Insiders under pressure: Flexible employment and wage inequality

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Abstract

Flexible employment has been on the rise in advanced capitalist democracies. But flexibilization appears to be threatening to some core workers and politically more contested than anticipated in the dualization literature. To explain this puzzle, this paper explores whether the deregulation of flexible employment exacerbates wage inequality among regular workers. Contrary to assumptions of the dualization literature, I argue that some insiders are left worse-off from flexibilization at the margins due to a combination of low-wage competition and adverse future wage prospects. I expect that deregulation generates wage pressure on lower- and middle-income insiders, who need to defend higher wages and have skills disadvantages compared to some high-skilled outsiders. Using LIS wage data for 22 OECD countries between 1985 and 2016, the empirical analysis based on error correction models shows that wage shares of insiders at the lower and middle end of the distribution decline under deregulated temporary employment, while top earners benefit. The findings suggest that flexibilization "at the margins" contributes to rising income inequality beyond dualization, by causing major distributional shifts among insiders in standard employment. The spread of wage risks towards middle class insiders suggest that the political support coalitions behind flexible employment policies are potentially unstable.

Introduction

Flexible employment has been on the rise in advanced capitalist democracies. Since the 1980s, both left- and right-wing governments have relaxed the rules on fixed-term contracts and temporary work agencies, especially in countries with high restrictions in the past (King and Rueda, 2008, Beramendi et al., 2015: 11). The platform business model of firms like Uber relies on such flexible contracting as a strategy to cut wages, social contributions and dismissal costs (Rahman and Thelen, 2019). But although the trend encompasses many advanced capitalist democracies, the deregulation of flexible employment is sometimes accompanied by fierce political conflict. The case of Germany is indicative of a "backlash" against labor market reforms associated with flexibilization. Public opinion in Germany has opposed the Hartz reforms, enabling policy reversals such as the 2014 minimum wage and debate about re-regulating fixed-term contracts (Marx and Starke, 2017, Bosch, 2018).

These developments stand in stark contrast to the influential dualization literature, according to which governments should have little difficulty to implement flexible employment policies that are targeted at minority groups of "outsiders" (temporary workers, long-term unemployed, involuntary part-time workers) and protect the privileged position of "insiders" in regular employment (Rueda, 2005, Rueda, 2007, Palier and Thelen, 2010, Emmenegger et al., 2012). However, the claims of the dualization literature hinge on the assumption that the position of insiders is hardly affected from flexibilization "at the margins". In-depth case studies from Germany shed doubt on this assumption and show that precarious employment conditions have adverse repercussions on core workers (Eichhorst and Marx, 2011, Benassi and Dorigatti, 2015, Benassi, 2016, Bosch, 2018). More generally, the deregulation of atypical employment is associated with lower labor shares (Deakin et al., 2014, Damiani et al., 2018) and therewith contributes to rising income inequality (OECD, 2015: ch. 4). If flexible employment policies leave some workers better-off than others, then insiders are likely to be politically divided on the issues of flexible employment and, perhaps, labor market regulation more generally.

Against this background, this paper explores how the (de)regulation of flexible employment affects wage inequality among regular workers, and whether it negatively affects the position of specific groups of insiders. I argue that flexible employment policies expose insiders to a set of wage-related risks, including low-wage competition, job replacement and adverse long-term income prospects. Specifically, I hypothesize that these risks vary across income groups and create downward wage pressure on low-income and middle-income insiders. Insiders in the lower and middle classes have to defend their wage levels in competition with cheaper temporary workers, and typically have attained lower skills not only compared to high-income groups but also compared to some high-skilled outsiders who use temporary work for career advancement.

Using Luxembourg Income Study (LIS) earnings data for 22 OECD countries between 1985 and 2016, I find empirical support for the proposition that deregulated flexible employment increases wage inequality. Error correction models show that deregulation of fixed-term contracts and temporary agency work reduces the wage share of insiders at the bottom and, more strikingly, the middle of the wage distribution. Wage gains from flexible employment deregulation exclusively accrue to top-income insiders. With a large group of insiders – including middle-income workers – adversely affected by deregulated flexible employment, it is perhaps less surprising that political moves towards flexibilization do not seem very popular. These findings imply an important qualification of the dualization framework, which may be addressed by examining variation among insiders and looking at wage-related risks instead of risks based on formal employment status. More broadly, the findings speak to the ongoing debate about the "squeezed middle class" (OECD, 2019) and show that variation in the middle's income and living standards can be traced back to systematic policy choices.

The next section develops my theoretical argument about how flexible employment regulation affects different groups of insiders. In the empirical sections, I describe the data and present descriptive evidence in line with my underlying theoretical assumptions about lower- and middle-income insiders' vulnerability to low-wage competition and their skills disadvantage compared to high-skilled outsiders. This is followed by the main empirical analysis examining the distributional effects of flexible employment policy on insiders' wage shares. The final section discusses the implications for the politics of labor market change and how the findings challenge central claims of the dualization literature.

Theory: The repercussions of flexible employment regulation on insiders

Striving for the twin goals of flexibility and security (Kalleberg, 2009), advanced capitalist democracies have faced pressures to relax restrictions on "flexible employment" – work forms that deviate from the norm of "regular employment" with unlimited contract duration, obligations for social contributions and legal protections against dismissal. An influential literature has coined the term "dualization" for the political process of deregulating flexible employment and generating increasingly precarious conditions for peripheral workers in atypical employment (outsiders) while leaving core workers in standard employment (insiders) protected (Rueda, 2005, Rueda, 2007, Palier and Thelen, 2010, Emmenegger et al., 2012).

The dualization framework rests on two important assumptions that contribute to defining differences between insiders and outsiders. First, insiders and outsiders do not compete with one another (Palier and Thelen, 2010: 122). Second, the position of insiders remains unaffected by labor market changes targeted at outsiders (Emmenegger et al., 2012: 10). If these assumptions hold, insiders benefit from the expansion of cheaper services and may form

political coalitions with employers to support flexibilization at the margins in exchange for stringent protection of core workers (Thelen, 2014, Hassel, 2014).

But are insiders really unaffected by the rules governing flexible employment "at the margins"? A recent literature on the case of Germany suggests insiders' labor market conditions are more interdependent from those of outsiders than assumed in the dualization literature. Expanding flexible employment always entails the possibility that regular workers get replaced or outsourced by temporary workers (Eichhorst and Marx, 2011, Bosch, 2018). Due to lower wage costs in temporary employment, deregulation "creates downward pressure by threatening to crowd out permanent jobs" (Eichhorst and Marx, 2011: 75). Core workers feel threatened by the increasing possibility of employers using cheap temporary workers, generating pressure on their working conditions (Benassi and Dorigatti, 2015, Benassi, 2016). In dramatic words by Streeck (2010: 512), dualization may "eat into the core until nothing much remains of it".

