

Weisstanner, David

Working Paper

Dualization and inequality revisited: Temporary employment regulation and middle-class incomes

LIS Working Paper Series, No. 720

Provided in Cooperation with:

Luxembourg Income Study (LIS)

Suggested Citation: Weisstanner, David (2017) : Dualization and inequality revisited: Temporary employment regulation and middle-class incomes, LIS Working Paper Series, No. 720, Luxembourg Income Study (LIS), Luxembourg

This Version is available at:

<https://hdl.handle.net/10419/203007>

Standard-Nutzungsbedingungen:

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

Terms of use:

Documents in EconStor may be saved and copied for your personal and scholarly purposes.

You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.

If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.

LIS

Working Paper Series

No. 720

**Dualization and inequality revisited: Temporary
employment regulation and middle-class incomes**

David Weisstanner

November 2017



CROSS-NATIONAL
DATA CENTER
in Luxembourg

Luxembourg Income Study (LIS), asbl

Dualization and inequality revisited: Temporary employment regulation and middle-class incomes

David Weisstanner

Institute of Political Science, University of Bern

david.weisstanner@ipw.unibe.ch

November 2017

Abstract

What are the consequences of the trend towards more flexibilized temporary employment for income inequality? This paper reassesses the crucial assumption behind the politics of dualization that reforms targeted at outsiders do not undermine the position of labor market insiders. Instead, I argue that deregulated temporary employment exacerbates risk asymmetries among regular workers. Facing high replacement risks and prospective wage losses in temporary employment, deregulation creates wage pressure on middle-income employees. Using Luxembourg Income Study microdata for 22 OECD countries from 1985 to 2014, I show that income shares of the middle and lower-middle quintiles decline under deregulated temporary employment. The findings suggest that flexibilization “at the margins” contributes to rising inequality beyond dualization by causing major distributional shifts among regular workers. This further challenges the view of stable insider coalitions, pointing instead to an opposition potential against flexible employment around middle-class insiders.

Keywords

Temporary employment, income inequality, middle class, insider-outsider, labor market policy

Acknowledgements

For detailed comments and suggestions, I would like to thank Klaus Armingeon, Fabio Canetg, Sarah Engler, Zach Parolin, Jonas Pontusson, and participants at the annual ESPAnet Conference 2017 in Lisbon.

Introduction

Many OECD countries have deregulated temporary employment and promoted “flexicurity policies” over the last decades (Wilthagen and Tros, 2004; King and Rueda, 2008). The literature has related this development to dualization between labor market insiders and outsiders (Rueda, 2007; Emmenegger et al., 2012), assuming that the position of insiders remains unaffected by flexibilization “at the margins”. However, against the background of widespread increases in income inequality, it seems plausible that flexible employment policies entails distributional shifts among regular workers as well, possibly blurring the boundaries between insiders and outsiders. Apart from case study evidence on the spread of precarious employment conditions to core workers (e.g. Eichhorst and Marx, 2011; Benassi and Dorigatti, 2015; Benassi, 2016), few studies have systematically investigated the distributional consequences of flexible employment policies for regular workers. This paper therefore explores whether deregulated temporary employment asymmetrically affects different income groups, and therewith contributes to rising inequality.

To elaborate how policies targeted at outsiders may indirectly affect income conditions of insiders, I propose a theoretical framework that draws on literature in labor sociology and economics, and takes risk asymmetries among regular workers with respect to their job replacement risks and earnings prospects into account. I argue that employees in the middle of the distribution are most likely to suffer earnings losses from deregulated temporary employment. Their positions are more replaceable than high-income employees’ positions, they are unlikely to use temporary jobs for career advancement, and in contrast to low-income workers, they would face substantial wage losses in temporary employment. Hence, flexible employment policies contribute to rising income inequality by creating wage pressure on middle incomes. Furthermore, I hypothesize that the translation of shifting wage bargaining power into changes in the earnings distribution is conditional on union representation, with

encompassing trade unions able to maintain compressed earnings distributions even in deregulated environments.

Empirical evidence for the unequal effects of deregulated temporary employment is based on a comparison of 22 OECD countries, using Luxembourg Income Study microdata between 1985 and 2014. The findings bear important implications for underlying assumptions in the dualization literature and, more generally, the politics of flexible employment. Dualization has become an essential feature in many advanced capitalist democracies, and is powerfully invoked as the prototypical trajectory of change in continental European political economies (Palier and Thelen, 2010; Thelen, 2014). However, the exclusive focus of this literature on employment status disregards changes in material conditions among regular workers as a source of income inequality. The notion of protected insiders in the dualization literature is increasingly at odds with trends of rising bottom-end inequality in OECD countries (Vlandas, 2016; Pontusson and Weisstanner, 2018). If flexibilization targeted at marginal employment entrenches distributional shifts among insiders, preferences towards flexible employment policies may deviate from insider-outsider-based coalition lines. Thus, identifying the distributional shifts related to flexible employment generates insights into more contentious politics of labor market reform and may explain opposition towards flexibilization among middle-class income segments.

This paper proceeds as follows. The next section introduces my theoretical argument in relation to existing literature on temporary employment regulation. The third section presents the empirical setup with the choice of quintile income shares as dependent variable. The fourth section presents evidence for the unequal effects of deregulated temporary employment on different income groups, investigates my assumptions that middle-class employees have high replacement risks and prospective earnings losses in temporary employment, and discusses ISSP survey evidence on attitudes towards flexible employment. A final section concludes.

The distributional effects of temporary employment regulation

OECD countries have seen a clear convergence towards liberalization in the area of temporary employment regulation (Beramendi et al., 2015: 11), deregulating rules on the use of fixed-term contracts, their duration, and the operation of temporary work agencies (Venn, 2009). To explain the causes and consequences of this development, comparative political economists have often invoked the concept of “dualization”, i.e. the process of increasingly differentiated rights and status between labor market insiders and outsiders (Emmenegger et al., 2012). Thelen (2014) argues that dualization characterizes the trajectory of change in continental European political economies. Unlike the Nordic countries, which were able to combine labor market flexibility with egalitarian outcomes, continental Europe has seen rising inequality between a protected core and an increasingly unprotected periphery (Palier and Thelen, 2010).

Although it is not a theory of income inequality, the dualization framework relies on implicit assumptions about the distributional effects of labor market policies. Dualization implies that the position of insiders is expected to “remain more or less constant, while only the position of outsiders deteriorates” (Emmenegger et al., 2012: 10). The deregulation and expansion of temporary employment is one key area associated with dualization processes, since workers holding a temporary contract are typically defined as outsiders (Rueda, 2005). Insiders, by definition, are not immediately affected by temporary employment and may also benefit from the expansion of cheap and flexible services in the secondary labor market (Palier and Thelen, 2010; Hassel, 2014). Forming political coalitions with employers, insiders in core industries have often succeeded in flexibilizing employment regulations at the margins while maintaining high thresholds of job security for regular workers (Thelen, 2014).

However, the assumption that the position of insiders is essentially unaffected by dualizing policies needs to be revisited against the background of rising income inequality in OECD countries. Pontusson and Weisstanner (2018) show that the expansion of non-standard employment and the increasing concentration of income risks among low-educated workers

contribute to rising low-end inequality beyond continental Europe. Baccaro and Pontusson (2016) maintain that dualization should be considered as part of larger transformations of political economies involving distributive conflicts over different growth models. Conversely, the conceptualization of insiders and outsiders in the dualization literature impedes a precise assessment of income inequality among the whole workforce. Insiders and outsiders are principally distinguished based on employment status and the type of employment contract.¹ Variation among insiders with respect to the earnings distribution and earnings prospects for different income groups is largely omitted. Perhaps unsurprisingly, empirical studies have found relatively limited evidence for the micro-foundations of insider-outsider divides (Emmenegger, 2009a; Marx, 2014). Marx and Starke (2017) demonstrate how political divides around insider-outsider distinctions tend to be unstable, contentious around the issue of inequality and prone to negative feedback effects.

