countries, compared to the employment rate of lower-educated (female) workers. Moreover, the inclusion of LDV in our model controls the effect of the state of the employment in previous periods on the change of current employment.

In five Continental countries the Matthew effect existed only in training but not in childcare. More interestingly, there was substantial variation in the development and effectiveness of ALMPs across regimes in line with Bonoli (2010), who argue that the different types of ALMPs have different origins and development. In Nordic countries where vocational training for the unemployed was most developed, training among ALMP programmes appeared to be most effective. In Continental, Southern and Liberal European countries, the effectiveness of direct job creation and employment incentives was largest respectively, suggesting the main user of each programme. The Matthew effect of maternity/parental leave exists only in the non-Nordic countries, while in Nordic countries there was a significantly negative effect for higher-educated (female) workers.

Figure 11. The difference of the long-run effects (LRM) of training and childcare between the non-Nordic and the Nordic countries.



Notes: Predicted coefficients and 95% confidence intervals based on Tables A10–A11 in Appendix.

Table 2. The difference of the long-run effects (LRM) of ALMPs and WFPs by welfare state regime

Independent variable	Dependent variable					
	Lower-educated workers		Medium-educated workers		Higher-educated workers	
	(1) All	(2) Female	(3) All	(4) Female	(5) All	(6) Female
Nordic countries						
Training	1.947*	2.111*	0.281**	0.548***	0.143*	0.003
Childcare	2.740	3.847†	-0.148	-0.312	-0.080	-0.226
PES	2.278	-0.573	-0.113	-0.245	0.193	0.410*
Direct job creation	0.289	1.396	-0.920**	-0.878**	-0.771***	-0.718*
Employment incentives	-3.133*	-2.318	-0.501**	-0.547**	-0.506***	-0.442*
Maternity and parental leave	1.965	2.332	-0.415*	-0.185	-0.587***	-0.873***
Continental European countries						
Training	-0.179	-0.123	0.346**	0.564**	0.465**	0.401*
Childcare	0.290	0.447†	0.102	0.124	0.046	0.038
PES	0.166	0.229	-0.310	-0.612*	0.122	0.050
Direct job creation	1.621†	0.827	0.675***	0.637*	0.201	0.004
Employment incentives	-0.033	-0.405	-0.050	-0.963**	0.494†	0.637*
Maternity and parental leave	-0.278	-0.593	0.408†	0.797*	0.196	0.187
Southern & Liberal European countries						
Training	0.841†	1.266	2.499***	2.115***	0.934*	2.294*
Childcare	0.085	0.307	0.859***	0.936***	0.286*	0.654*
PES	0.852†	1.113	-0.287	-0.333	0.441*	0.719
Direct job creation	-0.228	0.419	-1.247*	-1.725*	-0.408	-2.202*
Employment incentives	1.511**	2.660*	1.144**	0.852†	1.026**	1.233*
Maternity and parental leave	-1.617**	-1.251	0.819*	1.367**	-0.494	-0.864

Notes: See Table 1. This Table is summarised from results of Tables A9–A11 in Appendix.

6. Conclusion

This article tests the controversial hypothesis of how social investment policies affect vulnerable groups such as lower-educated workers and women, a concept which is known as the Matthew effect. ECM results for fifteen European countries tell us the Matthew effect exists with training and childcare, occurring in favour of the middle educated workers. Employment incentives and maternity/parental leave also show the Matthew effect profiting medium- and higher-educated workers, or putting lower-educated workers at a great disadvantage, while PES and direct job creation prove the opposite. Sensitivity analysis shows that the Matthew effect is prevalent in non-Nordic countries, especially Southern and Liberal European countries, while no explicit Matthew effect appears in Nordic countries. The effectiveness of ALMPs and WFPs is different across welfare state regimes and

between men and women. This implies that social investment in some countries might be largely responsible for rising socio-economic inequalities, such as relative poverty, income inequality, gender inequality and labour market dualisation. Social investment has been proven to make a strong middle educated workers the primary labour force. This middle educated workers then drives the national economy at the expense of equality between social classes, and between insider and outsider types within the labour market. If social investment aims to focus on the disadvantaged such as lower-skilled workers and women, it must address the stratified outcome of such policies.

This paper has some limitations. A question not addressed here concerns the possibility of qualitative variables which might change the results. For instance, the quality of childcare may be more decisive in enabling mothers to participate in the labour market. The impact of maternity/parental leave on employment outcomes may be contingent on the period provided. In addition, there may be an interaction effect through positive or negative mechanism between the different policy interventions. This relationship exists not only between social investment policies (e.g. training and childcare, childcare and parental leave) but between social investment and traditional income protection (e.g. training and unemployment benefits). Our understanding of more effective social investment in terms of institutional complementarities would be strengthened by the interaction effect (Hemerijck, 2017). Finally, this paper does not consider the quality of employment as social investment outcomes. If most jobs generated by the policies are lower-skilled, lower-paid, short-term and temporary then employment does not relieve poverty, but enforce in-work poverty, regardless of unequal access to jobs.

Nonetheless, our analysis suggests a useful implication for further research into social investment effectiveness and determinants. Firstly, our results show that there are trade-offs to the effectiveness between sexes. In the instance of WFPs, medium-educated

female workers benefit more from childcare than that male workers do, while maternity/parental leave is the opposite. This is related to the ‘gendered trade-offs’ – the most prominent debate among gender scholars (e.g. Mandel and Semyonov, 2005, 2006). Secondly, the Matthew effect regarding who ‘wins’ and ‘loses’ from the evolution of social investment enables us to identify the potential proponents and opponents for expansion of the services. Our results also imply that policy reform may attract middle-class electoral support. Further research would prove more valuable when the trade-offs and the political relationship are investigated more rigorously.

PAPER 2

Gender-Class Tradeoffs in Women's Employment Opportunities: The Consequences of Work-Family Policies in 15 European Countries

Abstract

Prominent research documents paradoxes and tradeoffs that welfare states with generous work and family reconciliation policies such as childcare and maternity and parental leave are effective in increasing women's employment but experience severe gender occupational segregation. Motivated by the intersectionality between class and gender, this article explores whether the policies have the negative consequences in terms of gender equality and how the effects are different by women's education level. Formulating and testing hypotheses about the effect of work-family policies on female employment, gender employment gap, sectoral and vertical occupational segregation, this paper analyses macro-level data on 15 European countries for 1992–2013. The findings suggest that childcare increases medium-educated women's employment rather than high- and low-educated women's employment, whereas its effects on gender occupational segregation are larger for low-educated women, increasing their sectoral and vertical segregation. By contrast, maternity and parental leave has negative effects on women's opportunities in both employment and occupational choice: especially, the negative employment effect is larger for low-educated women, but the negative effect on occupational choice is larger for high-educated women. Furthermore, the negative effect for high-educated and high-skilled women is larger and more significant in Nordic countries than in non-Nordic countries in accordance with the paradoxes and tradeoffs argument.

1. Introduction

Since the late 1990s, many welfare states in the Organisation for Economic Co-operation and Development (OECD) have developed work-family reconciliation policies (hereafter WFPs) such as public childcare services and maternity and parental leave to activate female employment, promote gender equality, raise fertility, tackle child poverty, and foster child development (e.g., Fleckenstein and Lee, 2014; Lewis, 2009; Morgan, 2012; OECD, 2007). Despite the expansion of such policies, there have been widespread concerns about unanticipated and negative consequences on women's employment opportunities, especially that WFPs encourage women to participate in the labour market but paradoxically segregate women into lower-skilled jobs while restricting them to enter higher-skilled, higher-paid jobs. Nordic countries with high level of WFPs are much suspected to be distinctive in the tradeoffs between the quantity and quality of women's jobs. The gender issue is well known as 'welfare state paradox' (Mandel and Semyonov, 2005, 2006) and 'gendered tradeoffs' (Pettit and Hook, 2009).

Much has been written about causes of the potentially counterproductive consequences, using individual-level data. Some sociologists elaborate how WFPs lead to the gender occupational segregation and gender wage gap due to employer discrimination against women (Mandel and Semyonov, 2005, 2006, 2014; Mandel and Shalev, 2009; Misra et al., 2011; Pettit and Hook, 2009; Shalev, 2008). Others denied the relationship with WFPs (Brady et al., 2019; Evertsson et al. 2009; Gasser and Liechti, 2015; Korpi et al., 2013; Mun and Jung, 2018). Rather than focusing on WFPs or not, a group of scholars studying the cross-national variations of occupational segregation and wage gap by gender highlight a varieties of women's activism (Akchurin and Lee, 2013), cultural notions and postindustrialism (Budig et al, 2012; Charles, 2005; Charles and Grusky, 2004, 2007), collective wage bargaining systems (Blau and Kahn, 2003), and skill-based institutions of employment protection and vocational training and educational systems (Estevez-Abe,

2005, 2006, 2009; Soskice, 2005). The considerable amount of research remains inconclusive and questionable mainly because of methodological limitations (see Brady et al., 2019; Hegewisch and Gornick, 2011).

Surprisingly few studies, moreover, take stock of whether the tradeoffs have different implications for women by class. Although a few studies examine interactions between class and gender dimension (e.g., Evertsson et al., 2009; Gasser and Liechti, 2015; Korpi et al., 2013; Mandel, 2011, 2012; Olivetti and Petrongolo, 2017; Shalev, 2008), but their main focus is on micro-relationships at the individual level so that they stop short of a comprehensive consideration of how macro-institutional characteristics other than WFPs would affect the labour market outcomes. Meanwhile, a growing number of studies analysing the effectiveness of social investment policies argue the presence of class effect that WFPs, especially childcare, are likely to benefit high-skilled women already participating in the labour market more than low-skilled individuals either being unemployed or employed in precarious jobs, which is termed ‘Matthew effects’ hypothesis (Bonoli et al., 2017; Cantillon, 2011; Cantillon and Van Lancker, 2012; Van Lancker and Ghysels, 2012, 2013). This calls for studying intersectionality between class and gender. Intersectionality has become very popular in recent feminist studies but has not sufficiently translated in terms of testing the paradoxes and tradeoffs argument (Cooke, 2011; Mandel, 2012).

Motivated by the inconclusive debates on the paradoxes and tradeoffs argument and the findings of Matthew effects, this paper raises the research questions: Are WFPs related to the tradeoffs between the access to the labour market and the quality of labour market attainments? To what extent are the gendered tradeoffs related to class equality among women? Using the recent macro-level data for 15 European countries, this paper investigates the effect of childcare and maternity and parental leave on women’s employment and occupational choice in terms of gender equality. To consider class equality, this paper also investigates how the effect varies by education level of women (as a proxy of

socio-economic level). In doing so, this paper makes two major contributions. First, by explicitly recognising multi-dimensional with tradeoffs, we demonstrate intersecting dynamics in terms of the effectiveness of WFPs, especially a potential tradeoff between gender and class equality. Second, addressing various welfare state arrangements that would affect women's employment and occupational status at the macro level, we test theoretically motivated hypothesis on whether generous WFPs lead to the tradeoffs effects.

2. Theoretical Background and Previous Research

This section discusses theoretical and empirical debates on the paradoxes and tradeoffs argument in the first step, highlighting part and parcel of the argument and the methodological limitations. Based on findings from other group of studies beyond the argument, we next point to the imperative of evaluating the effect of WFPs from the perspective of both class and gender equality. Finally, we hypothesise how WFPs affect women's opportunities in employment and occupational choice by education level.

2.1. The welfare state paradox and gendered trade-offs argument

In their influential work, Mandel and Semyonov (2005, 2006) and Pettit and Hook (2009) argue that WFPs in advanced welfare states are effective in increasing labour market access of women, but they have 'paradoxically' negative consequences for women's attainments in terms of occupational segregation and wages, thereby resulting in 'inclusion-equality tradeoffs'. According to them, generous WFPs tend to push women into female-typed jobs which are confined to part-time or low-paid jobs, while lowering the access to positions of power or high-earnings. Mandel and Semyonov (2005, 2006) suspect public childcare provision and maternity leave to be detrimental, while Pettit and Hook (2009)

argue that the negative effects are only found in parental leave but public childcare has a positive effect on both inclusion and equality.

The following research supports the argument by showing that childcare and maternity leave have on women's employment and wages, but parental leave links to negative effects. For instance, Misra et al. (2011) find the opposite effect on women's employment hours and wages between childcare and parental leave in 21 countries in between 2000 and 2001. Similarly, Olivetti and Petrongolo (2017) show that childcare increases gender equality in terms of employment and wage gap, but maternity/parental leave has negative effects in 30 OECD countries from 1970 to early 2010s. Focusing on parental leave, some research finds the tradeoffs: the legislation increases female employment, but it decreases high-skill wages and high-level occupations in 16 European countries between 1970 and 2010 (Akgunduz and Plantenga, 2013) and widens gender wage gaps for 30 OECD countries during the same period (Thévenon and Solaz, 2013). Case studies of one country also bear out the argument. Positive effect of childcare on maternal employment is observed in Germany (Bauernschuster and Schlotter, 2015) and Quebec (Baker et al., 2008) and positive effect of maternity leave on women's earnings is in the US (Boushey, 2008), while negative effect of parental leave on maternal employment is in Germany (Gangl and Ziefle, 2015; Ziefle and Gangl, 2014).

If WFPs are associated with occupational segregation and wage gap by gender, why does this come about? Scholars of gender studies explain the mechanism on the basis of two representative theories: human capital theory and statistical discrimination theory suggested by Polachek (1981) and Bergman (1989), respectively (For more details, see Blackburn et al., 2002). From a supply-side orientation, the first emphasises women's rational choice. Women tend to have strong preferences for jobs compatible with their family life. For that very reason they self-select female-dominated occupations which favour work-family reconciliation because the workplace circumstances are accustomed to other

women's behaviour and because the occupations or sectors require less investment in human capital and productivity. The second, a demand-side argument, posits that employers expect average female workers to use leaves and reduce work hour due to non-work roles in households. The fear of these arrangement costs makes employers statistically discriminate against women in hiring, training and advancement. The discrimination is likely to be severe to high-skilled women in prestigious and lucrative positions because their absence damages employers more than that in women other positions does. The consequence is that women are overrepresented in female-dominated jobs there being statistical discrimination to a lesser extent and low-skilled jobs or less attractive positions to employers that require less intensified human capital and productivity. This occupational segregation again lowers women's relative wages. Either one of two theories, the occupational segregation lowers women's relative wages, thus increasing gender wage gap. According to the theories, parental leave, mostly used by mothers, is likely to hinder women from investing in human capital during career breaks. The interrupted accumulation of human capital becomes a deterrent to mother's re-entering the same workplace or taking the previous career path there even after long absenteeism from work. In contrast, childcare does not seem to have the negative effect because it helps women free from care responsibility while maintaining jobs. In this sense, one differentiates childcare and parental leave into 'work-facilitating policy' and 'work-reducing policy', respectively: childcare helps mothers' attachment to the labour market by relieving them from care responsibility for child, while maternity and parental leave assumes mothers' primary responsibility within households (Misra et al., 2011).

A similar argument supporting the relationship WFPs and gender segregation is made from the varieties of capitalism (VoC) school that highlights a skill-based institutional difference (Estevez-Abe, 2005, 2006; Soskice, 2005). According to the VoC per-

spective, advanced capitalist democracies are divided into two types: the coordinated market economies (CMEs) and the liberal market economies (LMEs). CMEs (i.e., the Scandinavian and continental European countries) have collective bargaining and skill system that encourages both employers and employees to invest in specific skills mainly used in one specific firm or industry. Because the specific skills require a long-term investment through on-the-job training or apprenticeship in workplace, employers provide workers with strong employment and income protection. In contrast, LMEs (i.e., the Anglo-American countries) prefer general skills, highly portable in a variety of jobs and mainly acquired in tertiary education, so that a flexible labour market enabling workers to move between jobs is developed rather than the protection systems. Due to the discriminatory employer behaviour against women's work interruptions, specific skills (especially firm-specific skills) are most biased against women in CMEs, while general skills are gender-neutral in LMEs. Consequently, generous parental leave exacerbates gender segregation and wage gap in CMEs (especially in Scandinavian countries with most generous leave schemes). However, this perspective is criticised from gender scholars in that: it has limited explanatory power for variations in CMEs; it is only applicable to highly educated women who are able to acquire specific skills (Mandel and Shalev, 2009; Rubery, 2009; Webb, 2009). That being said, the VoC suggests the role of institutional arrangements such as vocational training, employment protection, and collective wage bargaining systems in gender equality.

However, the paradoxes and tradeoffs argument is disputed by some scholars. For instance, Korpi, Ferrarini and Englund (2013) find no negative effects of WFPs on female employment and top wages in eighteen countries around 2000. Brady, Blome and Kmec (2019) also see the argument wrong through cross-section analysis for 21 OECD countries around 2005 and panel analysis for 12 countries between 1980 and 2000s. Similar findings are found in some case studies: no relationship of generous family policies with employer

discrimination in Japan (Mun and Jung, 2018) and with occupational segregation in Switzerland (Gasser and Liechti, 2015) and Finland (Mustosmäki et al., 2017).

The contradictory evidence would come from the variation of time period and countries analysed. However, it could also come from methodological limitations of either proponents or opponents of the argument as Brady et al. (2019) put forward. In this paper, we point out four things: measurement issue, analytic method, causal mechanism, and dimension. First, the influential literature on the argument has ‘aggregation problem’ for independent variables. Some literature merges childcare and maternity/parental leave, for instance, ‘dual-earner dimension’ (Korpi et al., 2013), while others add the size of public sector into childcare and leave, for instance, ‘welfare state intervention index’ (Mandel and Semyonov, 2005, 2006), ‘family policy indicators’ (Mandel, 2011), and ‘integrated index’ (Mandel, 2012). However, combining different variables that would have conflicting effects is likely to produce incorrect associations between X and Y.

Second, cross-sectional analysis taken in the influential literature is micro and static. Relying on microdata from the Luxembourg Income Study (LIS) database for a specific year, literature controls for individual-level variables such as age, marital status, and number of children (e.g., Korpi et al., 2013; Mandel, 2012; Mandel and Semyonov, 2005, 2006; Mandel and Shalev, 2009; Misra et al., 2011). While helping researchers identify individual determinants, micro cross-sectional analysis excludes other macro-level labour market institutions and their variations across time. However, the macro-level arrangements would reverse the judgement of the argument by worsening or improving women’s employment outcomes. For instance, active labour market policies (ALMPs) might largely affect the labour market outcomes given the role in compromising an investment in human capital of women (e.g., training) and promoting labour market re-entry (e.g., counselling of jobseekers and direct job creation). The effect may be far from identical for men and women. The feminist VoC theory also tells us to consider labour market

institutions. Although there are exceptionally time-series and cross-sectional (TSCS) studies (e.g., Akugunduz and Plantenga, 2013; Brady et al., 2019; Olivetti and Petrongolo, 2017; Thévenon and Solaz, 2012) and panel studies of individual countries (Gangl and Ziefle, 2015; Mun and Jung, 2018; Ziefle and Gangl, 2014), they still fail to employ a macro perspective.

Third, most scholars directly analyse the effect of WFPs on gender wage gap on the grounds that occupational segregation by gender is likely to produce gender earnings inequality. However, it is so hard to keep track of the causality of WFPs with respect to wage because there are lots of factors and mechanisms affecting the level and variation of wage by gender, such as the supply and demand in the labour market and a system of minimum wage.

Lastly, but most importantly, most literature focuses on gender equality for all women regardless of considering class-based differences among women. However, the reality of pluralism by socio-economic class is founded in literature of other area. For instance, a study of in-depth interview data suggests that socio-economic class differently affects women's work orientations and labour market behaviour (James, 2008). The relationship between WFPs and poverty risks are different across women by education level (Troger and Verwiebe, 2015). In particular, there is a contentious issue on which class benefit more from social investment policies, especially childcare, which is well known as 'Matthew effects' (Bonoli et al., 2017; Cantillon, 2011; Van Lancker, 2013, 2018; Van Lancker and Ghysels, 2012, 2013). The proponents of Matthew effects argue that higher class is likely to use childcare service more than lower class due to their high work intensity (Van Lancker and Ghysels, 2012) and due to capability for addressing external costs of using public childcare and for making the best choice of which day care centre is good (Abrassart and Bonoli, 2015; Van Lancker, 2013). Despite calling attention to class ine-

quality in analysing WFPs, Matthew effects researchers are blind to gender aspects because they are based on facile assumption that WFPs are mostly used by women. As literature on the paradoxes and tradeoffs argument shows, Matthew effects could also vary by gender in terms of employment outcomes.

Understanding the limitations and new findings of prior literature comes up with some proposals on newly testing the paradoxes and tradeoffs argument. In this paper, we attempt to examine how labour outcomes of WFPs differ by various combinations of gender and class. Focusing on the effect of childcare and maternity/parental leave on employment and occupational segregation by gender and education level, we take a TSCS analysis of macro-level data including various welfare state arrangements. No empirical studies have explored the argument in this way, to my knowledge.

2.2. The impact of WFPs on gender and class equality

So how can we expect the effect of WFPs on women's opportunities on the basis of two by two dimensions: employment and occupation segregation on the one hand, and class differential and gender segregation on the other? We propose four following hypotheses from the literature on Matthew effects and paradoxes and tradeoffs. First, analysing women's employment rates by gender, we hypothesise how the gender equality is different among women by education level (*H1: Matthew effects hypothesis*). Next, in order to test paradoxes and tradeoffs hypothesis, we propose two hypotheses by distinguishing the concept of occupational segregation into two: sectoral segregation and vertical segregation (for the details of definition, see Jarman et al., 2012). In terms of gender equality, the former refers to the overrepresentation of women in female-typed jobs such as service sector jobs and the underrepresentation in male-dominated jobs such as manufacturing jobs (*H2: sectoral segregation hypothesis*). Based on hierarchal attributes, the latter is understood as the overrepresentation in jobs with high status (wage and power), such as

managers, and the underrepresentation in low-status jobs, such as sales jobs (*H3: vertical segregation hypothesis*). Finally, we separately hypothesise the case of Nordic countries to test whether the presence of negative consequences of WFPs on occupational segregation contrary to the positive effects on employment are more pronounced in the countries (*H4: Nordic paradox hypothesis*). This is because literature on the paradoxes and tradeoffs argument highlights that the problematic phenomena are related to specific welfare regimes, much more likely to be pronounced in social-democratic regime like the Nordic countries (cf. Estévez-Abe, 2006: 143; Mandel and Semyonov, 2005: 951; Mandel and Semyonov, 2006: 1942; Korpi et al., 2013: 2).

Matthew effects hypothesis: What would we expect about the impact of childcare and maternity/parental leave on employment rate by gender and class? From the theories of human capital and employer discrimination, our theoretical expectations are that overall childcare favours women's employment but maternity/parental leave is the opposite. Childcare helps women to facilitate women's continuous employment and to invest in human capital more than men, thus increasing female employment rate and reducing gender employment gap. In contrast, maternity and parental leave is more likely to reduce female employment and increase gender employment gap in the long term because it increases both women's work interruptions and employers discrimination, even if it might reinstate women in the jobs, helping them balance work and family life in the short term.

Furthermore, the relative magnitude of the two effects can be expected to vary between educational groups. The literature on Matthew effects hypothesis suggests that low-qualified women do not seem to benefit more from childcare compared to upper class women because of their biased access to childcare. However, in terms of employment outcomes, the employment of high-educated and high-skilled women can also be hardly be influenced by childcare expansion. There are compelling reasons and evidence on this

from outside of Matthew effect literature. For instance, highly qualified women have already participated in the labour market due to their intensified human capital and high work orientation, irrespectively of the expansion of childcare, and they may use more private childcare service due to higher earnings capacity of them and their partners (Del Boca et al., 2009; Stadelmann-Steffen, 2011; Troger and Verwiebe, 2015). Additional provision of childcare thus does not play a significant role in their decision to work. The consequence is the strongest effect for medium-educated women's employment. This group of women are less work-oriented than high-qualified women, but more work-oriented and more *adaptive* to changes in family needs than low-qualified women (Hakim, 2000). Consequently, their decision to work or not may be more sensitive to the availability and affordability of childcare services.

Along these inferences, Stadelmann-Steffen (2011) shows the strong, significant impact of childcare availability on the employment of mothers with a mid-level education, analysing the individual-level data from the 2003 Swiss Labour Force Survey. Similar result for more countries from the EU-SILC database is provided by Troger and Verwiebe (2015). They reveal the strongest poverty-reducing effect of infant childcare among women with mid-level education in 25 European countries. Interestingly, in both studies the second strongest effect is identified among low-educated women than high-educated women, which is foreign to the Matthew effects literature. This means that low-educated women could also benefit childcare if there is more sufficient childcare provision.

The detrimental effect of parental leave on the gender equality may result from both demand and supply driven in terms of causality (Hegewisch and Gornick, 2011; Akgunduz and Plantenga, 2012; Lidia, 2016; Mun and Jung, 2018). On the demand side, parental leave discourages employers from hiring and placing women into any jobs in response to any deterioration of takers' human capital (and hence productivity). This statistical discrimination against women is particularly considerable in authority and high-

level positions because long periods of leave are costly for employers and the positions are not easily replaced by another. This means that the discrimination would be targeted mostly on high-skilled women who work in those positions. On the supply side, employed women who take parental leave face the risk of interrupted careers and human capital depreciation (and downward pressure on wages). Some mothers while on leave enjoy spending time with their children and want to spend even more time (Schönberg and Ludsteck, 2014: 477). As a result, they may delay the decision to return to the workplace and self-select into less competitive and remunerative jobs where one person can easily fill in for another. This form of mechanism might be relatively concentrated in the behaviour of low-skilled women who have lower reservation wage.

When it comes to the relationship of parental leave with employment rate, the extent of the detrimental effect may be inversely proportional to women's educational attainment (Boushey, 2008; Del Boca et al., 2009; Hegewisch and Gornick, 2011; Troger and Verwiebe, 2015). Here the supply-side oriented explanation is more applicable than the demand-side one. Low-educated women are less likely to return to work after childbirth and longer leave because a lesser investment in human capital and a lesser leave benefits reduce their opportunity cost of being outside of the labour market (Boushey, 2008; Del Boca et al., 2009), but because income transfers or unemployment benefits may be more attractive to them (Troger and Verwiebe, 2015). Even if they continue to work, they seem to follow a 'mommy track' which refers to work arrangement for motherhood, such as part-time jobs, thereby easing women out of the labour market in the long term. High-educated and high-skilled women, conversely, are less negatively affected by generous leave given the reverse situation. Medium-educated women will be between the two classes. The effect of WFPs on gender employment gap, however, is not clear because the result depends on relative size of effect on between male and female employment. Along the lines, nonetheless, we can expect that childcare decreases the gender gap, larger for

medium-educated women, while paid leave increases it, larger for low-educated women.

This discussion leads to the following hypothesis:

H1 (Matthew effects hypothesis): Childcare increase female employment and decrease gender employment gap overall, especially larger for medium-educated women, while maternity and parental leave has the opposite effect overall, especially larger for low-educated women.

Gender occupational segregation hypotheses: In terms of occupational segregation, both human capital and employer discrimination theory expect that generally both childcare and maternity/parental leave exacerbate the gender gap for women of all classes. Although public childcare service enables women to participate in the labour market, women still retain the main responsibility for childcare and unpaid family work after paid work relative to men (Saraceno, 2015). This encourages working women to cluster in female-typed occupations or sectors which can provide a flexible schedule and hours for family life. Therefore, childcare increases the sectoral segregation overall. In terms of class effect, the sectoral segregation is more likely to be pronounced in low-educated women because care and social services among female-typed jobs are part-time jobs with few career prospects, thereby being more attractive to low-educated women than other groups of women (England, 2010; Evertsson et al, 2009; Gasser and Liechti, 2015). This also holds true for vertical segregation. The female-typed jobs are mainly concentrated within low-skilled jobs, for instance, services and sales jobs. The ‘downward occupational mobility’ might occur for all women, but it is more likely to be larger for low-educated women because low-skilled jobs are easily occupied by low-educated women in line with sectoral segregation. Taken together, we expect childcare to amplify sectoral segregation among low-educated workers, vertically increasing low-educated women’s share in low-skilled jobs.

The detrimental effect of paid leave on gender occupational segregation seems to be larger than that of childcare. This is because generous leave schemes diminish women's human capital stock during career breaks. As a result working women self-select jobs that are more favourable to female leave takers. Concurrently, according to statistical discrimination theory, a leave take-up may render employers statistically discriminate against women in hiring, training and paying. This is identical for women from different education levels, but the harshest is to women with high human capital resources who are more prone to suffer from the huge depreciation after leave take-up (Akgunduz and Plantenga, 2013; Mandel, 2012). Therefore, sectoral segregation by leave is larger for high-educated women. In terms of vertical segregation, we also expect the effect to be larger for high-educated women in high-skilled jobs because discriminatory employer behaviour against women is more likely to be targeted at them. In contrast, maternity/parental leave seems to generate the overrepresentation of low-educated women in low-skilled jobs as they will be more concentrated within low-skilled jobs to avoid the discrimination. Taken together, the maleficence of generous leave in terms of gender occupational gap is present, but it is larger for high-educated women, increasing their vertical segregation and leading to the underrepresentation in high-skilled jobs. In view of these considerations, we derive two hypotheses in terms of gender occupational segregation:

H2 (sectoral segregation hypothesis): Both WFPs increase sectoral gender segregation, but the effect is larger in maternity and parental leave than in childcare. The effect of childcare is larger for low-educated women, while the effect of maternity and parental leave is larger for high-educated women.

H3 (vertical segregation hypothesis): Both WFPs increase vertical gender segregation, but the effect is larger in maternity and parental leave than in childcare. Childcare increases low-educated women's representation in low-skilled jobs, while maternity and parental leave decreases high-educated women's representation in high-skilled jobs.

Nordic paradox hypothesis: Finally, the hypothesis of welfare state paradox can also be tested at different regime countries of family policy. Notwithstanding the outstanding achievements in female employment, it is well known that Nordic countries severely suffer from gender occupational segregation, reinforcing glass ceiling for high-educated and high-skilled women (see Henrekson and Stenkula, 2009; Sanandaji, 2018; especially for Sweden, see Albrecht et al., 2015; Bihagen et al., 2014; Bihagen and Ohls, 2006). Mandel and her collaborators claim that the more convenient terms of maternity and parental leave use in Nordic countries make high-educated women much less attractive to private-sector employers in high-skilled jobs than in non-Nordic countries (Mandel and Semyonov, 2005, 2006; Mandel and Shalev, 2009). In addition, high-educated women in Nordic countries have more alternative opportunities to work in the massive public sector such as health care and education service, which prohibits statistical discrimination against women, but not necessarily high-skilled (managerial and professional) jobs.

It is very interesting to see the difference from expectations that, in a country where parental leave to be taken equally between men and women, both the harmful effect is seldom. Even in Sweden and Norway with quota schemes reserved for the father, however, women practically take leave more and longer than men do although the “daddy quota” increases fathers’ take-up rate (Albrecht et al., 2014; Duvander, 2014; Lidia, 2016). Therefore, it would not be surprising if the harmful effect of parental leave on gender equality is still greater for women who are more likely to make use of leave as a group than men in Nordic countries with lengthy paid parental leave. Moreover, the employer-side mechanism may be greater effective for high-skilled women with high paid jobs in the countries as the advocates of ‘welfare state paradox’ argue.

Therefore, gender occupational segregation by paid leave is larger and more significant in Nordic countries than in the other countries. In keeping with the expectations and findings, we investigate the following hypothesis:

H4 (Nordic paradox hypothesis): Sectoral and vertical segregations by maternity and parental leave for high-educated women are larger and more significant in Nordic countries than in non-Nordic countries.

3. Data and Methods

3.1. Data and variables

We test our hypotheses by using a TSCS data between 1992 and 2013 from 15 European countries: Austria, Belgium, Finland, France, Denmark, Germany, Greece, Ireland, Italy, the Netherlands, Norway, Portugal, Spain, Sweden, and the United Kingdom. Due to missing data in some countries and using first differences, however, the dataset spans a total of 254 country-year observations. In addition, data on occupation for high-educated workers for Portugal is missed throughout the entire period so that the number of observations in testing H2 hypothesis is decreased to 217 for 14 countries. More details on the definitions and sources are in Table B1 in Appendix (the information on missing data is presented by the footnotes in Tables B4–B7).

Dependent variables: We use four dependent variables, namely, female employment rate, gender employment gap, the index of dissimilarity (D), and women's share in selected occupations. The former two are for the test of H1 hypothesis, while the latter two are for H2, H3, and H4 hypotheses. In order to analyse class inequalities among women, we divided women into three educational groups, relying on the International Standard Classification of Education (ISCED): low education (ISCED 0–2), medium ed-

education (ISCED 3–4), and high education (ISCED 5–8). This is because there is no sufficient data on employment rate and occupational distribution by income level. Some scholars of intersectionality analysis therefore use educational attainments as a proxy for class position (e.g., Evertsson et al., 2009; Gasser and Liechti, 2015; Korpi et al., 2013; Mandel, 2012; Olivetti and Petrongolo, 2017; Troger and Verwiebe, 2015).

Female employment rate is operationalised by employment-to-population ratio aged between 15 and 64 years from the OECD World Indicators of Skills for Employment (WISE). Gender employment gap is measured by the difference between the employment rates of male and of female. The index of dissimilarity (D) is measured on the basis of Duncan and Duncan (1955) which has been most frequently used to assess sectoral occupational segregation trends as a whole (e.g., see Evertsson et al., 2009; Hook and Pettit, 2016; Korpi et al., 2013) given by the formula:

$$D = 0.5 \times \sum_{i=1}^k \left| \left(M_i / \sum_{i=1}^k M_i \right) - \left(F_i / \sum_{i=1}^k F_i \right) \right|$$

where k is the number of occupations. The index is 0.5 multiplied by the sum of absolute difference of the proportion of men and women in each occupation (M_i and F_i) over all occupations. Not only changes of gender composition in each occupation, changes in the size of occupations (i.e., changes in the occupational structure) also can affect the value of D . It ranges from 0 (no segregation) to 1 (complete segregation). Based on the International Standard Classification of Occupations (ISCO-08 and ISCO-88), here we use nine of ten major groups except the group of ‘armed forces occupations’: (1) ‘managers’, (2) ‘professionals’, (3) ‘technicians and associate professionals’, (4) ‘clerical support workers’, (5) ‘services and sales workers’, (6) ‘skilled agricultural, forestry and fishery workers’, (7) ‘craft and related trades workers’, (8) ‘plant and machine operators and assemblers’, and (9) ‘elementary occupations’. The European Labour Force Statistics (EU-LFS) provides the time series data on the number of workers aged 15–64 in each occupation by

gender and education level. Due to missing data, however, we additionally omit two ISCO categories in calculating *D*: ‘professionals’ for low-educated workers and ‘skilled agricultural, forestry and fishery workers’ for high-educated workers. Otherwise we lose too many data in these cases. Nevertheless the omission does not seem to be likely to affect our results because the number of the specific workers employed in these occupations is very small.

For measuring vertical segregation, we use the proportions of women in selected occupations: women’s share in low-skilled jobs occupied by low-educated workers, women’s share in medium-skilled jobs occupied by medium-educated workers, and high-skilled jobs occupied by high-educated workers. The data also is calculated from the EU-LFS. To match each educational attainment of workers up with the three occupational groups, we operationalise the occupational categories of the ISCO-08 into three groups: ‘low-skilled jobs (groups 5 and 9), medium-skilled jobs (groups 4, 6, 7, and 8), and high-skilled jobs (groups 1, 2, and 3).⁹ An increase in the proportion of low-educated women in low-skilled jobs and a decrease in the proportion of high-educated women in high-skilled jobs exacerbate vertical segregation.¹⁰ In contrast, any change in the proportion of medium-educated women in medium-skilled jobs refers to sectoral segregation because the jobs are neither good nor bad, but rather are mainly male-dominated jobs except one, the clerical support jobs.