As a result, flexible employment carries some tangible risks for core workforces. However, the German case study literature essentially treats insiders as homogeneous and represented by the powerful manufacturing industry, although the latter is in a process of change and not easily comparable to other countries (Thelen, 2019). By contrast, it is unlikely that the threats of expanding flexible employment equally apply to all insiders alike. Studies have noted a significant association between the deregulation of atypical employment and rising income inequality, by reducing the labor share (Deakin et al., 2014, Damiani et al., 2018) and increasing wage inequality (Vlandas, 2018). In addition, expanding flexible employment affects inequality through the polarization of the job structure, as regular jobs in the middle of the wage and skill distribution are disappearing (OECD, 2015: ch. 4). These studies suggest there is substantial heterogeneity in the extent through which flexible employment affects insiders in different socio-economic circumstances.

Wage risks from flexible employment

To systematically assess how flexible employment policies can affect insiders in different ways, I build on a risk-based framework that sheds light on three sources of wage pressure on insiders: low-wage competition, job replacement risks and the ability to secure continuous wage increases in the future. These three types of wage-related risks capture some aspects of what the German-centered literature described as "internal flexibility" as the result of increasing pressure on core workers (Eichhorst and Marx, 2011).

Low-wage competition is the first type of wage-related risk that insiders are exposed to in an environment of deregulated flexible employment. Although the dualization literature assumes that insiders and outsiders do not compete with each other (Palier and Thelen, 2010: 122), lower wages in temporary employment would enable employers to save labor costs. The wage

penalty in temporary employment is well established (OECD, 2015: 135-198). Empirical estimates show that wages in permanent employment, holding education and experience constant, exceed those in temporary employment between 7% (UK) and 45% (Sweden) (Boeri, 2011: 1202). However, not all insiders will be equally threatened by lower wages in temporary employment. Some low-income insiders are already earning so little, and may be struggling to make ends meet, that cheap outsiders do not necessarily represent a severe additional threat. High-income insiders are likely to be in their own league with wages manifold higher than those in temporary work. Hence, I assume that low-wage competition is most likely to be an issue for those insiders in the lower and middle locations of the distribution that have to defend somewhat higher wage levels against temporary workers. The key point is that there will be variation in wage differentials between outsiders and insiders at different parts of the distribution.

A second risk source on insiders' wages is *job replacement*, which concerns the incentives for employers to replace permanent workers by temporary workers. A large literature has identified workers' skill profiles as the main determinant of replacement risks (Goldthorpe, 2000: 206-229, Emmenegger, 2009, Eichhorst and Marx, 2015). Low-skilled workers typically perform tasks that require little investment in training or education, which are easy to substitute. Hence, low-skilled jobs are more at risk to be "outsourced" to the flexible employment sector. High-skilled jobs generally have lower replacement risk, though there is some debate whether the risk of replacement is higher for workers with high "general" or high "specific" skills (see Emmenegger, 2009 for an overview). This is primarily an empirical question; the point is that workers with high skills can be considered more secure against outsourcing to temporary jobs because of incentives for employers to convert their skills in a long-term employment relationship. Because of the close correlation between skills, education and income, I assume again that the risk of job replacement varies across income groups and is stronger for lower-income groups. This is entirely in line with empirical findings on subjective job insecurity (Burgoon and Dekker, 2010, Mau et al., 2012).

A third risk concerns *long-term income prospects*. Insiders face a risk in the way that flexible employment may disrupt the prospects for individuals to secure long-term wage increases over their careers. Similar to the risk of job replacement, the role of skills and education is crucial for long-term income prospects – and gains in importance in the context of expanding flexible employment. A higher degree does not only serve as insurance against job replacement, the qualification also has a broader signaling value (Spence, 1973). It signals the ability to adapt to flexible work environments, transition between jobs and pursue careers that do not depend on having a single job over one's lifetime (see e.g. Scherer, 2004, Morel et al., 2012). As flexible employment becomes more available in deregulated environments, high-skilled individuals will try to use flexible employment as a "stepping stone" to better-paid permanent

employment in the future (Booth et al., 2002). It is a fact that non-negligible shares of outsiders are high-skilled individuals (mostly young and women) (Häusermann et al., 2015). Few high-skilled outsiders are likely to remain in precarious employment conditions for a long time; numerous of them might succeed to move into better-paying permanent position later in their career. Thus, low-skilled insiders not only face job replacement risks in the short term (against which they can be protected by dismissal laws), but are also exposed to competition against high-skilled outsiders in the long-term that affects their long-term income prospects.

In sum, wage-related risks are likely to vary systematically between insiders at different income levels. High-income insiders face few wage risks from flexible employment. With wages so much above those paid in temporary work they are hardly in direct low-wage competition with temporary employees, and for the most part their job replacement and income prospect risks are low because of their high skill levels. In contrast, low-income and middle-income insiders might face considerable wage risks from flexible employment. For low-income workers, the main source of wage risks lies in their lower skill levels, putting them at disadvantage not only against other income groups but also against the non-negligible share of high-skilled outsiders. Finally, for middle-income workers, the main source of wage risk is likely to be low-wage competition, since middle-income workers will have to defend higher earnings levels against typical wages in flexible employment.

This constellation of wage risks puts lower-income and middle-income workers in a weak wage bargaining position in an environment of deregulated flexible employment. In terms of observable implications, the main assumption is that this change in risk exposure translates into noticeable changes in the earnings position of insiders. The in-depth literature on the German case suggests that the labor market context affects workers' willingness for wage concessions and wage moderation (Rebien and Kettner, 2011, Eichhorst and Marx, 2011), rather than outright wage cuts. As a result, the main hypothesis of this paper expects a gradual deterioration in the share of earnings going to low-income and middle-income insiders under deregulated flexible employment.

H1: Deregulated flexible employment is associated with lower wage shares among low-income and middle-income insiders, and higher wage shares among high-income insiders.

The argument so far has focused on individual-level drivers of wage risks associated with flexible employment. An important qualification of this argument is that the risks might differ in a context of encompassing trade union representation. The latter is an important determinant of wage compression (Pontusson, 2013, Vlandas, 2018). Where unions are encompassing, representing a sizeable share of lower- and middle-income workers, they can limit the negative externalities of low-wage competition under deregulated flexible employment. Workers in the lower and middle parts of the income distribution will benefit from more compressed wage

disparities, limiting the scope for cheaper workers to underbid insiders' wages. If the need for internal flexibility arises, to the extent that unions strive for encompassing agreements at the industry level, wage concessions can be shared evenly among all income groups – and unions will try to extend wage agreements to also cover non-standard workers (Benassi and Vlandas, 2016). This moderating effect of high union density leads to my second hypothesis:

H2: High union density attenuates the unequal effects of deregulated flexible employment.