These conceptual issues accentuate the lack of a theoretical framework to assess the distributive consequences of temporary employment regulation among insiders in regular employment. By definition, these effects are “indirect” as temporary employment regulation does not target permanent workers. Nevertheless, borrowing from strands in labor sociology and economics allows establishing the conditions of how the regulatory environment may affect workers across the earnings distribution.

The asymmetrical risks of temporary employment

A vast literature in labor sociology and economics explores how employment regulations affect the distribution between permanent and temporary jobs (see Boeri, 2011). According to these studies, deregulated temporary employment indeed enhances the creation of atypical jobs

¹ Rueda (2007: 39) further distinguishes “upscale” groups, defined as non-dependent employees or managers. Separating upscale groups from insiders on the grounds of their status as “upper middle class, and the business and financial community” (*ibid*: 17) adds to the conceptual problems because it implicitly refers to distributional outcomes. Alternative indicators based on occupational employment risks (Schwander and Häusermann, 2013) still neglect earnings inequality between and among different occupations.

(Kahn, 2010; Blanchard and Landier, 2002). Empirical evidence is more mixed on the issue whether temporary positions are “stepping stones” into permanent positions or “entrapment” in precarious employment or unemployment (Booth et al., 2002; Scherer, 2004; Kahn, 2010; Cahuc et al., 2016). While not all temporary jobs lead to precarious work careers, fixed-term positions are typically inferior compared to permanent positions in terms of wage levels (Boeri, 2011: 1202; Booth et al., 2002), mobility expectations (Marx, 2015: 31), subjective job and income security (Burgoon and Dekker, 2010), unionization levels (Pontusson, 2005: 187) or well-being (Benach et al., 2014). Hence, permanent employees can be assumed to resist the option of switching voluntarily into temporary employment.

I argue, however, that the risks of temporary employment are unequally distributed across different income groups, shaped by two risk dimensions: (1) the replaceability of permanent positions with temporary positions and (2) prospective earnings in temporary employment. The upshot of these risk asymmetries is that middle-income permanent employees face high replacement risks (compared to high-income employees) and the threat of large earnings losses in temporary employment (compared to low-income employees). As a result, I expect deregulated temporary employment to be associated with declining bargaining power and income shifts at the expense of middle-class incomes.

First, the extent that permanent employees are replaced by temporary employees has been identified as an important risk dimension, whereby a deregulated environment enhances this “substitution effect” of temporary employment (Kahn, 2010; see Vlandas, 2013). Building on transaction cost economics, Goldthorpe (2000: 206-229) argues that replacement risks crucially depend on skill levels, since employers require long-term employment relationships to make use of highly specific skills and ensure that employees acquire such skills through education and training. As a result, low-skilled regular employees are more likely to be replaced by temporary workers and more worried about job security (Emmenegger, 2009b). Even if high-skilled employees do end up in temporary employment, they may use fixed-term positions to

signal job ability and advance their long-term career prospects (Spence, 1973; Scherer, 2004). High-skilled employees typically garner high earnings, while low-skilled employees are disproportionately concentrated in the lower end of the income distribution (Autor, 2014; Pontusson and Weisstanner, 2018). Thus, I expect that the replacement risk from temporary employment is most acute for low-income employees, moderately acute for middle-income employees, and least acute for high-income employees.

The second risk dimension of temporary employment concerns the prospective wages that permanent employees would earn in fixed-term employment. On average, there is a significant wage premium for permanent contracts relative to temporary contracts in European countries (Boeri, 2011: 1202). Lower wages in temporary employment are related to incentives for temporary employees to avoid unemployment (Polavieja, 2003). However, while there is a large wage gap between temporary employees and permanent employees with middle and high earnings, the discrepancy will be significantly reduced for employees on low-incomes. In the empirical analysis below, I show that temporary employment wages exceed those of permanent employees in the bottom wage quintile by substantial margins in most cases. Consequently, I expect that earnings prospects in temporary employment of low-income employees would be neutral for low-income employees, whereas middle-income and high-income employees would face significant wage losses.

Putting the two mechanisms together leads to the expectation that the risks and prospects of temporary employment are asymmetrically distributed between different income groups. Low-income permanent employees are easily replaceable by temporary contracts, but their earnings are unlikely to deteriorate much further. Middle-income permanent employees with low skills have high replacement risks as well, but additionally face the prospect of significant wage losses if they end up in temporary employment. Finally, high-income permanent employees would face large wage losses in temporary employment, but they are least likely to be replaced in their permanent positions due to their high skill levels.

These risk asymmetries have consequences on the wage bargaining power of permanent employees. Compared to an environment where temporary employment is strictly regulated, the wage bargaining position of middle-income permanent employees is adversely affected when temporary employment is deregulated, because they face significant replacement risks and the prospect of large wage losses in temporary employment. High-income employees face low replacement risks and may be able to use temporary jobs advantageously for their career perspectives. Finally, low-income employees occupy the middle ground, facing high risks to end up in temporary employment but little deterioration of their wage prospects. Following this individual wage bargaining perspective, the wage pressure associated with the weakened bargaining position of middle-income employees is expected to result in shifts in relative earnings, manifested for instance by wage cuts or more hesitant wage demands by middle-income employees. Hence, the first hypothesis can be derived: *Deregulated temporary employment is associated with lower relative earnings for middle-income permanent employees, steady relative earnings for low-income permanent employees, and higher relative earnings for high-income permanent employees.*

Put differently, I expect increasing earnings inequality among regular workers under deregulated temporary employment due to wage pressure on middle-income groups facing replacement risks and earnings losses. The next section complements this individual wage bargaining framework with the role of trade unions and their impact on collective bargaining outcomes.

The moderating role of unionization

Cross-country studies find an unambiguously strong impact of union density and centralized wage bargaining towards lower earnings inequality (Wallerstein, 1999; Pontusson et al., 2002; Pontusson, 2013; Ahlquist, 2017). However, unionization might also moderate the distributional effects of labor market institutions for different income groups. Because of the

potential of temporary employment regulation to affect income groups asymmetrically, as argued above, the extent that these groups are collectively organized is of critical importance. Vlandas (2016) and Mosimann and Pontusson (2017) have recently highlighted the large variation in unions' "inclusiveness", the degree to which lower-income workers are organized relative to higher-income groups. I hypothesize that these differences in union inclusiveness moderate the effects of temporary employment regulation on earnings prospects for different income groups.

In a context of "encompassing unionism" characterized by high union density and equal organization of low-wage and high-wage workers, solidaristic wage policies result in more compressed earnings distributions (Mosimann and Pontusson, 2017: 450-454). On one hand, this reduces the asymmetrical wage prospects associated with temporary employment regulation, because earnings of low-income and high-income groups are aligned closer to median earnings. The gap to potential wages in temporary employment becomes more similar (less asymmetrical) for all income groups in such a setting. On the other hand, encompassing unions may be aware about the negative externalities of temporary employment on permanent employees' earnings prospects, in a similar logic as they take the macroeconomic implications of their wage demands into account (Calmfors and Driffill, 1988). Wage moderation among higher-income groups would reduce the wage gap to temporary employment. Unions might also push to raise temporary employees' wages directly by including them in wage bargaining.

In contrast, countries with non-encompassing unions are likely to obtain more dispersed wage distributions. Consequently, the gap to potential earnings in temporary employment will vary more strongly between income groups. Middle-income employees lacking encompassing union organization will be able to bargain for significantly higher earnings than low-income employees. At the same time, these earnings differentials will leave them relatively more vulnerable to downward wage pressure in a setting of deregulated temporary employment because they face the prospect of larger earnings losses in temporary employment. The lack of

encompassing unionism also implies a more atomistic role for individual bargaining power. Middle-income employees facing replacement risks from temporary positions cannot rely on encompassing bargaining agreements but will find themselves in a weaker bargaining position and with need for wage concessions if the expansion of temporary jobs is less restricted.