Independent variables: The key independent variables are the public and private mandatory spending on childcare as a percentage of GDP and the spending on parental

⁹ The ISCO-08 provides four skill levels corresponding to the ISCED (see Table B2). Unlike the ISCO-08, this paper reduces the number of skills categories from 4 to 3 and categorises group 5 (service workers and shop and market sales workers) as medium-skilled jobs.

¹⁰ the use of ISCO occupational categorises combined with education level is not problematic because the fact that ISCO categorises themselves are ‘conceptually and methodologically’ designed to reflect such the education level is different from how far low-educated (or high-educated) women do ‘practically’ work in the low-skilled jobs (or high-skilled jobs) compared to men over time.

and maternity leave as a percentage of GDP. To compute the amounts spent on per head of infants, we divide the spending on WFPs by the population ratio of infants aged 0–5. The data is obtained from the OECD Social Expenditure (SOCX).

Based on findings of previous literature, the model includes a number of additional control variables of labour market institutions, economic and demographic factors. First, as discussed earlier we include ALMPs at the programme level— spending on training, public employment services and administration (PES), direct job creation, and employment incentives, which are also extracted from the SOCX and divided by the unemployment rate. Second, as described in the VoC literature, we control labour market institutions: unemployment benefits (the spending as a percentage of GDP and divided by the unemployment rate), unionisation, coordinated wage bargaining, the index of employment protection legislation (EPL) for regular and temporary contracts. Third, the factors that might affect employers' employment and women's participation in the labour market are also controlled: social contribution and payroll taxes, GDP gap, and openness on the one side, while the percentages of the population aged under 15 and over 64 on the other. Finally, to remove the likelihood that each group of women is affected by variation in occupations with same skill level, we control the ratio of (male and female) employment in low-, medium-, and high-skill occupations, respectively. Data on the controls is obtained from the OECD database, the ICTWSS database (Visser, 2016), the Key Indicators of the Labour Market (KILM), the International Labour Organization (ILO) STAT, the UN world populations.

3.2. Method

TSCS data used in this model includes non-stationary data as so often in macro-level analysis. It is well known that the regression analysis using non-stationary data might produce

spurious results: they are not related, but an OLS regression indicates a relationship. Because panel unit root tests show that some of the dependent and independent variables used in this paper are non-stationary (see Table B3 in Appendix), we employ the single equation error correction model (ECM) which is applicable to both stationary and non-stationary data (Beck and Katz, 2004, 2011; De Boef and Keele, 2008; Podestà, 2006). ECM represents dependent variable as the first difference on the left-hand side (Δy_{it}), while on the right-hand side having lagged dependent variable ($y_{i,t-1}$) as well as the first difference of and lagged one of independent variables ($\Delta x_{i,t}$ and $x_{i,t-1}$) as follows:

$$\Delta y_{i,t} = \alpha + \beta_0 y_{i,t-1} + \beta_1 \Delta x_{i,t} + \beta_2 x_{i,t-1} + \varepsilon_{i,t}.$$

ECM specification thus differentiates between short-term effects and long-term effects. The first differenced independent variables capture the short-term effects (β_1). To compute the long-term effects, often called as the long-run multiplier (LRM), one just divides coefficients of the lagged independent variables by coefficients of lagged dependent variables and puts a negative sign ($-\beta_2/\beta_0$). Notwithstanding the advantage of analysing both effects, our theoretical interest here is the long-term effects because we expect that change in the spending on WFPs takes longer time to influence the labour market outcomes interested.

Additionally, this paper uses Prais-Winsten estimator with panel corrected standard errors (PCSEs) and autoregressive disturbances, as is common practice in TSCS analysis. It helps us get robust results for autocorrelation, heteroscedasticity, and contemporaneous correlation. Country dummies are included so that our model is transformed into within-country model which allows us to capture the effect of WFPs on labour market inequalities within countries, controlling for cross-country variations. Both Prais-Winsten estimator and country fixed effects lead to conservative results to some extent. The method may reject the hypotheses prematurely on the one hand, but we can accept the causal relationships with more confidence if they are significant on the other.

4. Result

4.1. Descriptive Overview

Data on our four dependent variables by educational group is presented in Table 3. For 15 European countries, gender equality has been enhanced in terms of employment between 1992 and 2013: female employment rates have increased and in turn gender employment gaps have decreased. Nordic countries have the best in both the outcomes, Anglo-Saxon countries are the second-best, followed by Continental and Southern European countries.¹¹ By education level, high-educated female workers enjoy the best of employment, while low-educated female workers do the worst. Interestingly, the sizes of change between women with different educational attainments are different from the average levels. The largest increases in female employment rates are observed in medium-educated female workers during the period, while the largest decreases in gender employment gaps are found in low-educated female workers. These trends are more pronounced in Southern European countries.

Table 3 also displays sectoral and vertical segregation measured by the index D and the proportion of women in selected occupations by group of women and countries. It is worthy of note that for all workers the levels of sectoral segregation are largest in Nordic countries and smallest in Southern Europe. By educational group, the index D is much smaller for high-educated workers than for the lower groups. The sectoral segregation for medium- and high-educated workers decreases during the period, especially in Nordic countries. In contrast, low-educated workers face the increasing sectoral segrega-

¹¹ Since the global financial crisis in 2008, Anglo-Saxon countries have shown bad outcomes though.

tion. The majority of this rise comes from the Southern European and Anglo-Saxon countries. In terms of vertical segregation, data trends on women's share in selected occupations confirm the significance of class differences within women. The share of high-educated women in high-skilled jobs is highest in Nordic countries but lowest in Continental Europe, while the share of low-educated women in low-skilled jobs is highest in Nordic countries but lowest in Anglo-Saxon and Southern European countries. Women's share in high-skilled jobs occupied by high-educated workers has increased over two decades relative to men. In line with the fact that the index D (sectoral segregation) for high-educated workers drops drastically, we understand that the progress against vertical segregation seems marked for high-educated female workers. In contrast, low-educated female workers are more likely to be employed in low-skilled jobs than men with the same socioeconomic background across time. In contrast to the expectations, in Nordic countries, the share of high-educated women in high-skilled jobs are highest and it has increased over time, while the share of low-educated women in low-skilled jobs has decreased despite the highest values. This at first blush is not consistent with the hypothesis of Nordic paradox ($H4$). However, whether the increase results from the expansion of WFPs is a completely different matter. Finally, the share of medium-educated women in medium-skilled jobs is low compared to other categories. The underrepresentation of women in the male-typed jobs (sectoral segregation) is predominant and increasing in Nordic countries. In sum, for 15 countries, sectoral and vertical segregation for low-educated women have increased over time, while decreasing for high-educated women, while Nordic countries show high level of sectoral segregation for all women and vertical segregation for low-educated women, but low-level of vertical segregation for high-educated women.

Table 3. Trends of dependent variables by education level, 1992 to 2013

Dependent variables		Countries	Period			
			(1) 1992-1999	(2) 2000-2007	(3) 2008-2013	(3)-(1) Change
Female em- ployment rates	Low-educated women	Total 15 countries	39.6	43.2	42.0	2.4
		4 Nordic	50.2	50.0	48.0	-2.2
		2 Anglo-Saxon	40.6	45.2	37.4	-3.2
		5 Continental	37.1	40.4	42.0	4.9
		4 Southern	34.4	38.9	38.2	3.8
	Medium-educated women	Total 15 countries	57.7	64.6	65.2	7.5
		4 Nordic	71.3	73.9	74.2	2.9
		2 Anglo-Saxon	61.6	67.8	62.1	0.5
		5 Continental	60.1	64.7	67.7	7.6
		4 Southern	44.3	53.5	54.4	10.1
	High-educated women	Total 15 countries	77.8	80.8	80.3	2.5
		4 Nordic	83.7	84.8	85.4	1.7
		2 Anglo-Saxon	78.9	83.3	78.8	-0.1
		5 Continental	77.5	79.6	81.3	3.8
		4 Southern	73.5	77.1	74.6	1.1
Gender em- ployment gap	Low-educated workers	Total 15 countries	22.4	18.4	14.2	-8.2
		4 Nordic	10.4	8.7	6.8	-3.6
		2 Anglo-Saxon	21.1	19.4	16.6	-4.5
		5 Continental	20.5	16.2	13.1	-7.4
		4 Southern	33.0	30.2	21.8	-11.2
	Medium-educated work- ers	Total 15 countries	16.0	13.1	9.9	-6.1
		4 Nordic	7.2	7.0	6.0	-1.2
		2 Anglo-Saxon	14.9	14.3	10.5	-4.4
		5 Continental	16.6	13.0	9.6	-7.0
		4 Southern	22.0	18.6	14.1	-7.9
	High-educated workers	Total 15 countries	8.8	6.6	5.7	-3.1
		4 Nordic	3.3	3.2	3.2	-0.1
		2 Anglo-Saxon	8.9	6.5	6.8	-2.1
		5 Continental	9.1	6.8	5.9	-3.2
		4 Southern	12.1	9.8	7.3	-4.8
Index of dis- similarity (D)	Low-educated workers	Total 15 countries	0.389	0.432	0.431	0.042
		4 Nordic	0.443	0.462	0.443	0.000
		2 Anglo-Saxon	0.403	0.476	0.460	0.057
		5 Continental	0.427	0.436	0.432	0.005
		4 Southern	0.318	0.374	0.402	0.084
	Medium-educated work- ers	Total 15 countries	0.417	0.431	0.410	-0.007
		4 Nordic	0.499	0.479	0.448	-0.051
		2 Anglo-Saxon	0.458	0.479	0.452	-0.006
		5 Continental	0.447	0.429	0.416	-0.031
		4 Southern	0.321	0.346	0.345	0.024
	High-educated workers	Total 15 countries	0.216	0.201	0.175	-0.041
		4 Nordic	0.289	0.232	0.188	-0.101
		2 Anglo-Saxon	0.220	0.200	0.182	-0.038

		5 Continental	0.217	0.201	0.165	-0.052
		4 Southern	0.172	0.166	0.168	-0.004
Women's share in some selected occupations	Low-educated women in low-skilled jobs	Total 15 countries	60.0	62.3	61.8	1.8
		4 Nordic	68.4	66.6	64.0	-4.4
		2 Anglo-Saxon	54.6	57.6	56.3	1.7
		5 Continental	66.8	66.1	65.4	-1.4
		4 Southern	51.2	55.4	57.9	6.7
	Medium-educated women in medium-skilled jobs	Total 15 countries	36.6	33.7	32.5	-4.1
		4 Nordic	33.3	28.6	25.1	-8.2
		2 Anglo-Saxon	41.6	37.1	33.9	-7.7
		5 Continental	33.5	34.6	33.3	-0.2
		4 Southern countries	39.3	36.3	38.1	-1.2
	High-educated women in high-skilled jobs	Total 15 countries	45.1	48.5	50.7	5.6
		4 Nordic	49.3	52.7	54.4	5.1
2 Anglo-Saxon		44.1	47.2	49.7	5.6	
5 Continental		42.3	44.6	47.0	4.7	
4 Southern		45.7	49.7	52.2	6.5	

Notes: For definitions and sources, see text. For more information on individual countries, see Tables B3-B6 in Appendix.

4.2. Gender gaps in employment and occupation by education level

Table 4 presents our findings about the effect of WFPs on women's employment by educational attainment: female employment rate (columns 1–3) and employment gap between men and women (columns 4–6). For simplicity and legibility, Figure 12 graphically represent the results of LRM. The overall long-term pattern fits our theoretical expectations although many coefficients are insignificant because of our conservative methods. Our results suggest that overall childcare increases female employment rate except for high-educated women but maternity and parental leave is the opposite. This highlights the contrast between childcare as work-facilitating policy and parental leave as work-reducing policy as Misra et al. (2011) suggest. The long run effects of WFPs on gender employment gap are insignificant at the 5 per cent significance level.

When it comes to class effect, the result shows that childcare has the Matthew effect, having a significantly positive effect for medium-educated female workers on increasing employment rate (LRM: 0.371). Although childcare has a significantly positive

effect for low-educated women (0.284) and a significantly negative effect for high-educated women (-0.140) in the short run, the effects are not significant in the long run (0.345 and -0.076). Paid leave by contrast has a significantly negative effect on low-educated women's employment (-2.463). This means that there is a much higher likelihood that women with fewer educational qualifications have difficulties in returning to the workforce after childbirth, while women with higher education are less likely to quit or be dismissed from jobs after leave. The great detriment to low-educated women's employment is in accordance with the findings of previous literature (Boushey, 2008; Del Boca et al., 2009; Hegewisch and Gornick, 2011; Troger and Verwiebe, 2015). Our first hypothesis (H1) is thus confirmed in terms of class effect of WFPs. Furthermore, our results suggest that generally speaking childcare contributes to increasing gender equality unintendedly at the expense of class equality in terms of employment. However, paid leave is detrimental in terms of both gender and class equality.

Table 4. Estimated effects on the employment rates for 15 European countries

Independent variable		Dependent variable (first difference)					
		Female employment rate			Gender employment gap		
		(1) Low- educated	(2) Medium- educated	(3) High- educated	(4) Low- educated	(5) Medium- educated	(6) High- educated
Childcare	First diff.	0.284***	0.170**	-0.140*	-0.006	-0.067	0.171**
	Lag	0.067	0.097*	-0.021	-0.129†	-0.078†	-0.058
	LRM	0.345	0.371*	-0.076	-0.650†	-0.237†	-0.128
Maternity and parental leave	First diff.	0.039	-0.057	0.017	-0.220	0.151	0.033
	Lag	-0.476***	-0.037	-0.075	0.056	0.094	-0.029
	LRM	-2.463***	-0.144	-0.277	0.281	0.285	-0.063
Training	First diff.	-0.141	0.388***	-0.055	0.295*	-0.433***	0.034
	Lag	-0.108	0.097*	-0.039	-0.018	-0.161**	-0.026
	LRM	-0.558	0.372*	-0.144	-0.088	-0.489**	-0.057
Public employ- ment Services (PES)	First diff.	0.372†	0.245*	0.285*	0.118	-0.168	-0.150
	Lag	0.088	0.090	0.078	0.180†	-0.056	-0.063
	LRM	0.454	0.343	0.286	0.905	-0.171	-0.139
Direct job creation	First diff.	0.159	-0.018	-0.160	-0.016	0.524***	0.445***
	Lag	0.081	-0.088	-0.198**	-0.103	0.315***	0.175*
	LRM	0.421	-0.338	-0.726**	-0.517	0.957**	0.383**
Employment in- centives	First diff.	-0.155	-0.163	0.142	0.138	0.496***	0.102
	Lag	-0.020	0.074	0.193*	0.245	0.276*	0.107
	LRM	-0.103	0.284	0.710†	1.223†	0.841*	0.233
Unemployment benefits	First diff.	-0.062	-0.041	-0.084*	-0.046	0.044	0.007
	Lag	-0.012	-0.059*	-0.084***	-0.064	0.032	0.037†
Union density	First diff.	-0.267*	-0.245*	0.106	0.110	-0.183†	-0.158
	Lag	0.006	-0.005	0.171**	0.194*	-0.031	-0.105†

Coordination of wage bargaining	First diff.	0.170	0.220	0.027	0.338†	0.327†	0.136
	Lag	0.210	0.485**	0.069	0.213	-0.174	0.031
Regular EPL	First diff.	-0.466	0.753	0.158	0.155	-1.030	1.089
	Lag	0.118	-1.045†	-0.774	0.832	0.042	0.368
Temporary EPL	First diff.	0.436	0.032	0.042	0.185	0.181	-0.269
	Lag	-0.226	0.054	0.311	0.774**	0.009	0.129
Output gap	First diff.	0.330***	0.244***	0.202***	0.049	0.255***	0.038
	Lag	0.163*	0.278***	0.152***	0.045	0.009	-0.020
Openness	First diff.	-0.022	-0.016	-0.040**	0.039*	-0.022	0.023†
	Lag	0.024*	0.005	-0.001	-0.008	-0.010	-0.003
Payroll taxes	First diff.	0.735*	-0.200	0.062	-0.405	0.303†	0.156
	Lag	0.045	0.039	-0.236†	-0.290	0.001	0.112
Under 15 population	First diff.	2.414*	2.052**	0.100	-0.893	-1.508*	-0.670
	Lag	0.271	0.179	-0.445†	-0.682†	0.008	0.251
Over 64 population	First diff.	-1.951†	-0.514	-0.829	-1.182	-0.133	0.149
	Lag	0.322	0.510***	0.362**	0.365†	-0.089	-0.041
Low skilled jobs	First diff.	0.127†			-0.092		
	Lag	-0.091			-0.100		
Medium skilled jobs	First diff.		-0.024			0.176*	
	Lag		0.004			0.046	
High skilled jobs	First diff.			-0.145***			-0.031
	Lag			-0.002			-0.058
Female employment rate	Lag	-0.193***	-0.261***	-0.272***			
Gender employment gap	Lag				-0.199**	-0.329***	-0.458***
Constant		0.849	6.607	25.680***	5.513	5.244	1.792
Observations		254	254	254	254	254	254
Number of countries		15	15	15	15	15	15
R ²		0.49	0.62	0.46	0.36	0.48	0.36

Notes: country fixed effects and constant terms are included, but the estimated coefficients of country dummies are not reported for reasons of space; all models use a Prais-Winsten estimator which is more robust to the issues of autocorrelation, heteroscedasticity, and contemporaneous correlation in the error terms; all models use the panel-specific AR-1 autocorrelation structure and pairwise option allowing for the unbalanced panel; LRMs are presented only for main six independent variables in terms of ALMPs and WFPs programmes due to space constraints. † $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$ (two-tailed test).

We now turn to Table 5, which displays findings about the effect of WFPs on gender occupational segregation. Table 5 shows ECM regression results on the index D (columns 1–3) and women’s representation in selected occupations (columns 4–6) by education level. The results are also shown graphically in Figure 12. When it comes to the index D , WFPs seem to increase sectoral segregation. However, the expansion of childcare increases sectoral segregation only between low-educated workers at the 1 per cent significance level. Paid leave significantly exacerbates sectoral segregation for all women, larger than childcare. It is interesting to note that the perverse effect of parental leave is much larger for high-educated workers (LRM: 1.375). Hypothesis 2 is thus clearly verified.

Table 5. Estimated effects on gender occupational segregation for 15 European countries

Independent variable		Dependent variable (first difference)					
		The index of dissimilarity			Women's share in occupations		
		(1) Low-edu- cated	(2) Medium- educated	(3) High-edu- cated	(4) Low- skilled jobs	(5) Medium- skilled jobs	(6) High- skilled jobs
Childcare	First diff.	-0.130	0.011	-0.304*	-0.011	-0.158*	0.040
	Lag	0.141†	0.071	0.086	0.168**	-0.029	-0.039
	LRM	0.373†	0.211	0.242	0.480*	-0.074	-0.103
Maternity and parental leave	First diff.	0.574*	0.373†	0.928**	0.607**	-0.230	0.141
	Lag	0.278*	0.266*	0.487*	0.199†	-0.324**	0.021
	LRM	0.736*	0.795*	1.375*	0.569*	-0.836**	0.055
Training	First diff.	0.245	0.058	0.269	0.122	0.271**	-0.084
	Lag	0.115	0.021	0.227	0.074	0.038	0.034
	LRM	0.306	0.063	0.642	0.211	0.098	0.090
Public employ- ment Services (PES)	First diff.	0.113	0.281	0.361	-0.356†	0.120	0.051
	Lag	0.164	0.019	-0.306†	-0.289**	0.077	0.084†
	LRM	0.434	0.056	-0.864†	-0.826**	0.199	0.222†
Direct job creation	First diff.	-0.307	-0.271	-0.010	-0.333	-0.163	-0.206
	Lag	-0.027	-0.093	-0.125	0.180	-0.084	-0.203**
	LRM	-0.071	-0.277	-0.353	0.513	-0.216	-0.539**
Employment in- centives	First diff.	0.117	-0.084	-0.181	0.030	-0.047	-0.175
	Lag	-0.121	-0.194	-0.237	-0.189	-0.007	0.101
	LRM	-0.321	-0.582	-0.670	-0.541	-0.018	0.268
Unemployment benefits	First diff.	0.043	0.112†	-0.025	0.029	-0.036	-0.001
	Lag	0.001	0.117**	0.092†	0.046	0.023	-0.068***
Union density	First diff.	0.069	-0.245	-0.099	-0.218	0.279**	0.099
	Lag	0.034	0.027	-0.185	-0.170†	-0.007	0.087*
Coordination of wage bargaining	First diff.	0.004	0.043	-0.470†	0.054	-0.336*	-0.042
	Lag	0.169	0.052	-0.629*	0.444*	-0.217	0.017
Regular EPL	First diff.	-0.285	-1.566	-4.440***	-0.687	-1.071	-0.166
	Lag	-0.162	-1.825*	-5.583***	-0.641	-3.194***	1.859***
Temporary EPL	First diff.	-1.278**	0.159	-0.628	-0.818*	-0.334	0.494*
	Lag	-0.483†	0.282	-0.804*	-0.446	-0.553**	0.330*
Output gap	First diff.	0.040	0.094†	0.032	0.023	-0.153**	-0.009
	Lag	0.144*	0.049	0.089	0.008	0.020	0.047
Openness	First diff.	0.007	-0.028	-0.083***	0.003	-0.010	0.012
	Lag	0.026	0.006	-0.053***	0.049***	-0.035***	0.004
Payroll taxes	First diff.	-0.196	-0.318	-0.076	0.081	-0.651**	0.116
	Lag	0.394†	0.016	0.213	0.537**	-0.193	0.055
Under 15 popula- tion	First diff.	2.404*	2.583*	-0.569	2.925*	-1.759†	0.573
	Lag	0.127	0.089	0.905†	0.525	0.196	-0.325†
Over 64 popula- tion	First diff.	-0.240	1.347	-1.380	-1.740*	-1.134	0.014
	Lag	-0.393†	-0.072	-0.461†	-0.525**	0.282†	0.450***
Low skilled jobs	First diff.	0.084			-0.396***		
	Lag	-0.057			-0.172*		
Medium skilled jobs	First diff.		0.375***			0.001	
	Lag		0.122*			0.149***	
High skilled jobs	First diff.			-0.130			-0.089†
	Lag			-0.108			0.078*
The index of dis- similarity	Lag	-0.377***	-0.334***	-0.354***			
Women's share in selected occupa- tions	Lag				-0.350***	-0.387***	-0.377***
Constant		8.428	6.971	26.330*	20.696**	16.485**	3.801
Observations		254	254	217	254	245	254

Number of countries	15	15	14	15	15	15
R ²	0.39	0.36	0.36	0.42	0.46	0.37

Notes: see Table 4.

Figure 12. LRMs of maternity and parental leave in 15 European countries

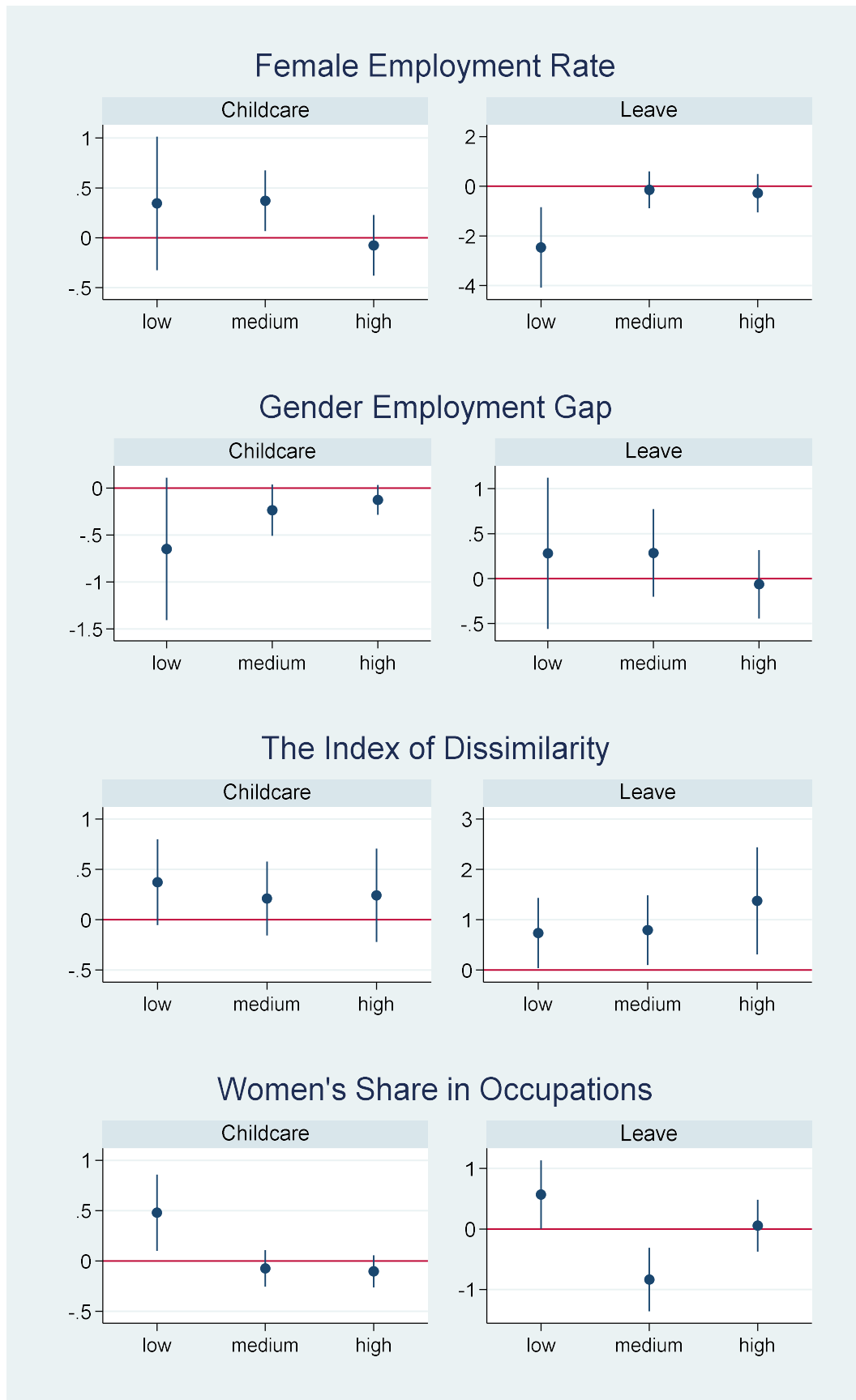


Table 5 and Figure 12 include the results of vertical segregation hypothesis. Both WFPs have a strong positive effect on increasing only low-educated women's share of low-skilled jobs, and the difference between childcare and leave is not large (LRMs are 0.480 and 0.569, respectively). Surprisingly, both WFPs have no significant effect for high-educated women's share of high-skilled jobs. This implies that Hypothesis 3 is partly confirmed: the effect on vertical segregation is only found among low-educated women in low-skilled jobs and maternity and parental leave has no significant, negative effect on reducing the share of high-educated women in high-skilled jobs. The effect of WFPs on the medium-educated women's share in male-typed jobs are negative but maternity/parental leave only have a significant effect, suggesting that parental leave increase sectoral segregation for medium-educated women.

How come does childcare increase sectoral and vertical segregation for low-educated women? The increase in low-educated women's share in low-skilled jobs seem to be related to the increase in gender composition of occupation (i.e., sectoral segregation) within low-educated women. Low-educated women who participate in the labour market are likely to be employed into the specific jobs categorised into female-typed, especially low-skilled jobs (although the coefficients are insignificant in column 1 of Tables 4 and 5). It is no accident that the category of "services and sales workers" that representing one of low-skilled jobs in the ISCO-08 encompasses child care workers. The 'downward occupational mobility' is not only for low-educated women. Although it is not shown in Table 3, the effect of childcare on medium-educated women's share in low-skilled jobs is also a significantly positive (LRM is 0.341; see column 3 of Table B8 in Appendix). Recalling the high concentration of childcare effect on medium-educated women (i.e., Matthew effects) in Table 4, we infer that a considerable number of medium-educated women who benefit from public childcare provision also

tend to find their opportunities in low-skilled jobs, thus increasing sectoral and vertical segregation. Women with high education level, once in employment, seem to be less sensitive to changes in the expansion of childcare and thus less sensitive to change their occupations.

In contrast to childcare, paid leave increases sectoral segregation for all women, especially between high-educated women on a large scale. Despite the fact that maternity/parental leave increases the segregation, it is not directly related to the increase in women's share in occupations. The relationship is observed in the case of low-educated women working in low-skilled jobs in line with childcare. Again, additional ECM regression of the medium-educated women's share in low-skilled jobs on paid leave shows the positive effect (LRM is 0.501 with the 10 per cent significant level; see column 3 of Table B8 in Appendix). This means that medium-educated women tend to move to low-skilled jobs from medium-skilled jobs after use of leave. However, this is not the case for high-educated women given the insignificant effect of leave for them (see also column 4 of Table B8 in Appendix).

To proponents of the paradoxes and tradeoffs argument, it comes as a surprise that maternity/parental leave has no significant, negative effect on vertical segregation for high-educated and high-skilled women. Now we check whether the perverse effect is found in Nordic countries other than non-Nordic countries. To do this, we divide the 15 countries into two: 4 Nordic countries and 11 non-Nordic countries. The results are shown in Figure 13 in the text and Tables B8-B9 in Appendix. As we expected, the 'pernicious' effect of leave on high-educated women is most severe in Nordic countries, largely increasing sectoral segregation (LRM: 4.638) and vertical segregation (-1.778) reinforcing glass ceiling. In contrast, in non-Nordic countries the effect on sectoral segregation for high-educated women (1.227) is smaller than that in Nordic countries, while the effect on vertical segregation (0.021) is still small and insignificant in line with the result for 15 European countries. This corresponds to Hypothesis 4. Therefore, we say that the paradoxes and tradeoffs are most pronounced for high-educated women in high-skilled jobs in Nordic countries because maternity/parental

leave increase their sectoral and vertical segregation. Not only to gender occupational gaps, the adverse effects for high-educated women are also founded with respect to employment in Nordic countries. In Nordic countries maternity/parental leave has negative effect on high-educated women's employment, thus increasing gender employment gap, while in non-Nordic countries the effects for high-educated women are negative but insignificant (see Tables B11–B12 in Appendix). Interestingly, the result shows that leave also exacerbates sectoral and vertical segregation for low-educated women in Nordic countries. The negative effects on gender occupational gaps are also found in non-Nordic countries, but they are larger in the former than in the latter, which has been addressed in the literature on paradoxes and tradeoffs argument. Therefore, generous leave in Nordic countries have more harmful side-effects on high-educated women, in either employment or occupational segregation. From the comparison between Nordic countries and non-Nordic countries, however, we observe that childcare promotes low-educated women's employment and gender equality of employment in the former (LRMs are 3.847 and -1.298) but medium-educated women in the latter (0.523 and -0.438), suggesting that Matthew effects of childcare prevail only in the latter. Taken together, Nordic countries focus on increasing class equality for low-educated women through generous WFPs at the cost of decreasing gender equality for high-educated women. In contrast, the policies of gender equality in non-Nordic countries do not contribute to class equality. Table 6 provides a summary of the results in terms of the hypotheses proposed in this paper.

Figure 13. Difference of the effects (LRMs) of maternity/parental leave on gender occupational segregation between Nordic countries and non-Nordic countries

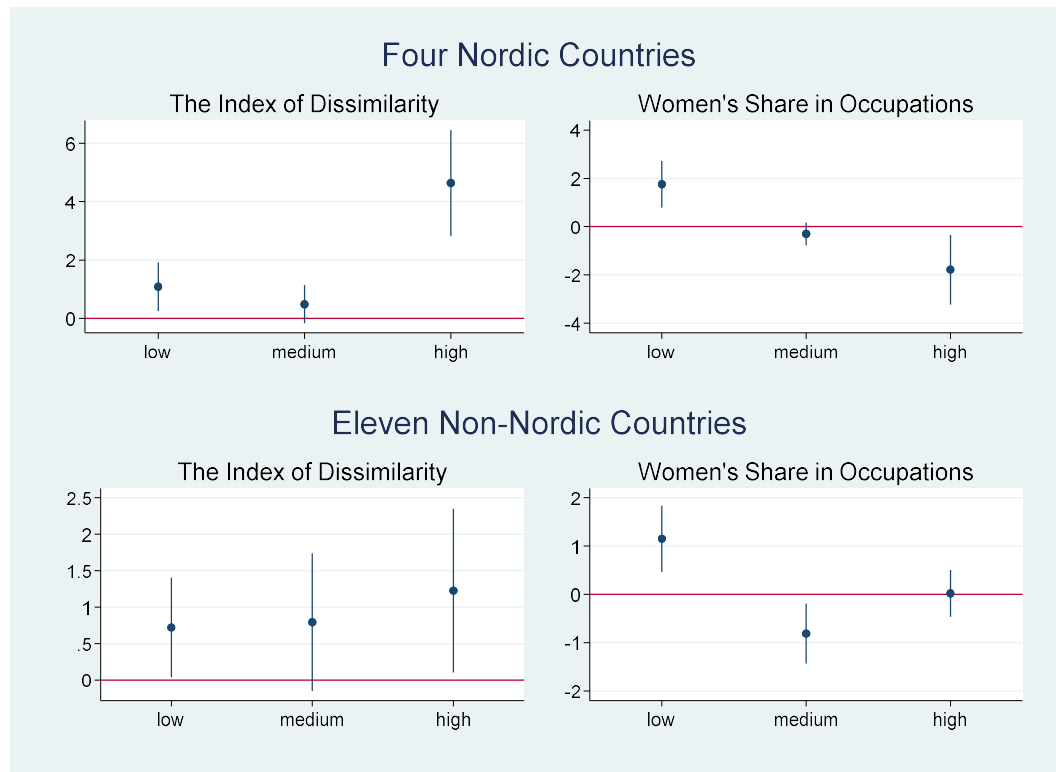


Table 6. Summary of results in relation to the hypotheses

Independent variable		Dependent variable (first difference)					
		Female employment rate			Gender employment gap		
		Low-educated	Medium-educated	High-educated	Low-educated	Medium-educated	High-educated
Childcare	Total 15 countries	(+)	+*	(-)	-†	-†	(-)
	4 Nordic countries	+†	(-)	(-)	-**	+*	(+)
	11 non-Nordics	(-)	+***	(-)	(-)	-*	(-)
Maternity and parental leave	Total 15 countries	-**	(-)	(-)	(+)	(+)	(-)
	4 Nordic countries	(+)	(-)	-***	(+)	-*	+***
	11 non-Nordics	(-)	+†	(-)	(-)	(+)	(-)
Independent variable		The index of dissimilarity			Women's share in occupations		
		Low-educated	Medium-educated	High-educated	Low-Skilled jobs	Medium-Skilled jobs	High-Skilled jobs
		Childcare	Total 15 countries	+†	(+)	(+)	+*
4 Nordic countries	(+)		+*	(-)	+*	-*	(-)
11 non-Nordics	(+)		(+)	(+)	(+)	(+)	(-)
Maternity and parental leave	Total 15 countries	+*	+*	+*	+*	-**	(+)
	4 Nordic countries	+*	(+)	+***	+***	(-)	-*
	11 non-Nordics	+*	+†	+*	+**	-*	(+)

Note: all results refer to LRMs; † $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$ (two-tailed test); signs in parentheses mean insignificant at the 10 per cent significance level.