Finally, an important alternative explanation of insiders' wage risks is that they depend foremost on the levels of employment protection for insiders with unlimited contracts, rather than the regulations of marginal employment. Where stringent dismissal protection rules protect the positions of insiders, the threat of job replacement becomes less credible. One might also argue that high employment protection for regular contracts reduces the incentives to rely on temporary workers in the first place (Polavieja, 2003). Following this line of argumentation, the third hypothesis is as follows:

H3: High employment protection for regular contracts attenuates the unequal effects of deregulated flexible employment.

In testing the moderating effects of encompassing unions (H2) and employment protection for regular workers (H3), the empirical analysis below sheds light on some macro-level conditions under which the wage risk framework is likely to hold true. However, it is important to emphasize that neither encompassing unions and high employment protection per se are sufficient to reduce wage risks for insiders with lower-middle incomes. On the one hand, this is because my framework rests on wage-related risks in the future. Hence, what matters is the *possibility* that employers substitute regular jobs with temporary workers at some point in the future, not necessarily the immediate use of layoffs. On the other hand, while strong unions might prevent direct wage cuts and employment protection laws might reduce job replacement risks, they cannot protect the long-term wage prospects of low-skilled insiders in competition with high-skilled outsiders.

Data

The empirical analysis assesses the distributional effects of flexible employment policies for a sample of 22 advanced capitalist democracies between 1985 and 2016.[1] In this section, I first describe the operationalization of the dependent variable and then present descriptive evidence

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[1] The 22 OECD countries included are: Australia, Austria, Belgium, Canada, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Netherlands, Norway, Poland, Slovakia, Spain, Sweden, Switzerland, United Kingdom, USA.

on the underlying theoretical assumptions in the insider-outsider framework. Finally, I describe the explanatory variables and the statistical model specification.

Sample and dependent variable

The *dependent variable* is the *wage share* for each quintile (the percentage of total labor earnings going to the bottom, lower-middle, middle, upper-middle and top 20 percent of the wage distribution). I use wage shares as an alternative to other inequality indicators, allowing for a neat differentiation of trends in the lower-middle, middle or upper-middle of the income distribution. Aggregated wage shares are calculated from Luxembourg Income Study (LIS, 2019) microdata from harmonized income surveys.

Each LIS sample is restricted to full-time dependent employees aged 25 to 59, in order to test distributional shifts specifically among labor market insiders. Unfortunately, the final sample includes both permanent and temporary employees, as information on job contracts is missing in about half of the sample years. However, excluding temporary workers would leave wage shares basically unchanged.[2] Earnings used to calculate wage shares comprise individual-level income from paid employment before taxes and excluding capital income.[3]

Figure 1 highlights the large cross-national variation in wage shares. The countries are sorted by the middle quintile's wage share level around 2007. At the top of the graph, Anglo-Saxon countries are characterized by lower wage shares at the lower and middle end of the distribution. Sweden has the highest share of wages going to the middle 20 percent, closely followed by Slovakia, Italy and Belgium. Denmark has the most compressed wage distribution, with the smallest difference between the bottom and the top quintile. On average, the quintile wage shares rise from 9% (bottom), 14% (lower-middle), 17% (middle), 22% (upper-middle) to 38% (top).

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[2] In a reduced sample where information on contract duration is available (N=80), the correlation in wage shares of (a) permanent workers only and (b) both permanent and temporary workers is above 0.955 for all five quintiles.
[3] In three observations where individual-level earnings data are missing (Switzerland 2000/02/04), I use household-level market income instead. Using household-level earnings throughout leads to similar conclusions.

Figure 1: Wage shares around 2007
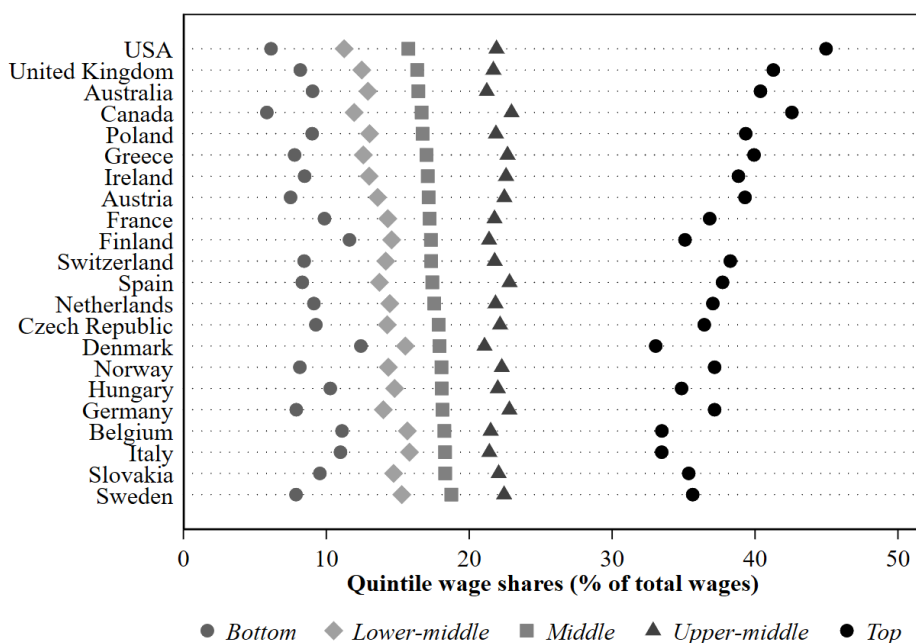
Note: Estimated from LIS microdata around 2007 (Australia/Italy 2008, Belgium 2000, France/Sweden 2005).

Apart from these level differences, wage shares are marked by a substantial amount of change. Simple bivariate correlations between wage shares and years show a decline in wage shares for all quintiles except the top over time (p=0.016 or below).

Assumptions on insider-outsider competition

For the claim that flexible employment generates exposes lower- and middle-income insiders to a set of wage risks to make sense, it is necessary to identify the traits that distinguish this group from other groups in the labor market. In this section, I scrutinize two underlying assumptions from my theoretical framework on wage risks: First, low-wage competition can arise if outsiders' wages are comparably close but below those of insiders. Second, some groups of insiders have a skills disadvantage compared not only to other insiders but also to high-skilled outsiders. I use the LIS data described above for a restricted sample of 17 countries for which I have information on the permanency of job contracts.