The second hypothesis comprises this moderating role of union inclusiveness: *The unequal effects of deregulated temporary employment on relative earnings are attenuated under encompassing unionism.*

In the analysis below, I will test the associations between temporary employment regulation and regular workers' income shares, in order to focus specifically on the distributional effects on insiders. It is crucial to note, though, that I expect the distributional effects of regulation to be independent of actual levels of dualization. Previous studies maintain that rigid labor markets achieve lower wage inequality among insiders at the cost of higher unemployment (Blau and Kahn, 2002) or higher inequality in job security (Maurin and Postel-Vinay, 2005; DiPrete et al., 2006). However, my theoretical framework highlights the role of *risks* of temporary employment (i.e. replacement threats and earnings prospects), rather than the realized employment outcomes manifested by the share of insiders and outsiders. I will show that the associations between regulation and income shares are unaffected by controlling for indicators of actual dualization such as the incidence of temporary employment in the workforce.

Data, variables and model specification

The empirical analysis assesses the distributional effects of temporary employment regulation for a sample of 22 advanced capitalist OECD countries² between 1985 and 2014.

² Australia, Austria, Belgium, Canada, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Netherlands, Norway, Poland, Slovakia, Spain, Sweden, Switzerland, United Kingdom, USA.

Income shares

To capture the expected asymmetrical earnings shifts associated with deregulated temporary employment, I rely on *income shares* for each income quintile as dependent variables – i.e. the percentage of total income going to the bottom, lower-middle, middle, upper-middle and top quintiles. Most studies measure earnings inequality using decile ratios (90-10, 50-10 or 90-50 ratios), but these fail to accurately differentiate trends in the middle of the distribution (Dallinger, 2013). Ratios also fail to detect synchronous trends. For example, a simultaneous relative decline of bottom and middle incomes leaves the 50-10 ratio unchanged. In contrast, income shares are popular in work on top incomes (Atkinson et al., 2011), yet remain scarce in overall inequality research despite their straightforward interpretation.

Aggregated income shares are calculated from Luxembourg Income Study (LIS, 2017) microdata from harmonized income surveys. Each LIS sample is restricted to full-time dependent employees aged 25-59. Unfortunately, information on the type of job contract is missing in more than half of the final sample; the samples therefore include both permanent and temporary employees. However, the results are essentially unchanged when part-time employees and/or the unemployed are added to the sample as a robustness check.³ Earnings used to calculate income shares comprises income from paid employment (excluding capital income) before taxes. Following standard LIS practices, earnings are equivalized using the square root of household size, bottom-coded at 1% the equivalized mean and top-coded at 10 times the non-equivalized median earnings. Although the unit of observation is the person level, earnings refer to equivalized household-level earnings due to better data availability. Results with income shares based on person-level earnings are substantially similar.⁴ Accounting for

³ Excluding part-time employees and the unemployed underestimates wage inequality, because part-time employees tend to earn less and the unemployed have little or no factor income (Pontusson et al., 2002: 284).

⁴ Household-level earnings data include some cases where incomes are recorded net of taxes (e.g. Hungary), while person-level earnings include only gross earnings. Findings are substantially unaffected by the distinction between net and gross income, or person-level versus household-level income (see also Table A1 in the online appendix).

missing values among the explanatory variables, the final aggregated sample comprises an unbalanced panel for 22 countries covering between 4 and 10 time points (N=144).⁵

Explanatory variables

The main independent variable is the *regulation of temporary employment*. I rely on the OECD Employment Protection Legislation indicators (Venn, 2009; OECD, 2017). These distinguish three sub-items each for fixed-term contracts [FTC] (valid cases for FTC, number of successive FTC and maximum cumulated duration of FTC) and temporary work agencies [TWA] (types of TWA work allowed, number of TWA renewals and maximum cumulated duration of TWA assignments). The composite indicator for temporary employment regulation, averaged between LIS survey observations, varies between 0.25 (most deregulated) and 4.88 (most regulated) in my sample. Because the distribution of the indicator is right-skewed, I use its logarithm in the multivariate analyses.

The second hypothesis expects that encompassing unions moderate the asymmetrical effects of deregulated temporary employment. Following Vlandas (2016), I use *union density* to measure the encompassing organization of workers across the income distribution, which is the pre-condition for solidaristic wage policies that reduce the asymmetrical risk of temporary employment for different income groups. As Mosimann and Pontusson (2017: 454) demonstrate, countries with high union density have a relatively equal organization of low-income workers compared to high-income workers. Union density is obtained from Visser (2015) and varies between 8% and 87% in my sample.

The analysis relies on a battery of standard control variables in earnings inequality studies. *Wage bargaining centralization* is expected to be negatively related to earnings inequality (Wallerstein, 1999). *Unemployment* disproportionally affects lower-income

⁵ I dropped countries where only one or two time points are available (Estonia, Iceland, Japan, Luxembourg and Slovenia), but results are robust to the inclusion of these countries.

employees (Oesch, 2010; Pontusson and Weisstanner, 2018). *Service employment*, as a share of total employment, relies on lower-skilled labor with limited scope for productivity growth and thus contributes to higher inequality (Pontusson et al., 2002). *Technological change*, measured as total factor productivity, and *trade openness*, measured as the sum of exports and imports in proportion to GDP, increase the demand for high-skilled workers and earnings differentials (Goldin and Katz, 2008). Apart from wage bargaining centralization (Visser, 2015) and technological change (European Commission, 2016), all control variables are from Armingeon et al. (2016). Given that LIS data are available in waves every few years, all annual explanatory variables are averaged across the period between a given LIS survey year back to one year after the previous LIS survey (Lupu and Pontusson, 2011: 324).

Model estimation

I use error correction models (ECM) to model the relationship between temporary employment regulation levels and income shares. ECMs are appropriate for both stationary and cointegrated data, and have become increasingly popular in comparative political economy (De Boef and Keele, 2008; Beck and Katz, 2011). Following De Boef and Keele (2008), I start with the general ECM:

$$\Delta Y_{it} = \alpha_0 + \alpha_1 Y_{it-1} + \beta_0 \Delta X_{it} + \beta_1 X_{it-1} + \varepsilon_{it} \quad (1)$$

Tests for simplifying the general model reveal that the short-run and long-run coefficients (β_0 and β_1) are not significantly distinct from each other for my main explanatory variables. This implies that the dynamic effects of the explanatory variables can be accurately captured by just one parameter for each variable. Imposing the restriction $\beta_0 = \beta_1$ results in the “partial adjustment” ECM model (De Boef and Keele, 2008: 190):

$$\Delta Y_{it} = \alpha_0 + \alpha_1 Y_{it-1} + \beta_0 X_{it} + \varepsilon_{it} \quad (2)$$

This ECM variant is functionally equivalent to a lagged dependent variable (LDV) model (Beck and Katz, 2011). The coefficient β_0 captures the short-run effect of independent variables on

income share equilibria across one period.⁶ The ECM is estimated using OLS with panel-corrected heteroskedastic standard errors (in Stata: *xtpcse, hetonly*). Even after the inclusion of lagged Y-levels, some autocorrelation remains in the error term. All models therefore include AR(1) error processes (country-specific, due to the unbalanced dataset), estimated through Prais-Winsten transformation (Beck and Katz, 1995).

For both theoretical and methodological considerations, the models do not include country fixed effects. First, my theoretical argument predicts an effect of deregulated temporary employment not only due to changes (reforms) within countries, but expects a perpetuated equilibrium relationship between temporary employment regulation levels and income shares. Second, fixed effects models in dynamic specifications yield biased estimates due to a correlation between the centered lagged dependent variable and error terms, especially in settings with a small number of time periods (Nickell, 1981). Third, whereas it is desirable to isolate the distributional impact of reforms from cross-national associations, the indicator of temporary employment regulation is *de facto* time-invariant for several countries. These countries, among them all Anglo-Saxon countries, drop out of a fixed-effects analysis, leading to selection bias in the remaining pooled sample. A sounder approach to identify reform effects would be to use longitudinal panel data within single countries, an approach beyond the scope of this paper.