4.3. Other factors: ALMPs and labour market institutions

Tables 4 and 5 reveal the associations between ALMPs and gender inequalities with different education levels. In Table 4, training also has a significant, positive effect on only employment of medium-educated female workers (LRM: 0.372) and, as a result, a negative effect on gender employment gap between medium-educated workers (−0.433), which is also seen in childcare. It is remarkable that training and childcare, the essential ingredients for social investment policies, are plagued by perverse ‘Matthew effects’. Interestingly, the Matthew effects of training do not exist in Nordic countries because low-educated women benefit more from training in line with childcare case (see Table B11 in Appendix). However, the long-run effect of training on gender occupational gaps is all insignificant. For the other ALMPs, the association of direct job creation with female employment of women with high education level is negative, while employment incentives showing in the opposite direction. However, both direct job creation and employment incentives are a male-friendly policy, especially favouring medium-educated men because they increases gender employment gap for medium-educated workers. There is no significant association of public employment services (PES) with female employment and gender employment gap. Rather, it has a positive effect on gender occupational gap for high-educated women, decreasing sectoral segregation and increasing vertical segregation.

Among labour market institutions, unemployment benefits are negatively associated with employment of high-educated and medium-educated women, while union density increases employment rate of high-educated women. Coordination of wage bargaining benefits more middle-educated women in terms of employment. In terms of gender occupational segregation, the results come up with that unemployment benefits increase sectoral segregation for high-educated women and decrease their vertical segregation. In contrast, union power

such as union density and coordination of wage bargaining contributes and employment protection systems such as both regular and temporary EPL contribute to reducing sectoral and vertical segregation mainly for high-educated women.

5. Discussion and Conclusions

This paper tests the paradoxes and tradeoffs argument of whether WFPs have contradictory effects between the quantity and quality of women's jobs and how the gendering effects vary by educational level of women. Analysing macro-level data on 15 European countries and between 1992 and 2013, we test four hypotheses about the effect of childcare and maternity/parental leave on women's employment and occupational segregation compared to men's ones. The findings are as follows: first, childcare contributes to gender equality in terms of female employment but maternity/parental leave exacerbates gender equality. Both WFPs decrease class equality among women. Second, Both WFPs, especially leave, produce high levels of sectoral gender segregation. Childcare has only negative consequences for low-educated women, while leave has for all women but especially larger for high-educated women. Third, both WFPs exacerbate vertical segregation for low-educated women by increasing their share in low-skilled jobs. However, the negative effects for high-educated women in high-skilled jobs are not found in terms of either childcare or leave. Third, the analysis of 4 Nordic countries tells us that generous leave produce gender occupational gaps by increasing sectoral and vertical segregation among low- and high-educated women.

Employing a perspective of the intersectionality of gender and class, our analysis makes four important implications. First, dividing the quantity and quality of women's jobs, we find that WFPs, especially childcare, contribute to women's participation in the labour market and employment but they bring about a massive gender occupational segregation. This suggests that the presence of Matthew effects are different by gender and class. In addition to

contribution to highlighting class inequality, the analysis of Matthew effects argument from social investment studies should reach to job quality and gender equality.

Second, we demonstrate that maternity/parental leave increases sectoral and vertical segregation and the negative effects are larger for low-educated women than for high-educated women. However, the paradoxes and tradeoffs argument highlights glass ceilings for the latter while glossing over the maleficence for the former. This seems to ‘put the cart before the horse’.

Third, comparing childcare and leave, Nordic countries provide interesting implications. Although their leave policy generates gender occupational gaps for high-educated women, low-educated women are more likely to benefit childcare in terms of employment. In contrast, the positive effect of childcare on female employment in non-Nordic countries focuses on medium-educated women. As Korpi et al. (2013: 30) put forward, low-skilled female-typed jobs in Nordic countries are not necessarily associated with low-paid low-qualified jobs in contrast to non-Nordic countries, especially Anglo-Saxon countries. This means that the universal public childcare provision and generous leave encourage low-educated Nordic women to participate in the labour market and to concentrate into family-friendly jobs that providing them with the proper and sufficient use of leave. Therefore, in Nordic countries WFPs contribute to class equality for low-educated women at the expensive gender equality for high-educated women, while in non-Nordic countries WFPs exacerbate both class equality and gender equality.

Fourth, our finding implies that the effect of WFPs on employment and occupations would affect wage and poverty rate by gender and class. There are some literature that analysing the effect of WFPs on gender wage inequality and poverty rate (e.g. Akgunduz and Plantenga, 2013; Mandel, 2012; Troger and Verwiebe, 2015). Particularly, the redistributive effect of childcare is also found in the effectiveness studies of social investment policies (e.g. Hemerijck et al., 2016; Rovny, 2014; Vaalavuo, 2013; Verbist and Matsaganis, 2014; Verbist

et al., 2012). On the basis of stricter causal mechanisms and more sufficient data, following research should be investigate what the relationship between WFPs and redistributive outcomes is and how different it is by class and gender.

Notwithstanding the contribution and implication, this article has some limitation. First, we turn to macro-level spending data so that we do not consider qualitative differences such as the quality of childcare and the length of maternity and parental leave. Recent studies, however, emphasise curvilinear associations between the effect of parental leave and women's employment and wage depending on the leave period, showing an inverted U-shape (e.g. Akgunduz and Plantenga, 2013; Misra et al., 2011; Olivetti and Petrongolo, 2017; Thévenon and Solaz, 2013). Therefore, this paper would tend to lose out on capturing any positive effect of short-term leave. A second challenge is the presence of interaction between WFPs and interaction between WFPs and other policies such as ALMPs which might affect our results. For instance, generous parental leave might reduce childcare use and the growth of women's employment might be accelerated by a successful complementarities between childcare and training policies. Lastly, various institutional factors including vocational training and education, industrial relation, and employment and wage protection affect gender equality according to the VoC perspective that gender occupational segregation varies by skill regime (Estévez-Abe, 2005, 2006; Mandel and Shalev, 2009; Soskice, 2005). Although we consider some labour market institutions in the model, more research on addressing this is crucial.

PAPER 3

The Political Economy of Training and Skills in South Korea: Segmentalism, Dualism, and Institutional Change

Abstract

Segmentalist theories of business cleavages in training and skill systems have enhanced our understanding of the patterns and causes of endogenous institutional change by analysing how segmentalist coalitions of large employers and the state (or trade unions) play an important role in changing institutions. In these theories, however, the causal mechanism of how different skill preferences and different attitudes over training costs between employers affect the coalitional dynamics is less developed. This paper addresses this problem by proposing micro-foundations that strategic capability of employers' associations and trade unions is critical to cross-class coalition formation for collective skill formation system. An in-depth case study of South Korea shows that weak strategic capability of employers' associations leads to the fragmentation of collective skill formation systems. In the fragmentation process, the pattern of institutional change depends on relative power of large employers to the state: the segmentalist coalition between large employers and state actors, if the former becomes economically strong but less powerful than the latter, results in an incremental institutional change, while if the former is more powerful than the latter, the coalition promotes a transformative change of institutions towards a less collective one like in a liberal market economies. It also suggests that in order to understand the directionality of a transformative change in transition countries experiencing democratisation and economic liberalisation, one has to investigate how the legacies of strategic capacity of employer and union groups before the transition affects the change. In particular, focusing on strategic capability of employers' associations and trade unions is important to understand the cause of segmentalism and dualism in advanced capitalist democracies.

1. Introduction

Why do institutions vary across capitalist economies and welfare states? What makes institutions stable or volatile? How can we explain the varieties and the difference? Many agree that political actors matter for the diversity and the change, yet disagree about which ones are more relevant. To date, research has highlighted trade unions and political parties (Esping-Andersen, 1990; Huber and Stephens, 2001; Korpi, 1983, 1989, 2006), employers (Hall and Soskice, 2001; Hall and Gingerich, 2004; Swenson, 1991, 1997, 2001; Thelen, 2000, 2001), and the state (Martin and Thelen, 2007; Schmidt, 2009). Rather than actors, some scholars put forward electoral systems (Culpepper, 2011; Cusack et al., 2007; Iversen and Soskice, 2006). Not only to the causes, the disagreement is also with respect to the patterns of institutional change. Many studies argue that institutions tend to stay in stationary state and exceptionally change by exogenous shocks (e.g., Culpepper, 2005; DiMaggio and Powell, 1983; Hall and Soskice, 2001, 2003; Powell, 1991), while other analyses point out that endogenous factors also change institutions gradually (e.g., Mahoney and Thelen, 2009; Thelen, 2004, 2009; Thelen and Kume, 2006).

Inter alia, a prominent theory on the varieties of skills relevant for production regimes which are termed the varieties of capitalism (hereafter VoC), emphasises the role of employers in developing the differences in skill specificity and social protections across countries (Estevez-Abe, Iversen, and Soskice, 2001; Hall and Soskice, 2001). As is well known, there are two distinctions in the VoC framework: in coordinated market economies (CMEs), employers are major actors who provide collaborative vocational training in industry- or firm-specific skills that can be used in one particular trade or one specific firm, while in liberal market economies (LMEs) employers prefer general skills that are mainly acquired in tertiary education and are highly portable (Hall and Soskice, 2001; Iversen and Soskice, 2001). Employers who encourage workers to invest in the specific skills provide unemployed wage protection within the sector or employment protection with high wage and security within the

firm, while both employers and employees in general skills countries prefer high flexibility in the labour market rather than the measures of credible protection (Estevez-Abe, Iversen, and Soskice, 2001). However, the equilibrium-functionalist approach does not suffice to account for the dynamics of endogenous, incremental changes because, due to institutional complementarities, once they are in place institutions change only at ‘critical junctures’ or by ‘exogenous shocks’ (see Deeg, 2005; Hancké et al., 2007; Streeck and Thelen, 2005). For instance, the presence of strong industry-wide employers’ associations can form widespread cross-class coalitions with trade unions in CMEs, while the absence is likely to entail class conflict between them in LMEs, both of which result in institutional stability (Hall and Soskice, 2001). To overcome the stasis, a growing number of VoC scholars who study segmentalist changes of skill formation systems that have taken place in CMEs, (particularly, Germany and Switzerland) theorise and verify the patterns and causes of the change, which is so-called segmentalism.

Segmentalism literature finds a difference in skills preferences and training resources between employers, especially large firms and small and medium-sized enterprises (SMEs), and explains the impact of segmentalist coalitions on patterns of changes in vocational education and training system (Culpepper, 2007; Culpepper and Thelen, 2008; Emmenegger and Seitzl, 2018; Thelen and Busemeyer, 2008, 2012; Trampusch, 2010a, 2010b) and on dualisation in the labour market (Busemeyer, 2011, 2012). In other words, a coalition of segmentalised employers with other actors sharing narrow common interests even in CMEs might generate a segmentalist change deviating from the inertia, either incremental or transformative one. Likewise, dualisation literature argues that a divide between trade unions corresponding to segmentalised employers has sharpened insider-outsider cleavages in the German labour market (Hassel, 2014; Palier and Thelen, 2010). Meanwhile, some scholars of VoC have acknowledged that, not only employers’ associations, the presence of strong trade unions is also important in the process of collective wage bargaining (Hancké, et al., 2007; Iversen and

Soskice, 2009; Iversen and Stephens, 2008). Quantitative evidence shows a significant positive effect of trade unions on coordinated wage bargaining, skill requirements of production, and social expenditure (Ahlquist, 2010; Edlund and Grönlund, 2010; Hooghe and Oser, 2016).

The literature on segmentalism and dualism thus puts forward that the strength of trade unions, not only of employers, may also matter for collective skill formation system, though they may have more or less different preferences and play different roles. Notably, the membership creates an organisational power that affects how the interested groups behave. But the impact of organisations on institutional change may depend not only on intergroup dynamics, but also on intragroup dynamics. Specifically, the extent to and the target for which the groups are organised and speak affects their capability to make a coalition with other actors which in turn leads to either an institutional stability or change. However, the micro-foundational mechanism of how employers and trade unions aggregate power to influence other actors and build a coalition with them “from the bottom-up” has not been fully explored in the literature, while the existence of strong groups or coalitions is simply assumed (see Capoccia, 2016; Seitzl and Emmenegger, 2019).

In this paper, I argue that, as micro-foundations of institutional change, the internal organisational characteristic (i.e., strategic capacity) of employers’ associations and trade unions affects the extent to cross-class coalitions between the counterparts, which determines training systems and skill regimes and their patterns of change. More encompassing and centralised employers’ associations and trade unions are at peak/sectoral level, more powerful they are. The strategic capacity thus implies an institutional power. This is not to deny the coalitions between employers and workers at plant/company level like in Japan, but rather to assert that powerful organisations at sectoral/national level are more important in generating collective skill formation systems like in Germany. My argument though does not imply that weak and fragmented organisations always lead to low level of training and skills. This is because the state may play a critical role in the investment in training and skills development

like in the countries of developmental state model despite low organisation rates and unionisations as some cases of East Asian countries show. Nevertheless, I argue that once power of the state is collapsed either endogenously or exogenously the powerful interest groups lead to institutional changes. In the process, if segmentalised employers and trade unions are powerful, there may be various patterns of institutional change as segmentalism literature shows. Therefore, we use a historical-political approach to study the association between power of actors (employers, trade unions, and the state), coalitional dynamics, and institutional change.

Much attention of segmentalism and dualism literature has been paid to explaining the German case that has typically stable institutions as a prototype of CMEs in the VoC. But because the stable institutions often militate against any change but are in favour of institutional resiliency, we are unsatisfyingly left with little explanatory capacity about further dynamics of institutional change. Most intriguing dynamics is likely to be observed in countries that have experienced a transition to market economy and democracy. Under immature capitalist democracy, we know that the role of state is critical for development of training and skills systems (Ashton et al., 2000, 2002), but this is not stressed by the literature. This paper therefore studies the case of training policy in South Korea (hereafter Korea). Methodologically, Korea is a good case for insights and hypotheses into the micro-foundations of institutional change. First, Korea has many relevant events for a very short time. In the transformation from the authoritarian state into an advanced capitalist democracy, there were a series of socio-economic changes such as industrialisation, democratisation, liberalisation, globalisation, and a severe economic crisis during 1960s-90s. This enables researchers to study how actors emerge, evolve, and collapse rather than simply exist and how they differently respond to various set of environmental changes. Second, Korean case provides an opportunity for us to check the role of state and power relations between interested groups. Korea once was invoked as a case in point for both producivist/developmental welfare regime where social policy was subordinate to economic growth orientation (Gough, 2004; Holliday, 2000; Kwon,

2005), and a developmental state model of skill formation where the authoritarian state played a leading role in training (Ashton et al., 2000, 2002; Bosch and Charest, 2008; Green, 1999). Third, Korea is an extreme case showing segmentalism in production regime and dualism in the labour market which undermine government policies of training and skills formation. Although some VoC scholars classify Korea into CMEs (Hall and Soskice, 2001; Hall and Gingerich, 2004), encompassing and centralised employer and union groups and high level of coordination between them like in CMEs have never been witnessed in the sphere of vocational training, while the critical role of state has faded out.

From a perspective of social investment, an analysis of Korea can also help promote a better understanding on why unbalanced development between social investment policies occurs, especially between childcare and training, across countries and even in one country. Korea shows the extreme case: despite the most ambitious family policy expansion with the universalisation of childcare provision (Estevez-Abe and Kim, 2014; Fleckenstein and Lee, 2017), Korea did not develop a meaningful training policy. Korea's expenditure on training as a percentage of GDP is 32.7 per cent of the OECD average in 2015, despite the sixth lowest labour productivity in the OECD area. Korean case helps bear out why a paradigm shift in the domain of labour market policy is much rarer than in family policy.

I will argue here that Korean case provides evidence to support the association between segmentalist coalitions and institutional change and build the micro-foundations. First, the cause and pattern of change rely on power asymmetries between large employers and the state which in turn occur due to endogenous sources such as democratisation and liberalisation, not only to exogenous factors like globalisation and economic shock. Second, long legacies of weak strategic capacity of employers' associations and trade unions make Korea an LME rather than a CME, though it is not a pure LME because the presence of prevalent subcontracting arrangement hinders perfect competitive market mechanism in inter-company relations.

The paper is structured into five parts. In the first section, I introduce the data collection and analysis. Next, I review the segmentalism literature and present my argument about why the strategic capacity of both employer and union groups is important and how institutional power is related to the patterns and causes of changes in training and skill systems. Third, I explore a change in power relations between capital, labour, and the state as Korea's developmental skills formation emerged, evolved, and crumbled during 1960s–90s. Fourth, I outline how weak strategic capacity of Korean employers' associations and trade unions restricts a development of cross-class coalitions for collective skill formation system and rather result in segmentalism and dualism. Finally, I suggest some theoretical implications of my argument in the conclusion section.

2. Data Collection and Analysis

Focusing on the role of employers' associations and trade unions, this paper conducted the semi-structured interviews with 22 key stakeholders and policy experts: three employers' associations and two major trade unions at the peak and national level; eight sectoral associations, one sectoral unions, and four regional associations at the sectoral and regional level; and two public organisations and two think-tanks. The average length of the interviews was 75 minutes (minimum 43 and maximum 144 minutes) and interviewees has worked for their organisations over 15 years on average (minimum 6 and maximum 30 years). All interviews were conducted during March, April, and October of 2019 in four major cities in Korea: Seoul, Ulsan, Incheon, and Gyeonggido. For further details on the interviewees refer to the Appendix C.

To support validity of the research and avoid “data cherry picking”, I used two types of triangulation in data collection and analysis. The first is data source triangulation by collecting interview data from different categorises of employers and unions. This is because there are multiple perspectives between employers and unions and between the peak, sectoral

and regional level even within the same employer and union groups. In terms of employers, there are five associations at the national level in Korea: The Korea Employers Federation (KEF), the Korea Chamber of Commerce & Industry (KCCI), the Korea Federation of Small and Medium Business (KBIZ), the Federation of Korean Industries (FKI), the Korea International Trade Association (KITA). The KEF, the KCCI and the KBIZ are included in interviewees, while the FKI and KITA are excluded. Although two representative and powerful associations for large employers (including chaebols) are KEF and FKI, only the KEF was selected because the KEF was established by the FKI to deal with labour issues in favour of large employers. The KBIZ representing the interests of small and medium enterprises and KCCI performing the duties of government for training were selected respectively. The KITA, specialised for commercial interests of trading companies but irrelevant to training policy, is excluded.

In terms of trade unions, two representative peak-level unions of Korea, the Federation of Korean Trade Unions (FKTU) the Korean Confederation of Trade Unions (KCTU), were all included. They have different organised labour's capacity and trade unions' strategies: the former is characterised as 'business unionism', whereas the latter is as 'social movement unionism' (Choi, 2011; Fleckenstein and Lee, 2019).

Sectoral and regional employers and unions groups were also interviewed. In Korea, there are sixteen Sector Councils (SCs), seventeen Industrial Skills Councils (ISCs), and sixteen Regional Skills Councils (RSCs) that are designed and established to represent the voice of employers on skills needs by Korean government. Interviewees included eight sectoral associations and four regional associations. Eight sectoral associations ranged from manufacturing such as electronics, electrics, steel, shipbuilding, to service and new technology industries such as foodservice, finance, and software industry: the Korea Electronics Association (KEA), the Korea Foodservice Industry Research Institute (K-FIRI), the Korea Financial Investment Association (KOFIA), the Business, Accounting and Management ISC, the Korea

Electrical Contractors Association (KECA), the Korea Iron & Steel Association (KISA), Korea Offshore & Shipbuilding Association (KOSHIPA), and the Korea Software Industry Association (KOSHIPA). In terms of regional level, Seoul, Ulsan, Incheon and Gyeonggi-do RSCs were selected. Seoul is the capital of Korea where there are most of employers' associations and trade unions at the national and industrial level. Ulsan is the biggest industrial city of Korea with heavy and chemical industry such as automobile, petrochemicals, shipbuilding and nonferrous metals, based on the relationship between a few main contractors (especially chaebols) and numerous SME sub-contractors. Incheon and Gyeonggi-do in the metropolitan area have many the National and Local Industrial Complexes comprising mostly SMEs rather than large companies. Moreover, the Federation of Korean Metal Workers' Trade Unions (FKMTU), the largest sectoral union (especially manufacturing) of the FKMTU, was interviewed. This vertical and sectoral varieties of interviews increase a broader and dynamic spectrum which helps to find various perspectives and contrast them.

In five interviews, two or more interviewees were participated: the KEF, the Business, Accounting and Management ISC, the FKMTU, the Ulsan RSC and the Incheon RSC. These were not deliberated (for instance, focus groups interview), but provided the affirmation that the interviewees spoke about the groups in generalities, but not steered too much towards supporting or contradicting particular ideas to some extent.

Finally, four additional interviews were included: The Korea Research Institute for Vocational Education & Training (KRIVET) and the Korea Labour Institute (KLI), the representative think-tanks on training policy and labour issues of Korea; the HRD Service of Korea and the Korea Labour Foundation, public organisations for performing and improving training policy. The two think-tanks and two public organisations are very likely to have an unbiased standpoint between the conflicting counterparts, for instance, employers and trade unions. In the process of 22 interviews, first two interviewees were the KRIVET and the HRD Service of Korea and last two ones were the KLI and the Korea Labour Foundation. At the

beginning and end of the interviews, the experts help me to design the structure of interview, draw the categories that include and exclude, and check the validity of interview data already carried out.

All interviews were recorded with the interviewees' consent and then transcribed in Korean. Thematic data analysis of interviews was carried out through coding and categorising (but not using an auto-coding programme). The transcript was also shared with a researcher who is bilingual in English and Korean and specialised in Korean social policy including training for peer review.

The second type one is method triangulation. Interview data were triangulated against not only position papers of their employers' associations and trade unions, but also government document (including relevant previous laws). Before and after the interviews with employers and trade unions, it was an important process to check whether their positions are consistent in document. This research involves the collection of data from the government documents such as statistics, laws, publication and press releases from the Ministry of Finance and Economy (MOEF), the Ministry of Employment and Labour (MOEL) and so on. Especially, the Labour White Paper of the MOEL with annual statistics provided supportive quantitative evidence in accordance with interview data. Literature published by the KRIVET and the KLI and a large body of secondary academic literature on Korean vocational education and training was used to check whether it supports or refutes findings from interview data.

3. The Politics of Segmentalism and Institutional Change

In the following, I first review segmentalism literature and analyse its weakness in explaining institutional change, especially concerning micro-foundations. I then suggest that the concept of strategic capacity construed as institutional power is useful to explain power-based institutional changes.

3.1. Segmentalism and the problem of change

The key point of the literature on segmentalism is that inter-employer cleavages by firm size influence institutional change. Differences in resources between large employers and SMEs (Culpepper and Thelen, 2007) create a cleavage of skills specificity preferences (Culpepper, 2007; Dobbins and Busemeyer, 2015; Graf, 2018; Thelen and Busemeyer, 2008, 2012) and vice versa. According to these authors, large employers prefer firm-specific skills because they have separate training facilities and greater financial leverage which means they can afford to train workers themselves and develop their internal labour market. Since SMEs are more sensitive to training costs, they favour industry-specific skills which do not require a commitment of job security or wage protection within firms. Culpepper (2007), furthermore, argues that Swiss large firms that seek to increase innovation and competencies in international markets are more oriented to general skills or higher (tertiary) vocational education than SMEs lacking the capability of attracting entry-level young people by paying higher wage, although this case is not observed in Germany by Graf (2018). Scholars in this camp explain that relative power between large firms and SMEs determines the patterns of institutional changes in skill systems, either transformative or incremental one. Germany, Sweden, and Switzerland where large firms dominated experienced a shift from collectivist to segmentalist one, while Austria and Denmark where SMEs dominated maintained the status quo of collectivist one (Culpepper, 2007; Dobbins and Busemeyer, 2015; Thelen and Busemeyer, 2008, 2012).

Following the findings of business cleavages, some scholars focus on how employers in different segments form a coalition with unions or state actors and how different pattern of coalition affect the way in institutions change. This coalitional approach or power-distribution approach derives from recent historical institutionalists who highlight endogenous

sources of incremental institutional change to overcome the stability bias of new institutionalism (Hall and Thelen, 2009; Mahoney and Thelen, 2010; Thelen, 2004, 2009). Thelen and colleagues argue that gradual institutional change can be driven by political coalitions of actors (individual or collective one), especially between social groups and state actors. Based on this, a group of VoC scholars have demonstrated coalitional patterns of training systems, emphasising the role of large employers, which result in not only incremental but transformative change. Trampusch (2010a, 2010b) shows that a coalition with large employers and state elites produced a transformative change in Germany but a coalition between SMEs and state elites resulted in a self-preserving change in Austria, while the both cases existed in Switzerland. For the German case, Busemeyer (2011, 2012) links two types of coalitions with the patterns of institutional change. One is a conservative cross-class coalition between (large) employers and unions that resulted in incremental change against radical attempts of state actors in training reform. The other is a segmentalist coalition between (large) employers and state actors that promoted a transformative change towards a less collective and more flexible training system.

Although the segmentalism approach reveals a relationship between inter-employer cleavages, coalitional dynamics, and endogenous institutional change, there are some limitations. First, the causal mechanism of how different skill preferences and different attitudes over training costs between employers affect coalitional dynamics is less developed, because it is not clear on which micro-foundations they are built. It still remains problematic with respect to why employers (either large or small ones) achieve successful coalition in one country but fail in the other. Despite divergence in skill preferences and training resources between firms, strong intermediary associations at sectoral or peak level could resolve the coordination problems in keeping with cases CMEs. However, segmentalists gloss over how the organisational capacity of employers' associations contributes to establishing the specific pattern of coalitions and institutional changes or not. Most recently, Emmenegger and Seitzl

(2018, 2019) find that the coalition-building capabilities of employers in Switzerland are an important source of both stability and change in the reform of commercial training. The precursors to any consideration of structural power of organised employers' association in coalitional dynamics do not reach the question of how the dearth or abundance of organisational capacity is related to a pattern and direction of change though. The contents of causal mechanism is a 'black box'.

Second, the segmentalism literature does not put weight on the role of trade unions in line with the VoC tradition. Although the coalitional approach of segmentalism regards trade unions and state actors as a coalitional counterpart to employers, the former is downgraded compared to the latter. However, strong and encompassing trade unions might oppose segmentalist coalitions and changes in training systems led by large employers. In addition, segmentalism is not observed just among the employers. Trade unions likewise diverge because they would have different skill preferences and levels as the dualism literature implicates (Rueda, 2005; King and Rueda, 2008). According to Palier and Thelen (2010), French and German large employers' strategies of internal labour market closure and state support create a divide between unions representing regular workers in large firms and ones with lower skills in smaller firms, thereby undermining trade unions' collective bargaining for a majority of workers. Thus, there is a great chance that dualisation is closely related to segmentalism of employers and unions. Palier and Thelen (2010) and Busemeyer (2011, 2012) acknowledge this, but the simultaneity and entanglement between segmentalism and dualism have not been fully addressed yet.

The current state of segmentalism theory is characterised by two: relations within employers on the one side and relations with other actors on the other. The two features of business associations are quite similar to the analysis of Schmitter and Streeck (1981; reprinted in 1999). According to their analysis, the organisational properties are affected not only by membership, a fundamental resource of the organisations (logic of membership), but

influenced by properties of trade unions and the state with which they interact (logic of influence). This implies that the patterns and causes of institutional change attribute to the structural feature of intermediary organisations. Therefore, the real issue in segmentalism should be to answer what is the role of employers' associations (and trade unions) in the development of training and skill systems; under what conditions they succeed or fail; what is the consequence of a partial success or a complete failure.

3.2. The micro-foundations: towards an institutional approach to power

In their seminal work, Hall, Iversen, and Soskice argue that high level of training and skills systems in CMEs is based on strategic capacity of employers and trade unions (i.e., producer groups) and the formation of cross-class coalitions between them, while highly fragmented ones lack strategic capacity in LMEs (Hall and Soskice, 2001; Iversen, 1999; Iversen and Soskice, 2009). According to Hall and Soskice, 'strategic capacity' means 'the capacity to formulate a collective strategy for the group and to mobilise support for it among the group' (Hall and Soskice, 2001: 65). Encompassing employers' associations, for instance, are likely to have the ability to make credible commitments between members through exchanging information and monitoring/sanctioning actors to limit defection and free-riding from the production of collective goods (Hall and Soskice, 2001). Therefore, the more encompassing and centralised employers' associations are, the more extensive strategic capacity they have, as with the groups in CMEs. Although the VoC scholars highlight the strategic capacity of employers' associations, that of trade unions is also highly relevant. Furthermore, some VoC scholars connect strategic capacity with the extent to which an organisation has predictable and discernible influence on other actors on behalf of their members (Iversen, 1999: 94). Cross-class coalitions are more common in CMEs between encompassing and centralised producer groups, while fragmented and weak employers in LMEs are less likely to form the

coalitions but are more likely to face a class conflict (Hall and Soskice, 2001; Swenson, 1991, 1997, 2001).

This brief overview of the strategic capacity literature provides the theoretical contexts for our micro-foundations of institutional stability and change in terms of training and skills formation systems, inviting certain questions: First, what underpinning bottom-up process (micro-foundations) constitutes the strategic capacity that enable producer groups to act collectively?; Second, what is the functional difference in strategic capacity between employers and trade unions for collective skill formation?; Third, how can these strategic capacity form cross-class coalitions? Interestingly, the conceptualisation of strategic capability in the VoC theory shares the same underlying conceptual logic with the definition of ‘power resources’ in the power resources approach (PRA). In the PRA, trade unions and left parties successfully mobilise their power resources against employers with greater resources in capitalist societies play important roles in welfare state development. According to the definition by Korpi (1985: 33), power resources mean ‘the capacity of actors (individuals or collectivities), which enables them to reward or to punish other actors’. Organisations with enough resources to act collectively can influence the power of outside actors since power is ‘interactional’. Therefore, power needs to be considered as a ‘defining’ characteristic of institutions such as employers’ associations and trade unions (Capoccia, 2016; Mahoney and Thelen, 2010; Streeck and Thelen, 2005).

In this respect, strategic capacity implies ‘institutional power’ that influence coalitional dynamics within and between organisations. In this regard, a difference of the notion between strategic capacity and power resources is not significant because both of them are relevant to the organisational nature of employers’ association and trade unions. It may be argued that the difference between them, if any, is the application that VoC scholars highlight strategic capacity of employers’ association, while the PRA advocates regard power resources of trade unions as more important in institutional change. Nevertheless, it is meaningful to

use the notion of strategic capacity rather than power because the former enable us to focus on micro-foundations of encompassing and powerful collective action enough to change institutions and to understand the mechanism between power and institutional change in analysing strategic capacity of groups. Therefore, when one focuses on strategic capacity, the allocation of power and a shift in power among actors (i.e., politics) come to the fore, not undermining the equilibrium-functionalist criteria of the VoC.

Emphasising the ‘embeddedness’ of power within various institutions of the VoC framework allows us to understand why high level of co-investment in vocational training calls for the presence of powerful employers’ associations and strong trade unions like in CMEs. As Cognard (2011: 27–28) explained, the institutional power of employers’ associations contributes to enabling employers and workers to co-finance and co-invest in training with a view to increasing productivity. First, powerful employers’ associations can sanction firms who defect from co-financing training for industry-specific skills and poach skilled workers because they distribute resources among firms and monitor firms with a high degree of discretion (Finegold and Soskice, 1988; Soskice, 1994). Second, they guarantee the quality of skills so that firms employ skilled workers within industries and workers are properly remunerated for their investment in specific skills (Estevez-Abe et al., 2001: 146, fn.2). Third, even when workers are unemployed, employers’ associations protect the ‘skilled wage’ of workers through generous unemployment protection systems so that they do not experience income loss (Estevez-Abe et al., 2001). The strategic capacity of sanctioning free-riders, sharing information within industries, and setting an agenda at peak level is attributed to strong employers’ associations. With higher density of membership and higher autonomy for their members, employers’ associations become powerful enough to produce collective goods. In contrast, for LMEs where employers’ associations are unable to prevent free-riders, guarantee skill quality and provide unemployment protection, firms depend on the education level of

workers rather than credentials, while workers prefer general skills which are more transferable between industries. Segmentalism theory shows that different preferences and resources between large employers and SMEs in CMEs have undermined the strategic capacity of business intermediary associations, thereby pushing the training system towards a more fragmented one.

As with employers, trade unions also require institutional power to develop co-specific skills, although the logic is more or less different. The key difference goes back to the question of how trade unions configure solidaristic forms of wage compression. Against powerful employers' associations, skilled unions need to become more encompassing low-skilled workers and centralised enough to influence workers at the company and plant level (Ahlquist, 2010; Estevez-Abe et al, 2001: 155; Iversen and Stephens, 2008: 603). This flattens the wage distribution in the industry or economy through a collective wage bargaining system. In this process, low-skilled workers (or unions) tend to be rewarded by receiving a higher wage than their productivity would imply, while skilled workers (or unions) agree to lower wage than their productivity (Iversen and Soskice, 2009: 448; Iversen and Stephens, 2008: 605). At the same time, trade unions require employers' associations to reduce the risk of income loss in unemployment, and the benefits from protecting against the risk are again greater for low-skilled workers. Trade unions that cooperate with employers' demands require low-skilled workers to increase skills in exchange for wage protection and unemployment protection, which in turn reduce skills and wage differential between workers with different skills. Thus, labour organisation its and strength in affecting high level of collective bargaining coverage are very important.

From the reasoning of micro-foundations, it is arguable that strong trade unions need powerful employers' associations and vice versa for the development of collective skill formation. Apart from the historical evidence on this (see Iversen and Stephens, 2008: 626), findings of the VoC tell us that the former wants the latter to be powerful enough to guarantee

skilled wage across firms and develop social protection in the economy, while the latter does not want the former to break peak-level bargaining agreements and ask for higher wage at the plant or company level. In LMEs where trade unions are more fragmented and weaker than in CMEs, unions are likely to consist mainly of skilled workers who do not sympathise with low-skilled workers in terms of wage and social protection. This prevents class coalitions between workers of different skills and cross-class coalitions with employers, which are indispensable to developing industry-specific skills. Unions representing workers in large firms among fragmented unions are more likely to build a segmentalist coalition with large employers. Thus, cleavages of employers and trade unions are more likely to generate varieties of segmentalist coalitions between them, while a partial, but strong coalition between large employers and their trade unions causes dualisation in the labour market. In Germany, we observe that falling organisation rate of employer and union groups paves the way for segmentalism and dualism (Palier and Thelen, 2010; Thelen, 2009).

Another advantage to introducing power in the VoC framework is the explanatory capacity for endogenous institutional change that has been ignored in the VoC that is too static and path-dependent. Our discussion of the cleavages and segmentalist coalitions tells us that underlying power structure and relation of organisations contain the seeds of their own changes. As Capoccia (2016) puts forward, ‘institutional power asymmetries’ between actors influence dynamics of social coalitions (or conflicts), thereby generating institutional instability. So what causes a change in the power and power relations? Not only exogenous factors such as globalisation and unexpected economic shock changes are also driven by endogenous factors such as democratisation and liberalisation. The former is mostly observed in advanced capitalist democracies that experienced the latter a long time ago. In addition, globalisation is more advantageous to employers (than workers and trade unions) who continue to enjoy a dominant position unless there is an economic shock. This is why endogenous institutional changes are not common in the VoC framework. Exceptionally, globalisation makes large

employers gain more power and a deviation from business community as the segmentalism literature finds. In contrast, endogenous factors have commonly and extensively taken place in the transition countries from authoritarian regimes and communism to capitalist democracies (e.g., the former Soviet Union, East Asian countries, and Eastern and Southern European countries). The effect of the factors is different between capital and labour. Generally, political democratisation is favourable for trade unions because it contributes to extending social citizenship rights and protecting low-skilled workers' when unemployed, while economic liberalisation is advantageous to employers (especially large firms). Since the VoC is applicable to democracies where social preferences of interest groups are aggregated and politicised through political or electoral institutions or vice versa (Culpepper, 2011; Cusack et al., 2007; Hall and Soskice, 2001), it has relatively less explanatory capacity for the non-democracies where a powerful state overwhelms other weakly organised political actors. Some scholars struggle, however, to interpret 'post-communist neocorporatism' of Slovenia and 'state-led coordination' of past Korea as a CME type (e.g., Crowley and Stanojević, 2011; Fleckenstein and Lee, 2017, 2018). To be a fully-fledged approach, the VoC needs to be applicable to transition countries that have experienced more transformative changes, either endogenous or exogenous ones. Here the state is brought to the forefront in institutional changes. A decline of the state power, for instance, in the process of democratisation, economic liberalisation, and globalisation, places private interest organisations in a strong position.