Figure 2 displays the wage premium of permanent employment (i.e. the wage differentials between permanent workers' wages relative to the median wage in temporary employment) in the 2000s. In all countries except Italy, low-wage permanent workers (bottom decile) tend to earn *less* than typical (median) wages in temporary employment. In contrast, middle earners in permanent employment earn *more* than temporary workers in all countries. The wage premiums for middle-income permanent workers exceed 60% in Greece, Italy and Spain; but

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the premiums are not exceedingly large for the remaining countries (36% on average). For middle-income workers, this pattern of wages "close but above" wages in temporary employment can clearly become a source of low-wage competition. The potential for downward wage pressure, by underbidding permanent workers' wages, is more uncertain for low-wage workers, which tend to earn less than typical temporary employees. Finally, permanent workers at the top of the wage distribution tend to earn at least double the typical wages in temporary employment – in stark contrast to low- and middle-income workers, top earners are unlikely to be in direct wage competition with temporary workers.

Figure 2: Wage premium of permanent employment
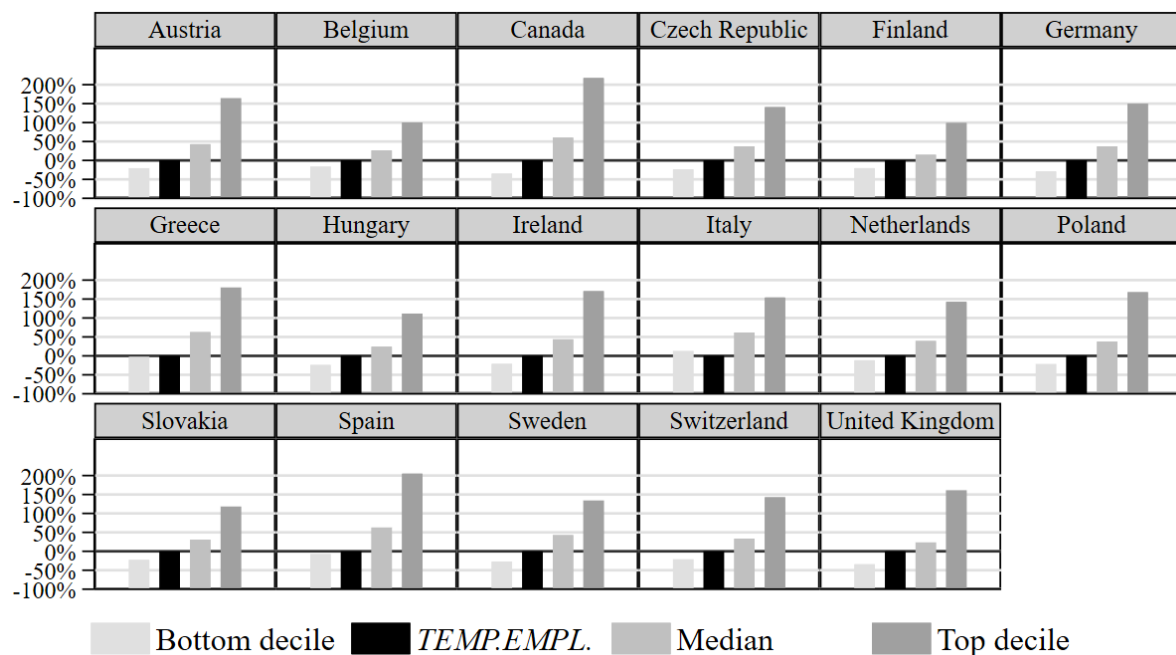
Note: LIS data, averages 1999-2013.

In turn, Figure 3 presents data on the relative skills (dis)advantages between insiders and outsiders, assessed by the share of tertiary education attainment in each group. The grey bars confirm that among permanent workers, unsurprisingly, the share of tertiary degrees increases with wage levels. But the more striking observation from Figure 3 is that temporary workers do not appear have any skills disadvantage compared to lower- and middle-income permanent workers – quite the contrary. In all 17 countries, temporary workers have a higher incidence of tertiary education than permanent workers in the bottom quintile. Most notably, the share of temporary workers with tertiary degrees exceeds the share of permanent workers in the middle quintile in all countries except Greece, Poland and Spain. In many cases, temporary workers have quite substantially higher shares of tertiary education than middle-income workers in permanent employment. Top-income permanent workers, in contrast, evidently have the

highest shares of tertiary education. Again, this hints that top earners hardly compete directly with temporary workers. But the evidence in Figure 2 and 3 is broadly in line with the assumption that flexible employment can enhance wage risks among both low-income and middle-income insiders.

**Figure 3: Share of tertiary education in permanent and temporary employment**
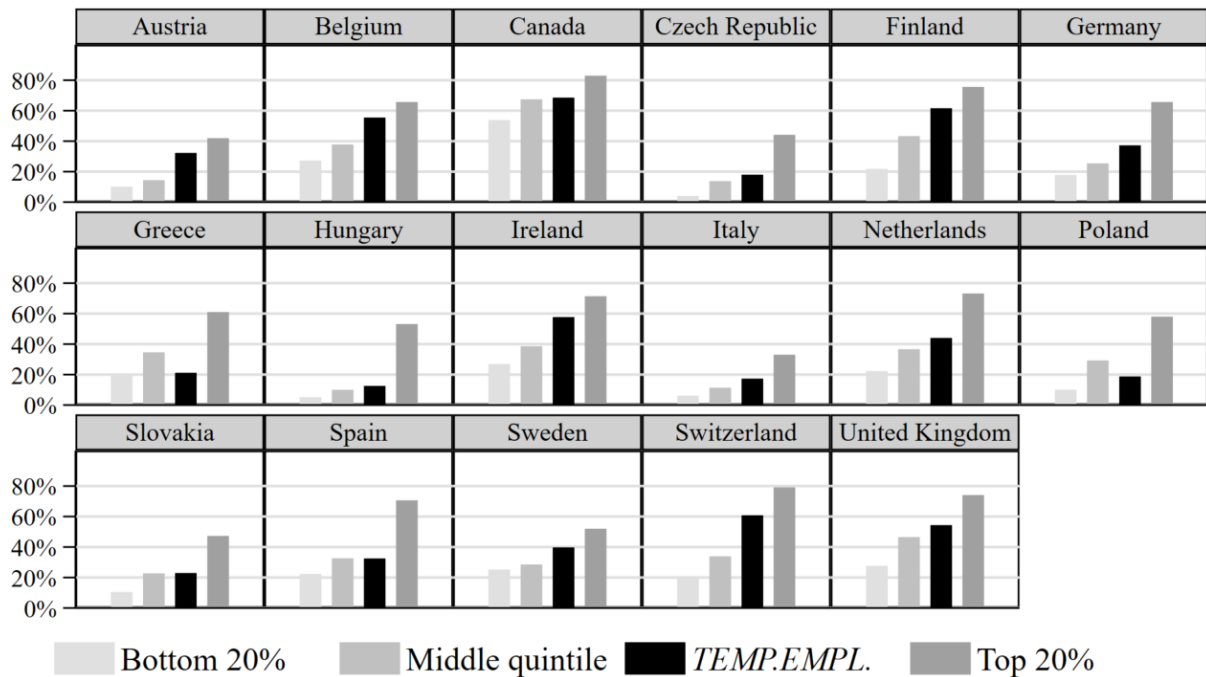
Note: LIS data, averages 1999-2013.