Empirical findings

Before proceeding to the multivariate analysis, this section illustrates cross-sectional patterns of temporary employment regulation and income shares. Figure 1 sorts the sample of 22 OECD countries by income share levels of the middle quintile around 2007. As the left-hand panel of Figure 1 shows, there is systematic variation in the share of labor earnings going to the middle

⁶ Long-run effects are obtained by dividing β_0 by the error correction rate $-\alpha_1$. A necessary condition for stationarity is that α_1 lies between -1 and 0 (De Boef and Keele, 2008: 193), which is always the case in the models below. I also find no evidence of unit roots. Note that the interpretation below is based on short-run coefficients, and thus provides conservative estimates of the relationship between temporary employment regulation and income shares.

class. Anglo-Saxon countries are at the top, characterized by lower relative earnings at the middle and lower end of the distribution. Denmark, Sweden and Norway display the highest income share for the middle class. Overall, the countries at the bottom of Figure 1 have more compressed distributions of income (with the exception of Hungary).

[FIGURE 1]

The right-hand panel of Figure 1 plots average values of the OECD indicator of temporary employment regulation between 1995 and 2007. Unsurprisingly, the Anglo-Saxon countries exhibit low levels of regulation, whereas temporary employment is most strictly regulated in Mediterranean countries (Greece, France, Spain and Italy). The remaining countries display moderate levels of regulation, albeit with substantial variation and, frequently, trends toward more deregulated temporary employment in the 1990s and 2000s.

Figure 1 reveals no straightforward associations between temporary employment regulations and income shares. The cross-sectional correlations with temporary employment regulation are +0.27 ($p=0.22$) for bottom income shares, +0.28 ($p=0.21$) for lower-middle incomes, +0.22 ($p=0.33$) for middle incomes, -0.04 ($p=0.85$) for upper-middle incomes, and -0.32 ($p=0.15$) for top income shares. As expected, the direction of the correlations is that restricting temporary employment goes along with higher income shares for lower and middle-income groups, and lower income shares for upper earners. However, these associations are obscured by the four Mediterranean countries characterized by high levels of regulation and medium-to-high inequality. Excluding France, Greece, Italy and Spain evidently reveals stronger cross-sectional correlations between regulation and income shares in the remaining 18 countries: +0.58 ($p=0.01$) for bottom incomes, +0.67 ($p=0.00$) for lower-middle incomes, +0.46 ($p=0.05$) for middle incomes, -0.47 ($p=0.05$) for upper-middle incomes, and -0.62 ($p=0.01$) for top incomes. This descriptive evidence thus calls for multivariate models to account for country-specific idiosyncrasies.

Multivariate analysis

Table 1 presents the ECM regression results for the quintile income shares, based on 144 observations in 22 countries. The main finding pertains to a positive and statistically significant effect of temporary employment regulation on lower-middle and middle quintile income shares, and a negative effect on income shares of the top 20 percent of the distribution. The effects of regulation on bottom and upper-middle income shares are not statistically significant. These results provide considerable support for the expectation that temporary employment regulation asymmetrically affects different income groups. Deregulated rules on temporary employment adversely affect lower-middle and middle income employees, while they benefit top incomes. The standardized coefficients of temporary employment regulation in Figure 2 unveil that the effects of regulation are most substantial for the middle-income quintile. Consistent with the argument that low-income groups, in contrast to middle-income groups, would not face large earnings losses in temporary employment, the results in Table 1 and Figure 2 reveal no statistical association between regulation and bottom income shares.

[TABLE 1]

[FIGURE 2]

The remaining explanatory variables generally show the expected effects. In line with the earnings inequality literature, union density significantly raises lower-middle income shares to the detriment of top income shares. Wage bargaining centralization has similar but more statistically uncertain effects. Similar to temporary employment regulation, unemployment hurts lower-middle income shares and benefits top incomes. Finally, the coefficients for service employment, trade openness and technological change are statistically insignificant. The results in Table 1 hold up to a variety of robustness tests (see Table A1 in the online appendix). Most importantly, the effects of regulation are independent of controlling for the actual share of temporary or part-time workers. Neither are the effects driven by differences in redistribution, as displayed in tests using alternative employee samples and income definitions.

Table 2 presents the results for the second hypothesis, which expected that the effect of temporary employment regulation is moderated in contexts of encompassing unionism. Interaction terms between temporary employment regulation and union density (added to the models in Table 1) are significant at the 99 percent level for lower-middle, middle and top income shares. The marginal effects of these interactions are presented in Table 2. Corroborating the second hypothesis, temporary employment regulation significantly increases lower-middle and middle income shares under low union density (one standard deviation below the mean) and medium union density, but the effects are statistically insignificant under high union density (one standard deviation above the mean). In an environment of encompassing unionism, deregulated temporary employment is not associated with distributional shifts for any income group. This result is in line with recent arguments about the crucial role of union inclusiveness moderating the distributive outcomes of labor market institutions (Vlandas, 2016; Mosimann and Pontusson, 2017).⁷

[TABLE 2]

Risk mechanisms

While there is robust evidence for a macro-level association between temporary employment regulation and income shares, the theoretical argument contains micro-level assumptions about the risk of temporary employment. In this last empirical section, I present corroborating evidence for the claim that in combination, replacement risks of temporary employment and earnings prospects in temporary employment are indeed severe for middle-income permanent employees. Additionally, I will discuss survey evidence on attitudes of different income groups towards the risk dimensions associated with temporary employment.

⁷ Similar conditional effects are obtained with interactions of wage bargaining centralization instead of union density. Given the negative association between centralization and earnings inequality (Wallerstein, 1999), centralization reduces the asymmetrical risks of temporary employment because different income groups face similar earnings prospects under more compressed earnings distributions.

The theoretical argument expects the bargaining position of middle-income employees to deteriorate under deregulated temporary employment due to two mechanisms: First, their permanent positions are prone to replacement due to lower skill levels compared to high-income groups. Second, unlike lower-income groups, middle-income employees would face large earnings losses in temporary employment. Based on LIS data for 14 countries where information on the type of job contract is available, Figure 3 provides evidence for considerable skill gaps between middle-income and high-income permanent employees around 2007. On average, the share of workers with tertiary education is 30 percentage points lower in the middle-income quintile relative to the top quintile. Conversely, skill levels are much more similar between low-income and middle-income employees (11 percentage points difference). Given the crucial role of skills for replacement risks (Goldthorpe, 2000), these skill differences indicate substantial replacement risks for middle-income permanent positions. There is also growing evidence that the concentration of high-skilled workers in well-paying positions has increased over time (Autor, 2014).

[FIGURE 3]

In turn, Figure 4 focuses on the prospective earnings gap that permanent employees would face in temporary employment. LIS data for the same 14 countries reveal a large wage gap of 29 percent, on average, between median wages in permanent employment and median wages in temporary employment. In line with findings on the average wage premium of permanent employment (Boeri, 2011: 1202), middle-income permanent employees would face substantial earnings losses in temporary employment. In contrast, temporary employment does not imply obvious wage losses for low-income employees, as their wages are clearly below typical wages in temporary employment (by 28 percent, on average). In prospective terms, this reveals that middle-income groups have much to lose if their permanent positions are replaced by temporary positions due to a large earnings penalty in temporary work.

[FIGURE 4]

Finally, the question remains whether the perception of regular employees matches with the asymmetrical risks of temporary employment. Unfortunately, no international survey provides unique items about replacement risks and earning prospects in fixed-term employment. As rough proxies, however, the International Social Survey Programme (ISSP) “Work Orientations” modules in 2005 and 2015 contain four items about risk considerations discussed in my theoretical framework in connection with temporary employment. Two items concern rather generalized perceptions of replacement risk (worry about losing job) and earnings prospects (high opportunities for advancement). The other two items, in contrast, refer to labor market alternatives in comparison to the current job situation (easy to find a job as good as the current) and the prospect of fixed-term employment in comparison to unemployment (accept temporary employment to avoid unemployment).