That said, it is very unlikely that a transformative shift from a CME to an LME even in transition countries due to the 'complementarities' between institutions (Hancké et al., 2007). Rather, the countries that stayed beyond the bifurcation of LME and CME archetypes are more likely to move to one of the two. The directionality of transformative change depends on characteristics existing before the transition (i.e., legacies), especially of strategic capacity of employer and union groups and their industrial relations. Several case studies

show the impact of old organisational legacies on extensive structural adjustments. For instance, Spain and Estonia with legacies of fragmented and weak associations and unions transformed into a LME, while Italy and Slovenia with strong powerful organisations, especially strong trade unions, shifted toward the CME model (Crowley and Stanojević, 2011; Feldmann, 2007a, 2007b; Molina and Rhodes, 2007). Korea is a good example of the former. In these countries experiencing collapse of the state and upsurge of the private interest groups, the legacies are critical to the production regime and skill formation system after the transformation.

In order to understand endogenous, transformative institutional changes in the VoC framework, thus we need to deal with the case of transition countries and investigate how endogenous factors break the power triangle between employers' associations, trade unions, and the state, and generate cleavages or cross-class coalitions in terms of training and skills area.

4. The Politics of Institutional Change in the Korean Developmental Vocational Training System

I investigate how segmentalist coalitions between large employers and the state changed the Korean vocational training system. I establish endogenous and exogenous factors determined the patterns of institutional change. It is important to distinguish between triggers and the accelerators of change. We can say that the former is a critical factor, but the latter is not a cause despite its correlation. To do this I examine three cases: the introduction of a training levy, the reform of the Basic Vocational Training Act (BVTA), and the abolition of the training levy and the transformation to the Employment Insurance System (EIS). All three happened during 1970s–90s, when the developmental vocational training system emerged, changed, and crumbled. I argue that the policy reforms reflect the shift in power balance

between capital, labour, and the state, which were affected by endogenous factors, i.e., economic liberalisation and political democratisation.

Before discussing the cases, we need to understand the background on how the authoritarian development state emerged in the 1960s. In 1961, General Park Chung-Hee seized power in the “May 16” military coup and commanded the legislature, the judiciary and the administration. Not only the National Assembly and political parties, all existing social associations and trade unions were dissolved. In the aftermath of Japanese Colonial Rule (1910–45) and the Korean War (1950–53), an agricultural economy dominated Korea, and there was not any meaningful industrial infrastructure. For rapid economic development, Park’s military government (1963–79) adopted an export-oriented industrialisation strategy due to lack of natural resources and domestic market. The strategy was presented and developed in the subsequent Five-Year Economic Development Plans that the Economic Planning Board (EPB), a superministry, established every five years from 1962. The government directly provided a skilled workforce by establishing public training institutes, while pushing employers into training workers through subsidising employers or levying on them.

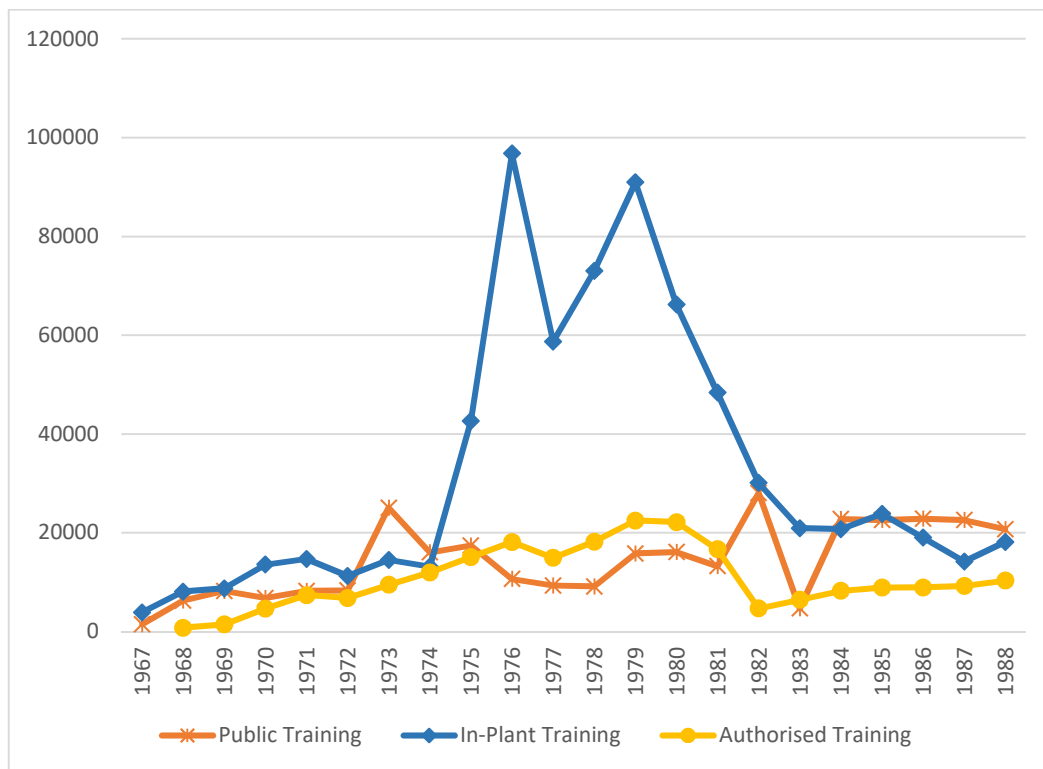
4.1. The introduction of a training levy

In the early stage of the Park government, the role of the state in training was minimal. Not much later, however, in 1967 the government enacted the Vocational Training Act (VTA, 16/01/1967) that subsidised employers’ in-plant vocational training (Clause 13). This resulted from the regular labour force surveys revealed a shortage of every year 40,000 craftsmen in manufacturing during the Second Plan (1967–71) (MOEL and KRIVET, 2012; MOL, 2006; OLA, 1971). Consequently, the number of vocational trainees increased from 10,738 in 1967 to 30,558 in 1970, with a growth from 1,502 to 11,840 in public training and 3,890 to 13,483 in in-plant training (OLA, 1971). The training subsidy system was not a sustainable policy

for the long term though. As soon as the government ceased the subsidies due to budget problems in 1972, in-plant training by employers fell sharply. This means that the voluntary system relying on the entrepreneurs' initiative failed to provide enough skilled workforce. Meanwhile, Park Jung-Hee, who won the 1971 presidential election, enacted the Yushin (revitalisation) constitution the next year. The new constitution provided him with more centralised and long-term power. To gain the support for extension and consolidation of the authoritarian regime from the public, Park government needed to accelerate the ambitious heavy and chemical industrialisation (HCI) in the Third Plan (1972–76).

With this background, Park government changed the training subsidy system into an in-plant training obligation system in 1974 by enacting the Vocational Training Special Measures Act (VTSMA, 26/12/1974). The Act forced employers with more than 500 employees to train at least 15 per cent of total regular workers every year, in six key industries: mining, manufacturing, electricity and gas and water supply, construction, transportation and storage and communications, and services. Two years later, in 1976, the new Basic Vocational Training Act (BVTA, 31/12/1976), in replacement of the VTA and the VTSMA, introduced a levy scheme which employers who did not comply with the obligatory in-plant training should pay training levies. Training levies were deposited in the Vocational Training Promotion Fund (VTPF, 1976) to finance the cost of both public and in-plant training. The new Act also expanded the training obligation to employers with more than 300 employees, but cut the proportion of training to below 10 per cent of total employees. The reform resulted in a huge increase in in-plant training, surpassing public training of government and accounting for the largest portion of total training since 1974 as Figure 14 shows.

Figure 14. The number of vocational trainees during 1967-88



Source: Numbers are extracted from MOL (2006) and MOEL and KRIVET (2012).

Note: Public training is training by the Ministry of Labour (MOL), in-plant training is one by employers, and authorised training is one by local governments and non-profit corporations.

In 1975, the number of in-plant trainees was 42,667, which roughly matched the number of vocational high school graduates. The government additionally established 23 public vocational training institutes to address the shortage of skilled workers during 1973–80 by virtue of the official development assistance (ODA) from the Asian Development Bank (ADB, \$3 million) and the International Bank for Reconstruction and Development (IBRD, \$3,353 million).

In contrast to the key role of state in vocational training, the engagement of employers was limited. There were ‘five business associations’ at the national level: Federation of Korean Industries (FKI), the Korea Employers Federation (KEF), the Korea Chamber of Commerce & Industry (KCCI), the Korea Federation of Small and Medium Business (KBIZ), and the Korea International Trade Association (KITA). The FKI that consisted of thirty chaebols mostly in manufacturing was powerful enough to perform a key role of business association

(Yoon, 2016). However, the dominant power of the state made the FKI keep a cooperative relationship on the training policy, but the FKI made the most of it for their own interests. Park's government needed their full cooperation to facilitate rapid economic development, and acknowledged the FKI as an important partner of the business community. Selective incentives from the government to the FKI in 1970s, especially in six key industries— steel, nonferrous metals, machinery, shipbuilding, electrical and chemical industries— provided a fertile ground for the rapid growth of chaebols (Amsden 1989; Johnson, 1987; Yoon, 2016). The Ministry of Commerce and Industry (MCI) that took the lead in the HCI plan was a close ally of the FKI (Lim, 2010). The consequence was that the market was monopolised by chaebols and the gap between SMEs and chaebols was widened. The number of affiliated companies of the top 30 chaebols increased from 126 in 1970 to 429 in 1979. In 1978, the total production of the top 46 chaebols was 43.0 per cent of manufacturing sector and 17.1 per cent of GDP on a value-added basis.

Without having any role in the reforms, trade unions endorsed the training policy of the state because they were not powerful under the control of the military regime. At that time, there was only the Federation of Korean Trade Unions (FKTU) of which founder members were appointed by the government. Although the FKTU organised fourteen industrial unions by the 1963 Trade Union Act (TUA) that legitimised industrial unionism, actual collective bargaining was conducted in branch unions at the company level according to the dominated practice of enterprise unionism which had come down from the U.S. Military Government of 1950s (Shin, 2004; Yang, 2005, 2017). This was because the industrial unions were intended as a political tool which enabled the military regime to control unit unions or branches at enterprise level (Yang, 2005). The 'cosmetic' industrial unionism was formally illegalised under the Yushin regime through the 1973 amendment to the TUA (13/03/1973) which banned industrial unionism (Clause 13, Article 3). This was lobbied by employers' associations, particularly the KEF that was established by the FKI to deal with labour issues

in favour of large employers (KEF, 1990, 2000). The KEF recommended enterprise unionism to hinder dissident political leaders from intervening in labour movement (Shin, 2004). In 1973, the government started the ‘Factory *Saemaul* (New Community) Movement’ on the shop floor, with the assistance of the KCCI, the KITA and the FKI. It contributes to not only productivity improvement and wage moderation, but also consolidating a patriarchal system where workers were strictly subordinate to employers and shop foremen, thereby coerced into submission to the state and business (Choi, 1992; Park, 1991).

In this critical episode of industrialisation, Korea of the Park Chung-Hee regime is well described as a developmental state model led by the authoritarian state, neither a CME nor a LME (Ashton et al., 2000, 2002). From a VoC point of view, Korea and Japan are categorised as one strand of CMEs where employers rely on ‘group-based coordination’ and workers are encouraged to learn ‘firm- or group-specific skills’, which are different from other CMEs like Germany with ‘industry-based coordination’ that cultivates ‘industry-specific skills’ (Hall and Soskice, 2001: 34–35). However, because skills predominant in Korea during this time were rudimentary industry-specific skills, it is not appropriate to see Korea as a CME that is well equipped with firm-specific skills. In terms of development of industry-specific skills, Korean employers did not play a pivotal role and did not seek to form cross-class coalition between employers and trade unions.¹² Some scholars regard the Korean economy as a CME due to the extraordinary ‘coordinating’ capacity of the state which is perceived as one feature of ‘coordinated’ market economies in the absence of democracy, for instance, ‘state corporatism without labour’ (Bosch and Charest, 2008; Fleckenstein and Lee, 2017, 2018). In a non-democratic country where the powerful state overwhelmed all private interest

¹² Interestingly, training levy system has been used mostly in LMEs (e.g., the United Kingdom, Australia, Quebec in Canada, New Zealand, and exceptionally France) to address market failure in vocational training (Culpepper, 2003; Soskice, 1994; Cognard, 2011). This is additional evidence that Korean employers did not voluntarily participate in vocational training system.

groups, however, we cannot expect a significant and autonomous role of employers, which is the centre of the analysis of the VoC approach. Again arguably, the logic of VoC, either CMEs or LMEs, is applicable to democracies. In Korea the state ‘administered’ rather than ‘co-ordinated’ business, while business ‘succumbed’ to power. Employers were consenters who were ‘involved’ in the reforms for fear of the state’s power (Korpi, 2006). Under patronage of the authoritarian regime, workers were subject to military discipline on the shop floor, while large employers took advantage of the power of the state in industrial relations (Interviews 1, 2, 21).

Why, then, did not employers play a pivotal role in vocational training like CMEs? First, vocational training was focused on fostering new workers with lower secondary education who entered the labour market to be craftsmen with a low level of skills (OLA, 1971). At that time the production system relied on importing machinery and raw materials from abroad and producing/exporting medium-quality and low-price goods, using by cheap and abundant labour and did not require a high level of skills. This was why employers had little interest in upskilling their workplace, i.e., fostering incumbent workers’ firm-specific skills and productivity. Second, more importantly, the skills provided by vocational training were industry-specific skills that were transferrable across firms in the industry, differently from firm-specific skills for increasing productivity only within the specific firm. Because the low-level industry-specific skills were provided through public training by the government on behalf of employers, employers had less incentive to train workers themselves. Most of the in-plant training by employers was in fact off-the-job training in the form of entrusting workers to the public and authorised training institutes for six or twelve months and teaching them industry-specific skills, while on-the-job training with periods of three months was implemented in a few workplaces (Jung et al., 2013; MOEL and KRIVET, 2012). Consequently, for employers, especially large employers, a ‘cheap ride’ on the state-led training was a best option even under the obligation and levy system.

4.2. The BVTA reform

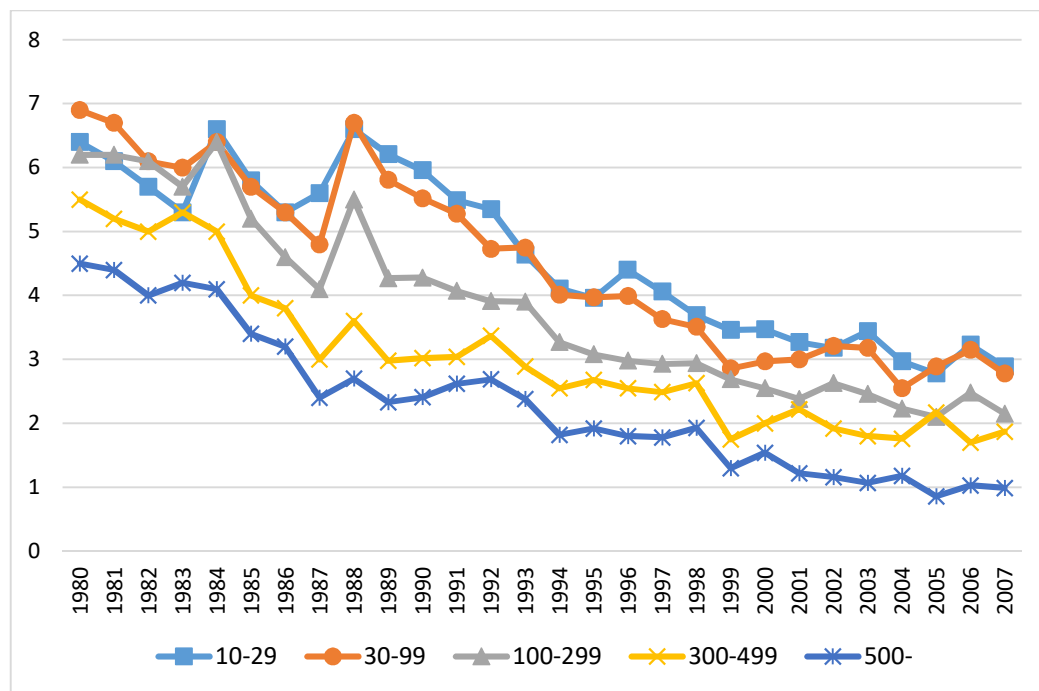
President Park was assassinated in 1979, but the military regime continued. General Chun Doo-Hwan, taking advantage of national confusion, seized the control of the country by military coup at the end of the year. As the Korean economy experienced a stagflation with minus growth (-3.3 per cent) and high inflation (28.7 per cent) in 1980 due to the Second Oil Shock (1978–79) and the over-investment in the HCI during 1970s, Chun's government (1980–88) carried out the Economic Stabilisation Policy through the Fifth Plan (1982–86). The EPB and the Korea Development Institute (KDI: the EPB think-tank) which were led by neoliberal economists who had PhDs in economics from the United States played a key role in developing the policy (Kim, 1999; Yang, 2017). The economic liberalisation policy aimed to transform the state-led planned economy to a market-driven free market economy: it contained a reduction in government spending to balance budgets and tight credit control, adjustment of overlapping investments in HCI between chaebols, privatisation of state-owned commercial banks and partial permission for foreign investment in stocks. The economic policy reform was not driven by employers, but by state elites, i.e., neoliberal economists in the EPB and the KDI. At the beginning, rather, chaebols and the MCI opposed the economic liberalisation because it might imperil the status quo of a closed relationship between employers and the state. However, the liberalisation measures caused the dominant economic leadership of the state to be undermined (Kim, 1999). Chaebols had grown dramatically through the HCI in 1970s, and became more influential in the economy. For instance, the FKI established a newspaper, the Korea Economic Daily, and the Korea Economic Research Institute (KERI) between 1980 and 1981 in order to develop and publicise the logic of speaking for chaebols' interests (FKI, 2011; Lee, 2001).

Employers' rising economic power began to opt against the developmental skill formation system. As the production regime incrementally changed from a labour-intensive and

mass production system to capital-intensive and post-Fordism system (KRIVET, 1998; MOL, 2006), large employers needed to develop incumbent workers' skills in the workplace (i.e., firm-specific skills), rather than industry-specific skills of new entrants. In addition, the increase in admission quotas in higher education under the Chun government (Fleckenstein and Lee, 2018) made it more difficult for large employers to find new trainees with secondary education. Large employers responded to the socio-economic changes in two ways. One was to choose to pay levies instead of implementing in-plant training for new young entrants. Only 30 per cent of the employers paid levies in 1978, but the proportion gradually increased to two thirds of the employers in 1986 (Lee, 2005; MOEL and KRIVET, 2012). The other was to require the government to reform the levy system. Large employers, especially the FKI, required not only to cut the obligatory proportion (allocated as a certain percentage of the number of employees) but also to include training for incumbent workers into the coverage of the obligatory in-plant training (FKI, 2011; Lee, 1992; Park, 1992). In response to the request, the Chun government reformed the BVTA and its enforcement ordinance: gradually reduced the average proportion from 6.70 per cent in 1979 (the highest) to 4.13 per cent in 1981 and 1.63 per cent in 1986 (the lowest), while counting maximum 30 per cent of training for upskilling incumbent workers into the obligatory proportion in 1982, increased to 50 per cent in 1985 (MOL, 2006; KRIVET, 1998). Furthermore, the amendment to the BVTA (Clause 25, 09/05/1986) changed the criteria of imposing obligatory training for employers from a certain proportion of their employees (i.e., the number of trainees) to a certain proportion (maximum 2 per cent) of total wages for employees (i.e., the amount of money). The reform suited the demand of large employers for the capability of investing in the establishment of training equipment/facilities, and thus enabled them to invest in firm-specific skills through training selected incumbent workers. Large employers began to give preferential treatment to workers with firm-specific skills by providing employment security and corpo-

rate welfare as discussed below (Yang, 2004) and this in turn provided workers with an incentive to invest in skills. The consequence was that turnover (the ratio at which employees leave a workplace due to displacement, retirement, and layoff) rapidly reduced since 1980. Figure 15 shows the decreasing trend, especially a steeper decline among large employers with more than 300 employees between 1980 and 1987.

Figure 15. Average yearly turnover by firm size in manufacturing during 1980–2007



Source: Numbers are extracted from the Report on Monthly Labour Survey of the MOL during 1980 and 2007.

Note: Monthly turnover is a percentage of the number of regular employees displaced during this month out of the number of regular employees at the end of previous month. Average yearly turnover is the average of twelve monthly turnover of the year.

In contrast, SMEs still relied on the state-provided vocational training for industry-specific skills and free-rode on the training levy from large employers (Ashton et al., 2002). This was not only because they had no capacity for workplace-based skill formation but because their core business was labour-intensive industries which needed semi-skilled workers. As the accumulation of skills in in-house training of large employers surpassed the level of skills in

the public vocational training, a skills schism between large employers and SMEs created and widened in late 1980s in terms of the investment in training (see Figure 16).

Unlike the change in economic power relations between business and the state, labour policy remained completely unchanged. The Chun government harshly suppressed trade unions. The 1980 TUA (31/12/1980) banned the engagement of a third party (neither trade unions nor employers) with unionism (Clause 12-2) and permitted collective bargaining of trade unions only at company level (Clause 33, Article 1). The KEF had a strong influence on the establishment of these regulations (KEF, 1990). All branches of industrial unions (3,227 in 1980) were abolished or disassembled to enterprise unions. Violators of the Act were sent to jails or ‘*Samcheong* Re-education Camp’ at a military base which was similar to a forced labour camp like the Gulag in the Soviet Union (Yang, 2017; Interview 13). The consequence was the drop in organisation rate of trade unions from 25.4 per cent in 1977 to 16.8 per cent in 1986. As a conciliatory gesture, the Chun government encouraged employers to provide corporate welfare. The Ministry of Labour (MOL) in 1980 forced businesses to establish ‘works councils’ in all workplaces (the Labour Management Council Act, 31/12/1980). These works councils consisted of ten representatives of employers and workers (or trade unions). In 1983, the MOL enacted the Regulation of Operating Intra-Company Labour Welfare Fund (06/05/1983; later upgraded to the Act (10/08/1991)) which encouraged employers to voluntarily donate around 5 per cent of pre-tax profits into spending on loans for mortgage, living costs, and scholarship of employees and their dependents (MOL, 2001). Accordingly, although the emergence of corporate welfare at this time was enforced by the state with a view to depoliticising trade unions and controlling wage rises, it also reflected the interests of employers who realised the importance of internal labour market in favour of firm-specific skills development (Yang, 2004).

The consecutive reforms of the BVTAs show the pattern of incremental (self-preserving) change. Specifically, it implies the case of ‘institutional layering’ which means that the

institutional inertia of the training levy system was continuous, but new arrangements ‘layered’ on top of existing institutions to adapt to emerging new circumstances (Thelen, 2004). The BVTA reform was on the other hand endogenous because the sources such as industrialisation and economic liberalisation increased the concentration of economic power in large employers, especially chaebols, and thus they made the change with the state. Although there was a segmentalist coalition between large employers and the state (Busemeyer, 2011, 2012; Thelen and Busemeyer, 2008, 2012; Trampusch, 2010a, 2010b), the change did not reach a transformative one, contrary to the segmentalist argument. This is because the rising economic power of employers was still weaker than the state power under the Korean authoritarian regime, unlike the cases of the European advanced capitalist democracies.

The problem is that the gap between chaebols and SMEs generated by HCI created a business cleavage in skill formation system that is a fragmented skill formation. Interestingly, Korean large employers played an important role in developing firm-specific skills. This means that Korean skill formation system once followed the Japanese model with firms-specific skills rather than the German model focusing on industry-specific skills (Yang, 2004). However, their interests did reach neither a cooperation with SMEs nor a cross-class coalition with trade unions. If they did, large employers should have developed a collective skill formation system helping SMEs to equip workers with industry-specific skills and would have positively engaged with trade unions.

4.3. The abolition of the training levy and the introduction of EIS

The transition to democracy in Korea was not begun until Roh Tae-Woo announced the ‘June 29 Declaration of Democratic Reform’ on June 29, 1987. As soon as Roh, a classmate of Chun at the Korea Military Academy, was nominated as a presidential successor by Chun on June 10, college students, dissident intellectuals, urban white-collar and middle-class workers (so-called necktie troops) came out to demonstrate against repeating the indirect president

election for seventeen consecutive days, reaching more than one million people across the country on June 26. Roh grudgingly pledged democratic reforms on June 29 that included a constitutional amendment for a direct presidential election, restoration of freedom of political parties and the press, and introduction of local self-government and educational autonomy. Such democratisation triggered the collapse of the authoritarian regime. The ‘June Democracy Movement’ ended in June with Roh’s declaration, but the tide of democratisation galvanised blue-collar workers among Hyundai groups in Ulsan into collective action during July and September. They went on a strike to preserve the three rights of workers i) organising trade unions, ii) collective bargaining and iii) collective action, as well as better wage and working conditions, which was called as “the Great Worker Struggle”. For three months in 1987, strikes occurred 3,235 times and went to extremes in August where total participants in the strikes were over 1.2 million workers (MOL, 1998). This compares with total strikes of just 1,638 (total participants were 228,495) in the period 1977–86.

Paradoxically, democratisation resulted in a massive shift in the balance of power between business and the state (D’Costa, 2018; Kim, 1999; Lim, 2010). First, democratisation created a wedge in the alliance between business and the state. Politicians did not ignore the growing pressure from civic organisations such as the Citizens’ Coalition for Economic Justice which sought the dissolution of chaebols and elimination of the concentration of economic power (FKI, 2011). Chaebols, meanwhile, began to more aggressively assert their political opinions and announced they would not fund political parties which would not support a free-market economy, in other words, deregulation for chaebols (Kim, 1999). Because politicians and political parties turned to the chaebols for funds in the face of regular elections in a democracy, they were not free from chaebols’ political leverage based on their economic power (Lim, 2010). The record of the FKI also shows the critical change of power relations between them at a turning point in 1987:

In Chun government, the FKI accepted a government policy but required the government to improve some points, while in Roh government the FKI exercised its voice against a policy most strongly. [...] to the point of challenging the government in early 1990s. [...] Chung Ju-Yung (the chairman of FKI during 1977–87) tried to smooth things out with the government while arguing the transformation from state-led to market-led economy. Koo Cha-Kyung (the chairman of 1987–89) who experienced Roh's declaration and regime change responded by not funding the ruling party if the government practice incoherent policy. (FKI, 2011: 262)

Chaebols blocked reforms that Roh government would introduce a real-name financial transaction system and strengthen taxation for non-business real estate, while winning deregulation from the government in terms of borrowing overseas funds, increasing overseas investment and entering financial business (FKI, 2011). The latter implies an independence of employers from government credit allocation and, as a result, the top thirty chaebols had forty-one financial affiliates in 1989. Finally, chaebols changed their economic power into political power in the way that Chung Ju-Yung, a chairman of the FKI as well as the founder of Hyundai Groups, ran for the 1992 presidential election, creating their own political party (the National Party).

The death of the developmental state was witnessed in Kim Young-Sam's government (1993–98) which was a conservative successor to Roh's government but the first civilian president after 1961. Kim's government continued to push for democratisation and undertook neoliberal economic reforms. A blueprint of the reforms was drawn up in the New Economy Five Year Plan in September 1993, abolishing the Seventh Plan (1992–96) that was established in Roh government. The New Plan included the Plan on Financial Liberalisation and Opening of Financial Market such as transformation into freely flexible exchange rates system and liberalisation of interest rates, exchange control and capital transaction (incremental reduction of foreign investment cap in domestic stocks and bonds step by step), which was established in June 1993 (EPB, 1993). According to the financial liberalisation, state-

owned banks such as Kookmin Bank, Korea Housing Bank, and Korea Long-term Credit Bank were privatised between 1995 and 1998. In 1994, Kim government abolished the EPB and established the Ministry of Finance and Economy (MOFE) to address liberalisation in financial markets.

Critically, for my interests, the state-led developmental skill formation was ended and transformed into a market-led vocational training policy under Kim government. Kim government abolished the training levy system, instituting the EIS (01/07/1995) which provided unemployment benefits by payroll tax. As the vocational training system was integrated into the Job Skill Development Programme (JSDP) under the EIS, the training levy also changed into part of the employment insurance premiums. The JSDP has a mechanism that, using payroll tax from employers, the government reimburses the actual costs of employers who train their employees. When the government decided to introduce the EIS in the policy making process of the 1993 New Plan, the FKI persuaded the government to abolish the training levy because the payroll tax of the EIS would produce a double burden on employers that had experienced the training levy as a quasi-payroll tax since 1986 (FKI, 2011; KRIVET, 1998). The KERI gave a much bolder argument that the MOL should pull out of vocational training policy (Park, 1992; Choi, 1997). In consequence, the government abolished the training levy system for employers with fewer than 1,000 employees in 1995, but not for the largest employers with more than 1,000 employees till 1997, for fear that a sudden abolition of the whole levy system would accelerate the skills shortage. As the coverage of unemployment benefits increased and insured all workers in 1998, the coverage of vocational training was also expanded from workers in firms over a certain size in a few major industries to all workers in all industries. For SMEs with little capacity in training their own employees, the government enabled profit corporations to participate in provision of training services (Interview 6). In addition, the government privatised eight public training centres under the MOL and

the Korea Vocational Training Management Corporation (KVTMC: a public institution of the MOL) by transferring to the KCCI in 1994 (MOL, 2006).

Meanwhile, labour market policy and education policy also changed. First, we see that the government began to rely more heavily on macroeconomic policy to reduce unemployment and to control wages in the labour market. While assigning vocational training to market competition, the government focused on active labour market policies (ALMPs) (EPB, 1993; Jang et al. 2009; MOEL and KRIVET, 2012). Besides the Unemployment Benefits Programme and the JSDP, the EIS included the Employment Security Programme (ESP) such as employment subsidies and job creation scheme. The KVTMC was renamed to the Human Resources Development Service of Korea (HRD Korea) because the government changed tasks of the public institution from vocational training policy into employment promotion and security policy under the EIS framework (MOL, 2006: 261, fn.26). Second, we observe, as part of liberalisation agenda, significant reforms in higher education policy which would help general skills formation. As democratisation triggered the ‘education fever’ among the middle class, Kim government deregulated the strict admission system and the establishment of new universities which had hindered a massive increase in undergraduate student numbers (Fleckenstein and Lee, 2018). The college entrance rate more than doubled from 33.1 per cent in 1991 to 66.6 per cent in 1999 (the Statistical Yearbook of Education, the Ministry of Education). This also affected public vocational training. Between 1994 and 1997, the government reorganised six public training centres and eleven vocational school of the HRD Korea into the Polytechnic colleges with two-year junior courses (MOL, 2006).

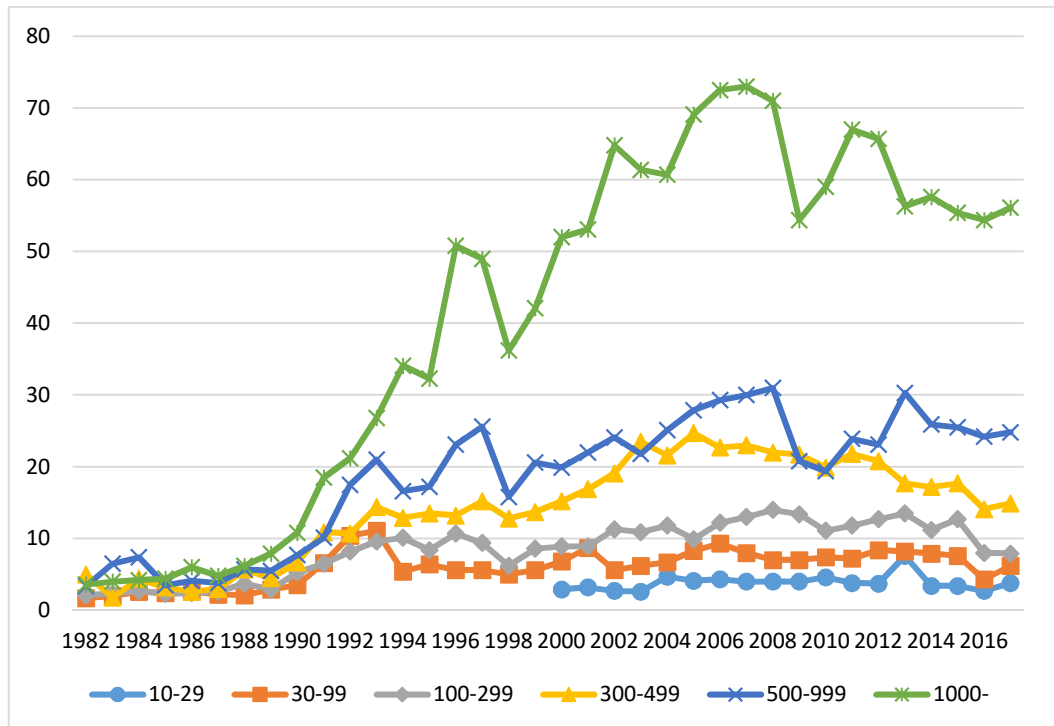
The growth of the labour movement and the increase in access to higher education in the aftermath of democratisation and liberalisation encouraged large employers to adopt new strategies in the sphere of industrial relations and training. First, while the state took a back seat in industrial relations, large employers facing wage rises and frequent strikes sought to have unilateral control over the firm. Through the ‘New Management Strategies (NMS)’, the

actors strengthened line management on the shop floor and company culture campaigns, and invested in downsizing, automation, offshoring, and outsourcing (including use of irregular workers) in order to control employees and reduce labour costs (Kim, 2018; Park, 1991; Yang, 2017; Interviews 1, 2, 15, 19, 20). As a result, the ‘laboursaving’ strategy, especially in knowledge-based high-tech industries, accelerated the shift from firm-specific skills to general skills formation. In order to support rapid innovation in the face of growing global competition, large employers invested in research and development (R&D) and focused on core workers with high levels of general skills who would be fetched in the external market or in universities and postgraduate schools (Lee 2011; Jung et al. 2005). While renovating old in-house training centres into high-end ones to develop highly specialised technologies, large employers (e.g., Samsung, Hyundai, LG, and Daewoo) during 1992–95 established their own corporate universities or MBA courses in concert with universities (Choi, 1997: 42–45). On the other hand, the investment in plant and equipment for automation in manufacturing replaced workers with firm-specific skills with robots specialised for the manufacturing process. This caused a ‘deskilling’ (Park, 1990). Trade unions, however, were excluded and not given an opportunity to participate in the changes in skills formation (Park, 1990; Interview 1). From the case of the Hyundai Motor Company during late 1980s and 1990s, Jo (2004) shows that a ‘flexible automation’ in the production line ruled workers out of the line, while the firm developed general skills programmes such as communication and leadership for technicians and engineers rather than on-the-job training for craftsmen.

In contrast, the transformative changes of skill formation were unfavourable for SMEs relying on the public training system and vocational high schools that fostered young workers with industry-specific skills. First, the private training corporations under the EIS tended to provide general skills, especially suited to service sector jobs: for instance, a number of English language, cooking, hairdressing, and computer schools were approved by the gov-

ernment (Interview 6). Second, SMEs faced difficulties recruiting workers with higher education, compared with than large employers. The general skills taught in universities were not practical to SMEs who needed workers with industry-specific skills, while a large number of graduates who paid a high price for college degrees were reluctant to join SMEs due to low wage and working conditions compared to large employers. Because SMEs lacked capacity in equipping their own training centres and attracting graduates, the abolition of public training institutions precluded productivity improvement and thus investment in training. Figure 16 shows the investment in vocational training by firm size. The gap between large employers (especially the largest ones with more than 1,000 employees) and SMEs has rocketed since 1987. During 1982–88, SMEs with fewer than 300 employees invested in training as much as 53 per cent of large employers' training cost, but in 1989 the ratio started to slump to 39.2 per cent, and then to just 16 per cent on average during 2000–2017.