Explanatory variables

The main independent variable is the *regulation of temporary employment* as an indicator for flexible employment policy. To operationalize it, I use the OECD Employment Protection Legislation indicators (OECD, 2017) which distinguish three sub-items for fixed-term contracts (valid cases, number of successive contracts and maximum cumulated duration) and three sub-items on temporary work agencies (types of agency work allowed, number of renewals and maximum cumulated duration of assignments). Figure 4 shows the levels of temporary employment regulation across the sample of 22 countries in the late-1980s and from 2007-2013. With the exception of France and Norway, several countries with high restrictions in the 1980s have moved towards more flexible employment regulation (below the 45-degree-line). The graph shows a clear convergence towards lower levels of temporary employment regulation; the coefficient of variation over this period declined from 0.81 to 0.61.

Figure 4: Regulation of temporary employment from the late-1980s to the 2010s
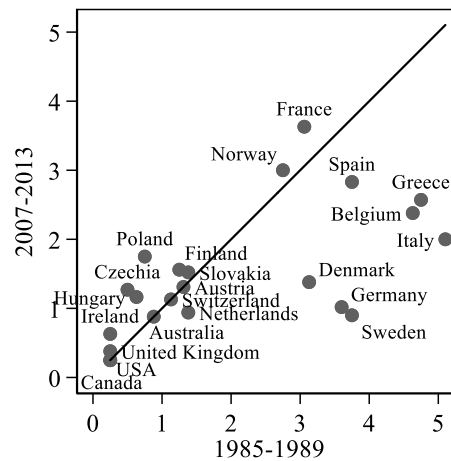
Notes: Based on OECD (2017). Data for the early-1990s used for Czech Republic (1993), Hungary (1990), Poland (1991) and Slovakia (1993).

Further explanatory variables are operationalized as follows. I use *union density* (union members as a share of all employees) as a measure for the encompassing organization of workers across the income distribution (see Vlandas, 2018). Union density is both an important determinant of wage inequality and may moderate the effect of temporary employment regulation (see hypothesis 2). The data are from Visser (2015). Next, I control for *unemployment rates* which have been associated with higher market inequality (Pontusson and Weisstanner, 2018) and *trade openness*, measured as the sum of exports and imports in proportion to GDP. Both are obtained from Armingeon et al. (2018). Given that LIS data are available every in waves every few years, all explanatory variables are averaged across the period between a given LIS survey year back to one year after the previous LIS survey was fielded (Lupu and Pontusson, 2011: 324).

Model specification

I use error correction models (ECM) to model the relationship between temporary employment regulation and wage shares. ECMs are appropriate for both stationary and cointegrated data, and are increasingly popular in comparative political economy (De Boef and Keele, 2008, Beck and Katz, 2011). The main reason why I choose the ECM is that it allows a careful look at dynamics; it does not rely on the restrictive assumption that the effects of my independent variables immediately fade away after a single time period. I use the following, simplified version of the ECM, which estimates only one parameter for each independent variable and is called the "partial adjustment" ECM model (De Boef and Keele, 2008: 190):

$$\Delta Y_{it} = \alpha_0 + \alpha_1 Y_{it-1} + \beta_0 X_{it} + \varepsilon_{it} \tag{1}$$

This ECM variant is functionally equivalent to a lagged dependent variable (LDV) model (Beck and Katz, 2011). The coefficient β_0 captures the effect of independent variables on the equilibrium in wage share levels over one LIS survey period.[4] The ECM is estimated using OLS with panel-corrected heteroskedastic standard errors. Due to some remaining autocorrelation, all models include country-specific AR(1) error processes (estimated through Prais-Winsten transformation). I do not include time indicators, but the results are robust with year or LIS wave dummies.

My preferred methodological specification does not include country fixed effects. Fixed effects would have the problem of a potential selection bias, as all the countries with time-invariant temporary employment regulation, among them all Anglo-Saxon countries, "drop out" of the analysis. In addition, wage-related risks from flexible employment do not necessarily have to be limited to reform instances, but may be influenced by both the level of regulation and the direction of change. Having said that, the next section shows that the findings are largely robust with country fixed effects, which is reassuring to ensure that within-country dynamics are driving an extensive portion of the effects.

Findings

Table 1 presents error correction model (ECM) regressions of each quintile's wage share in 22 OECD countries between 1985 and 2016. The result for the main independent variable of interest shows a positive effect of temporary employment regulation on wage shares in the bottom, lower-middle and middle quintiles ($p<0.01$). In other words, more deregulated flexible employment policies are associated with lower wage shares for the lower- and middle-income groups. The opposite holds tor the top quintile: regulation decreases the wage shares of top earners ($p<0.001$). There is no effect of regulation on upper-middle wage shares. These results support the general claim that the effects of flexible employment policies are unequally distributed among insiders.

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[4] For ECMs based on stationary data, a necessary condition is that α_1 lies between -1 and 0 (De Boef and Keele 2008: 193). This is always the case in the models below. I also find no evidence of unit roots.

Table 1: Error correction models of wage shares (main models)