To distinguish how preferences differ between income strata, I run logistic regression models in a sample of adult full-time dependent employees pooled for 27 OECD and/or EU member states (including country and survey year dummies) and estimate predicted probabilities for the five income quintiles. The models control for age, gender as well as educational attainment and occupation (see Figure 5 and the full results in Table A2 in the online appendix). Given the correlation of these two variables with income, differences between income groups are most likely underestimated.

[FIGURE 5]

Figure 5 reveals noteworthy distinctions between income groups. The general risk dimensions show a strong linear income effect. Low-income respondents are most likely to worry about job loss and least optimistic about career advancement, the opposite holds for high-income employees. While these associations are consistent with the theoretical framework, the substantial size of the income effect (at given levels of education and occupation) is remarkable. A strikingly distinct picture is revealed in the remaining two items with attitudes related to more specific job alternatives. Here, the income effect takes a u-curved shape. Employees with

middle earnings seem least likely to indicate satisfactory job prospects relative to their current position. Significantly different from employees in the top quintile, middle-income respondents indicate difficulty in finding a job as good as their current and disagreement to the alternative of temporary employment. While Figure 5 bears support for significant differences in risk of temporary employment between middle and high incomes, the distinction towards workers with low earnings is less clear. As I have argued above, the difference between middle-class and poor workers is likely driven by the larger wage gaps for middle-class employees, implying large potential wage losses in non-permanent employment. While no survey data on the perception of wage prospects in different employment conditions is available, the large wage differentials shown in Figure 4 suggest that prospective wage considerations are likely to play an important risk-enhancing role for middle-class workers.

Conclusion

This paper argues that the widespread dismantling of labor market regulations “at the margins” has caused major income shifts among regular workers. Rather than just deepening the gap between insiders and outsiders, I have provided evidence from 22 OECD countries that deregulated temporary employment has unequal repercussions on insiders across the distribution. Facing high replacement risks and the prospect of earnings losses, middle-class employees are particularly vulnerable to a context of deregulated temporary employment. Unlike high-earners, middle-income groups lack the skill levels to avoid job replacements, and unlike low-earners, they face severe earnings losses in fixed-term employment.

These insights into the distributional effects of flexible employment have implications for the formation of political coalitions on labor market reforms. The findings suggest an opposition potential against flexible employment policies among middle-income citizens, even those that hold jobs in supposedly secure and stable employment. Taking an alternative viewpoint to the ongoing debate about the “squeezed middle class” and the electoral consequences of rising

inequality (Pressman, 2007; Dallinger, 2013; Gidron and Hall, 2017; Inglehart and Norris, 2017), the risk asymmetries from flexible employment indicate contentious coalition patterns that likely reflect the impact of earlier reforms to rising inequality (Eichhorst and Marx, 2011; Marx and Starke, 2017). Distinct from the view that distributional outcomes and political support coalitions are predictable along stable insider-outsider lines (Thelen, 2014), this framework may more accurately explain why several coordinated market economies have entered a path of rising inequality similar to liberal market economies (Vlandas, 2016; Pontusson and Weisstanner, 2018). To explore these propositions about the political consequences of flexible employment further, more specific research on individual-level attitudes towards flexible employment policies and outcomes is desirable. Additionally, longitudinal survey data could generate added insights on the dynamics and the timing of reforms effects within countries.

Although the adverse distributional effects of deregulated temporary employment on middle-class earnings are most noteworthy, two complementary sets of findings emphasize the continued relevance of traditional determinants of income inequality. First, earnings losses of the middle class are mirrored by gains of the top income quintile in deregulated environments. The latter group also holds attitudes on income and jobs prospects significantly different from other income groups. Thus, high-earning citizens are likely to be at the political forefront for further flexibilization. Second, the analysis reveals the sustained impact of unionization and centralized wage-setting institutions towards more compressed earnings distributions, as well as a moderating effect of encompassing unions on the impact of deregulation. While support coalitions towards flexible employment may shift over time, class-based conflict over labor market policies persists.

References

- Ahlquist JS. (2017) Labor Unions, Political Representation, and Economic Inequality. *Annual Review of Political Science* 20: 409-432.
- Armington K, Isler C, Knöpfel L, et al. (2016) *Comparative Political Data Set*, Bern: Institute of Political Science, University of Bern.
- Atkinson AB, Piketty T and Saez E. (2011) Top Incomes in the Long Run of History. *Journal of Economic Literature* 49: 3-71.
- Autor DH. (2014) Skills, education, and the rise of earnings inequality among the “other 99 percent”. *Science* 344: 843-851.
- Baccaro L and Pontusson J. (2016) Rethinking Comparative Political Economy: The Growth Model Perspective. *Politics & Society* 44: 175-207.
- Beck N and Katz JN. (1995) What To Do (and Not to Do) with Time-Series Cross-Section Data. *American Political Science Review* 89: 634-647.
- Beck N and Katz JN. (2011) Modeling Dynamics in Time-Series–Cross-Section Political Economy Data. *Annual Review of Political Science* 14: 331-352.
- Benach J, Vives A, Amable M, et al. (2014) Precarious Employment: Understanding an Emerging Social Determinant of Health. *Annual Review of Public Health* 35: 229-253.
- Benassi C. (2016) Liberalization Only at the Margins? Analysing the Growth of Temporary Work in German Core Manufacturing Sectors. *British Journal of Industrial Relations* 54: 597-622.
- Benassi C and Dorigatti L. (2015) Straight to the Core — Explaining Union Responses to the Casualization of Work: The IG Metall Campaign for Agency Workers. *British Journal of Industrial Relations* 53: 533-555.
- Beramendi P, Häusermann S, Kitschelt H, et al. (2015) Introduction: The Politics of Advanced Capitalism. In: Beramendi P, Häusermann S, Kitschelt H, et al. (eds) *The Politics of Advanced Capitalism*. Cambridge: Cambridge University Press, 1-64.
- Blanchard O and Landier A. (2002) The perverse effects of partial labour market reform: Fixed-term contracts in France. *The Economic Journal* 112: F214-F244.
- Blau FD and Kahn LM. (2002) *At Home and Abroad: U.S. Labor Market Performance in International Perspective*, New York: Russell Sage Foundation.
- Boeri T. (2011) Institutional Reforms and Dualism in European Labor Markets. In: Ashenfelter O and Card D (eds) *Handbook of Labor Economics*. Amsterdam: Elsevier, 1173-1236.
- Booth AL, Francesconi M and Frank J. (2002) Temporary jobs: Stepping stones or dead ends? *The Economic Journal* 112: F189-F213.
- Burgoon B and Dekker F. (2010) Flexible employment, economic insecurity and social policy preferences in Europe. *Journal of European Social Policy* 20: 126-141.
- Cahuc P, Charlot O and Malherbet F. (2016) Explaining the spread of temporary jobs and its impact on labor turnover. *International Economic Review* 57: 533-572.
- Calmfors L and Driffill J. (1988) Bargaining Structure, Corporatism and Macroeconomic Performance. *Economic Policy* 3: 14-61.
- Dallinger U. (2013) The endangered middle class? A comparative analysis of the role played by income redistribution. *Journal of European Social Policy* 23: 83-101.
- De Boef S and Keele L. (2008) Taking Time Seriously. *American Journal of Political Science* 52: 184-200.
- DiPrete TA, Goux D, Maurin E, et al. (2006) Work and pay in flexible and regulated labor markets: A generalized perspective on institutional evolution and inequality trends in Europe and the U.S. *Research in Social Stratification and Mobility* 24: 311-332.
- Eichhorst W and Marx P. (2011) Reforming German labour market institutions: A dual path to flexibility. *Journal of European Social Policy* 21: 73-87.
- Emmenegger P. (2009a) Barriers to entry: insider/outsider politics and the political determinants of job security regulations. *Journal of European Social Policy* 19: 131-146.
- Emmenegger P. (2009b) Specificity versus replaceability: the relationship between skills and preferences for job security regulations. *Socio-Economic Review* 7: 407-430.
- Emmenegger P, Häusermann S, Palier B, et al. (2012) How We Grow Unequal. In: Emmenegger P, Häusermann S, Palier B, et al. (eds) *The Age of Dualization: The Changing Face of Inequality in Deindustrializing Societies*. New York: Oxford University Press, 3-26.