Figure 16. Annual investment in education and training per employee by firm size in whole industries during 1981–2017



Source: Numbers are extracted from the Reports on Enterprise Labour Cost of the MOL (1982–2017).
 Note: Education and training cost includes direct or indirect cost related to training and education; remuneration to lecturers and instructors belonging to the enterprises, operating and depreciation expenses of equipment, expenses entrusted to others, tuition fee paid to employees; the unit on the left axis is 1,000 KRW.

Although, democratisation contributed to the rise of unionisation, union power was still weaker than the power of employers and the state. The “Great Worker Struggle” in 1987 led to legalisation of industrial unions in 1987 and establishment of the Korean Trade Unions Congress (KTUC; predecessor of the Korean Confederation of Trade Unions (KCTU)) in 1990 at the peak level. The KTUC disagreed with the FKTU’s cooperative and moderate attitude toward state and capital launched an independent democratic labour movement. However, unionisation was not applicable for all workers. Due to the difference in financial capacity and numbers of workers, unionisation of SMEs was less than that of large employers and the gap was prominent in manufacturing: in 1988. For example, 82 per cent of large employers with 500 or more employees (84 per cent in manufacturing) was unionised, while the rate was 7.5 per cent in small firms with ten to twenty-nine employees (1 per cent in

manufacturing) (Yang, 2017: 109, Interview 22). Political activities of trade unions, intervention of third parties and establishment of multiple trade unions were not legalised until the amendments of TUA in 1997 and 2001.

Exogenous shocks of globalisation and the Asian financial crisis during the late period of Kim government accelerated transformative changes in terms of skill formation system, affecting the power relation between employers and the state. First, globalisation strengthened the predominance of Korean employers, rather than the state. Employers thought that deregulation in the labour market and extension of capital investment in plant equipment could be effective strategies for improving productivity and efficiency. The FKI took the lead in the establishment of the Civilian Committee for Promotion of National Competitiveness in October 1993, involving other four employers' associations (FKI, 2011). A special committee for deregulation established by the FKI in 1995, furthermore, published one hundred of core tasks for deregulation of five policy-sectors as finance, foreign investment and trade, labour market, fair trade, and land in 1996, which would pressure the government to make deregulation. In the face of fierce global competition employers threatened the government that they would hollow out the manufacturing industry and move to developing countries if policies were not reformed (Fleckenstein and Lee, 2017). Accordingly, Kim's government accepted them as one of key policy objectives which was epitomised as the rubric of *Segyehwa* (globalisation in English). Meanwhile, Korea joined the World Trade Organisation (WTO) in 1994 and the OECD in 1996.

The financial crisis in 1997 also undermined the position of the state. The crisis discredited both employers and the state as the main culprits of the crisis on charges of the collusion between the state and chaebols. But the changed circumstances after crisis were entirely favourable to large employers. Kim Dae-Jung's government (1998–2002), a left-centre one, agreed a structural reform package as a prerequisite for the bailout from the International Monetary Fund (IMF). One of the core policies that were agreed as the 'global standard' was

to implement measures of improving labour market flexibility and capital market liberalisation earlier than scheduled in the previous Kim government. The labour market deregulation that legalised collective dismissals and dispatched workers agencies brought an increase in mass unemployment and irregular workers. The expansion of shareholder capitalism made chaebols more attentive to short-term profitability: thereby preferring to poach other companies' skilled workers rather than investment in training their employees which would be profitable in the long run (Interviews 1, 2, 4, 8, 16, 19). Consequently, the crisis solidified the power asymmetry between the state and employers.

In summary, the developmental skills formation system was abolished when the training levy system was replaced by the EIS in mid-1990s. The transformative institutional change was also endogenous: the causal force was the power shift between business (especially large employers) and the state in the wake of democratisation and economic liberalisation during late 1980s and early 1990s. Globalisation and economic crisis had also a great impact on Korean economy. However, they were not critical but expedited and solidified the institutional setting that already had changed prior to the exogenous factors. What kind of economy has Korea been transformed to? Some scholars link the post-developmental model with neo-liberal state (Heo and Lee, 2017; Kim, 1999; Lee and Han, 2006; Lim and Jang, 2006; Pirie, 2005, 2018; Sitera, 2014), while the other scholars argue that Korea remains a hybrid of developmental state and neo-liberal state (Hundt, 2014; Park, 2013; Uttam, 2019; Witt, 2012). My study shows that Korean vocational education and training was transformed from specific skills to general skills formation system of a LME type (Fleckenstein and Lee, 2017, 2018). The Korean case supports the idea that incremental change can attain a transformative threshold (Mahoney and Thelen, 2010; Streeck and Thelen, 2005; Thelen, 2004), because the institutional power asymmetries shaped the dynamics of social coalitions against institutional stability (Capoccia, 2016). In Korea, a segmentalist coalition between large em-

employers (mainly the FKI) and the state, as Busemeyer (2011, 2012) shows in the case of Germany, played a critical role in the paradigmatic change. Unlike the BVTA reform, it transformed the vocational training system because large employers had political power over the government after democratisation. This also supports the findings that countries where large export-oriented employers and their associations are the dominant actors tend to expand general skills orientation and result in transformative institutional change as segmentalism literature shows in the case of Switzerland (Culpepper, 2007; Trampusch, 2010a, 2010b).

5. Causes and Consequences of Low Skills Equilibrium

Despite the major reform of vocational training in mid-1990s, the Korean economy is caught in a trap of low skills equilibrium where low skills development and low productivity cause a vicious circle of low investment in skills, while a few large firms in the manufacturing sector have high skills. The ratio of training costs to total labour costs of employers was 2.1 per cent in 1996 as the peak, but declined to 1.2 per cent in 1998 and 0.5 per cent in 2017 according to the Report on Enterprise Labour Cost Survey of the MOEL. The gap of investment in training between large employers and SMEs has continued unabated during 2000s as we saw in Figure 3. Meanwhile, job creation for the unemployed has been a ‘number one’ pledge of every presidential candidate, on either left or right, in every election, since the economy was stuck on a plateau of low growth after 2002. In Korea, ALMPs are underdeveloped and Korea underspends compared to OECD countries. Direct job creation has become the dominant programme among ALMPs (Yang and Jung, 2015).

To address the market failure problem in the provision of skills, the Korean government has implemented a series of policy reforms that would invigorate vocational training. First, to reduce the gap between large firms and SMEs, the government allowed SMEs to get preferential treatment in reimbursement for their training costs and to share larger firms’

training facilities and programmes (e.g., the ‘SMEs Training Consortium’ established in 2001). Secondly, the government introduced an apprenticeship-based education and training system from Germany and Switzerland. It is the ‘Work-Study Dual System’: employers provide young people with on-the-job training that complements theoretical education in schools, while government supports training costs of employers. Lastly but most importantly, the government introduced sectoral and regional councils, led by employers’ associations, from LMEs like the UK, Canada, and Australia. In 2018, there are sixteen Sector Councils (SCs), seventeen Industrial Skills Councils (ISCs), and sixteen Regional Skills Councils (RSCs) around the country. These ad hoc and heterogeneous efforts have proven to be ineffective.

What explains Korea’s undeveloped vocational training system and low skills equilibrium? The statement that Korea has become an LME after the end of the developmental state is not the only answer. That being said, one question still remains: why Korea has failed to generate the skills formation system for higher productivity like the corporatist model of CMEs or a new post-developmental state model? To answer this question, this section analyses why Korean employers’ associations and trade unions have no strategic capacity which is crucial to operating collaborative vocational training schemes. It examines how the absence interfered with cross-class coalitions and how the severe hierarchical production regime and dualism in the labour market undermine any effort on vocational policies by government.

5.1. Weak strategic capacity as legacies from the past

In the first section, the literature review on segmentalism elucidated the difference of skill specificity preferences and divergent attitudes over training costs between employers, which sets off business cleavages. This holds true for Korean employers. The second section showed that skill preference of large employers was transformed from firm-specific to general skills, while SMEs still prefer industry-specific skills. Although there are no accurate measures of

skill specificity, we can infer it from average education level of workers: other things equal, a tertiary education level is presumed to represent general skills. In Table 7, the Workplace Panel Survey (WPS) dataset of the Korea Labour Institute (KLI) shows that non-tertiary educated workers work more in SMEs than for large employers in manufacturing in 2013. Given that the smallest firms with below 30 workers and largest firms (chaebols) are neither included nor identified in the dataset, we can assume there is in fact a greater differential in skill specificity between SMEs and large employers.

Table 7. Average education level by firm size in Korean manufacturing in 2013

	Firm Size (number of workers)			
	30–49	50–299	300–	Total
Secondary education and below	69.4%	62.4%	51.0%	61.0%
Tertiary education level and above	30.6%	37.6%	49.0%	39.0%
Observations	186	346	206	738

Source: Author own extracted from the WPS (2013 wave) of the KLI.

Note: Public corporations are excluded.

Different affordability of training between employers also contributes to the cleavage. According to the interviews with experts, large employers have their own human resources departments or training centres, but SMEs, especially those with fewer than 50 employees, lack the personnel and physical resources for training employees (Interviews 4, 5, 7, 9, 13, 14, 22). Korean SMEs have two additional reasons why they are reluctant to train their workers, which are not highlighted by the segmentalism literature. Interviewees responded that SME employers fear pauses in production due to difficulties of affording a replacement during off-the-job training (Interviews 3, 4, 8, 10, 13, 14, 15, 19) and a turnover of staff who trained to other firms providing higher wages and better working conditions: i.e. ‘poaching’ of skilled workers by large employers (Interviews 4, 8, 14, 16, 19, 22). Panel survey data lends strong support to the interview data. The Human Capital Corporate Panel (HCCP), provided by the Korea

Research Institute for Vocational Education & Training (KRIVET), and the WPS of the KLI show the difference of personnel and physical resources for training by firm size: 16 per cent of SMEs with 30–299 regular employees have a division in charge of vocational training (WPS, 2015), while 45 per cent of large employers with more than 300 regular employees, especially 93 per cent of largest firms with more than 2,000 ones, have their own training division (HCCP, 2015; WPS, 2015). In terms of training facilities, 86 per cent of SMEs have no facilities, but 57 per cent largest firms with more than 2,000 workers have own separate training facilities (HCCP, 2015). This brought out the differential in the investment in training between large employers and SMEs as shown in Figure 3.

Despite differences between employers, Korean intermediary organisations have no strategic capacity for resolving this problem. At the peak level, Korean employers are segmentalised into five associations: the FKI, KCCI, KITA, KBIZ, and the KEF. Although the FKI and the KEF that represent large employers (especially chaebols) are powerful, they failed to encompass and mobilise a wide range of employers with different interests. The power differential between associations is due to the difference in degree of autonomy from the government. The FKI and the KEF are voluntarily established by large employers and fully self-funded by annual contributions from its membership (Interview 4). The power to pressure the government to liberalise the financial sector and deregulate labour market during 1990s came from the large measure of autonomy (Lee, 2001). In contrast, the KCCI, the KITA and the KBIZ were not powerful. They were (re)established by special laws during Park government: the KCCI and the KITA had existed since 1945 and the KBIZ in 1962 as the statutory bodies representing interests of exports, local business and SMEs, respectively. They financially depended on the government in ways that the laws imposed membership fees on firms on behalf of associations and entrusted government affairs in replacement of providing government subsidies (Interviews 6, 22). For instance, the SME Cooperatives Act (27/12/1961) contained the entrustment of government business to KBIZ (Clause 74) and

government subsidies (Clause 101). This potentially undermines their capacity to formulate a collective strategy for their members because they have an incentive to pay more attention to government interests rather than their members' (Lee, 2001). The problem of strategic capacity is most acute for KBIZ with low organisation rate and low self-reliance ratio. Only 2.3 per cent of total SMEs registered in KBIZ in 2006 and income from membership fees accounts for only 4 per cent of total budget of KBIZ (Lim, 2013: 243). An interview with the KBIZ representing SMEs explains many restrictions on their autonomy:

Because we are mostly subsidised [half of the operating costs] by the Ministry of SMEs and Startups (MSS), controlling/surveillance of the government is severer. [...] Because the KBIZ is a special corporation established by law, when we want to do business we cannot act as autonomously as the FKI. The business should be put into statute. [...] If the KBIZ phases out its reliance on the subsidy or if the subsidy is not reduced by the government even when we have a different view from the government, I think we can bring forward views of SME employers. (Interview 22)

It seems consequently natural to see that employers' associations, either one of large firms or of SMEs, have no interest in training for their members. Especially, the low strategic capacity (i.e., weak institutional power) of KBIZ interferes with the development of industry-specific skills which most of them rely on in workplace. They cannot do so by themselves nor by lobbying the government to do so. Rather they focus on addressing urgent issues on wage and working conditions brought up by government or trade unions.

KEF at the national level speaks for mostly large companies. Because we think that large companies can invest in training on their own, our political interest is far from training. (Interview 4)

[While] training programmes are targeted at directors and staffs of the KBIZ and CEOs of SMEs, we have no separate function or role for vocational training issues. (Interview 22)

The situation in the sectoral level is worse than that in peak-level associations. The authoritarian government developed and controlled the industry by legislating special laws that established many sectoral business associations during 1960–70s (Interview 21; Kim, 2003; Park et al. 2016). Six out of seven sectoral associations I interviewed were statutory organisations. Instead of receiving a membership fee, they virtually rely on earnings from consigned government projects such as certification of qualification so that they tend to follow the government’s position rather than speak for their company members’ one in the case of interest conflict (Interviews 1, 3, 4, 5, 6, 12, 18, 21). In particular, one expert of the KRIVET explained that:

In Korea, employers’ associations established in 1960–70s were ‘lower delivery systems’ of the developmental state for allocating funds for export support or import of raw material. They were not true ‘associations’ from the bottom, but just delivery systems from the top. (Interview 1)

The statutory schemes are now abolished, but their dependence on government subsidies has still been substantial. Accordingly, the weak strategic capacity of employers’ associations hinders the development of collaborative training system in inter-firm relations, especially industry-specific skills which are important to SMEs. Although some sectoral associations have conducted mandatory training programmes pursuant to relevant laws (Interviews 7, 12), most pay less attention to training for company members: training is regarded as something inferior to the issues on promoting the industry (Interviews 5, 11) or a sort of ‘earning business’ to cover their operating expense (Interviews 7, 11).

Another feature of Korean employers' associations compared to advanced capitalist economies' ones, pointed out by interviewees of think tanks, is the common practice of 'parachuting' executive from the government to the associations (Interviews 1, 21). In fact, five full-time vice-chairman out of the seven sectoral associations interviewed are retired civil servants who came from the Ministry of Trade, Industry and Energy (MOTIE: the former was the MOCI), which is in charge of industry policy. Only exceptions are the Korea Financial Investment Association (KOFIA) where the relevant job position does not exist and the Korea Foodservice Industry Association (KFIA) whose 'line' ministry is the Ministry of Food and Drug Safety (the MFDS), not the MOTIE. This holds true for the peak-level associations which seek to pursue a cooperative relationship with government. In 2019 now, the KEF, the KCCI and the KITA have full-time vice-chairman from retirees of the MOTIE, while the FKI and the KBIZ have ones from the MOFE and the MSS, respectively. This also exemplifies the legacies of the developmental state and its top-down nature. That said, the retired civil servants plays no role in making business more collaborative to develop training and skills. This is because their role is restricted to go hand in hand with the government so as to increase opportunities for government subsidies. The government also gives a lower priority to skills formation than job creation.

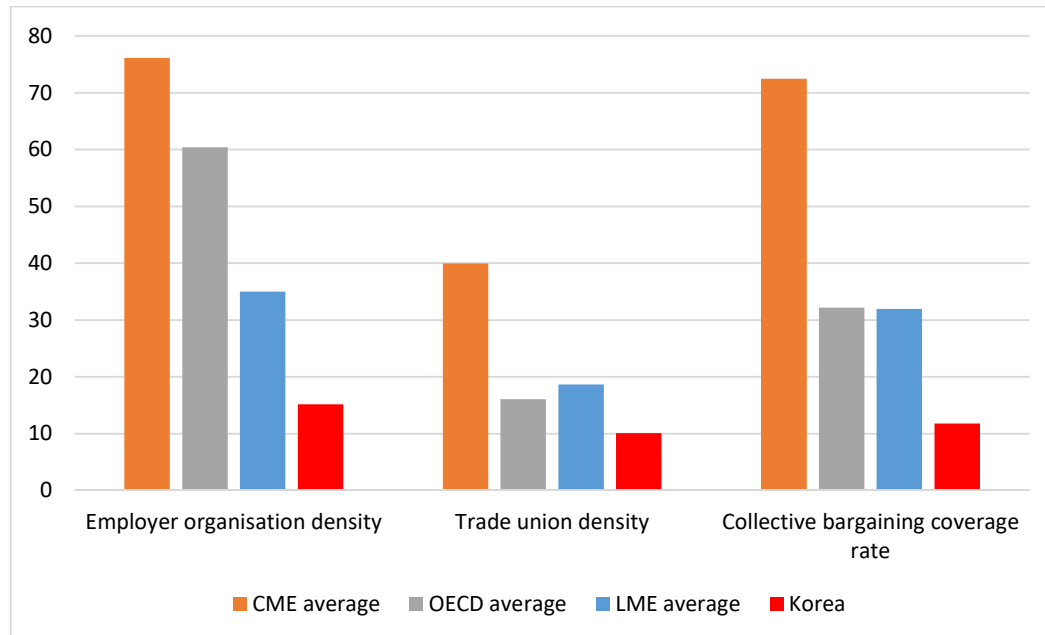
Weak strategic capacity from legacies of developmental state is also identified in the area of trade unions. There are two peak-level labour confederations: the FKTU and the KCTU. Sectoral and company unions mostly belong to one of the two. However, the prominence of enterprise unionism and long-lasting suppression of the state made the unions less powerful and less organised (the union density is 10.7 per cent in 2017). The authoritarian regime disbanded the establishment of other peak-level and sectoral unions except the FKTU because any labour movement was regarded as a serious impediment to using cheap labour which was a prime advantage for the export-oriented industrialisation (Ashton et al. 2000;

Yang, 2005). The enterprise unionism provided the institutional underpinning for the predominance of business unionism even after the collapse of development state model. Although a social movement unionism had its earliest beginning through the Great Labour Struggle of 1987 and the establishment of the KCTU was the fruit of the efforts, the KCTU peak-level leadership had little capacity to make a class consciousness among workers and increase inclusiveness towards outsiders (Fleckenstein and Lee, 2018; Interviews 1, 5, 8, 20, 21). Because the upper trade unions rely on check-off that is the deduction of union subscriptions of enterprise unions (especially from large employers' unions) at source, the policy capacity is limited by the constituency of chaebols' unions that is narrowed to the interests within their workplace (Interview 13).

The enterprise unionism in favour of chaebols unions and low unionisation of SMEs weaken the strategic capacity of sectoral- and peak-level trade unions. First, it precludes higher level of collective bargaining and wage compression within workers, which are indispensable to the development of industry-specific skills. Low-skilled and irregular workers in SMEs bear the brunt of this because most of them are not unionised (Interview 22). Second, the peak-level unions lose the capacity to formulate a collective skill development because the check-off is unable to afford to hire staffs who are dedicated to the issue (Interviews 13, 21). For these reasons, there is very little compelling evidence that trade unions have made an effort for skills development. When looking at the news release of the two peak-level unions, we know that the KCTU has never produced postings on training and skills since 1999. Interestingly, the FKTU started taking an interest: there are an agreement with KRIVET to cooperate vocational training for SMEs workers in 2006 and a joint workshop to encourage union members to participate in training policy in 2015 (FKTU, 2006, 2015; Interview 19). The difference between two unions seems to be due to the membership composition. Most unit unions of the FKTU are SMEs, while the KCTU consists of large employers in manufacturing industries such as automobile and shipbuilding (Choi, 2011).

Taken together, the lack of strategic capacity of segmentalised employer and union groups hampers the development of non-market coordination of industrial relations in Korea, especially collective bargaining at sectoral and peak level. The consequence is the differential of investment in training between large employers and SMEs and the underdevelopment of industry-specific skills. This means that the current Korean skill regime is not a CME type, but close to a LME type. In Figure 17, the organisation density and collective bargaining coverage shows that Korean employers' associations and trade unions are much more fragmented and decentralised than the ones in CMEs, OECD average, and even LMEs. The Korean case is in line with Estonia and Spain that experienced institutional change into LMEs due to the tradition of fragmented and weak employers and unions (Feldmann, 2007; Molina and Rhodes, 2007).

Figure 17. Employer organisation density, trade union density and collective bargaining coverage rate in 2016 or closest year



Source: OECD (2019).

Notes: CMEs are Austria, Belgium, Denmark, Finland, Germany, Japan, the Netherlands, Norway, Sweden and Switzerland, while LMEs are Australia, Canada, the UK and United States; in terms of employer organisation density, there are missing data on Australia, Canada, United States, Japan and Switzerland; densities are a percentage of employees, while coverage rate is a percentage of employees with the right to bargain; CME and LME average are calculated by author; OECD average is the employee-weighted averages across countries.

5.2. Unintended, pathological outcomes: hierarchical production regime and dualism

The weak strategic capacity of employers' associations and trade unions produced unintended consequences in Korea, namely, hierarchical production regime and labour market dualisation. Causes of the pathological outcomes again go back to the legacy of the developmental state model. However, they lead to institutional reproduction of low skills equilibrium after the transformation.

The hierarchical inter-firm relation traces its history back to 1970s when the HCI drive produced a high level of economic concentration in large employers (especially chaebols) under the auspices of the authoritarian regime. Large employers that achieved the export goal set by government were provided with credit allocation through state-owned commercial banks, while SMEs were quintessentially alienated from the policies. The Promotion of Alliance between Small and Medium Enterprises Act (31/12/1975) unexpectedly made SMEs more vertically integrated into large employers in the way of subcontracting arrangements: the main contractor (mostly chaebols) assigns the manufacture of parts of a product to subcontractors (mostly SMEs), in which the subcontractor must supply them to only the main contractor under an exclusive contract. Due to power asymmetry between them, generally this means an unfair business relationship, which is symbolised as the so-called '*Gab-Eul* relationship': '*Gab*' (a more powerful party, main contractor) and '*Eul*' (the other party, subcontractors). It is different from outsourcing where subcontractors are subcontracted to various firms and thereby able to supply their product or service to the market. The ratio of subcontractors to total SME manufacturers, 19.7 per cent in 1971, increased to 34.7 per cent in 1981 and 66.0 per cent in 1998, but since 2000s has decreased to 59.2 per cent in 2006 and 44.5 per cent in 2017. A more extreme case is 'in-house subcontracting' where subcontractors' workers are dispatched and engaged in production lines of the main contractor. Being supervised by the main contractor, dispatched workers work together with full-time employees of main contractor on the same production process. For instance, in a car assembly line

in automobile manufacturing, dispatched workers assemble and install engine, hood, windows and wheels, paint car body and load cars for shipping. However, they are paid much less than the main contractors' employees just because the companies are different. One study using the 2012 Employment Status Survey of the MOEL shows that 61.6 per cent of 1,895 workplaces of main contractors with more than 300 employees surveyed used in-house subcontracting and the number of workers employed by the subcontracting was 388,661 (Kim, 2015: 3). It also suggests considerable wage gaps between the workers of main contractors and subcontractors: the wage of the latter was 65 per cent of the former's in manufacturing industries (Kim, 2015: 11). The long-standing practice of in-house subcontracting was made illegal by the Korean Supreme Court in 2015, but still exists informally in manufacturing industries.

The problem of subcontracting arrangements is to disincentive the investment in training and skills for all firms and workers involved. As a monopsonist, the main contractor exacts information on production costs from subcontractors and imputes its own business risk to them by lowering the purchase price of parts and delaying the payment. Main contractors are likely to relax efforts on training and skill development because: first, they can do business by exploiting the profit of subcontractors (Interview 5, 19); second, they can replace old subcontractors with new ones with cutting-edge technology and production process unless the subcontractors monopolise the supply through specific technology in the market (Interviews 2, 4). On the other hand, this discourages subcontractors from developing their own workers' skills. The interviewee of trade unions explained that:

For an example of automobile industry, Hyundai Motors and Hyundai Mobis know a detailed financial structure of their subcontractors 'like the back of their hands'. Even about all production costs including labour costs. In this situation, subcontractors do not have any incentive to increase production costs by investing in training for themselves. (Interview 13)

Rather, if subcontractors seek to bring new clients in, this is a break of subcontracting arrangements which is attributable to subcontractors (Interview 14). In addition, subcontracting arrangements generate a one-way flow of labour. Competent workers of subcontractors are likely to be poached by the main contractor (especially chaebols) which can afford a high level of company-based employment protection and welfare (Interviews 4, 8, 14, 16, 19). In contrast, skilled workers of main contractors are reluctant to work in SMEs as subcontractors due to the differential wage and company welfare and given the low level of unemployment benefits, so that they tend to cling to current employment within the company (Interviews 1, 2, 4, 13, 18).

Once one is over the fence of Hyundai Motors, the individual cannot enjoy the similar level of wage, company welfare and employment protection like those in Hyundai Motors any more. Nowhere. Once going outside, they will fall off the cliff. (Interview 2)

Accordingly, this jeopardises both main contractors and subcontractors. The HCCP survey data (2015) supports this: for total 474 firm samples, the difference of investment in training per person between main contractors and subcontractors (305,303 and 63,807 KRW) is larger than that between large firms and SMEs (373,936 and 159,185 KRW), while the former's training investment is less than the latter's one.

On top of that, the hierarchical business community dampens any efforts of employers' associations for collective vocational training schemes. Main contractors relying on firm-specific or high specialised skills tend to not cooperate with others within the industry because they do not have any business interests in developing skills beyond the company (Interview 21). For instance, some interviewees of ISCs and RSCs stated that main contractors do not share information on the plan of personnel demand and the system of job competency which would expose confidential information to the competitors within the industry (Interviews 5,

7, 15). The interviewee of RSC in Ulsan that is well known as manufacturing industry with subcontracting arrangements described this:

For subcontractors, difficulties of their business are mostly related to the demand for main contractor, such as the requests of increasing a unit cost, supporting more funds and better industrial relations and so on. ... In our council meeting, however, participants of subcontractors do not 'breathe a word' if anyone from their main contractor also participate in the same meeting. (Interview 8)

The subcontracting relationship including in-house subcontracting resembles neither CMEs where one firm is based on 'close inter-firm collaboration' with other firms in the industry, nor LMEs where their relationships are at 'arm's length' but are characterised by market competition and formal contracting (Hall and Soskice, 2001). Korean inter-firm relations, especially between large employers and SMEs, are close within a narrow range of specific production systems but they are hierarchical and unilateral, informal, and exploitative. Rather than just an outcome, the hierarchical production regime now militates against greater vocational training, undermining any government effort to boost the autonomous administration under business responsibility. Under the power imbalance between employers and the state, the government no longer has a steering capacity for employers and their business associations as with the past developmental state model.

The hierarchy in production system and inter-firm relations has a huge impact on the Korean labour market: dualisation between insiders (i.e., full-time employees with permanent contracts) and outsiders (i.e., temporary, part-time, and dispatched workers). The insider-outsider cleavage has been set off since the Great Labour Struggle of 1987. Facing the pressure for higher wages, large employers 'internalised' their employees by providing employment security, seniority wages, and firm-based training on the one side, and they sought to pursue deregulation of the labour market which made the most of irregular workers, especially dis-

patched workers of subcontractors, on the other. One study shows that Korean large employers transfer the cost of wage rigidity due to the seniority-based wage system to subcontractors, thereby exaggerating wage inequality between workers (Woo and Cho, 2016). Mass unemployment in the aftermath of the Asian financial crisis entrenched the problem in the way of business unionism that insiders (trade unions of large employers) represent somewhat narrow gains in the workplace at the expense of outsiders. An interviewee of trade unions stated:

Before the crisis, large companies did not squeeze subcontractors or impute their costs to them. They sometimes transferred technology to subcontractors to increase product quality in a symbiotic relationship. However, after the crisis the relationship between them became unequal so that workers also have conflicts between themselves. [...] Between regular and irregular workers. (Interview 19)

The case studies of trade unions of Hyundai Motor Company (the largest automobile company of Korea with over 50,000 unionised workers of the KCTU) also provides compelling evidence on this. Two years after a mass dismissal due to restructuring in 1998, the enterprise unions made concessions that would increase the use of dispatched workers from subcontractors who were regarded as a “buffer” against market fluctuations in exchange for own employment security, but the unions continued to refuse to include them as union members (Interview, 21; Joo, 2002; Yoo, 2012).

The business unionism of coalition with large employers (i.e., a segmentalist cross-class coalition) ironically includes the seeds of conflict between them because of increasing differential between large employers and SMEs in terms of employment security and wage. As deregulation, globalisation, and the crisis seriously threatened workers of large employers, they (especially workers with firm-specific skills) became more aggressive in protecting their employment (Interviews 19, 21). This is incompatible with large employers that prefer general skills and labour flexibility. As trade unions (especially KCTU) have taken the road of

the hostile attitude to protect themselves from powerful employers and government, the industrial relations became conflictual (Choi, 2011; Interview 19). The militancy of trade unions which was effective against the authoritarian military regime in the process of democratisation was used against employers and democratic governments as well. Because the main issue of industrial relations in sectoral unions and national confederations is confined to employment security, wage, and working conditions on the floor shop, the issue of developing cospecific skills that requires extensive class coalitions across unions and cross-class coalitions with employers through collective wage bargaining has been put on the back burner (Interviews 1, 2, 11, 13, 17).

In sum, Korea has no institutional arrangements of powerful employers' associations and trade unions, and a large-scale cooperation between them. This is why any further progress towards a CME type in skills formation system is not on track. The presence of hierarchy and dualism ranging from production regime to labour market produced 'adverse institutional complementarities' with low skills formation system: the co-existence of a few large employers with high-level, firm-specific and general skills and SMEs with predominantly low-level and industry-specific skills. The 'two separate worlds' interfere with an efficient functioning of strategic capacity of social partners and cross-class coalitions for skill development.

6. Conclusion

From the findings of Korean case study, what are the implications for institutional change in training and skills systems? First, it seems reasonable to argue that segmentalist coalitions between large employers and the state do not always articulate with a transformative change. The literature on segmentalism highlights that segmentalist coalition promotes a pattern of incremental, but transformative change (Busemeyer, 2012; Thelen and Busemeyer, 2008,

2012; Trampusch, 2010a, 2010b). However, it is not at all clear why one segmentalist coalition terminates at minor adjustment and why the other coalition proves to be transformative through an accumulation of small adaptations. This paper argues that the underlying critical factor is power asymmetries between the involved. When large employers (or their associations) are not in a strong position compared to the state, the segmentalist coalition results in incremental, self-preserving institutional change, while when large employers become powerful the institutional change follows a transformative pattern.

Second, this paper shows that the transformative change can also be driven by endogenous sources, not only by exogenous factors. In the VoC framework, there are two extreme cases: stability by institutional reproduction and adaptation or change by an exogenous shock (Thelen, 2009). It finds it difficult to observe endogenous change though. This paper shows that institutions change endogenously when the sources such as political democratisation and economic liberalisation change power relations between political actors. Moreover, VoC scholars argue that employers in CMEs differently respond to competitive pressure in the face of globalisation from those in LMEs, without enforcing cross-national institutional convergence (Hall and Soskice, 2001). In this paper, globalisation, together with economic crisis, accelerated and fuelled the institutional changes that were already planned by contributing to shifting the balance of power toward employers and capital (Fleckenstein and Lee, 2017). Therefore, our findings support the conventional view and differ from the VoC argument in terms of the impact of globalisation on institutional change.

Third, this paper provides the micro-foundations of institutional change which are less explored in VoC and segmentalism literature. The micro-foundations vary in definition: ‘strategic capacity’ of political actors in the VoC world (Hall and Soskice, 2001); ‘political coalitions’ in literature on endogenous change (Thelen, 2004, Palier and Thelen, 2010; Thelen and Kume, 2006) or ‘coalitional dynamics’ in segmentalism literature (Busemeyer, 2011,

2012; Trampusch, 2010a, 2010b); ‘bottom-up process’ in Capoccia (2016). Based on empirical analysis, this paper argues that the micro-foundations are institutional power within and between actors which formulates a ‘collective strategy’ for the group and affects a shift in the coalitional base ‘from the bottom up’ and ‘before coalitions happen’.

Fourth, our conclusion that the legacies of fragmented and weak employers’ associations and trade unions at peak and sectoral level made Korean economy more towards a LME type, not CME type, offers some explanations for the transition literature. Rather than simply explaining that the associations and unions were strong or weak before transition, scholars should pay more attention to why their strategic capacity could be maintained irrespective of the state in some countries but undermined by the state in other countries and how the difference could affect the directionality of the transition and institutional change.

Fifth, the Korean case shows that dualisation is driven not only by a segmentalist coalition between large employers and trade unions, but also by an inter-conflict within them. Based on the VoC that emphasises the role of employers in forming producer group coalitions, segmentalism literature considers only the former (Busemeyer, 2011, 2012; Palier and Thelen, 2010). However, a conflict between them contributes to insider-outsider cleavages as this paper shows. The conflict is due to different skill preferences between large employers and trade unions that represent workers in large firms. Large employers easily change production system by employing new workers with general skills or replacing specific skills with automation, while old workers with firm-specific skills experience difficulties in adjusting to the transformation because learning new skills takes a longer time. In the absence of sufficient unemployment protection, workers (and trade unions) continue to require employment protection that large employers are unable to embrace. If trade unions are so strong and hostile that large employers seek to provide employment protection to avoid labour disputes, the conflict stiffens dualisation given that workers with industry-specific skills in SMEs are not

provided with employment security. Although segmentalism literature contributes to underscoring the presence of heterogeneity of skills even in one capitalist economy beyond the bifurcation of either specific skills or general skills, it centres on the difference between large employers and SMEs. This paper suggests that different skill preferences are also observed between employers and workers (or trade unions) and the conflict of skill preferences compounds dualisation in the labour market.

Lastly, the finding in Korea that developing training and skills formation system is much arduous rather than family policy, especially childcare, tells us the difficulty of balanced development between social investment policies. The unbalanced development undermines synergy effects between the policies in terms of ‘institutional complementarities’ (Hemerijck, 2017). It is very interesting that in the post-developmental state the state can be a main provider for childcare, but not training. This implies that a country is less likely to catch up advanced countries in terms of training and skills. This is because of the different underlying institutional intensity and politics between them. There are many interested groups and intensified institutions in inter-firm and industrial relations, while we cannot observe them in family system. Consequently, the power imbalance between employers and the state restricted the state’s role in industry and labour market policy but was not in family policy in Korea.

CONCLUSION

“Welfare states in both Europe and East Asia are very much in flux, facing challenges from old and new social risks in addition to considerable political pressures. Social investment policy is an important dimension in the search for new welfare state equilibria, [...]”

Fleckenstein and Lee (2021: 342-343)

Since the mid-1990s, Organisation for Economic Co-operation and Development (OECD) countries have developed social investment policies that include active labour market policies (ALMPs) and work-family policies (WFPs). Employing qualitative as well as quantitative methods, this thesis investigates the effectiveness and determinants of social investment policies.

The first paper tests the Matthew effect of social investment in terms of employment. It shows the existence of so-called Matthew effect that childcare and training benefit medium-educated workers in getting jobs more than lower- and higher-educated workers in fifteen European countries in the period 1992-2013. However, the existence of the Matthew effect differs across welfare state regimes. It does not exist on training and childcare in Nordic countries, but is pronounced in Southern and Liberal European countries, and exists only on training in Continental European countries.