	Δ Wage share (quintiles)				
	Bottom	Lower-middle	Middle	Upper-middle	Top
Y_{t-1} (lagged wage share levels)	-0.32	-0.22	-0.23	-0.23	-0.24
	[-0.43, -0.20]	[-0.30, -0.14]	[-0.32, -0.14]	[-0.32, -0.13]	[-0.33, -0.14]
	p<0.001	**p<0.001**	**p<0.001**	**p<0.001**	**p<0.001**
Temporary employment regulation	0.17	0.12	0.07	0.01	-0.36
	[0.05, 0.29]	[0.06, 0.19]	[0.03, 0.12]	[-0.04, 0.06]	[-0.55, -0.17]
	p=0.005	**p<0.001**	**p=0.002**	p=0.771	**p<0.001**
Unemployment rate	-0.02	0.00	0.01	0.01	-0.00
	[-0.06, 0.01]	[-0.02, 0.02]	[-0.01, 0.02]	[-0.01, 0.03]	[-0.06, 0.05]
	p=0.144	p=0.883	p=0.284	p=0.347	p=0.905
Trade openness	0.42	0.34	0.24	0.10	-0.91
	[0.08, 0.75]	[0.11, 0.56]	[0.07, 0.41]	[-0.04, 0.23]	[-1.56, -0.26]
	p=0.015	**p=0.003**	**p=0.006**	p=0.157	**p=0.006**
Union density	0.82	0.34	0.25	-0.19	-1.20
	[-0.31, 1.95]	[-0.00, 0.69]	[0.01, 0.50]	[-0.48, 0.10]	[-2.58, 0.18]
	p=0.157	p=0.052	**p=0.045**	p=0.193	p=0.088
Constant	2.06	2.38	3.52	4.88	10.8
	[1.19, 2.94]	[1.38, 3.37]	[2.04, 5.00]	[2.72, 7.04]	[6.60, 15.1]
	p<0.001	**p<0.001**	**p<0.001**	**p<0.001**	**p<0.001**
N	166	166	166	166	166
R^2	0.23	0.20	0.21	0.16	0.19

Notes: 95% confidence interval in parentheses; p<0.05 in bold. OLS estimates with panel-heteroskedastic standard errors and panel-specific AR(1) processes estimated with Prais-Winsten transformation.

Of the remaining explanatory variables, unemployment has no clear effect. Trade openness, somewhat surprisingly, tends to increase lower- and middle-income wage shares at the cost of top-income wage shares. The same tends to be the case for union density, in line with theoretical expectations. However, these results are sensitive to the exclusion of country fixed effects. With country dummies included in Table 2, unemployment now tends to reduce wage shares of bottom earners. Trade openness has no clear effect anymore; and union density still tends to increase wage shares in the lower-middle parts of the distribution. More importantly, Table 2 shows that the effects of temporary employment regulation remain largely robust in the fixed-effect setting that can be interpreted as changes within countries. The effects of regulation are positive on bottom and lower-middle wage shares (p<0.05) and on the middle quintile's wage shares (p<0.1). In turn, regulation reduces wage shares of top earners (p<0.05). The evidence in Tables 1 and 2 is in line with the first hypothesis: deregulated flexible employment adversely affects the position of lower- and middle-income workers in the earnings distribution and benefits top-income groups.

Table 2: Error correction models of wage shares (with country fixed effects)

	Δ Wage share (quintiles)				
	Bottom	Lower-middle	Middle	Upper-middle	Top
Y_{t-1} (lagged wage share levels)	-0.69 [-0.84, -0.54] **p<0.001**	-0.50 [-0.64, -0.35] **p<0.001**	-0.37 [-0.50, -0.24] **p<0.001**	-0.57 [-0.70, -0.45] **p<0.001**	-0.41 [-0.55, -0.26] **p<0.001**
Temporary employment regulation	0.24 [0.04, 0.44] **p=0.020**	0.14 [0.03, 0.24] **p=0.012**	0.07 [-0.01, 0.15] p=0.099	0.00 [-0.08, 0.08] p=0.956	-0.34 [-0.66, -0.01] **p=0.044**
Unemployment rate	-0.05 [-0.09, -0.01] **p=0.017**	0.01 [-0.02, 0.04] p=0.555	0.02 [0.00, 0.04] **p=0.039**	0.02 [-0.00, 0.05] p=0.087	0.00 [-0.08, 0.09] p=0.910
Trade openness	0.08 [-1.00, 1.15] p=0.889	0.12 [-0.54, 0.79] p=0.711	0.02 [-0.59, 0.63] p=0.953	0.21 [-0.34, 0.75] p=0.457	-0.13 [-2.38, -2.11] p=0.907
Union density	2.28 [0.02, 4.55] **p=0.048**	1.67 [-0.04, 3.38] p=0.056	0.66 [-0.79, 2.10] p=0.375	0.65 [-0.55, 1.83] p=0.288	-4.26 [-9.56, 1.04] p=0.116
N	166	166	166	166	166
R^2	0.54	0.41	0.39	0.46	0.37

Notes: 95% confidence interval in parentheses; p<0.05 in bold. OLS estimates with panel-heteroskedastic standard errors and panel-specific AR(1) processes estimated with Prais-Winsten transformation. Constant and country fixed effects not shown.

The substantive magnitude of the effects of temporary employment regulation can be assessed with standardized beta coefficients. The standardized coefficients based on Table 1 unveil that the effects of regulation are largest for the lower-middle income quintile than the other quintiles. A one-standard-deviation decrease in regulation is expected to reduce lower-middle wage shares by more than 30% of a standard deviation. The expected reduction is 23% for the bottom quintile and 22% for the middle quintile; while the same amount of decrease in regulation is expected to increase the top quintile's wage share by 29% of a standard deviation. The effect magnitude across the different quintiles is similar in the fixed-effects models in Table 2. These sizeable effects of flexible employment regulation are generally larger in magnitude than the other explanatory variables – with the notable exception of a strong substantive effect of union density in the fixed-effects models from Table 2.

The second and third hypothesis of this paper expect that the effects of flexible employment policy are conditional on unionization and employment protection for regular workers. Table 3 shows the results for these interaction models, starting with the marginal effects of regulation at different levels of union density. Only the interaction terms in the models for bottom and top quintile wage shares, are estimated at a p-value below 0.1, but the marginal effects in Table 3 are nevertheless informative. They reveal that temporary employment regulation has a statistically significant effect at low and medium levels of union density. In contrast, where unions are highly encompassing, the effect of regulation weakens or becomes statistically insignificant. The moderating role of encompassing unions is particularly strong among bottom

earners and top earners. If we were to set the value of union density at 75% (95th percentile) – roughly the average values in Denmark (73%), Finland (75%) and Sweden (79%) between 1995 and 2007 – temporary employment regulation loses any statistically discernible effect on wage shares. This corroborates the second hypothesis: encompassing unions mitigate individual-level wage risks that arise from deregulated flexible employment.