- European Commission. (2016) *AMECO database (Variable ZVGDF)*, http://ec.europa.eu/economy_finance/ameco/user (Download 2016-11-29).
- Gidron N and Hall PA. (2017) Populism as a Problem of Social Integration. Annual Meeting of the American Political Science Association, San Francisco, September 1, 2017.
- Goldin C and Katz LF. (2008) *The Race between Education and Technology*, Cambridge, MA: Harvard University Press.
- Goldthorpe JH. (2000) *On Sociology. Numbers, Narratives, and the Integration of Research and Theory*, Oxford: Oxford University Press.
- Hassel A. (2014) The Paradox of Liberalization — Understanding Dualism and the Recovery of the German Political Economy. *British Journal of Industrial Relations* 52: 57-81.
- Inglehart R and Norris P. (2017) Trump and the Populist Authoritarian Parties: The Silent Revolution in Reverse. *Perspectives on Politics* 15: 443-454.
- Kahn LM. (2010) Employment protection reforms, employment and the incidence of temporary jobs in Europe: 1996–2001. *Labour Economics* 17: 1-15.
- King D and Rueda D. (2008) Cheap Labor: The New Politics of “Bread and Roses” in Industrial Democracies. *Perspectives on Politics* 6: 279-297.
- LIS. (2017) *Luxembourg Income Study Database*, Luxembourg: LIS, available at www.lisdatacenter.org (multiple countries, assessed on 2017-10-11).
- Lupu N and Pontusson J. (2011) The Structure of Inequality and the Politics of Redistribution. *American Political Science Review* 105: 316-336.
- Marx P. (2014) Labour market risks and political preferences: The case of temporary employment. *European Journal of Political Research* 53: 136-159.
- Marx P. (2015) *The Political Behaviour of Temporary Workers*, Basingstoke: Palgrave Macmillan.
- Marx P and Starke P. (2017) Dualization as Destiny? The Political Economy of the German Minimum Wage Reform. *Politics & Society*: 1-26.
- Maurin E and Postel-Vinay F. (2005) The European Job Security Gap. *Work and Occupations* 32: 229-252.
- Mosimann N and Pontusson J. (2017) Solidaristic Unionism and Support for Redistribution in Contemporary Europe. *World Politics* 69: 448-492.
- Nickell S. (1981) Biases in Dynamic Models with Fixed Effects. *Econometrica* 49: 1417-1426.
- OECD. (2017) OECD Employment Protection Database. Annual time series data. <https://www.oecd.org/els/emp/EPL-timeseries.xlsx> [accessed 2017-06-28].
- Oesch D. (2010) What explains high unemployment among low-skilled workers? Evidence from 21 OECD countries. *European Journal of Industrial Relations* 16: 39-55.
- Palier B and Thelen K. (2010) Institutionalizing Dualism: Complementarities and Change in France and Germany. *Politics & Society* 38: 119-148.
- Polavieja JG. (2003) Temporary Contracts and Labour Market Segmentation in Spain: An Employment-Rent Approach. *European Sociological Review* 19: 501-517.
- Pontusson J. (2005) Varieties and Commonalities of Capitalism. In: Coates D (ed) *Varieties of Capitalism, Varieties of Approaches*. Basingstoke/New York: Palgrave Macmillan, 163-188.
- Pontusson J. (2013) Unionization, Inequality and Redistribution. *British Journal of Industrial Relations* 51: 797-825.
- Pontusson J, Rueda D and Way CR. (2002) Comparative Political Economy of Wage Distribution: The Role of Partisanship and Labour Market Institutions. *British Journal of Political Science* 32: 281-308.
- Pontusson J and Weisstanner D. (2018) Macroeconomic conditions, inequality shocks and the politics of redistribution, 1990–2013. *Journal of European Public Policy* 25: 31-58.
- Pressman S. (2007) The Decline of the Middle Class: An International Perspective. *Journal of Economic Issues* 41: 181-200.
- Rueda D. (2005) Insider–Outsider Politics in Industrialized Democracies: The Challenge to Social Democratic Parties. *American Political Science Review* 99: 61-74.
- Rueda D. (2007) *Social Democracy Inside Out. Partisanship and Labor Market Policy in Industrialized Democracies*, Oxford: Oxford University Press.
- Scherer S. (2004) Stepping-Stones or Traps? The Consequences of Labour Market Entry Positions on Future Careers in West Germany, Great Britain and Italy. *Work, employment and society* 18: 369-394.

- Schwander H and Häusermann S. (2013) Who is in and who is out? A risk-based conceptualization of insiders and outsiders. *Journal of European Social Policy* 23: 248-269.
- Spence M. (1973) Job Market Signaling. *The Quarterly Journal of Economics* 87: 355-374.
- Thelen K. (2014) *Varieties of Liberalization and the New Politics of Social Solidarity*, New York: Cambridge University Press.
- Venn D. (2009) Legislation, collective bargaining and enforcement: Updating the OECD employment protection indicators. *OECD Social, Employment and Migration Working Paper* 89.
- Visser J. (2015) *ICTWSS: Database on Institutional Characteristics of Trade Unions, Wage Setting, State Intervention and Social Pacts in 34 countries between 1960 and 2014, Version 5.0.*, Amsterdam: Amsterdam Institute for Advanced Labour Studies AIAS.
- Vlandas T. (2013) The Politics of Temporary Work Deregulation in Europe: Solving the French Puzzle. *Politics & Society* 41: 425-460.
- Vlandas T. (2016) Coordination, inclusiveness and wage inequality between median- and bottom-income workers. *Comparative European Politics* doi: 10.1057/cep.2016.25.
- Wallerstein M. (1999) Wage-Setting Institutions and Pay Inequality in Advanced Industrial Societies. *American Journal of Political Science* 43: 649-680.
- Wilthagen T and Tros F. (2004) The concept of ‘flexicurity’: a new approach to regulating employment and labour markets. *Transfer: European Review of Labour and Research* 10: 166-186.

TABLES AND FIGURES

Table 1: ECM regressions of income shares, 1985-2014

	Δ Quintile income shares				
	Bottom	Lower-middle	Middle	Upper-middle	Top
Y_{t-1} (lagged income share levels)	-0.29*** (0.07)	-0.39*** (0.06)	-0.49*** (0.06)	-0.37*** (0.06)	-0.39*** (0.06)
Temporary employment regulation (log)	0.03 (0.05)	0.13*** (0.05)	0.15*** (0.04)	0.05 (0.03)	-0.36*** (0.12)
Unemployment rate	-0.02 (0.01)	-0.03*** (0.01)	-0.01* (0.01)	0.01 (0.01)	0.07** (0.03)
Union density	0.40** (0.21)	0.75*** (0.18)	0.56*** (0.15)	-0.06 (0.11)	-1.73*** (0.53)
Wage bargaining centralization	0.15*** (0.05)	0.04 (0.04)	0.00 (0.03)	-0.04 (0.03)	-0.20* (0.10)
Service employment	0.12 (0.65)	-0.07 (0.46)	-0.35 (0.45)	-0.26 (0.34)	1.58 (1.35)
Trade openness	-0.16 (0.14)	0.09 (0.09)	0.10 (0.07)	-0.06 (0.06)	-0.06 (0.23)
Technological change (factor productivity)	-0.38 (0.49)	-0.36 (0.36)	-0.53* (0.29)	-0.21 (0.24)	1.36 (1.08)
Constant	2.31*** (0.97)	5.45*** (0.95)	9.30*** (1.23)	9.12*** (1.51)	12.79*** (2.41)
R^2	0.21	0.30	0.41	0.27	0.32
N	144 (22 countries)				