The second paper, motivated by the intersectionality between class and gender, explores whether WFPs have the negative consequences in terms of gender equality and how the effects are different by women’s education level. This means the welfare state paradox and gendered trade-offs argument. Using macro-level data on fifteen European countries for 1992-2013, this paper finds that childcare and maternity and parental leave increase gender

occupational segregation. Especially, the negative effect for high-educated and high-skilled women is larger and more significant in Nordic countries than in non-Nordic countries in accordance with the paradox and tradeoffs argument.

Unlike the first and second papers, the third paper, focusing training, investigates the causal mechanism of how different skill preferences and different attitudes over training costs between employers, trade unions, and the state. An in-depth case study of South Korea shows that segmentalist coalitions of the three players play important role in changing institutions, skill formation systems, resulting in either an incremental institutional change or a transformative change of institutions. In particular, focusing on strategic capability of employers' associations and trade unions is important to understand the cause of segmentalism and dualism in advanced capitalist democracies.

Three broader contributions can be suggested. First, social investment policies may bear on the recent growth of atypical employment and dualisation of the labour market. Second, the WFPs in particular may be related to the growth of glass ceiling and female ghettos with possibly considerable gender inequality. Third, the detrimental distributional outcomes may be contingent upon unequal power relations between political actors and their segmentalist cross-class coalitions. Social investment policies have certainly contributed to the growth of employment, but the policies should pay more attention to the adverse effect on income equality and gender equality.

Appendix

Appendix on Paper 1

Figure A1. ALMP programmes in 15 European countries, 1992-2013 (as a percentage of GDP)

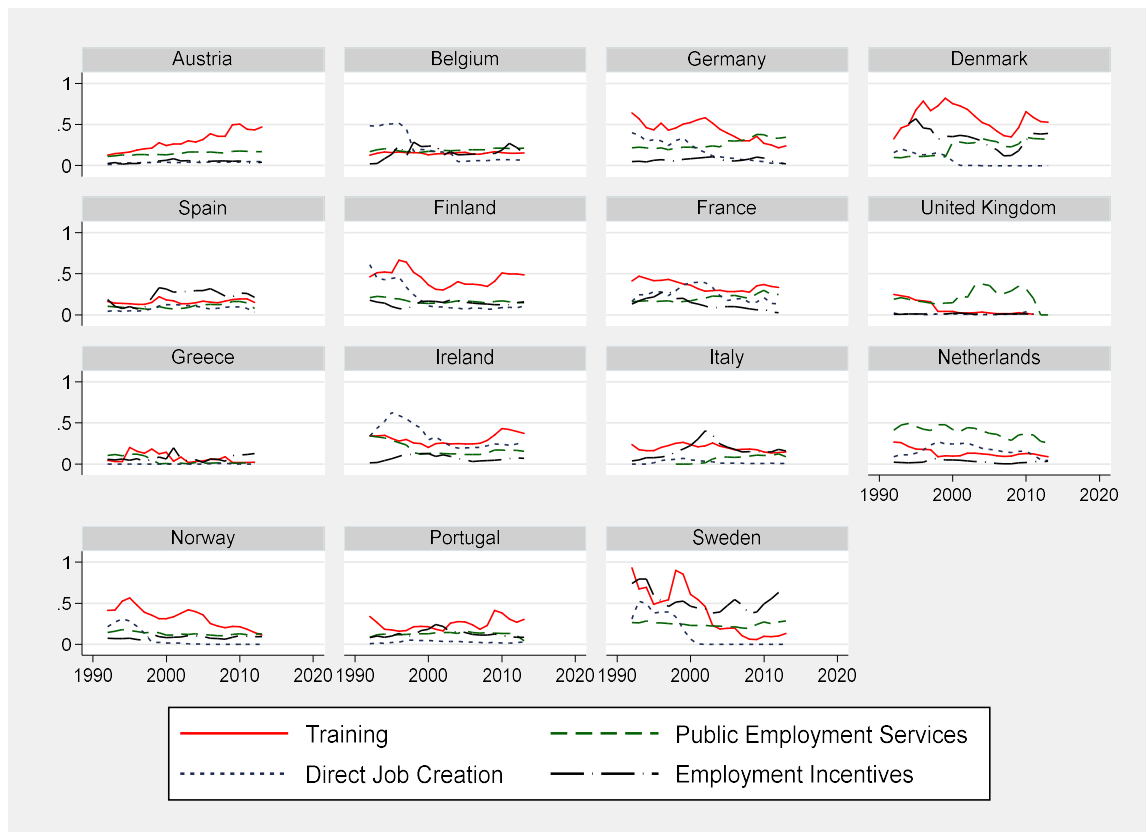


Figure A2. WFP programmes in 15 European countries, 1992-2013 (as a percentage of GDP)



Table A1. Variable definitions and sources

Variables	Description
Lower-educated (female) workers	Employment rate of lower-educated (female) workers who have educational attainment of below upper-secondary (ISCED levels 0-2) as a percentage of the working age population ^a
Medium-educated (female) workers	Employment rate of medium-educated (female) workers who have educational attainment of upper-secondary and post-secondary but not tertiary (ISCED levels 3-4) as percentage of the working age population ^a
Higher-educated (female) workers	Employment rate of higher-educated (female) workers who have educational attainment of tertiary education (ISCED levels 5-8) as percentage of the working age population ^a
Training	Public and mandatory spending on training in ALMPs as a % of GDP, divided by harmonised employment rate (HUR) and multiplied by 100 ^{b,c}
Childcare	Public and mandatory spending on early childhood education and care (ECEC) as a % of GDP, divided by early childhood population (aged 0-5) and multiplied by 100 ^{b,i}
Public employment services (PES)	Public and mandatory spending on public employment services (PES) and administration in ALMPs as a % of GDP, divided by harmonised employment rate (HUR) and multiplied by 100 ^{b,c}
Direct job creation	Public and mandatory spending on direct job creation in ALMPs as a % of GDP, divided by harmonised employment rate (HUR) and multiplied by 100 ^{b,c}
Employment incentives	Public and mandatory spending on employment incentives in ALMPs as a % of GDP, divided by harmonised employment rate (HUR) and multiplied by 100 ^{b,c}
Maternity and parental leave	Public and mandatory spending on maternity and parental leave as a % of GDP, divided by early childhood population (aged 0-5) and multiplied by 100 ^{b,i}
Unemployment benefits	Public and mandatory spending on unemployment cash benefit (unemployment compensation and severance pay) as a % of GDP, divided by harmonised employment rate (HUR) and multiplied by 100 ^{b,c}
Union density	Net union membership as a proportion of wage earners in employment (scaled 0-100) ^d
Wage bargaining	Coordination of wage-setting (scaled 1-5), ranging from 1 (local or company level bargaining) to 5 (national or central level bargaining) ^d
Regular EPL	Strictness of protection of regular workers against individual dismissal (scaled 0-6) ^e
Temporary EPL	Strictness of regulation of temporary forms of employment (scaled 0-6) ^e
Output gap	Difference between actual and potential GDP as a % of GDP ^f
Openness	Sum of exports and imports as a % of GDP ^g
Payroll taxes	Sum of social security contributions and payroll taxes as a % of GDP ^h
Under-15 population	Less than 15 years old as % of total population ⁱ
Over-64 population	Over 64 years old as % of total population ⁱ
Lower skill (female) jobs	% of lower skill (female) jobs (Groups 5 and 9; ISCO-08) among all (female) jobs for aged 15-64 ^j
Medium skill (female) jobs	% of medium skill (female) jobs (Groups 4, 6, 7, and 8; ISCO-08) among all (female) jobs for aged 15-64 ^j
Higher skill (female) jobs	% of higher skill (female) jobs (Groups 1, 2 and 3; ISCO-08) among all (female) jobs which are occupied by aged 15-64 ^j

Sources: ^a OECD WISE; ^b OECD SOCX; ^c HUR data source is OECD KEI; ^d ICTWSS; ^e OECD Employment Protection Database; ^f OECD NAS; ^g OECD Economic Outlook; ^h OECD Revenue Statistics; ⁱ UN World Population Prospects (2017 Version); ^j ILO STAT.

Table A2. Descriptive statistics of main variables

	Mean	Standard deviation	Minimum	Maximum
Employment rate of lower-educated workers				
Overall	50.77346	7.725569	33.8	67.7
Between		7.074699	40.09545	63.31818
Within		3.437845	40.18255	59.45918
Employment rate of lower-educated female workers				
Overall	41.69288	10.30651	21.2	60.3
Between		9.894207	27.94545	54.72727
Within		3.45677	32.37066	49.90652
Employment rate of medium-educated workers				
Overall	69.1644	8.538972	41.7	82
Between		7.980102	55.21364	79.57222
Within		3.574966	55.65077	82.35077
Employment rate of medium-educated female workers				
Overall	62.54854	10.9715	31.5	78.4
Between		10.44347	42.74545	75.61579
Within		4.119113	48.00763	76.50763
Employment rate of higher-educated workers				
Overall	83.22265	4.243039	68.2	91.2
Between		3.607195	75.67273	88.12222
Within		2.364788	72.74083	90.34993
Employment rate of higher-educated female workers				
Overall	79.68317	5.787524	59	89.9
Between		5.176504	69.52727	86.42778
Within		2.81122	69.1559	88.4559
Training				
Overall	4.140404	3.277677	0.0829553	17.38331
Between		2.812011	0.5097047	10.42579
Within		1.862054	-2.499277	15.42535
Childcare				
Overall	9.084926	5.903662	0	23.03181
Between		5.419788	2.09853	19.27164
Within		2.565182	-0.1029988	14.69644
Public employment services				
Overall	2.819574	2.091636	0	12.74797
Between		1.84058	0.0846448	7.77792
Within		1.141561	-1.42312	7.789749
Direct job creation				
Overall	1.572572	1.833449	0	8.313559
Between		1.272916	0.0141598	4.284012
Within		1.36447	-1.361907	6.150775
Employment incentives				
Overall	2.032531	2.110604	0.0272727	13.33133
Between		1.955338	0.1787394	7.146939
Within		0.9357027	-0.9287749	8.216926
Maternity and parental leave				
Overall	4.425856	3.46758	0	18.57185
Between		3.303911	0.0098815	10.88273
Within		1.341343	1.584538	12.11497

Notes: The variables of ALMPs and WFPs programmes are represented as a percentage of GDP and divided by unemployment rate and population ratio 0-5, respectively.

Table A3. Panel unit root tests for 15 European countries

Variable	Levels				First differences			
	IPS		FT		IPS		FT	
	No trend	Trend	No trend	Trend	No trend	Trend	No Trend	Trend
Lower-educated workers	2.604	2.089	25.461	9.465	-5.349***	-6.323***	122.464***	103.840***
Lower-educated female workers	1.171	1.508	24.097	13.342	-5.816***	-6.810***	128.473***	104.705***
Medium-educated workers	1.607	2.413	21.282	7.258	-5.159***	-6.182***	130.758***	113.050***
Medium-educated female workers	0.928	1.990	23.592	11.357	-5.661***	-6.595***	153.784***	123.114***
Higher-educated workers	1.054	-1.376†	51.964**	40.235	-7.088***	-7.798***	232.176***	224.566***
Higher-educated female workers	-0.479	-2.159*	67.964**	51.950**	-7.915***	-8.520***	283.440***	249.683***
Training	-1.809*	-2.989**	70.683***	48.819*	-7.641***	-7.921***	217.479***	166.705***
Childcare	2.463	-0.510	23.929	20.549	-7.639***	-8.413***	220.723***	205.848***
PES	1.418	0.198	36.255	23.915	-6.344***	-6.861***	218.181***	176.524***
Direct job creation	-1.631†	-1.450†	80.647***	52.109**	-6.627***	-7.069***	227.779***	172.103***
Employment incentives	-1.070	-1.780*	51.463**	30.541	-7.213***	-7.536***	213.722***	163.965***
Maternity and parental leave	0.795	-2.611**	43.939*	36.810	-5.757***	-6.099***	152.270***	111.006***
Unemployment benefit	-0.880	-2.668**	35.688	63.429***	-7.271***	-7.485***	214.383***	160.401***
Output gap	0.323	-4.962	29.173	58.139**	-9.128***	-9.235***	194.352***	225.178***
Openness	2.044	-4.500***	16.151	49.656*	-9.483***	-9.639***	293.449***	230.512***
Payroll taxes	-1.331†	-1.581†	40.219	20.733	-8.592***	-9.118***	268.337***	284.642***

Notes: given the unbalanced panel of the dataset, we use Im-Pesaran-Shin (IPS) test and Fisher-type (FT) test based on augmented dickey-fuller (ADF) tests, without trend and with trend, respectively. Two tests have the null hypothesis (H_0) that all panels with respect to a variable contains a unit root, while the alternative (H_a) is that at least one panel is stationary. The result shows that the dependent and independent variables are non-stationary and the first differences are stationary, implying I(1) processes. Panel unit root test is performed using the Stata “xtunitroot”. Number of lags is not selected. Numbers are the z-t-tilde-bar statistic of IPS test and the inverse chi-squared P statistic of FT test. In the tests of maternity and parental leave, the Netherlands is excluded to get p-value in IPS tests because z-t-tilde-bar requires at least 10 observations in level and 11 observations in first difference per panel with unbalanced data. † p<0.1, * p<0.05, ** p<0.01, *** p<0.001.

Table A4. Estimated effects on the employment rates for 15 European countries (basic model)

Independent variable		Dependent variable (first difference)					
		Lower-educated workers		Medium-educated workers		Higher-educated workers	
		(1) All	(2) Female	(3) All	(4) Female	(5) All	(6) Female
ALMPs	First difference	0.135**	0.103*	0.100***	0.134***	0.056*	0.021
	Lag	0.093**	0.075*	0.052***	0.052**	0.010	0.011
	LRM	0.306**	0.378*	0.186***	0.225**	0.039	0.043
Childcare	First difference	0.273***	0.280***	0.101*	0.182***	-0.015	-0.052
	Lag	0.061	0.095	0.048	0.083*	0.022	0.040
	LRM	0.201	0.480	0.170	0.361*	0.085	0.153
Maternity and parental leave	First difference	0.050	0.080	-0.010	-0.162	0.031	-0.115
	Lag	-0.270**	-0.290*	0.047	-0.072	-0.008	-0.069
	LRM	-0.884*	-1.467*	0.167	-0.314	-0.032	-0.261
Unemployment benefits	First difference	-0.055	-0.059	-0.008	-0.071*	-0.063*	-0.075*
	Lag	-0.069†	-0.029	-0.037*	-0.046*	-0.071***	-0.089***
Union density	First difference	-0.218†	-0.305*	-0.259**	-0.202*	-0.003	0.058
	Lag	0.049	-0.022	-0.012	-0.009	0.112*	0.150**
Coordination of wage bargaining	First difference	0.363*	0.176	0.526***	0.251	0.143	0.064
	Lag	0.351†	0.260	0.463**	0.455**	0.130	0.118
Regular EPL	First difference	0.126	-0.340	0.239	0.438	0.281	0.139
	Lag	0.682	-0.036	-1.144*	-1.076†	-1.330*	-0.836
Temporary EPL	First difference	0.489	0.507	0.199	-0.002	-0.198	0.000
	Lag	0.351	0.021	-0.048	-0.103	0.232	0.198
Output gap	First difference	0.381***	0.317***	0.326***	0.219***	0.206***	0.201***
	Lag	0.182**	0.119*	0.275***	0.246***	0.140***	0.159***
Openness	First difference	-0.013	-0.022	-0.007	-0.009	-0.020*	-0.029*
	Lag	0.025*	0.032**	0.005	0.012	0.006	0.008
Payroll taxes	First difference	0.344	0.444†	0.163	0.229	0.129	0.191
	Lag	-0.026	0.029	0.063	0.064	-0.119	-0.112
Under-15 population	First difference	-0.362	1.368	0.719	1.608*	-0.283	0.285
	Lag	-0.039	0.353	-0.146	0.062	-0.277	-0.296
Over-64 population	First difference	-3.838**	-2.151†	-0.789	-0.741	-0.493	-0.723
	Lag	0.476*	0.277	0.321**	0.393***	0.115	0.213*
Lower skilled jobs	First difference	0.105	0.106				
	Lag	-0.133†	-0.082				
Medium skilled jobs	First difference			0.128**	-0.007		
	Lag			0.054*	0.038		
Higher skilled jobs	First difference					-0.169***	-0.141***
	Lag					-0.023	0.001
Total employment rate	Lag	-0.305***		-0.281***		-0.263***	
Female employment rate	Lag		-0.197***		-0.230***		-0.264***
Constant		4.978	-1.715	15.642***	6.977	27.394***	22.336***
Observations		266	266	266	266	266	266
Number of countries		15	15	15	15	15	15
R ²		0.53	0.45	0.68	0.60	0.50	0.44

Table A5. Estimated effects on the employment rates for 15 European countries, using only training among ALMPs

Independent variable		Dependent variable (first difference)					
		Lower-educated workers		Medium-educated workers		Higher-educated workers	
		(1) All	(2) Female	(3) All	(4) Female	(5) All	(6) Female
Training	First difference	0.164	0.028	0.190***	0.312***	0.006	-0.056
	Lag	-0.014	0.001	0.053†	0.077*	-0.005	0.008
	LRM	-0.043	0.004	0.184	0.325*	-0.019	0.030
Childcare	First difference	0.296***	0.295***	0.095†	0.157**	-0.014	-0.053
	Lag	0.085	0.105	0.063†	0.100*	0.019	0.033
	LRM	0.265	0.477	0.219†	0.421*	0.075	0.124
Maternity and parental leave	First difference	-0.017	0.015	-0.015	-0.142	0.011	-0.128
	Lag	-0.343**	-0.350**	0.038	-0.063	-0.032	-0.075
	LRM	-1.066*	-1.586*	0.131	-0.266	-0.124	-0.278
Unemployment benefits	First difference	-0.010	-0.019	0.023	-0.027	-0.039	-0.065*
	Lag	-0.032	-0.003	-0.033†	-0.042†	-0.064***	-0.087***
Union density	First difference	-0.333*	-0.374**	-0.307***	-0.256**	-0.037	0.045
	Lag	-0.022	-0.066	-0.023	-0.027	0.105*	0.148**
Coordination of wage bargaining	First difference	0.399*	0.200	0.534***	0.255	0.149	0.074
	Lag	0.388*	0.272	0.469**	0.485**	0.101	0.082
Regular EPL	First difference	-0.228	-0.619	0.240	0.486	0.213	0.221
	Lag	-0.003	-0.347	-1.298*	-1.292*	-1.488*	-0.799
Temporary EPL	First difference	0.723†	0.665†	0.263	0.075	-0.210	-0.022
	Lag	0.391	0.045	-0.024	-0.053	0.176	0.144
Output gap	First difference	0.431***	0.367***	0.355***	0.247***	0.226***	0.212***
	Lag	0.284***	0.203***	0.331***	0.293***	0.145***	0.166***
Openness	First difference	-0.014	-0.022	-0.008	-0.008	-0.020†	-0.030*
	Lag	0.025*	0.033**	0.003	0.011	0.008	0.007
Payroll taxes	First difference	0.332	0.483†	0.118	0.097	0.132	0.196
	Lag	0.091	0.135	0.154	0.147	-0.132	-0.131
Under-15 population	First difference	0.289	1.857*	0.800	1.627*	-0.159	0.254
	Lag	0.282	0.542†	-0.028	0.207	-0.252	-0.333†
Over-64 population	First difference	-3.800**	-2.139†	-0.690	-0.585	-0.556	-0.826
	Lag	0.463*	0.294	0.317**	0.378***	0.116	0.211†
Lower skilled jobs	First difference	0.071	0.072				
	Lag	-0.163*	-0.104				
Medium skilled jobs	First difference			0.117*	-0.002		
	Lag			0.033	0.017		
Higher skilled jobs	First difference					-0.184***	-0.154***
	Lag					-0.039	-0.012
Total employment rate	Lag	-0.322***		-0.288***		-0.258***	
Female employment rate	Lag		-0.220***		-0.238***		-0.268***
Constant		4.171	-2.230	14.616**	5.520	28.134***	24.477***
Observations		262	262	262	262	262	262
Number of countries		15	15	15	15	15	15
R ²		0.52	0.44	0.67	0.59	0.49	0.44

Notes: see Table 2

Table A6. Estimated effects on the employment rates for 15 European countries, using only seven social expenditure variables, namely ALMPs, WFPs and unemployment benefits

Independent variable		Dependent variable (first difference)					
		Lower-educated workers		Medium-educated workers		Higher-educated workers	
		(1) All	(2) Female	(3) All	(4) Female	(5) All	(6) Female
Training	First difference	0.309*	0.158	0.278**	0.437***	0.065	0.074
	Lag	0.075	0.122	0.080	0.144*	0.023	-0.002
	LRM	0.352	0.690	0.438	0.796*	0.092	-0.009
Childcare	First difference	0.137	0.150†	0.013	0.121†	-0.049	-0.130†
	Lag	0.008	0.052	0.087*	0.129**	0.038	0.045
	LRM	0.038	0.297	0.478*	0.709**	0.156	0.205
Public employment services	First difference	0.707***	0.678**	0.426***	0.526***	0.414***	0.443***
	Lag	0.456***	0.339**	0.178*	0.248**	0.104	0.142†
	LRM	2.129**	1.922*	0.979*	1.368**	0.425	0.651†
Direct job creation	First difference	0.210	0.123	0.299*	-0.056	0.104	-0.018
	Lag	0.023	-0.072	0.075	-0.054	0.002	-0.049
	LRM	0.108	-0.409	0.409	-0.296	0.007	-0.226
Employment incentives	First difference	0.398*	0.278	0.446***	0.147	0.411***	0.285†
	Lag	0.416*	0.267	0.431***	0.289*	0.380***	0.301**
	LRM	1.941*	1.511	2.363**	1.590*	1.551***	1.383**
Maternity and parental leave	First difference	-0.240	-0.009	-0.039	-0.043	0.020	-0.077
	Lag	-0.353**	-0.323**	-0.036	-0.004	-0.063	-0.126
	LRM	-1.646*	-1.832*	-0.199	-0.020	-0.258	-0.579
Unemployment benefits	First difference	-0.126*	-0.118*	-0.108**	-0.100*	-0.119***	-0.079*
	Lag	-0.025	-0.012	-0.073***	-0.078***	-0.072***	-0.050**
Total employment rate	Lag	-0.214***		-0.182***		-0.245***	
Female employment rate	Lag		-0.177***		-0.182***		-0.218***
Constant		9.350***	6.647***	12.978***	11.379***	21.381***	18.269***
Observations		265	265	265	265	265	265
Number of countries		15	15	15	15	15	15
R ²		0.29	0.28	0.32	0.31	0.29	0.26

Notes: see Table 2

Table A7. Estimated effects on the employment rates for 15 European countries, using adult employment rates for aged 25-64

Independent variable		Dependent variable (first difference)					
		Lower-educated workers		Medium-educated workers		Higher-educated workers	
		(1) All	(2) Female	(3) All	(4) Female	(5) All	(6) Female
Training	First difference	0.040	-0.144	0.069	0.229**	0.036	-0.012
	Lag	-0.044	-0.056	0.016	0.101*	-0.041	-0.026
	LRM	-0.140	-0.302	0.041	0.277*	-0.147	-0.098
Childcare	First difference	0.233**	0.244**	0.123**	0.117†	0.023	-0.036
	Lag	0.036	0.066	0.091**	0.129**	0.017	0.026
	LRM	0.114	0.358	0.228**	0.354**	0.062	0.098
Public employment services	First difference	0.239	0.251	0.153*	0.301*	0.180*	0.200†
	Lag	0.079	-0.034	-0.007	0.073	-0.008	0.007
	LRM	0.248	-0.183	-0.017	0.199	-0.029	0.027
Direct job creation	First difference	-0.149	0.033	0.112	-0.038	0.022	-0.046
	Lag	-0.052	0.100	0.084	-0.119†	-0.071	-0.131*
	LRM	-0.164	0.543	0.211	-0.326†	-0.258	-0.488*
Employment incentives	First difference	-0.069	-0.140	0.247**	0.147	0.143†	0.164
	Lag	0.178†	-0.018	0.282***	0.195*	0.174**	0.184*
	LRM	0.562	-0.095	0.707***	0.534*	0.632**	0.686*
Maternity and parental leave	First difference	0.118	0.114	-0.036	-0.142	0.017	-0.009
	Lag	-0.299**	-0.384**	-0.053	-0.158†	-0.066	-0.076
	LRM	-0.942**	-2.079*	-0.133	-0.433†	-0.240	-0.282
Unemployment benefits	First difference	-0.016	-0.052	-0.014	-0.047	-0.051*	-0.071*
	Lag	-0.031	-0.000	-0.005	-0.021	-0.036*	-0.049**
Union density	First difference	-0.217†	-0.268*	-0.211**	-0.039	-0.013	0.104
	Lag	-0.035	-0.052	-0.201***	0.153**	0.031	0.068
Coordination of wage bargaining	First difference	0.229	0.065	0.500***	0.393**	0.114	0.090
	Lag	0.374*	0.191	0.432***	0.535***	0.121	0.132
Regular EPL	First difference	-0.239	-0.717	0.206	0.796	0.180	-0.297
	Lag	-0.109	-0.403	-0.484	-0.794	-0.401	-0.480
Temporary EPL	First difference	0.905**	0.721†	0.413*	0.170	-0.091	0.084
	Lag	0.062	-0.353	-0.046	0.009	0.276*	0.255
Output gap	First difference	0.430***	0.332***	0.281***	0.180***	0.183***	0.185***
	Lag	0.252***	0.191**	0.264***	0.227***	0.121***	0.142***
Openness	First difference	-0.032*	-0.028†	-0.015	-0.011	-0.025**	-0.038***
	Lag	0.011	0.022*	0.003	0.017*	0.001	0.004
Payroll taxes	First difference	0.305	0.611†	0.138	-0.073	0.047	0.142
	Lag	-0.185	-0.037	0.022	-0.076	-0.103	-0.110
Under-15 population	First difference	1.437†	2.311*	0.299	1.496*	-0.271	0.144
	Lag	0.433	0.564†	0.600***	0.510*	0.007	-0.043
Over-64 population	First difference	-0.548	-0.353	-0.640	-1.057	-0.748	-0.945
	Lag	0.489**	0.193	0.292**	0.402***	0.284***	0.351***
Lower skilled jobs	First difference	0.070	0.144*				
	Lag	-0.135†	-0.021				
Medium skilled jobs	First difference			0.123**	0.022		
	Lag			0.014	0.003		
Higher skilled jobs	First difference					-0.106**	-0.087*
	Lag					-0.014	-0.002
Total employment rate	Lag	-0.317***		-0.399***		-0.276***	
Female employment rate	Lag		-0.185***		-0.365***		-0.268***
Constant		9.170†	0.710	20.285***	15.089**	21.381***	18.249***
Observations		254	254	254	254	254	254
Number of countries		15	15	15	15	15	15
R ²		0.57	0.44	0.71	0.61	0.53	0.47

Notes: see Table 2

Table A8. Estimated effects on the employment rates for 15 European countries, using unemployment replacement rate instead of unemployment benefits

Independent variable		Dependent variable (first difference)					
		Lower-educated workers		Medium-educated workers		Higher-educated workers	
		(1) All	(2) Female	(3) All	(4) Female	(5) All	(6) Female
Training	First difference	-0.040	-0.236	0.136*	0.389***	-0.067	-0.059
	Lag	-0.213*	-0.165†	0.049	0.101†	-0.135**	-0.119*
	LRM	-0.681*	-0.821	0.156	0.363*	-0.415**	-0.384†
Childcare	First difference	0.333***	0.335***	0.156**	0.194**	-0.035	-0.121†
	Lag	0.098	0.101	0.051	0.111*	-0.025	-0.021
	LRM	0.314	0.500	0.164	0.399*	-0.076	-0.067
Public employment services	First difference	0.360*	0.350†	0.098	0.184	0.250**	0.274*
	Lag	0.248*	0.089	0.007	0.000	0.046	0.034
	LRM	0.795*	0.441	0.022	0.001	0.140	0.111
Direct job creation	First difference	0.078	0.180	0.234*	-0.059	-0.118	-0.350**
	Lag	0.036	0.143	0.066	-0.127	-0.144*	-0.235**
	LRM	0.116	0.710	0.213	-0.456	-0.441*	-0.757**
Employment incentives	First difference	-0.090	-0.170	0.144	-0.120	0.140	0.024
	Lag	0.126	-0.032	0.236*	0.133	0.269**	0.203†
	LRM	0.403	-0.159	0.760**	0.478	0.824**	0.655†
Maternity and parental leave	First difference	-0.102	0.062	0.040	-0.094	0.030	-0.015
	Lag	-0.549***	-0.535***	0.067	-0.015	-0.120	-0.136
	LRM	-1.756**	-2.656**	0.215	-0.055	-0.368	-0.437
Unemployment replacement	First difference	-1.956	0.881	-6.763**	-7.157*	-0.055	4.320
	Lag	-2.192	0.232	-4.392**	-5.127*	-7.540***	-7.545***
Union density	First difference	-0.244*	-0.377**	-0.321***	-0.231*	0.020	0.038
	Lag	-0.007	-0.065	-0.100*	-0.068	0.089†	0.110†
Coordination of wage bargaining	First difference	0.308†	0.120	0.513***	0.281	0.117	-0.017
	Lag	0.332†	0.056	0.551***	0.752***	0.096	-0.013
Regular EPL	First difference	-0.869	-0.501	-0.370	0.120	-0.685	-0.968
	Lag	-0.430	0.117	-1.586**	-1.633**	-2.053***	-1.675*
Temporary EPL	First difference	0.584	0.333	0.218	0.313	0.054	0.273
	Lag	0.329	-0.382	-0.040	0.342	0.386*	0.289
Output gap	First difference	0.408***	0.383***	0.385***	0.262***	0.188***	0.194***
	Lag	0.265***	0.186**	0.363***	0.322***	0.154***	0.168***
Openness	First difference	-0.021	-0.030†	-0.023†	-0.017	-0.013	-0.020
	Lag	-0.009	0.009	-0.018†	0.002	-0.006	-0.001
Payroll taxes	First difference	0.504	0.761*	0.114	-0.032	0.031	0.067
	Lag	-0.027	0.056	0.201	0.270†	-0.082	-0.104
Under-15 population	First difference	0.800	2.648*	1.170	2.090*	-0.168	-0.495
	Lag	0.051	0.334	0.265	0.398	-0.278	-0.346
Over-64 population	First difference	-2.371	-2.120	-0.373	0.858	-0.643	-1.097
	Lag	0.662**	0.383†	0.582***	0.752***	0.190	0.197
Lower skilled jobs	First difference	0.058	0.073				
	Lag	-0.358***	-0.211**				
Medium skilled jobs	First difference			0.069	-0.031		
	Lag			-0.007	0.015		
Higher skilled jobs	First difference					-0.135**	-0.118**
	Lag					0.005	0.025
Total employment rate	Lag	-0.313***		-0.311***		-0.327***	
Female employment rate	Lag		-0.201***		-0.278***		-0.310***
Constant		16.944*	7.889	15.110**	0.720	38.924***	35.703***
Observations		230	230	230	230	230	230
Number of countries		15	15	15	15	15	15
R ²		0.62	0.53	0.75	0.66	0.59	0.49

Notes: see Table 2

Table A9. Estimated effects on the employment rates for 15 European countries since 1995

Independent variable		Dependent variable (first difference)					
		Lower-educated workers		Medium-educated workers		Higher-educated workers	
		(1) All	(2) Female	(3) All	(4) Female	(5) All	(6) Female
Training	First difference	0.074	-0.156	0.157*	0.350***	-0.070	-0.094
	Lag	-0.136	-0.122	0.045	0.105*	-0.033	-0.025
	LRM	-0.449	-0.592	0.166	0.418*	-0.111	-0.075
Childcare	First difference	0.300***	0.296***	0.143**	0.169**	-0.057	-0.131*
	Lag	0.092	0.111	0.043	0.084*	-0.016	-0.002
	LRM	0.305	0.538	0.158	0.337*	-0.056	-0.006
Public employment services	First difference	0.314†	0.339†	0.150†	0.253*	0.203*	0.240*
	Lag	0.169	0.061	0.051	0.081	-0.059	-0.049
	LRM	0.557	0.294	0.189	0.322	-0.201	-0.147
Direct job creation	First difference	0.069	0.175	0.162	-0.024	0.052	-0.060
	Lag	0.007	0.063	0.092	-0.059	-0.061	-0.159*
	LRM	0.023	0.306	0.342	-0.237	0.208	-0.482*
Employment incentives	First difference	-0.078	-0.094	-0.066	-0.206†	0.139	0.086
	Lag	0.163	-0.024	0.126	0.026	0.130†	0.075
	LRM	0.537	-0.119	0.465	0.105	0.442†	0.225
Maternity and parental leave	First difference	-0.101	0.143	0.004	-0.033	-0.085	-0.133
	Lag	-0.509***	-0.452***	0.006	-0.023	-0.176*	-0.197*
	LRM	-1.682**	-2.195**	0.023	-0.090	-0.597*	-0.597†
Unemployment benefits	First difference	-0.057	-0.054	-0.014	-0.044	-0.060*	-0.070*
	Lag	-0.042	0.015	-0.040†	-0.050†	-0.012	-0.026
Union density	First difference	-0.230†	-0.282*	-0.377***	-0.276**	-0.064	-0.019
	Lag	0.009	0.011	-0.016	0.010	-0.052	-0.010
Coordination of wage bargaining	First difference	0.361*	0.161	0.504**	0.286	0.105	-0.016
	Lag	0.253	0.226	0.314*	0.458**	0.033	0.001
Regular EPL	First difference	0.834	-0.020	1.447	1.612	2.191*	1.938
	Lag	1.737	0.224	0.138	-0.916	2.282*	3.326***
Temporary EPL	First difference	0.557	0.545	0.202	0.280	-0.098	0.114
	Lag	0.301	-0.037	-0.092	0.182	0.097	0.107
Output gap	First difference	0.372***	0.311***	0.356***	0.236***	0.186***	0.170***
	Lag	0.219**	0.160*	0.265***	0.236***	0.129***	0.165***
Openness	First difference	-0.014	-0.024	-0.012	-0.016	-0.027**	-0.039**
	Lag	0.011	0.021†	0.006	0.010	-0.003	-0.008
Payroll taxes	First difference	0.537†	0.655*	0.081	-0.175	0.149	0.128
	Lag	-0.046	-0.095	0.002	-0.089	-0.044	-0.082
Under-15 population	First difference	0.898	2.329*	1.105	1.713*	-0.558	-0.251
	Lag	0.232	0.381	-0.020	0.150	-0.177	-0.356
Over-64 population	First difference	-3.615**	-2.190†	-0.617	-0.733	-0.376	-0.592
	Lag	0.658**	0.354	0.344**	0.360**	0.156	0.259*
Lower skilled jobs	First difference	0.118	0.125†				
	Lag	-0.202*	-0.086				
Medium skilled jobs	First difference			0.087†	0.007		
	Lag			0.009	-0.020		
Higher skilled jobs	First difference					-0.165***	-0.113**
	Lag					-0.083***	-0.062*
Total employment rate	Lag	-0.303***		-0.270***		-0.294***	
Female employment rate	Lag		-0.206***		-0.251***		-0.331***
Constant		1.704	0.246	12.943*	10.184†	26.426***	26.403***
Observations		237	237	237	237	237	237
Number of countries		15	15	15	15	15	15
R ²		0.57	0.49	0.74	0.65	0.54	0.49