Table 3: The moderating role of encompassing unions and employment protection

Marginal effect of temporary employment regulation	Δ Wage share (quintiles)				
	Bottom	Lower-middle	Middle	Upper-middle	Top
Conditional on union density:					
Low union density (14%, mean-1sd)	0.32 [0.16, 0.48] **p<0.001**	0.16 [0.07, 0.25] **p<0.001**	0.11 [0.04, 0.19] **p=0.004**	0.03 [-0.07, 0.13] p=0.581	-0.61 [-0.95, -0.27] **p<0.001**
Average union density (33%, mean)	0.19 [0.08, 0.30] **p=0.001**	0.13 [0.06, 0.19] **p<0.001**	0.09 [0.04, 0.13] **p<0.001**	0.01 [-0.04, 0.06] p=0.698	-0.40 [-0.60, -0.21] **p<0.001**
High union density (52%, mean+1sd)	0.06 [-0.14, 0.27] p=0.553	0.10 [0.01, 0.18] **p=0.026**	0.06 [0.00, 0.11] **p=0.047**	-0.01 [-0.08, 0.06] p=0.835	-0.19 [-0.46, 0.07] p=0.143
Conditional on employment protection for regular contracts:					
Low EPL (1.29, mean-1sd)	0.27 [-0.02, 0.56] p=0.072	0.12 [-0.01, 0.26] p=0.069	0.05 [-0.03, 0.14] p=0.234	-0.03 [-0.17, 0.12] p=0.719	-0.45 [-0.81, -0.08] **p=0.017**
Average EPL (2.06, mean)	0.16 [0.01, 0.31] **p=0.040**	0.09 [0.03, 0.15] **p=0.002**	0.05 [0.00, 0.09] **p=0.044**	-0.00 [-0.07, 0.07] p=0.982	-0.24 [-0.42, -0.07] **p=0.007**
High EPL (2.84, mean+1sd)	0.05 [-0.12, 0.22] p=0.544	0.06 [-0.06, 0.17] p=0.347	0.04 [-0.04, 0.12] p=0.321	0.02 [-0.04, 0.09] p=0.481	-0.04 [-0.34, 0.27] p=0.806

Note: 95% confidence interval in parentheses; p<0.05 in bold. ECM model structure following Table 1, with interaction terms added. Full models in Appendix 1.

The bottom part in Table 3 shows similar interaction models with the OECD's indicator for employment protection legislation (EPL) for regular contracts. Neither of the interaction terms are statistically significant at p<0.1, but again, the marginal effects reveal notable patterns. At above-average levels of employment protection, the effects of temporary employment regulation disappear for all wage share quintiles. In contrast, temporary employment regulation has the effects found (positive for lower-middle wage groups, negative for top wage groups) at low and medium levels of EPL. These findings need to be taken with a degree caution due to multicollinearity and a high correlation between the EPL indicators for regular and temporary employment (r=0.52, N=166, p<0.001), but they are consistent with the third hypothesis. More generally, the conditional effects in Table 3 demonstrate that the effects of flexible employment

policy are robust across a variety of labor market contexts in terms of union organization and employment protection.

Further robustness checks in Appendix 2 document that the results are substantially unaltered if one controls for alternative indicators of dualization (the share of workers in temporary employment, or the regulatory difference between permanent and temporary employment) and across different methodological specifications. Finally, Appendix 2 adds the important insight that the effects found are robust for comparable, perhaps more routine, measures of wage inequality: Deregulated temporary employment exacerbates overall wage inequality (p90/p10 ratio), top-end (p90/p50) and bottom-end (p50/p10) wage inequality.

Conclusion

This paper has argued that the deregulation of flexible employment can "backfire" on insiders with lower and middle incomes. These are sizeable, and by all accounts electorally important, groups of "middle class" voters, who become exposed to the risk of wage stagnation in the face of low-wage competition and the threat to expand flexible employment further in the future. The empirical analysis of wage shares in 22 OECD countries between 1985 and 2016 has shown evidence that lower- and middle-income workers are left worse-off from deregulated flexible employment, which therewith contributes to rising wage inequality. The effect is less pronounced in the presence of encompassing unions and stringent employment protection laws for regular workers.

The claim that flexibilization "at the margins" may undermine the position of insiders is at odds with the dualization literature, as also highlighted by recent case studies on Germany (e.g. Bosch, 2018). Hence, a logical next step in this debate is to refine the analytically crude dichotomy between "core" insiders and "peripheral" outsiders. This is recognized in attempts to develop continuous measures of outsiderness (Rehm, 2009, Schwander and Häusermann, 2013), but which still focus on formal employment status (e.g. the risk of unemployment or the risk of fixed-term employment). In contrast, this paper has dealt with the heterogeneity among regular workers – which make up the large majority of the active population – by focusing on earnings and wage-related risks. Taking wages into account means that we can fruitfully combine insights from the dualization framework with the ongoing trend towards rising wage and income inequality. Specifically, such a framework may explain how dualization policies contribute to the remarkable variation in the extent that countries are affected by the trend towards the "squeezed middle" (Nolan 2018).

Beyond the implications for the dualization literature, this paper contributes to broader debates about the politics of labor market change. The potential for political backlash against flexible employment among lower- and middle-income workers bears some resemblance to the larger

phenomenon of lower-middle class workers feeling left behind in the process of technological change (Kurer and Palier, 2019). Labor market change related to the expansion of flexible employment is just one of the channels that can contribute to middle-income workers' economic insecurities and, possibly, political dissatisfaction. But in stark contrast to other labor market changes – automation, digitalization, platform businesses – thanks to the dualization literature we have a solid idea of the policy choices that shape flexible employment outcomes. A precise understanding of the winners and losers associated with these policies helps to better understand the political coalitions that emerge in different trajectories of labor market change.

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ONLINE APPENDIX

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Appendix 1: Full interaction models

(a) Interaction between temporary employment regulation and union density:

	Δ Wage share (quintiles)				
	Bottom	Lower-middle	Middle	Upper-middle	Top
Y_{t-1} (lagged wage share levels)	-0.34 [-0.46, -0.22] **p<0.001**	-0.23 [-0.31, -0.15] **p<0.001**	-0.24 [-0.32, -0.15] **p<0.001**	-0.23 [-0.32, -0.13] **p<0.001**	-0.26 [-0.36, -0.16] **p<0.001**
Temporary employment regulation	0.41 [0.17, 0.66] **p=0.001**	0.18 [0.07, 0.30] **p=0.002**	0.13 [0.03, 0.24] **p=0.013**	0.04 [-0.11, 0.19] p=0.581	-0.76 [-1.24, -0.28] **p=0.002**
Unemployment rate	-0.04 [-0.07, -0.01] **p=0.023**	-0.00 [-0.02, 0.02] p=0.812	0.00 [-0.01, 0.02] p=0.698	0.01 [-0.01, 0.03] p=0.497	0.02 [-0.04, 0.09] p=0.448
Trade openness	0.58 [0.24, 0.92] **p=0.001**	0.38 [0.15, 0.60] **p=0.001**	0.25 [0.08, 0.43] **p=0.004**	0.10 [-0.04, 0.23] p=0.157	-1.04 [-1.71, -0.37] **p=0.002**
Union density	2.27 [0.35, 4.20] **p=0.021**	0.71 [0.02, 1.41] **p=0.044**	0.52 [0.03, 1.02] **p=0.038**	-0.04 [-0.65, 0.56] p=0.887	-3.36 [-6.03, -0.69] **p=0.014**
Temporary employment regulation * union density	-0.67 [-1.43, 0.08] p=0.080	-0.16 [-0.45, 0.12] p=0.256	-0.15 [-0.39, 0.10] p=0.246	-0.09 [-0.46, 0.27] p=0.614	1.08 [-0.12, 2.28] p=0.077
Constant	1.79 [1.07, 2.50] **p<0.001**	2.40 [1.43, 3.37] **p<0.001**	3.55 [2.10, 5.00] **p<0.001**	4.85 [2.69, 7.02] **p<0.001**	12.2 [7.61, 16.8] **p<0.001**
N	166	166	166	166	166
R^2	0.24	0.21	0.22	0.16	0.21

Notes: 95% confidence interval in parentheses; p<0.05 in bold. OLS estimates with panel-heteroskedastic standard errors and panel-specific AR(1) processes estimated with Prais-Winsten transformation.