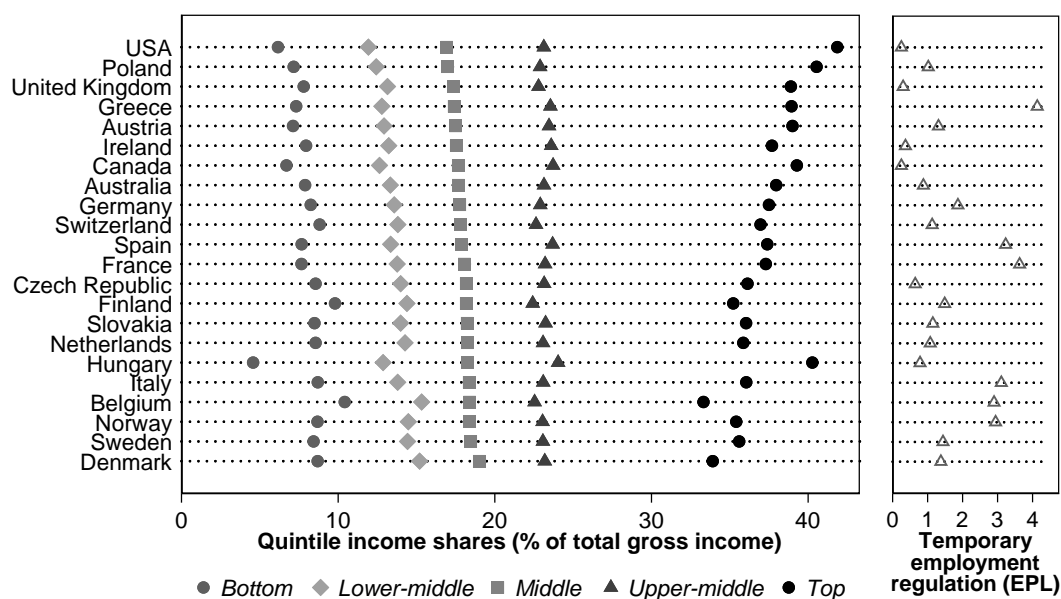
Notes: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$. OLS estimates with panel-heteroskedastic standard errors in parentheses, panel-specific AR(1) processes estimated with Prais-Winsten transformation.

Table 2: The effects of temporary employment regulation conditional on encompassing unionization

Marginal effects of temporary employment regulation:	Δ Quintile income shares				
	Bottom	Lower-middle	Middle	Upper-middle	Top
low union density (-1sd.)	0.08 (0.06)	0.30*** (0.05)	0.23*** (0.04)	0.06 (0.05)	-0.72*** (0.15)
medium union density (mean)	0.03 (0.05)	0.16*** (0.04)	0.14*** (0.04)	0.05 (0.03)	-0.39*** (0.11)
high union density (+1sd.)	-0.02 (0.08)	0.02 (0.06)	0.05 (0.05)	0.04 (0.04)	-0.06 (0.15)

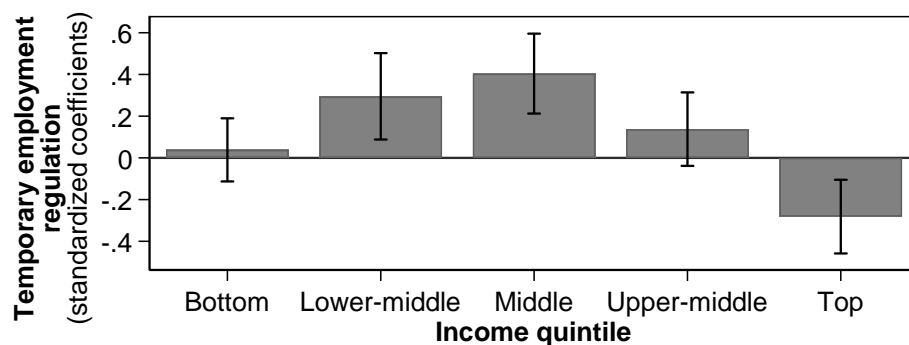
Notes: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$. Panel-heteroskedastic standard errors in parentheses. Estimates based on regression models in Table 1 with interaction terms added.

Figure 1: Income shares (2007) and temporary employment regulation (1995-2007) in 22 OECD countries



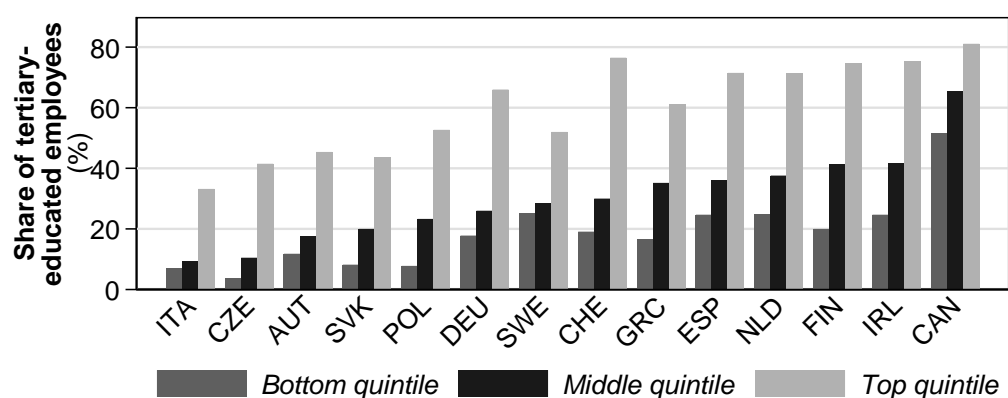
Notes: Countries sorted by the size of middle income shares. Income shares estimated from LIS microdata for 2007 (except Australia/Italy 2008, Belgium 2000, France/Sweden 2005). Temporary employment regulation based on the OECD Employment Protection Legislation (EPL) indicator (average 1995-2007).

Figure 2: Standardized effects of temporary employment regulation on quintile income shares



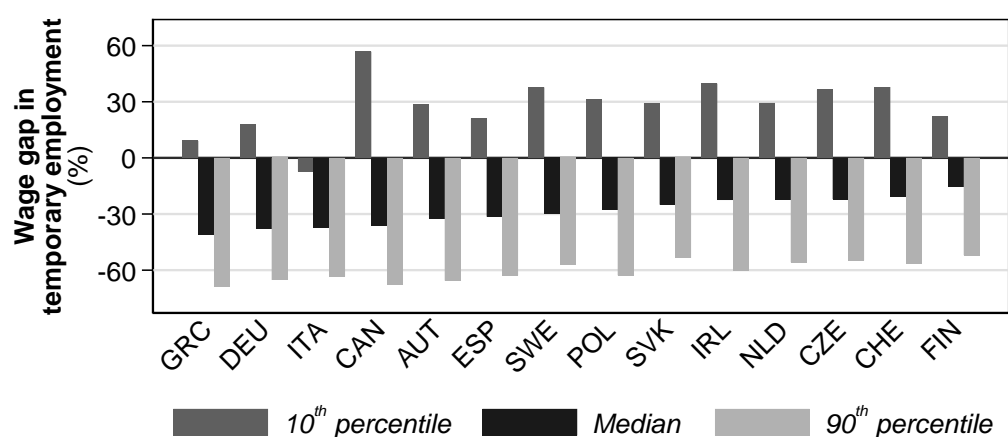
Note: Standardized beta coefficients and 95% confidence intervals from ECM regressions in Table 1.