Notes: see Table 2

Table A10. Estimated effects on the employment rates for 11 non-Nordic countries

Independent variable		Dependent variable (first difference)					
		Lower-educated workers		Medium-educated workers		Higher-educated workers	
		(1) All	(2) Female	(3) All	(4) Female	(5) All	(6) Female
Training	First difference	0.046	-0.034	0.442***	0.620***	0.150	0.267
	Lag	-0.088	-0.172	0.187*	0.237*	0.003	0.046
	LRM	-0.324	-1.178	0.524*	0.740*	0.013	0.219
Childcare	First difference	0.223**	0.158*	0.123*	0.170*	-0.151*	-0.214**
	Lag	-0.015	-0.019	0.087*	0.168***	-0.046	-0.040
	LRM	-0.054	-0.131	0.244*	0.523***	-0.179	-0.189
Public employment services	First difference	0.422*	0.379†	0.125	0.235†	0.267*	0.203
	Lag	0.239*	0.163	-0.006	-0.021	0.139*	0.127
	LRM	0.878†	1.117	-0.018	-0.065	0.538*	0.602
Direct job creation	First difference	0.008	0.087	0.151	-0.020	-0.244	-0.352*
	Lag	-0.025	0.020	0.063	-0.026	-0.232***	-0.306***
	LRM	-0.091	0.139	0.175	-0.081	-0.895**	-1.447**
Employment incentives	First difference	0.226	0.063	0.266*	0.141	0.532***	0.484**
	Lag	0.472**	0.312*	0.479***	0.353**	0.388**	0.342*
	LRM	1.736**	2.133*	0.341***	1.098**	-1.501**	1.617*
Maternity and parental leave	First difference	0.029	0.249	0.138	0.088	0.195	0.193
	Lag	-0.250†	-0.208†	0.252*	0.180	-0.055	-0.058
	LRM	-0.919	-1.424	0.705**	0.562†	-0.213	-0.272
Unemployment benefits	First difference	-0.023	-0.014	0.058†	0.035	-0.048	-0.054
	Lag	-0.066	-0.001	0.011	0.016	-0.068*	-0.076*
Union density	First difference	-0.254†	-0.277*	-0.353***	-0.298*	0.115	0.211†
	Lag	-0.077	-0.164†	-0.199**	-0.226***	0.116†	0.164*
Coordination of wage bargaining	First difference	0.291†	-0.001	0.652***	0.388*	-0.005	-0.110
	Lag	0.466**	0.411**	0.848***	0.999***	0.202	0.147
Regular EPL	First difference	0.036	-0.091	0.345	0.750	-0.204	-0.655
	Lag	0.290	-0.745	-1.505*	-1.395*	-1.353*	-1.491*
Temporary EPL	First difference	0.534	0.248	0.405†	0.253	0.120	0.252
	Lag	0.380	0.021	0.274	0.239	0.585**	0.548**
Output gap	First difference	0.416***	0.303***	0.370***	0.281***	0.282***	0.259***
	Lag	0.097	-0.003	0.234***	0.165***	0.126**	0.122**
Openness	First difference	-0.032†	-0.037*	-0.026†	-0.032†	-0.037***	-0.049***
	Lag	0.009	0.012	-0.003	0.002	0.000	0.000
Payroll taxes	First difference	0.221	0.124	-0.114	-0.282	-0.169	-0.127
	Lag	-0.161	-0.276	-0.060	-0.108	-0.296*	-0.285*
Under-15 population	First difference	1.603†	2.036*	3.380***	4.638***	1.065	0.901
	Lag	0.439	0.641*	0.814**	1.021***	0.043	-0.100
Over-64 population	First difference	-2.773†	-1.804	-0.221	0.002	-0.057	-0.771
	Lag	0.646**	0.273	0.745***	0.792***	0.506***	0.524***
Lower skilled jobs	First difference	0.212*	0.277***				
	Lag	-0.104	0.034				
Medium skilled jobs	First difference			0.135*	0.060		
	Lag			0.034	0.030		
Higher skilled jobs	First difference					-0.136**	-0.132**
	Lag					-0.002	-0.003
Total employment rate	Lag	-0.272***		-0.357***		-0.259***	
Female employment rate	Lag		-0.146**		-0.321***		-0.212***
Constant		1.610	1.482	4.858	-2.945	17.724**	14.021*
Observations		187	187	187	187	187	187
Number of countries		11	11	11	11	11	11
R ²		0.65	0.63	0.78	0.74	0.62	0.56

Notes: see Table 2

Table A11. Estimated effects on the employment rates for 4 Nordic countries

Independent variable		Dependent variable (first difference)					
		Lower-educated workers		Medium-educated workers		Higher-educated workers	
		(1) All	(2) Female	(3) All	(4) Female	(5) All	(6) Female
Training	First difference	0.288	-0.107	0.115	0.489***	-0.061	-0.208
	Lag	0.560**	0.602**	0.256**	0.531***	0.138*	0.004
	LRM	1.947*	2.111*	0.281**	0.548***	0.143*	0.003
Childcare	First difference	0.319	0.350	-0.146	-0.288*	-0.060	-0.305*
	Lag	0.788*	1.096**	-0.135	-0.303	-0.078	-0.271
	LRM	2.740	3.847†	-0.148	-0.312	-0.080	-0.226
Public employment services	First difference	0.782†	0.476	0.019	-0.137	0.520**	0.822***
	Lag	0.655	-0.163	-0.103	-0.238	0.187	0.493*
	LRM	2.278	-0.573	-0.113	-0.245	0.193	0.410*
Direct job creation	First difference	0.770	1.301	-0.349	-0.482	-0.098	0.043
	Lag	0.083	0.398	-0.837**	-0.851**	-0.744***	-0.861*
	LRM	0.289	1.396	-0.920**	-0.878**	-0.771***	-0.718*
Employment incentives	First difference	-0.674	-0.249	-0.146	-0.349	0.059	0.201
	Lag	-0.901**	-0.661†	-0.456**	-0.530**	-0.489***	-0.531*
	LRM	-3.133*	-2.318	-0.501**	-0.547**	-0.506***	-0.442*
Maternity and parental leave	First difference	-0.071	0.170	-0.308	-0.033	-0.967***	-1.102***
	Lag	0.565	0.665	-0.378*	-0.179	-0.567***	-1.047***
	LRM	1.965	2.332	-0.415*	-0.185	-0.587***	-0.873***
Unemployment benefits	First difference	-0.256†	-0.267†	-0.028	-0.026	-0.140**	-0.220**
	Lag	-0.087	-0.106	0.016	-0.129*	0.020	-0.032
Union density	First difference	-0.433	-0.604†	-0.404**	-0.357*	-0.253*	-0.041
	Lag	-0.073	-0.370	-0.623***	-0.543**	-0.470***	-0.321
Coordination of wage bargaining	First difference	0.516	0.331	-0.201	-0.429*	0.080	0.327
	Lag	1.250***	0.807*	0.143	0.139	0.440*	0.746**
Regular EPL	First difference	15.525	4.950	0.544	-4.117	4.492	-2.642
	Lag	28.511**	20.590	17.905**	11.160	20.333***	12.756†
Temporary EPL	First difference	5.326*	5.588*	1.638†	2.897*	0.247	0.030
	Lag	4.400†	3.803	3.361***	5.695***	2.620***	3.184**
Output gap	First difference	0.303	0.416*	0.276***	0.094	-0.030	-0.097
	Lag	0.408*	0.593**	0.585***	0.504***	0.164*	0.176†
Openness	First difference	-0.133	-0.208*	-0.072†	-0.049	-0.106**	-0.154**
	Lag	-0.117	-0.167	-0.127**	-0.143*	-0.092*	-0.150**
Payroll taxes	First difference	1.068	1.269	0.353	0.140	0.619*	0.641
	Lag	-1.719	-1.375	0.212	0.313	0.771*	1.325**
Under-15 population	First difference	-1.836	-2.562	2.267†	1.667	0.170	-0.670
	Lag	0.114	2.921	-1.074	-1.468†	-2.561***	-3.505***
Over-64 population	First difference	-8.014*	-4.975	0.646	3.461†	-3.523**	-4.544*
	Lag	1.039	1.303	-0.088	-0.645	-0.792*	-0.559
Lower skilled jobs	First difference	0.075	0.059				
	Lag	-0.077	0.071				
Medium skilled jobs	First difference			0.047	-0.076		
	Lag			0.248†	0.093		
Higher skilled jobs	First difference					-0.152	-0.054
	Lag					-0.226*	-0.009
Total employment rate	Lag	-0.288**		-0.910***		-0.965***	
Female employment rate	Lag		-0.285**		-0.969***		-1.200***
Constant		-75.933*	-96.257**	100.175***	133.515***	150.258***	190.526***
Observations		67	67	67	67	67	67
Number of countries		4	4	4	4	4	4
R ²		0.79	0.76	0.90	0.86	0.86	0.85

Notes: see Table 2

Table A12. Estimated effects on the employment rates for 5 Continental European countries

Independent variable		Dependent variable (first difference)					
		Lower-educated workers		Medium-educated workers		Higher-educated workers	
		(1) All	(2) Female	(3) All	(4) Female	(5) All	(6) Female
Training	First difference	-0.257	-0.095	0.484***	0.702***	0.083	0.206
	Lag	-0.069	-0.047	0.221*	0.254**	0.379**	0.289*
	LRM	-0.179	-0.123	0.346**	0.564**	0.465**	0.401*
Childcare	First difference	0.083	0.104	0.179**	0.202**	-0.145†	-0.239**
	Lag	0.112	0.173†	0.065	0.056	0.038	0.028
	LRM	0.290	0.447†	0.102	0.124	0.046	0.038
Public employment services	First difference	0.646*	0.312	0.048	0.074	0.434*	0.297
	Lag	0.064	0.088	-0.198	-0.275*	0.099	0.036
	LRM	0.166	0.229	-0.310	-0.612*	0.122	0.050
Direct job creation	First difference	-0.146	-0.267	0.109	0.087	-0.335†	-0.400*
	Lag	0.629*	0.320	0.431***	0.287**	0.164	0.003
	LRM	1.621†	0.827	0.675***	0.637*	0.201	0.004
Employment incentives	First difference	-0.325	-0.310	-0.039	-0.579**	0.226	0.069
	Lag	-0.013	-0.157	-0.032	-0.433**	0.402†	0.459*
	LRM	-0.033	-0.405	-0.050	-0.963**	0.494†	0.637*
Maternity and parental leave	First difference	0.395	0.352	0.151	-0.201	0.132	-0.036
	Lag	-0.108	-0.229	0.261*	0.359*	0.160	0.135
	LRM	-0.278	-0.593	0.408†	0.797*	0.196	0.187
Unemployment benefits	First difference	-0.006	0.022	0.098*	0.135**	0.008	0.076
	Lag	-0.143	-0.068	0.063	0.074	-0.169*	-0.174*
Union density	First difference	-0.496†	-0.500*	-0.140	-0.032	-0.162	-0.136
	Lag	-0.288	-0.344	-0.419***	-0.555***	-0.057	0.044
Coordination of wage bargaining	First difference	-0.831	-0.642	0.644†	1.283**	-0.563	-0.541
	Lag	0.609	0.381	1.646***	2.245***	0.725	0.233
Regular EPL	First difference	-0.586	-0.355	0.065	3.087*	0.537	1.934
	Lag	-0.189	0.525	-1.108	-0.734	1.258	3.294*
Temporary EPL	First difference	0.008	0.450	1.107***	0.514	0.809†	0.290
	Lag	-0.711	-0.533	-0.298	-0.732***	0.576*	0.395
Output gap	First difference	0.251	0.290*	0.290***	0.194**	0.255**	0.171*
	Lag	0.191	0.211	0.267***	0.170*	0.334***	0.212*
Openness	First difference	-0.011	-0.021	-0.006	-0.000	-0.038†	-0.035†
	Lag	-0.010	0.009	0.008	0.021	-0.033	-0.015
Payroll taxes	First difference	0.223	0.182	0.403*	0.434*	0.360†	0.191
	Lag	0.724**	0.598*	0.333**	0.249†	0.511*	0.391†
Under-15 population	First difference	-2.129	0.257	2.115	3.896*	2.935	2.006
	Lag	1.682	1.737	2.067**	1.354†	4.024***	2.806**
Over-64 population	First difference	-8.028**	-5.040*	-3.221**	-1.621	-0.387	-0.824
	Lag	0.988	0.840	1.121**	0.031	3.167***	2.559***
Lower skilled jobs	First difference	0.704***	0.394**				
	Lag	0.290	0.069				
Medium skilled jobs	First difference			0.109*	0.053		
	Lag			-0.047	-0.123*		
Higher skilled jobs	First difference					-0.014	0.180*
	Lag					0.285***	0.381***
Total employment rate	Lag	-0.388***		-0.639***		-0.814***	
Female employment rate	Lag		-0.387***		-0.450***		-0.720***
Constant		-31.110	-26.824	-0.873	15.864	-67.944***	-56.921**
Observations		91	91	91	91	91	91
Number of countries		5	5	5	5	5	5
R ²		0.74	0.70	0.85	0.84	0.73	0.74

Notes: see Table 2

Table A13. Estimated effects on the employment rates for 6 Southern and Liberal European countries

Independent variable		Dependent variable (first difference)					
		Lower-educated workers		Medium-educated workers		Higher-educated workers	
		(1) All	(2) Female	(3) All	(4) Female	(5) All	(6) Female
Training	First difference	0.806**	0.591*	0.961***	0.970**	0.742***	1.420***
	Lag	0.318†	0.198	0.971***	0.764***	0.403*	0.639**
	LRM	0.841†	1.266	2.499***	2.115***	0.934*	2.294*
Childcare	First difference	0.426**	0.507***	0.444***	0.422***	0.068	-0.091
	Lag	0.032	0.048	0.334***	0.338***	0.123†	0.182*
	LRM	0.085	0.307	0.859***	0.936***	0.286*	0.654*
Public employment services	First difference	0.258	-0.038	0.355*	0.373*	0.274*	0.077
	Lag	0.322*	0.174	-0.111	-0.120	0.190†	0.200
	LRM	0.852†	1.113	-0.287	-0.333	0.441*	0.719
Direct job creation	First difference	-0.100	-0.090	-0.485	-0.954**	-0.205	-1.030**
	Lag	-0.086	0.066	-0.485*	-0.623**	-0.176	-0.613*
	LRM	-0.228	0.419	-1.247*	-1.725*	-0.408	-2.202*
Employment incentives	First difference	0.335†	0.143	-0.176	-0.248	0.345*	0.263
	Lag	0.572***	0.416***	0.445**	0.307†	0.442**	0.343*
	LRM	1.511**	2.660*	1.144**	0.852†	1.026**	1.233*
Maternity and parental leave	First difference	-0.449*	-0.189	0.232	0.281	0.003	0.006
	Lag	-0.612***	-0.195	0.318†	0.494*	-0.213	-0.240
	LRM	-1.617**	-1.251	0.819*	1.367**	-0.494	-0.864
Unemployment benefits	First difference	-0.053	-0.052	0.020	-0.023	-0.083†	-0.177**
	Lag	0.084	0.128**	0.059	0.045	0.052	0.032
Union density	First difference	-0.204	-0.295*	-0.599***	-0.553***	0.109	0.051
	Lag	-0.148	-0.237**	-0.215*	-0.285**	0.284***	0.176†
Coordination of wage bargaining	First difference	0.091	0.028	0.862***	0.661**	0.098	-0.039
	Lag	0.240	0.140	1.272***	1.515***	0.347†	0.348
Regular EPL	First difference	-0.725	-1.439**	0.478	0.908	-1.497*	-2.619***
	Lag	-1.918**	-2.193***	-2.050**	-1.956*	-3.260***	-4.684***
Temporary EPL	First difference	0.850*	0.162	0.184	0.507	0.096	0.630
	Lag	1.251**	0.408	0.827†	0.629	0.190	0.247
Output gap	First difference	0.429***	0.341***	0.397***	0.341***	0.252***	0.230***
	Lag	0.218**	-0.015	0.234***	0.232***	0.181***	0.135*
Openness	First difference	-0.050*	-0.047*	0.006	0.020	-0.010	-0.013
	Lag	-0.032†	-0.005	0.039*	0.051*	0.015	0.027
Payroll taxes	First difference	-0.693	0.289	-1.097*	-1.399**	-0.675	-0.800
	Lag	-1.201**	-0.992*	-0.076	0.072	-0.003	0.137
Under-15 population	First difference	1.890	3.071*	1.196	3.501*	3.019*	1.143
	Lag	0.926**	1.451***	1.134**	1.384**	-0.011	0.331
Over-64 population	First difference	0.490	-2.069	0.892	0.595	0.148	-1.543
	Lag	1.635***	0.565	1.197**	1.230**	-0.551	-0.255
Lower skilled jobs	First difference	-0.036	0.165†				
	Lag	-0.132†	0.139*				
Medium skilled jobs	First difference			0.292**	0.190		
	Lag			0.126*	0.201**		
Higher skilled jobs	First difference					-0.010	-0.111
	Lag					-0.015	-0.023
Total employment rate	Lag	-0.379***		-0.389***		-0.431***	
Female employment rate	Lag		-0.156*		-0.361***		-0.278***
Constant		-0.989	-14.054†	-23.243**	-33.046***	41.701***	22.117†
Observations		96	96	96	96	96	96
Number of countries		6	6	6	6	6	6
R ²		0.87	0.84	0.88	0.85	0.83	0.78

Notes: see Table 2

Appendix on Paper 2

Table B1. Variable definitions and sources

Variables	Description
Female employment rate	The number of low-, medium-, and high-educated women aged 15 to 64 in employment as a percentage of the total female population of the same age and educational group. The educational attainment groups are divided into three: below upper secondary (ISCED levels 0–2), upper secondary and post-secondary but not tertiary (ISCED levels 3–4), and tertiary education (ISCED levels 5–8). ^a
Gender employment gap	The male employment rate minus the female employment rate. This is differentiated by three educational groups. ^a
The index of dissimilarity	The sum of absolute difference of the proportion of men and women in each occupation over all occupations for aged 15–64 (scales 0–1; Duncan and Duncan, 1955) and multiplied by 100. This is differentiated by three educational groups. ^b
Women’s share in occupations	Women’s share in specific occupations relative to men as a percentage. This is differentiated by three educational groups: low-educated women’s share in low-skilled jobs which are occupied by low-educated workers, medium-educated women’s share in medium-skilled jobs which are occupied by medium-educated workers, and high-educated women’s share in high-skilled jobs which are occupied by high-educated workers. ^b
Childcare	Public and mandatory spending on early childhood education and care (ECEC) as a % of GDP, divided by early childhood population (aged 0–5) and multiplied by 100 ^{c,d}
Maternity and parental leave	Public and mandatory spending on maternity and parental leave as a % of GDP, divided by early childhood population (aged 0–5) and multiplied by 100 ^{c,d}
Training	Public and mandatory spending on training in ALMPs as a % of GDP, divided by harmonised employment rate (HUR) and multiplied by 100 ^{c,e}
Public employment services (PES)	Public and mandatory spending on public employment services (PES) and administration in ALMPs as a % of GDP, divided by harmonised employment rate (HUR) and multiplied by 100 ^{c,e}
Direct job creation	Public and mandatory spending on direct job creation in ALMPs as a % of GDP, divided by harmonised employment rate (HUR) and multiplied by 100 ^{c,e}
Employment incentives	Public and mandatory spending on employment incentives in ALMPs as a % of GDP, divided by harmonised employment rate (HUR) and multiplied by 100 ^{c,e}

Unemployment benefits	Public and mandatory spending on unemployment cash benefit (unemployment compensation and severance pay) as a % of GDP, divided by harmonised employment rate (HUR) and multiplied by 100 ^{c,e}
Union density	Net union membership as a proportion of wage earners in employment (scaled 0–100) ^f
Wage bargaining	Coordination of wage-setting (scaled 1-5), ranging from 1 (local or company level bargaining) to 5 (national or central level bargaining) ^f
Regular EPL	Strictness of protection of regular workers against individual dismissal (scaled 0–6) ^g
Temporary EPL	Strictness of regulation of temporary forms of employment (scaled 0–6) ^g
Output gap	Difference between actual and potential GDP as a % of GDP ^h
Openness	Sum of exports and imports as a % of GDP ⁱ
Payroll taxes	Sum of social security contributions and payroll taxes as a % of GDP ^j
Under 15 population	Less than 15 years old as % of total population ^d
Over 64 population	Over 64 years old as % of total population ^d
Low-skill jobs	% of low skill (female) jobs (Groups 5 and 9; ISCO–08 and ISCO–88) among all (female) jobs for aged 15–64 ^k
Medium-skill jobs	% of medium skill (female) jobs (Groups 4, 6, 7, and 8; ISCO–08 and ISCO–88) among all (female) jobs for aged 15–64 ^k
High-skill jobs	% of high skill (female) jobs (Groups 1, 2 and 3; ISCO–08 and ISCO–88) among all (female) jobs which are occupied by aged 15–64 ^k

Sources: ^a OECD WISE; ^b EU LFS; ^c OECD SOCX; ^d UN World Population Prospects (2017 Version); ^e HUR data source is OECD KEI; ^f ICTWSS; ^g OECD Employment Protection Database; ^h OECD NAS; ⁱ OECD Economic Outlook; ^j OECD Revenue Statistics; ^k ILO STAT.

Table B2. ISCO-08 and skill level

Major group	ISCO skill level
1. Legislators, senior officials and managers	3 rd + 4 th
2. Professionals	4 th
3. Technicians and associate professionals	3 rd
4. Clerks	2 nd
5. Service workers and shop and market sales workers	2 nd
6. Skill agricultural and fishery workers	2 nd
7. Craft and related workers	2 nd
8. Plant and machine operators and assemblers	2 nd
9. Elementary occupations	1 st
10. Armed forces	1 st + 2 nd + 4 th

Table B3. Panel unit root tests for 15 European countries

Variable	Levels				First differences			
	IPS		FT		IPS		FT	
	No trend	Trend	No trend	Trend	No trend	Trend	No Trend	Trend
Employment rate of low-educated female workers	1.171	1.508	24.097	13.342	-5.816***	-6.810***	128.473***	104.705***
Employment rate of medium-educated female workers	1.461	1.990	23.592	11.357	-5.661***	-6.595***	153.784***	123.114***
Employment rate of high-educated female workers	-0.479	-2.159*	67.964***	51.950**	-7.915***	-8.520***	283.440***	249.683***
Gender employment gap for low-educated workers	3.744	-2.404**	43.772†	62.000***	-7.205***	-7.599***	243.453***	190.110***
Gender employment gap for medium-educated workers	1.278	-4.273***	30.172	68.178***	-9.171***	-9.524***	345.281***	301.504***
Gender employment gap for high-educated workers	-2.586**	6.105***	70.058***	91.808***	-10.113***	-10.154***	502.835***	410.841***
Dissimilarity index for low-educated workers	-0.723	-1.026	51.701**	36.696	-8.097***	-8.648***	250.222***	213.498***
Dissimilarity index for medium-educated workers	1.504	-2.737**	19.398	69.640***	-8.321***	-8.527***	301.951***	237.166***
Dissimilarity index for high-educated workers	0.489	-2.377**	34.073	31.278	-7.738***	-8.069***	252.966***	211.498***
Low-educated women's share in low-skilled jobs	0.000	-2.846**	32.762	42.543†	-8.737***	-9.135***	309.169***	263.937***
Medium-educated women's share in medium-skilled jobs	1.601	-1.999*	37.006	86.566***	-7.830***	-8.222***	265.289***	208.053***
High-educated women's share in high-skilled jobs	0.980	-4.206***	18.211	59.943***	-9.397***	-9.689***	444.615***	377.475***
Childcare	2.417	-0.257	22.025	12.344	-8.188***	-8.857***	235.759***	217.204***
Maternity and parental leave	1.742	-1.687*	21.460	21.817	-6.489***	-6.729***	176.501***	135.730***
Training	-1.855*	-2.934**	51.317**	52.813**	-8.226***	-8.415***	242.998***	186.920***
PES	-0.182	-0.777	130.748***	155.965***	-7.137***	-7.269***	284.652***	210.002***
Direct job creation	-1.654*	-1.263	116.122***	61.634***	-7.081***	-7.421***	211.176***	165.231***
Employment incentives	-1.205	-1.538†	60.240***	30.120	-7.533***	-7.885***	222.835***	174.250***
Unemployment benefits	-0.288	-2.840**	31.744	42.304†	-7.796***	-7.851***	222.725***	168.062***

Notes: Given the unbalanced panel of the dataset, we use Im-Pesaran-Shin (IPS) test and Fisher-type (FT) test based on augmented dickey-fuller (ADF) tests, without trend and with trend, respectively. Two tests have the null hypothesis (H_0) that all panels with respect to a variable contains a unit root, while the alternative (H_a) is that at least one panel is stationary. The result shows that the dependent and independent variables are non-stationary and the first differences are stationary, implying I(1) processes. Panel unit root test is performed using the Stata “xtunitroot”. Number of lags is not selected. Numbers are the z-t-tilde-bar statistic of IPS test and the inverse chi-squared P statistic of FT test. In the tests of maternity and parental leave, the Netherlands is excluded to get p-value in IPS tests because z-t-tilde-bar requires at least 10 observations in level and 11 observations in first difference per panel with unbalanced data. † p<0.1, * p<0.05, ** p<0.01, *** p<0.001.

Table B4. Trends of female employment rates by education, 1992 to 2013

	Low-educated female workers				Medium-educated female workers				High-educated female workers			
	(1)	(2)	(3)	Change	(4)	(5)	(6)	Change	(7)	(8)	(9)	Change
	1992-1999	2000-2007	2008-2013	(3)-(1)	1992-1999	2000-2007	2008-2013	(6)-(4)	1992-1999	2000-2007	2008-2013	(9)-(7)
Austria	43.7	42.3	44.5	0.8	66.4	66.7	71.8	5.4	83.1	81.1	81.5	-1.6
Belgium	27.6	30.2	30.3	2.7	52.2	56.5	58.5	6.3	77.9	79.9	79.4	1.5
Denmark	53.5	54.6	54.8	1.3	72.3	75.2	75.4	3.1	85.0	84.7	84.7	-0.3
Finland	42.1	44.0	38.4	-3.7	64.2	69.1	70.0	5.8	80.5	83.0	82.4	1.9
France	39.1	41.3	40.1	1.0	59.0	62.6	62.8	3.8	73.2	75.6	78.1	4.9
Germany	38.7	39.4	43.7	5.0	61.5	65.0	71.1	9.6	76.3	78.7	82.9	6.6
Greece	31.6	32.8	31.6	0.0	39.0	45.6	43.9	4.9	71.4	74.9	70.8	-0.6
Ireland	23.4	32.9	28.7	5.3	51.8	62.3	56.8	5.0	74.3	81.1	77.2	2.9
Italy	26.6	28.6	28.9	2.3	50.5	56.5	56.6	6.1	73.6	74.5	72.5	-1.1
Netherlands	41.4	49.0	51.2	9.8	67.3	72.9	74.5	7.2	79.8	82.8	84.7	4.9
Norway	53.1	51.0	56.0	2.9	75.3	75.1	75.6	0.3	84.9	85.8	88.4	3.5
Portugal	52.5	57.9	53.6	1.1	53.8	60.2	62.4	8.6	86.7	85.5	80.7	-6.0
Spain	26.9	36.5	38.6	11.7	33.7	51.8	54.8	21.1	62.1	73.4	74.3	12.2
Sweden	50.7	50.3	42.9	-7.8	73.9	76.4	76.0	2.1	84.0	85.6	86.3	2.3
United Kingdom	57.3	57.4	46.0	-11.3	71.3	73.3	67.4	-3.9	83.4	85.5	80.6	-2.8
Total 15 countries	39.6	43.2	42.0	2.4	57.7	64.6	65.2	7.5	77.8	80.8	80.3	2.5
4 Nordic countries	50.2	50.0	48.0	-2.2	71.3	73.9	74.2	2.9	83.7	84.8	85.4	1.7
2 Anglo-Saxon countries	40.6	45.2	37.4	-3.2	61.6	67.8	62.1	0.5	78.9	83.3	78.8	-0.1
5 Continental countries	37.1	40.4	42.0	4.9	60.1	64.7	67.7	7.6	77.5	79.6	81.3	3.8
4 Southern countries	34.4	38.9	38.2	3.8	44.3	53.5	54.4	10.1	73.5	77.1	74.6	1.1

Note: For some countries, beginnings of time-series on female employment rates are 1993 (France), 1995 (Austria, Finland, Sweden), 1996 (the Netherlands, Norway). The data for 1998 are missing data (Germany, Ireland, and United Kingdom).

Source: OECD WISE and own calculations.

Table B5. Trends of gender employment gap by education, 1992 to 2013

	Low-educated female workers				Medium-educated female workers				High-educated female workers			
	(1)	(2)	(3)	Change	(4)	(5)	(6)	Change	(7)	(8)	(9)	Change
	1992-1999	2000-2007	2008-2013	(3)-(1)	1992-1999	2000-2007	2008-2013	(6)-(4)	1992-1999	2000-2007	2008-2013	(9)-(7)
Austria	15.6	12.0	9.3	-6.3	14.4	12.2	7.7	-6.7	7.1	5.9	7.0	-0.1
Belgium	26.0	21.1	16.1	-9.9	20.5	17.8	13.9	-6.6	9.5	7.0	5.4	-4.1
Denmark	14.1	12.0	8.2	-5.9	9.3	8.0	5.3	-4.0	4.8	4.2	3.7	-1.1
Finland	5.5	6.8	6.7	1.2	6.5	6.9	5.0	-1.5	4.1	4.3	4.8	0.7
France	15.0	12.9	10.6	-4.4	15.6	12.9	9.4	-6.2	9.2	6.8	5.5	-3.7
Germany	19.4	12.2	12.0	-7.4	15.2	10.1	8.5	-6.7	10.2	8.0	7.4	-2.8
Greece	37.9	34.9	28.0	-9.9	31.6	27.0	22.3	-9.3	12.9	11.8	10.4	-2.5
Ireland	33.3	29.4	17.1	-16.2	21.9	20.8	11.8	-10.1	13.2	9.2	6.9	-6.3
Italy	36.2	33.7	28.9	-7.3	21.8	19.0	17.5	-4.3	14.4	11.7	10.2	-4.2
Netherlands	27.3	22.9	17.6	-9.7	16.1	11.8	8.3	-7.8	8.7	6.4	4.4	-4.3
Norway	11.6	7.7	4.6	-7.0	9.5	7.8	7.4	-2.1	4.0	4.1	2.7	-1.3
Portugal	21.0	16.9	12.4	-8.6	12.6	8.2	5.4	-7.2	4.0	4.2	1.8	-2.2
Spain	36.8	35.3	18.0	-18.8	21.9	20.3	11.3	-10.6	17.0	11.5	6.8	-10.2
Sweden	8.6	8.5	7.6	-1.0	2.8	5.4	6.3	3.5	-0.3	0.2	1.6	1.9
United Kingdom	8.9	9.4	16.1	7.2	7.9	7.9	9.2	1.3	4.6	3.7	6.8	2.2
Total 15 countries	22.4	18.4	14.2	-8.2	16.0	13.1	9.9	-6.1	8.8	6.6	5.7	-3.1
4 Nordic countries	10.4	8.7	6.8	-3.6	7.2	7.0	6.0	-1.2	3.3	3.2	3.2	-0.1
2 Anglo-Saxon countries	21.1	19.4	16.6	-4.5	14.9	14.3	10.5	-4.4	8.9	6.5	6.8	-2.1
5 Continental countries	20.5	16.2	13.1	-7.4	16.6	13.0	9.6	-7.0	9.1	6.8	5.9	-3.2
4 Southern countries	33.0	30.2	21.8	-11.2	22.0	18.6	14.1	-7.9	12.1	9.8	7.3	-4.8

Note: For some countries, beginnings of time-series on gender employment gaps are 1993 (France), 1995 (Austria, Finland, Sweden), and 1996 (the Netherlands, Norway). The data for 1998 are missing in Germany, Ireland, and United Kingdom.

Source: OECD WISE and own calculations.

Table B6. Trends of index of dissimilarity between men and women by education, 1992 to 2013

	Low-educated workers				Medium-educated workers				High-educated workers			
	(1)	(2)	(3)	Change	(4)	(5)	(6)	Change	(7)	(8)	(9)	Change
	1992-1999	2000-2007	2008-2013	(3)-(1)	1992-1999	2000-2007	2008-2013	(6)-(4)	1992-1999	2000-2007	2008-2013	(9)-(7)
Austria	0.345	0.394	0.379	0.034	0.419	0.405	0.376	-0.043	-	0.240	0.218	-0.022
Belgium	0.416	0.435	0.493	0.077	0.415	0.411	0.444	0.029	0.172	0.180	0.161	-0.011
Denmark	0.355	0.359	0.335	-0.020	0.488	0.476	0.411	-0.077	0.302	0.291	0.178	-0.124
Finland	0.479	0.497	0.485	0.006	0.476	0.485	0.489	0.013	0.305	0.257	0.250	-0.055
France	0.450	0.460	0.446	-0.004	0.484	0.461	0.428	-0.056	0.287	0.248	0.177	-0.110
Germany	0.447	0.440	0.406	-0.041	0.491	0.464	0.439	-0.052	0.231	0.208	0.148	-0.083
Greece	0.321	0.377	0.384	0.063	0.344	0.379	0.338	-0.006	0.135	0.149	0.131	-0.004
Ireland	0.416	0.497	0.500	0.084	0.429	0.478	0.464	0.035	0.246	0.176	0.187	-0.059
Italy	0.279	0.317	0.374	0.095	0.322	0.283	0.324	0.002	0.101	0.117	0.140	0.039
Netherlands	0.473	0.449	0.436	-0.037	0.393	0.403	0.392	-0.001	0.134	0.138	0.122	-0.012
Norway	0.518	0.486	0.458	-0.060	0.519	0.485	0.469	-0.050	0.263	0.229	0.177	-0.086
Portugal	0.300	0.370	0.389	0.089	0.258	0.345	0.331	0.073	-	-	-	-
Spain	0.371	0.432	0.462	0.091	0.344	0.377	0.388	0.044	0.258	0.231	0.233	-0.025
Sweden	0.543	0.506	0.494	-0.049	0.524	0.469	0.424	-0.100	-	0.162	0.146	-0.016
United Kingdom	0.391	0.455	0.419	0.028	0.487	0.481	0.440	-0.047	0.194	0.224	0.178	-0.016
Total 15 countries	0.389	0.432	0.431	0.042	0.417	0.431	0.410	-0.007	0.216	0.201	0.175	-0.041
4 Nordic countries	0.443	0.462	0.443	0.000	0.499	0.479	0.448	-0.051	0.289	0.232	0.188	-0.101
2 Anglo-Saxon countries	0.403	0.476	0.460	0.057	0.458	0.479	0.452	-0.006	0.220	0.200	0.182	-0.038
5 Continental countries	0.427	0.436	0.432	0.005	0.447	0.429	0.416	-0.031	0.217	0.201	0.165	-0.052
4 Southern countries	0.318	0.374	0.402	0.084	0.321	0.346	0.345	0.024	0.172	0.166	0.168	-0.004

Note: For some countries, beginnings of time-series on index of dissimilarity are 1993 (France, Belgium, Denmark, Greece), 1995 (Austria), 1996 (the Netherlands, Norway), 1997 (Finland, Sweden) and there are missing data in 1998 (Germany, Ireland, United Kingdom). In addition to this, 1998-2005 in Portugal for the index of dissimilarity for medium-educated female workers and some years of data on Austria (1992-2001), Belgium (1993), Denmark (1993 and 1999-2001), Finland (1997), Greece (1993), Italy (1994 and 1997), Portugal (1992-2013), and Sweden (1997-2000) for that of high-educated female workers are missing.

Source: EU-LFS and own calculations.