(b) Interaction between temporary employment regulation and employment protection for regular contracts:

	Δ Wage share (quintiles)				
	Bottom	Lower-middle	Middle	Upper-middle	Top
Y_{t-1} (lagged wage share levels)	-0.34 [-0.46, -0.21] **p<0.001**	-0.30 [-0.39, -0.21] **p<0.001**	-0.25 [-0.34, -0.16] **p<0.001**	-0.23 [-0.33, -0.14] **p<0.001**	-0.28 [-0.39, -0.18] **p<0.001**
Temporary employment regulation	0.45 [-0.13, 1.03] p=0.130	0.18 [-0.13, 0.49] p=0.257	0.07 [-0.13, 0.26] p=0.508	-0.07 [-0.35, 0.22] p=0.636	-0.78 [-1.60, 0.04] p=0.061
Unemployment rate	-0.02 [-0.05, 0.01] p=0.196	-0.00 [-0.02, 0.02] p=0.736	0.01 [-0.01, 0.02] p=0.455	0.01 [-0.01, 0.03] p=0.389	0.00 [-0.05, 0.06] p=0.984
Trade openness	0.23 [-0.08, 0.53] p=0.143	0.24 [-0.02, 0.50] p=0.069	0.18 [-0.02, 0.37] p=0.073	0.14 [-0.02, 0.29] p=0.090	-0.51 [-1.20, 0.18] p=0.146
Union density	0.94 [-0.18, 2.07] p=0.100	0.52 [0.18, 0.86] **p=0.003**	0.19 [-0.04, 0.42] p=0.104	-0.16 [-0.46, 0.14] p=0.294	-1.45 [-2.83, -0.07] **p=0.014**
EPL regular	0.28 [0.05, 0.52] **p=0.019**	0.27 [0.11, 0.43] **p=0.001**	0.14 [0.02, 0.27] **p=0.020**	-0.04 [-0.14, 0.07] p=0.483	-0.76 [-1.22, -0.31] **p=0.001**
Temporary employment regulation * EPL regular	-0.14 [-0.38, 0.10] p=0.246	-0.04 [-0.19, 0.10] p=0.551	-0.01 [-0.10, 0.08] p=0.830	0.03 [-0.08, 0.15] p=0.570	0.26 [-0.11, 0.63] p=0.166
Constant	1.81 [1.08, 2.54] **p<0.001**	3.06 [2.04, 4.09] **p<0.001**	3.72 [2.25, 5.18] **p<0.001**	5.05 [2.85, 7.24] **p<0.001**	13.5 [8.76, 18.3] **p<0.001**
N	166	166	166	166	166
R^2	0.23	0.26	0.24	0.17	0.23

Notes: 95% confidence interval in parentheses; p<0.05 in bold. OLS estimates with panel-heteroskedastic standard errors and panel-specific AR(1) processes estimated with Prais-Winsten transformation.

Appendix 2: Robustness tests

Marginal effect of temporary employment regulation, given the following robustness test:	Δ Wage share (quintiles)				
	Bottom	Lower-middle	Middle	Upper-middle	Top
Baseline results (Table 1)	*0.17*	*0.12*	*0.07*	*0.01*	*-0.36*
	[0.05, 0.29]	*[0.06, 0.19]*	*[0.03, 0.12]*	*[-0.04, 0.06]*	*[-0.55, -0.17]*
	p=0.005	*p<0.001*	*p=0.002*	*p=0.771*	*p<0.001*
Controlling for the share of temporary workers [N=148]	0.11	0.11	0.08	0.02	-0.34
	[-0.02, 0.23]	[0.03, 0.18]	[0.03, 0.14]	[-0.03, 0.07]	[-0.57, -0.12]
	p=0.102	**p=0.006**	**p=0.001**	p=0.373	**p=0.003**
LIS wave dummies added	0.20	0.13	0.08	-0.01	-0.41
	[0.09, 0.32]	[0.06, 0.20]	[0.03, 0.13]	[-0.06, 0.04]	[-0.62, -0.21]
	p=0.001	**p<0.001**	**p=0.002**	p=0.751	**p<0.001**
Year dummies added	0.19	0.16	0.09	-0.01	-0.50
	[0.08, 0.30]	[0.08, 0.25]	[0.05, 0.14]	[-0.06, 0.05]	[-0.69, -0.31]
	p=0.001	**p<0.001**	**p<0.001**	p=0.806	**p<0.001**
Weights adjusted to force that each country weighs equally	0.15	0.13	0.07	0.01	-0.35
	[0.03, 0.28]	[0.06, 0.21]	[0.02, 0.12]	[-0.05, 0.07]	[-0.55, -0.15]
	p=0.016	**p=0.001**	**p=0.009**	p=0.733	**p=0.001**
Logarithm of temporary employment regulation (due to right skew)	0.30	0.25	0.13	-0.02	-0.61
	[0.14, 0.46]	[0.15, 0.35]	[0.06, 0.19]	[-0.09, 0.05]	[-0.87, -0.36]
	p<0.001	**p<0.001**	**p=0.002**	p=0.601	**p<0.001**

Alternative dependent variable:

	Δ Wage decile ratios		
	P90/P10	P90/P50	P50/P10
ECM without fixed effects	-0.17	-0.02	-0.06
	[-0.25, -0.10]	[-0.03, -0.01]	[-0.09, -0.02]
	p<0.001	**p=0.002**	**p=0.001**
ECM with country fixed effects	-0.18	-0.01	-0.07
	[-0.29, -0.07]	[-0.03, 0.00]	[-0.12, -0.02]
	p<0.001	p=0.145	**p=0.003**

Note: Robustness tests based on Table 1 with sample size N=166 (unless noted otherwise).