Table B7. Trends of women's share in selected occupations by education, 1992 to 2013

	Low-educated female workers employed in low-skilled jobs				Medium-educated female workers employed in medium-skilled jobs				High-educated female workers employed in high-skilled jobs			
	(1)	(2)	(3)	Change	(4)	(5)	(6)	Change	(7)	(8)	(9)	Change
	1992-1999	2000-2007	2008-2013	(3)-(1)	1992-1999	2000-2007	2008-2013	(6)-(4)	1992-1999	2000-2007	2008-2013	(9)-(7)
Austria	71.4	71.6	70.5	-0.9	32.0	34.8	36.0	4.0	41.0	43.7	45.5	4.5
Belgium	57.9	58.8	63.0	5.1	34.3	35.2	30.7	-3.6	46.5	47.8	50.2	3.7
Denmark	63.3	59.8	56.6	-6.7	35.4	32.4	30.1	-5.3	48.4	51.6	54.5	6.1
Finland	68.2	67.8	64.5	-3.7	30.6	25.8	22.7	-7.9	50.0	51.9	54.0	4.0
France	71.7	71.3	68.2	-3.5	36.3	34.2	31.9	-4.4	47.3	48.9	50.8	3.5
Germany	69.9	68.4	64.9	-5.0	30.6	32.4	33.0	2.4	36.0	40.0	42.8	6.8
Greece	51.1	53.4	51.5	0.4	35.1	33.9	34.0	-1.1	42.3	45.7	49.2	6.9
Ireland	43.0	53.2	55.2	12.2	48.1	39.0	35.9	-12.2	45.5	49.3	51.6	6.1
Italy	44.2	48.6	52.3	8.1	38.6	39.9	37.9	-0.7	40.5	46.4	50.1	9.6
Netherlands	62.3	60.3	60.6	-1.7	34.2	36.4	34.7	0.5	38.9	42.6	45.4	6.5
Norway	73.9	70.1	67.2	-6.7	30.8	25.5	21.9	-8.9	47.7	50.8	52.1	4.4
Portugal	61.0	66.0	68.6	7.6	52.1	51.6	48.9	-3.2	56.5	59.4	59.3	2.8
Spain	48.6	53.7	59.4	10.8	34.4	31.4	31.6	-2.8	43.5	47.4	50.1	6.6
Sweden	74.7	68.9	67.9	-6.8	33.5	30.6	25.8	-7.7	52.9	56.6	56.9	4.0
United Kingdom	66.2	62.1	57.4	-8.8	35.1	35.2	31.9	-3.2	42.8	45.2	47.8	5.0
Total 15 countries	60.0	62.3	61.8	1.8	36.6	33.7	32.5	-4.1	45.1	48.5	50.7	5.6
4 Nordic countries	68.4	66.6	64.0	-4.4	33.3	28.6	25.1	-8.2	49.3	52.7	54.4	5.1
2 Anglo-Saxon countries	54.6	57.6	56.3	1.7	41.6	37.1	33.9	-7.7	44.1	47.2	49.7	5.6
5 Continental countries	66.8	66.1	65.4	-1.4	33.5	34.6	33.3	-0.2	42.3	44.6	47.0	4.7
4 Southern countries	51.2	55.4	57.9	6.7	39.3	36.3	38.1	-1.2	45.7	49.7	52.2	6.5

Note: For some countries, beginnings of time-series on women's share in occupations are 1993 (Belgium, France), 1995 (Austria), 1996 (the Netherlands, Norway), and 1997 (Finland, Sweden). The data for 1998 are missing in Germany, Ireland, and United Kingdom.

Source: EU-LFS and own calculations.

Table B8. Additional estimated effects on women's share in occupations for 15 European countries

Independent variable		Dependent variable (first difference)	
		Women's share in occupations	
		(1) Medium-educated women in low-skilled jobs	(2) High-educated women in low-skilled jobs
Childcare	First difference	0.183†	0.035
	Lag	0.150*	-0.137
	LRM	0.341*	-0.201
Maternity and parental leave	First difference	0.187	0.735†
	Lag	0.220†	0.264
	LRM	0.501†	0.388
Training	First difference	0.457***	0.493†
	Lag	0.251**	-0.403**
	LRM	0.571***	-0.592*
Public employment Services (PES)	First difference	0.111	0.892**
	Lag	-0.033	-0.238
	LRM	-0.076	-0.349
Direct job creation	First difference	-0.475*	-0.168
	Lag	0.005	0.143
	LRM	0.011	0.209
Employment incentives	First difference	-0.736**	-0.582
	Lag	-0.372*	0.094
	LRM	-0.848**	0.138
Unemployment benefits	First difference	0.035	-0.064
	Lag	0.007	0.058
	LRM	-0.042	0.454†
Union density	First difference	-0.042	0.451**
	Lag	0.089	0.451**
	LRM	0.018	-0.983**
Coordination of wage bargaining	First difference	0.018	-0.983**
	Lag	0.484*	-1.126**
	LRM	-1.579	-0.157
Regular EPL	First difference	-1.579	-0.157
	Lag	-0.283	0.980
	LRM	-0.251	-0.857
Temporary EPL	First difference	-0.251	-0.857
	Lag	-0.437	-0.744
	LRM	0.016	-0.096
Output gap	First difference	0.016	-0.096
	Lag	0.071	-0.070
	LRM	0.036†	-0.050
Openness	First difference	0.036†	-0.050
	Lag	0.029*	-0.078**
	LRM	0.194	2.655***
Payroll taxes	First difference	0.194	2.655***
	Lag	0.634**	1.825***
	LRM	2.620**	-1.317
Under 15 population	First difference	2.620**	-1.317
	Lag	-0.134	-2.835***
	LRM	0.291	-3.378†
Over 64 population	First difference	0.291	-3.378†
	Lag	0.193	1.220*
	LRM	-0.219*	-0.176
Low skilled jobs	First difference	-0.219*	-0.176
	Lag	-0.092	-0.210
	LRM		
Medium skilled jobs	First difference		
	Lag		
	LRM		
High skilled jobs	First difference		
	Lag		
	LRM		
Employment rate	First difference		
	Lag		
	LRM		
Women's share	First difference		
	Lag	-0.439***	-0.682***
	LRM		
Constant		9.242	37.827*
Observations		254	207
Number of countries		15	15
R ²		0.41	0.58

Notes: see Table 7.

Table B9. Estimated effects on gender occupational gaps for 4 Nordic countries

Independent variable		Dependent variable (first difference)					
		The index of dissimilarity			Women's share in occupations		
		(1) Low- educated	(2) Medium- educated	(3) High- educated	(4) Low- skilled jobs	(5) Medium- skilled jobs	(6) High- skilled jobs
Childcare	First difference	-0.101	-0.003	-0.503	0.209	-0.313**	-0.224
	Lag	0.028	0.586**	-0.130	0.693*	-0.376*	-0.322
	LRM	0.033	0.754*	-0.147	0.920*	-0.455*	-0.807
Maternity and parental leave	First difference	3.359***	-0.375	4.215***	3.810***	-0.785***	-1.310***
	Lag	0.920*	0.378	4.077***	1.321**	-0.250	-0.710**
	LRM	1.085*	0.487	4.638***	1.754***	-0.303	-1.778*
Training	First difference	0.228	-0.048	0.333	0.475†	0.190*	-0.411*
	Lag	0.171	0.024	0.992***	0.153	0.058	-0.120
	LRM	0.202	0.031	0.129***	0.203	0.071	-0.300
Public employment Services (PES)	First difference	-1.346**	0.156	0.521	-1.982***	0.095	0.525†
	Lag	-0.262	0.307	-1.661†	-2.271***	0.382†	0.536†
	LRM	-0.309	0.396	-1.890*	-3.014**	0.463†	1.342
Direct job creation	First difference	-0.501	-0.101	0.135	-1.389†	-0.349	0.647†
	Lag	0.486	0.678†	4.575***	1.072	-0.526*	-0.404
	LRM	0.573	0.874†	5.205***	1.423†	-0.638*	-1.011
Employment incentives	First difference	0.685	0.572†	-0.700	0.185	0.127	0.546*
	Lag	0.690*	-0.001	-0.472	1.004*	-0.290*	0.059
	LRM	0.813*	-0.001	-0.537	0.332**	-0.351*	0.147
Unemployment benefits	First difference	0.015	0.185*	0.329*	0.219†	-0.168**	-0.097
	Lag	-0.115	0.364***	0.088	-0.035	-0.101*	-0.004
Union density	First difference	0.472†	0.034	0.349	0.079	-0.043	0.192
	Lag	0.899**	-0.481*	-0.016	0.195	-0.402**	-0.186
Coordination of wage bargaining	First difference	0.046	-0.637**	0.586	-0.242	-0.532***	0.068
	Lag	-0.679†	-1.198***	0.413	-0.773*	-0.225	0.045
Regular EPL	First difference	-32.461***	-34.220***	-73.432***	-33.283***	0.497	5.890
	Lag	-36.722***	-33.817***	-63.001***	-47.816***	-1.028	4.012
Temporary EPL	First difference	-7.860***	-1.618	0.861	-4.077	2.590*	1.779
	Lag	-6.592***	-1.507	-2.487	-4.269*	4.102***	-0.330
Output gap	First difference	0.332*	0.170	0.779***	0.623***	-0.237***	-0.082
	Lag	0.188	0.503***	1.096***	0.411*	-0.021	0.170
Openness	First difference	0.174*	-0.131**	-0.060	0.106	-0.098**	-0.090*
	Lag	0.196*	-0.187**	-0.001	0.213†	-0.213***	-0.155**
Payroll taxes	First difference	-3.023***	-0.996*	-2.501†	-3.237***	0.763*	0.558
	Lag	-3.135***	-1.092*	-2.209	-2.956**	1.560**	0.648
Under 15 population	First difference	3.158	-6.416**	-0.101	2.092	-1.151	-3.320*
	Lag	1.899	4.751***	4.903†	6.274***	-0.953	-0.354
Over 64 population	First difference	8.856**	2.953	17.808***	12.518***	1.321	-2.638
	Lag	0.447	1.458*	-4.338***	-0.518	-0.041	1.418**
Low skilled jobs	First difference	-0.627***			-0.397*		
	Lag	-0.536*			-0.574*		
Medium skilled jobs	First difference		0.099			0.683***	
	Lag		0.207			1.052***	
High skilled jobs	First difference			2.149***			0.228
	Lag			1.805***			0.028
The index of dissimilarity	Lag	-0.848***	-0.776***				
Women's share in selected occupations	Lag				-0.753***	-0.825***	-0.399***
Constant		-0.702	22.807	28.866	9.099	59.355***	32.672†
Observations		67	67	58	67	67	67
Number of countries		4	4	4	4	4	4
R ²		0.85	0.82	0.86	0.81	0.91	0.73

Notes: see Table 7.

Table B10. Estimated effects on gender occupational gaps for 11 non Nordic countries

Independent variable		Dependent variable (first difference)					
		The index of dissimilarity			Women's share in occupations		
		(1) Low- educated	(2) Medium- educated	(3) High- educated	(4) Low- skilled jobs	(5) Medium- skilled jobs	(6) High- skilled jobs
Childcare	First difference	0.063	0.101	-0.175	0.037	-0.119†	0.065
	Lag	0.040	0.050	0.069	0.091	0.026	-0.025
	LRM	0.110	0.155	0.178	0.299	0.057	-0.063
Maternity and parental leave	First difference	0.246	0.517*	0.625*	0.361*	-0.207	0.367*
	Lag	0.264*	0.259	0.472†	0.352**	-0.375*	0.009
	LRM	0.722*	0.795†	1.227*	1.151**	-0.811*	0.021
Training	First difference	0.101	0.128	-0.830*	0.517**	-0.083	-0.169
	Lag	0.104	0.040	0.173	0.234†	-0.127	-0.001
	LRM	0.285	0.123	0.449	0.764†	-0.275	-0.002
Public employment Services (PES)	First difference	0.162	0.278	0.460*	-0.331	0.431**	-0.069
	Lag	-0.460**	-0.276†	-0.092	-0.514***	0.186	0.011
	LRM	-1.256**	-0.846*	-0.240	-1.682	0.402†	0.028
Direct job creation	First difference	0.218	-0.079	-0.066	-0.138	-0.099	-0.139
	Lag	0.210	0.010	-0.243†	0.220*	0.020	-0.128†
	LRM	0.574	0.029	-0.632	0.720*	0.042	-0.316†
Employment incen- tives	First difference	0.055	0.341	-0.071	0.140	0.017	-0.360*
	Lag	0.022	0.066	0.201	0.022	0.034	0.189*
	LRM	0.059	0.202	0.522	0.070	0.073	0.466†
Unemployment benefits	First difference	0.227***	0.076	0.005	0.095	-0.056	0.045
	Lag	0.168**	0.188***	-0.075	0.151***	-0.089†	-0.050†
Union density	First difference	0.147	-0.245	-0.126	-0.114	0.185	0.041
	Lag	-0.049	0.055	-0.198	-0.160†	-0.063	0.075
Coordination of wage bargaining	First difference	0.331†	0.051	-0.084	0.070	-0.294	-0.132
	Lag	0.057	-0.052	-0.629†	0.444**	-0.092	-0.110
Regular EPL	First difference	0.161	-1.453	-3.168**	0.107	-0.675	-0.408
	Lag	0.045	-1.074	-3.990**	-0.573	-2.386**	2.045**
Temporary EPL	First difference	-1.711***	0.370	-0.223	-0.856*	-0.318	0.229
	Lag	-1.175***	0.280	-0.575	-0.368	-0.949***	0.270†
Output gap	First difference	-0.075	0.079	-0.040	-0.070	-0.139**	-0.037
	Lag	-0.061	-0.007	-0.020	-0.083	-0.056	0.016
Openness	First difference	-0.011	-0.051*	-0.068**	0.009	-0.018	0.010
	Lag	-0.017	-0.020	-0.033†	0.020†	-0.031*	-0.000
Payroll taxes	First difference	0.439	-0.205	-0.236	0.182	-0.579**	0.125
	Lag	0.372†	-0.101	0.360	0.393*	-0.122	0.037
Under 15 population	First difference	0.338	2.494†	-1.347	1.615	-2.057	0.647
	Lag	-0.702†	-0.209	1.328**	0.178	0.389	-0.362
Over 64 population	First difference	-3.297*	0.948	-3.383*	-1.460	-1.809*	-0.318
	Lag	-1.036***	0.076	-0.474†	-0.455*	0.100	0.506***
Low skilled jobs	First difference	0.388***			-0.393***		
	Lag	0.243*			-0.052		
Medium skilled jobs	First difference		0.326**			-0.058	
	Lag		0.096			0.093†	
High skilled jobs	First difference			-0.357***			-0.182**
	Lag			0.057			0.067*
The index of dissimi- larity	Lag	-0.366***	-0.326***	-0.385***			
Women's share in se- lected occupations	Lag				-0.306***	-0.463***	-0.406***
Constant		31.471***	11.113	9.861	20.060**	22.520**	6.438
Observations		187	178	159	187	178	187
Number of countries		11	11	10	11	11	11
R ²		0.53	0.38	0.41	0.49	0.49	0.47

Notes: see Table 7

Table B11. Estimated effects on the employment rates for 4 Nordic countries

Independent variable		Dependent variable (first difference)					
		Female employment rate			Gender employment gap		
		(1) Low- educated	(2) Medium- educated	(3) High- educated	(4) Low- educated	(5) Medium- educated	(6) High- educated
Childcare	First difference	0.350	-0.288*	-0.305*	-0.378	0.370**	0.348**
	Lag	1.096**	-0.303	-0.271	-1.018**	0.410*	0.205
	LRM	3.847†	-0.312	-0.226	-1.298**	0.377*	0.143
Maternity and parental leave	First difference	0.170	-0.033	-1.102***	-0.635	-0.786*	0.430
	Lag	0.665	-0.179	-1.047***	0.155	-0.511*	0.933***
	LRM	2.332	-0.185	-0.873***	0.198	-0.470*	0.651***
Training	First difference	-0.107	0.489***	-0.208	0.543*	-0.635***	0.538***
	Lag	0.602**	0.531***	0.004	-0.057	-0.537***	0.379***
	LRM	2.111*	0.548***	0.003	-0.073	-0.494***	0.264***
Public employment Services (PES)	First difference	0.476	-0.137	0.822***	0.731†	0.118	-0.656**
	Lag	-0.163	-0.238	0.493*	2.291***	-0.090	-0.830***
	LRM	-0.573	-0.245	0.410*	2.920**	-0.083	-0.579***
Direct job creation	First difference	1.301	-0.482	0.043	-0.163	0.063	-0.408
	Lag	0.398	-0.851**	-0.861*	0.040	-0.221	0.291
	LRM	1.396	-0.878**	-0.718*	0.051	-0.204	0.203
Employment incen- tives	First difference	-0.249	-0.349	0.201	-0.552	0.378	-0.614**
	Lag	-0.661†	-0.530**	-0.531*	-0.429	0.130	-0.110
	LRM	-2.318	-0.547**	-0.442*	-0.547	0.120	-0.077
Unemployment benefits	First difference	-0.267†	-0.026	-0.220**	0.032	0.040	0.217**
	Lag	-0.106	-0.129*	-0.032	0.025	0.318***	0.098†
Union density	First difference	-0.604†	-0.357*	-0.041	0.130	-0.265†	-0.582***
	Lag	-0.370	-0.543**	-0.321	0.507†	-0.383*	-0.291
Coordination of wage bargaining	First difference	0.331	-0.429*	0.327	0.681**	0.340†	-0.197
	Lag	0.807*	0.139	0.746**	1.202***	-0.193	0.039
Regular EPL	First difference	4.950	-4.117	-2.642	30.507**	5.231	16.161***
	Lag	20.590	11.160	12.756†	37.657***	7.820	16.922*
Temporary EPL	First difference	5.588*	2.897*	0.030	-0.991	-1.736†	0.117
	Lag	3.803	5.695***	3.184**	2.296	-4.270***	-0.871
Output gap	First difference	0.416*	0.094	-0.097	-0.190	0.322***	0.146*
	Lag	0.593**	0.504***	0.176†	-0.298†	0.243*	0.081
Openness	First difference	-0.208*	-0.049	-0.154**	0.034	-0.025	0.071*
	Lag	-0.167	-0.143*	-0.150**	0.058	0.053	0.154***
Payroll taxes	First difference	1.269	0.140	0.641	-0.013	0.616†	-0.311
	Lag	-1.375	0.313	1.325**	0.001	0.257	-0.810*
Under 15 population	First difference	-2.562	1.667	-0.670	6.595*	1.587	3.204*
	Lag	2.921	-1.468†	-3.505***	-7.389***	1.023	0.335
Over 64 population	First difference	-4.975	3.461†	-4.544*	-8.486**	-4.192*	2.263
	Lag	1.303	-0.645	-0.559	-1.203	0.740	-1.404**
Low skilled jobs	First difference	0.059			-0.108		
	Lag	0.071			-0.039		
Medium skilled jobs	First difference		-0.076			0.332*	
	Lag		0.093			0.570***	
High skilled jobs	First difference			-0.054			0.061
	Lag			-0.009			-0.048
Female employment rate	Lag	-0.285**	-0.969***	-1.200***			
Gender employment gap	Lag				-0.785***	-1.086***	-1.433***
Constant		-96.257**	133.515***	190.526***	44.282	-36.503*	-17.299
Observations		67	67	67	67	67	67
Number of countries		4	4	4	4	4	4
R ²		0.76	0.86	0.85	0.75	0.87	0.87

Notes: see Table 7.

Table B12. Estimated effects on the employment rates for 11 non-Nordic European countries

Independent variable		Dependent variable (first difference)					
		Female employment rate			Gender employment gap		
		(1) Low- educated	(2) Medium- educated	(3) High- educated	(4) Low- educated	(5) Medium- educated	(6) High- educated
Childcare	First difference	0.158*	0.170*	-0.214**	0.088	-0.094	0.183*
	Lag	-0.019	0.168***	-0.040	-0.118†	-0.112*	-0.038
	LRM	-0.131	0.523***	-0.189	-0.835	-0.438*	-0.106
Maternity and parental leave	First difference	0.249	0.088	0.193	-0.388	0.140	0.070
	Lag	-0.208†	0.180	-0.058	-0.242*	0.101	-0.157
	LRM	-1.423	0.562†	-0.272	-1.756	0.397	-0.434
Training	First difference	-0.034	0.620***	0.267	-0.501*	-0.273	-0.157
	Lag	-0.172	0.237*	0.046	-0.122	-0.023	-0.106
	LRM	-1.178	0.740*	0.219	-0.864	-0.090	-0.294
Public employment Services (PES)	First difference	0.379†	0.235†	0.203	0.143	-0.137	0.146
	Lag	0.163	-0.021	0.127	0.257†	0.037	0.068
	LRM	1.117	-0.065	0.602	1.822	0.145	0.189
Direct job creation	First difference	0.087	-0.020	-0.352*	0.351	0.469**	0.325*
	Lag	0.020	-0.026	-0.306***	0.036	0.125	0.214*
	LRM	0.139	-0.081	-1.447**	0.255	0.492	0.594*
Employment incen- tives	First difference	0.063	0.141	0.484**	0.136	0.448*	-0.056
	Lag	0.312*	0.353**	0.342*	0.137	0.217	-0.054
	LRM	2.133*	1.098**	1.617*	0.969	0.853	-0.149
Unemployment benefits	First difference	-0.014	0.035	-0.054	-0.019	0.022	0.017
	Lag	-0.001	0.016	-0.076*	-0.194***	-0.040	-0.011
Union density	First difference	-0.277*	-0.298*	0.211†	0.007	-0.136	-0.194
	Lag	-0.164†	-0.226***	0.164*	0.279**	0.094	-0.078
Coordination of wage bargaining	First difference	-0.001	0.388*	-0.110	0.416*	0.219	0.289
	Lag	0.411**	0.999***	0.147	-0.010	-0.399*	-0.051
Regular EPL	First difference	-0.091	0.750	-0.655	0.883	-0.897	0.964
	Lag	-0.745	-1.395*	-1.491*	2.883**	0.538	0.894
Temporary EPL	First difference	0.248	0.253	0.252	-0.146	0.205	-0.322
	Lag	0.021	0.239	0.548**	0.066	0.119	-0.129
Output gap	First difference	0.303***	0.281***	0.259***	0.060	0.231***	0.079
	Lag	-0.003	0.165***	0.122**	-0.027	0.048	-0.011
Openness	First difference	-0.037*	-0.032†	-0.049***	0.030	-0.021	0.020
	Lag	0.012	0.002	0.000	0.008	-0.013	0.002
Payroll taxes	First difference	0.124	-0.282	-0.127	0.148	0.261	0.406†
	Lag	-0.276	-0.108	-0.285*	-0.159	0.001	0.174
Under 15 population	First difference	2.036*	4.638***	0.901	0.009	-2.063†	-0.146
	Lag	0.641*	1.021***	-0.100	-0.944*	-0.379	0.184
Over 64 population	First difference	-1.804	0.002	-0.771	-1.417	0.276	1.001
	Lag	0.273	0.792***	0.524***	0.362	0.002	-0.072
Low skilled jobs	First difference	0.277***			-0.064		
	Lag	0.034			-0.132		
Medium skilled jobs	First difference		0.060			0.123	
	Lag		0.030			0.012	
High skilled jobs	First difference			-0.132**			-0.086
	Lag			-0.003			-0.057
Female employment rate	Lag	-0.146**	-0.321***	-0.212***			
Gender employment gap	Lag				-0.141*	-0.255***	-0.361***
Constant		1.482	-2.945	14.021*	4.618	6.430	1.428
Observations		187	187	187	187	187	187
Number of countries		11	11	11	11	11	11
R ²		0.63	0.74	0.56	0.46	0.46	0.37

Notes: see Table 7.

Appendix on Paper 3

Appendix C: Interviews

Interviews lists

Interview 1: Senior Research Fellow of Korea Research Institute for Vocational Education & Training (KRIVET), 7.3.2019, Seoul

Interview 2: Research Centre Head of Korean Confederation of Trade Unions (KCTU), 14.3.2019, Seoul

Interview 3: Director General of HRD Service of Korea, 15.3.2019, Seoul

Interview 4: Director of Korea Employers Federation (KEF), 8.4.2019, Seoul

Interview 5: Director of Electronics ISC, Korea Electronics Association (KEA), 8.4.2019, Seoul

Interview 6: Executive Director of Korea Chamber of Commerce & Industry (KCCI), 9.4.2019, Seoul

Interview 7: Secretary General of Foodservice ISC, Korea Foodservice Industry Research Institute (K-FIRI), 9.4.2019, Seoul

Interview 8: Director General of Ulsan RSC, Ulsan Chamber of Commerce & Industry (Ulsan KCCI), 10.4.2019, Ulsan

Interview 9: Secretary General of Financial Services and Insurance Industry ISC, Korea Financial Investment Association (KOFIA), 11.4.2019, Seoul

Interview 10: Director of Seoul RSC, Seoul Chamber of Commerce & Industry (Seoul KCCI), 12.4.2019, Seoul

Interview 11: Secretary General of Business, Accounting, Management ISC, Korea Chamber of Commerce & Industry (KCCI), 12.4.2019, Seoul

Interview 12: Former General Manager of Electric, Energy, Resources ISC, Korea Electrical Contractors Association (KECA), 15.4.2019, Seoul

Interview 13: Vice President & General Secretary of Federation of Korean Metal Workers' Trade Unions (FKMTU), 15.4.2019, Seoul

Interview 14: Director General of Incheon RSC, Incheon Chamber of Commerce & Industry (Incheon KCCI), 16.4.2019, Incheon

Interview 15: Director of Gyeonggido RSC, Gyeonggi Employers Federation (Gyeonggi KEF), 16.4.2019, Gyeonggido Suwon

Interview 16: Department Head of Material ISC, Korea Iron & Steel Association (KISA), 16.4.2019, Seoul

Interview 17: Managing Director of Shipbuilding & Offshore ISC, Korea Offshore & Shipbuilding Association (KOSHIPA), 19.4.2019, Seoul

Interview 18: Managing Director of SW & PM ISC, Korea Software Industry Association (KOSA), 24.4.2019, Seoul

Interview 19: Deputy General of Federation of Korean trade Unions (FKTU) Research Centre, 24.4.2019, Seoul

Interview 20: Team Leader of Labour-Management Cooperation Team, Korea Labour Foundation, 25.4.2019, Seoul

Interview 21: Senior Research Fellow of Korea Labour Institute (KLI), 26.4.2019, Seoul

Interview 22: Section Chief of Training Support Team. Korea Federation of Small and Medium Business (KBIZ), 18.10.2019, Skype interview

Interview questionnaire

The interviews were conducted using different interview topic guides depending on interviewees, such as employers' associations, trade unions, public organisations, and think tanks. The attached below is the example for employers' associations.

1. Did your association have an interest in vocational training to improve skills of the workforce?

- a. If so, what did your association do to develop vocational training and skills? Did your association negotiate with trade unions in the process of collective bargaining?
- b. If not, why didn't your association prioritise it than other issues of industrial relations such as wage and working conditions?
- c. Was there any difference of positions between types of employers' associations, for instance, chaebols, SME employers, manufacturing employers, employers in the service sector?

- d. Do you think that trade unions had an interest in vocational training to improve their skills and wanted employers to invest in training? If not, why?

2. Did your association actively engage in the ISCs (and RSCs) and negotiate about vocational training with trade unions?

- a. If so, what was the outcome?
- b. If not, why didn't your association actively engage in the ISCs (and RSCs) to negotiate about training?
- c. Do you think that sectoral trade unions which attended the ISCs (and RSCs) had an interest in vocational training to improve their skills and wanted employers to invest in training? If not, why?

3. Did your association negotiate about vocational training with trade unions at the Tripartite Commission?

- a. Among members of the Tripartite Commission, who had an interest in training and who did not? And why?
- b. Do you think employers' associations spoke with one voice at the national level? If not, what were the main lines of disagreement among the associations?

4. Do you think that government holds the same view with employers' association in terms of vocational training policy?

- a. If so, what did government do to support employers' association and how did they influence the policy?
- b. If not, what were the main lines of disagreement between government and employers' association?

- c. Do you feel that there was any difference of position on the policy among ministries, MOEL, MOE, and MOTIE? Who was driving the policy and who was reluctant? And why?

5. Do you think that the institutional factors which are given below as an example produced the low investment in skills and vocational training of Korea?

- a. Examples: the prominence of enterprise unionism, the absence of strong employers' association and trade unions, the inability of government to develop skills and training, and the historical neglect of training in the collective bargaining process., etc.
- b. Do you think that capital market liberalisation and labour market flexibility in the aftermath of the financial crisis affected employers' decision-making, for instance, in terms of corporate governance and vocational training?

Appendix D: Abbreviations

BVTA	Basic Vocational Training Act
EIS	Employment Insurance System
EPB	Economic Planning Board
FKI	Federation of Korean Industries
FKTU	Federation of Korean Trade Unions
HCCP	Human Capital Corporate Panel
HRD Korea	Human Resources Development Service of Korea
ISCs	Industrial Skills Councils
JSDP	Job Skill Development Programme
KBIZ	Korea Federation of Small and Medium Business
KCCI	Korea Chamber of Commerce & Industry
KCTU	Korean Confederation of Trade Unions
KDI	Korea Development Institute
KEF	Korea Employers Federation
KERI	Korea Economic Research Institute
KFIA	Korea Foodservice Industry Association
KITA	Korea International Trade Association
KLI	Korea Labour Institute
KOFIA	Korea Financial Investment Association
KRIVET	Korea Research Institute for Vocational Education & Training
KTUC	Korean Trade Unions Congress
KVTMC	Korea Vocational Training Management Corporation
MOCI	Ministry of Commerce and Industry
MOEF	Ministry of Finance and Economy
MOEL	Ministry of Employment and Labour
MOL	Ministry of Labour
MOTIE	Ministry of Trade, Industry and Energy
MSS	Ministry of SMEs and Startups
OLA	Office of Labour Affairs
RSCs	Regional Skills Councils
SCs	Sector Councils

TUA	Trade Union Act
VTA	Vocational Training Act
VTPF	Vocational Training Promotion Fund
VTSMa	Vocational Training Special Measures Act
WPS	Workforce Panel Survey

Appendix ECM Methods of Papers 1 and 2

In this thesis, we use the ECM according to Beck and Katz (2004, 2011) and Podestà (2006).

This is lead to

$$\Delta y_{it} = \alpha + \beta_0 \Delta x_{ijt} + \beta_1 y_{it-1} + \beta_2 x_{ijt-1} + \varepsilon_{it}$$

with respect to i , j , and t refer to the country, independent variable, and time, respectively. The ECM states that the shorter-run change in y (Δy) in any period is a function of both the ‘change’ in x (Δx) which is represented as β_0 and the change in the lagged ‘level’ of x (x_{t-1}) which means the variation in the long-run equilibrium relationship between x and y . Because the discrepancy between y_{t-1} and the equilibrium accounts for long-run adjustments, denoted as the error correction term (Dougherty 2007: 405-6), in our model, we can interpret the long-term effect as $\beta_2 / -\beta_1$. β_1 is between -1 and 0 if dependent variables converge to a long-term equilibrium (Iversen and Cusack 2000). In this case, these long-term permanent effects are calculated by dividing β_2 , i.e. the coefficient of the lagged independent variable by the absolute value of β_1 , i.e. the coefficient of the lagged dependent variable (Iversen and Cusack 2000; Busemeyer 2009; Abrassart 2015). Someone could test a more complex lag structure of independent variables, for example, x_{ijt-2} which seems right with monthly and quarterly time series data. However, we are interested in changes in the outcomes as a result of changes in social investment policies. The first-order lag often is sufficient given that TSCS data in comparative political economy normally is annual (Beck and Katz 2011: 335, 337-338).

Beck and Katz (2011) show that both the LDV and AR1 specification are special cases of the ECM (and ADL model). In other words, the ECM is equivalent to an autoregressive distributed lag (ADL) model with a first difference model (Δ is the first difference operator). This also incorporates the lagged dependent variable (LDV)

model as well as AR-1 process in error term in that the right-hand side includes lagged dependent variable as well as current and lagged independent variables, respectively.

To illustrate the relation between in the LDV, the AR(1) process, the ADL model and the ECM in section 3.4, here we introduce the equations and notations according to Beck and Katz (2004, 2011). For a convenience, we ignore the constant term and the assumption of error terms, and simplify notations. We begin with the static specification:

$$y_t = \beta^s x_t + v_t \quad (\text{eq.1})$$

This specification is non-dynamic because any changes in the right-hand side instantaneously affect the dependent variables: there are no delayed effects.

In order to add dynamics, AR(1) model suppose that the errors follow an AR(1) process (i.e., eq.5), with letting L be the lag operator, ρ be the AR parameter:

$$y_t = \beta^{ar1} x_t + \rho \varepsilon_{t-1} + v_t \quad (\text{eq.2})$$

$$= \beta^{ar1} x_t + \frac{v_t}{1-\rho L} \quad (\text{eq.3})$$

$$= \beta^{ar1} x_t + \rho y_{t-1} - \beta^{ar1} \rho x_{t-1} + v_t \quad (\text{eq.4})$$

where

$$\varepsilon_t = \rho \varepsilon_{t-1} + v_t \quad (\text{eq.5})$$

Another dynamics is the LDV model which includes a lagged dependent variable into the right-hand side:

$$y_t = \beta^{LDV} x_t + \theta y_{t-1} + v_t \quad (\text{eq.6})$$

$$= \beta^{LDV} \frac{x_t}{1-\theta L} + \frac{v_t}{1-\theta L} \quad (\text{eq.7})$$

Both the AR(1) model and LDV specifications are special cases of the ADL model:

$$y_t = \beta^{ADL} x_t + \theta y_{t-1} + \gamma x_{t-1} + v_t \quad (\text{eq.8})$$

We can show the AR(1) model (eq.4) when $\gamma = -\beta^{ADL}\theta$, while the LDV model (eq.6) when $\gamma = 0$ in eq.8. In this regard, the ADL model generalises two specifications.

The ADL model is equivalent to the ECM which is the ADL model in error correction (EC) form:

$$\Delta y_t = \beta^{ECM} \Delta x_t - \lambda(y_{t-1} - \xi x_{t-1}) + v_t \quad (\text{eq.9})$$

where $\lambda = 1 - \theta$ and $\xi = \frac{\gamma + \beta^{ADL}}{1 - \theta}$. We can get the ECM, subtracting y_{t-1} from both sides of the ADL model in eq.8 and $\beta^{ADL} x_{t-1}$ in the right-hand side. The term $\lambda(y_{t-1} - \xi x_{t-1})$ in eq.9 is called the error correction term. The ECM allows us to study the short-run changes in y are a function of both short-run changes in x , β^{ECM} , and how much x and y were out of equilibrium last year, $\lambda(y_{t-1} - \xi x_{t-1})$. If $y_{t-1} > \xi x_{t-1}$, then y in the previous period has overshot the equilibrium because the error correction term works to push y back toward the equilibrium, while if $y_{t-1} < \xi x_{t-1}$, the error correction term induces a positive change in y back toward the equilibrium (Wooldbridge 2013: 625). In our model, we use the modified form for the convenience for prediction:

$$\Delta y_{it} = \alpha + \beta_0 \Delta x_{ijt} + \beta_1 y_{it-1} + \beta_2 x_{ijt-1} + \varepsilon_{it}.$$

To sum up, for the AR(1) model, y ‘instantaneously’ responds to the change by increasing by β^{ar} , while for the LDV model y adjusts to the change in x ‘geometrically’ with steady-state impact $\frac{\beta^{LDV}}{1 - \theta}$ and parameter θ (Beck and Katz 2004: 20). However, ECM (and ADL model) constructs a more comprehensive model that combines short-term and long-term dynamics. Taken together, if we expect an institutional change to affect the target immediately or completely in one or two years, the AR(1) or FDL model is sufficient; if we expect some initial effect that increases to some limit

over time, the LDV model or ECM (and ADL model) seems right (Beck and Katz 2001: 336).

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