Figure 3: High-educated permanent employees, by income quintile



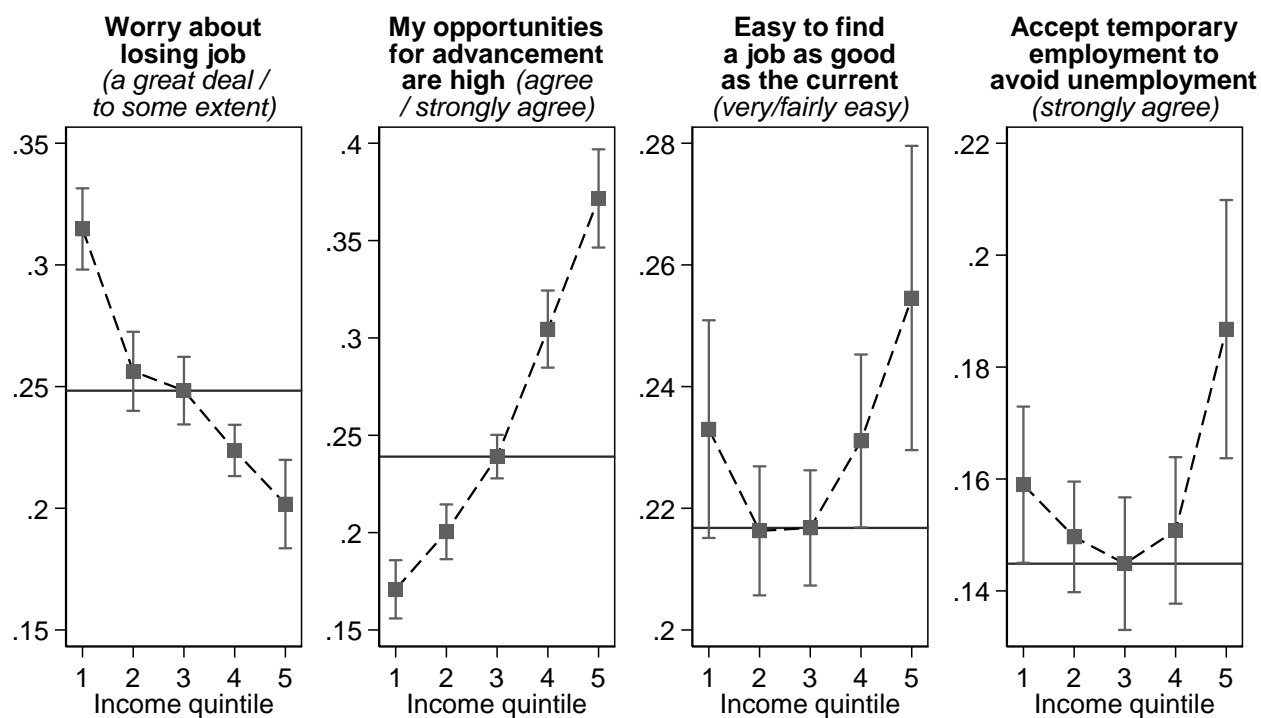
Note: Estimated from LIS microdata for 2007 (except Italy 2008, Sweden 2005), countries sorted by education levels of middle-income employees.

Figure 4: Earnings in temporary employment relative to permanent employees with low, middle and high incomes



Note: Estimated from LIS microdata for 2007 (except Italy 2008, Sweden 2005), countries sorted by wage gap to median wages in permanent employment. Earnings based on person-level gross wages.

Figure 5: ISSP survey evidence on earnings prospects (predicted probabilities)



Notes: Survey items from ISSP *Work Orientations* 2005 and 2015, pooled for 27 countries and N=15,931 respondents. Estimates are predicted probabilities and 95% confidence intervals based on logistic regression models with country-clustered standard errors. Sample restricted to full-time dependent employees aged 18-64. Controls included: gender, age, education dummies (primary/lower-secondary, upper-secondary, post-secondary and tertiary education), occupation dummies (ISCO88/08 at 1-digit), country dummies, and survey year dummy. Full results: see Table A2 in the online appendix.

ONLINE APPENDIX

Table A1: Coefficients for temporary employment regulation in a variety of robustness tests (standardized beta coefficients)

Robustness check:	Bottom	Δ Quintile income shares			Top	N
		Lower-middle	Middle	Upper-middle		
<i>Baseline results from Table 1 and Figure 2</i>	0.04 (0.08)	0.30*** (0.11)	0.40*** (0.10)	0.14 (0.09)	-0.28*** (0.09)	144
Controlling for the incidence of temporary employment	0.05 (0.08)	0.32*** (0.11)	0.45*** (0.11)	0.16 (0.10)	-0.30*** (0.09)	128
Controlling for the incidence of part-time employment	0.17* (0.09)	0.39*** (0.12)	0.53*** (0.10)	0.13 (0.09)	-0.42*** (0.11)	141
Controlling for employment protection of regular contracts	-0.00 (0.10)	0.22** (0.11)	0.39*** (0.13)	0.16 (0.10)	-0.21*** (0.10)	144
Income shares based on disposable household earnings	0.53*** (0.11)	0.47*** (0.11)	0.34*** (0.08)	-0.03 (0.10)	-0.40*** (0.09)	144
Income shares based on gross person-level earnings	-0.15 (0.12)	0.49*** (0.13)	0.39*** (0.10)	0.18 (0.12)	-0.25** (0.11)	107
Controlling for LIS survey waves (dummies)	-0.01 (0.07)	0.21** (0.11)	0.31*** (0.10)	0.07 (0.09)	-0.19*** (0.09)	144
Random-effects regressions with country-clustered standard errors	0.08 (0.10)	0.32*** (0.12)	0.31** (0.12)	0.10 (0.13)	-0.27** (0.11)	144
No AR(1) error processes	0.08 (0.11)	0.32** (0.13)	0.31*** (0.10)	0.10 (0.10)	-0.27** (0.11)	144

Notes: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$. Coefficients show the standardized effects of temporary employment (log) replicating the models in Table 1. As an additional robustness test, the coefficients for temporary employment regulation are not affected by excluding single countries. The effects remain significant at the 99 percent level excluding each country at a time.

Table A2: Logistic regressions of labor market attitudes based on ISSP surveys (odds-ratios)

	Worry about losing job	My opportunities for advancement are high	Easy to find a job as good as the current	Accept temporary employment to avoid unempl.
	<i>A great deal / to some extent</i>	<i>Agree / strongly agree</i>	<i>Very easy / fairly easy</i>	<i>Strongly agree</i>
Bottom earnings quintile (reference: middle)	1.46*** (0.10)	0.62*** (0.05)	1.10 (0.07)	1.12 (0.10)
Lower-middle earnings quintile (reference: middle)	1.05 (0.08)	0.78*** (0.05)	1.00 (0.05)	1.04 (0.07)
Upper-middle earnings quintile (reference: middle)	0.86** (0.05)	1.45*** (0.10)	1.09* (0.05)	1.05 (0.09)
Top earnings quintile (reference: middle)	0.74*** (0.06)	2.04*** (0.16)	1.25** (0.11)	1.38*** (0.14)
Primary/lower-secondary education (reference: tertiary)	1.19*** (0.08)	0.98 (0.08)	0.87 (0.08)	0.69*** (0.08)
Upper-secondary education (reference: tertiary)	1.10 (0.09)	0.84 (0.09)	0.93 (0.07)	0.75*** (0.06)
Post-secondary education (reference: tertiary)	0.96 (0.07)	1.02 (0.08)	1.03 (0.05)	0.83* (0.08)
ISCO: 2 (professionals) (reference: managers/officials)	0.96 (0.08)	0.66*** (0.05)	1.14 (0.09)	0.89 (0.08)
ISCO: 3 (technicians) (reference: managers/officials)	1.16 (0.11)	0.69*** (0.05)	0.92 (0.07)	0.95 (0.10)
ISCO: 4 (clerks) (reference: managers/officials)	1.21 (0.14)	0.67*** (0.07)	0.74*** (0.08)	0.91 (0.11)
ISCO: 5 (service/sales workers) (reference: managers/officials)	0.98 (0.11)	0.68*** (0.08)	1.26*** (0.09)	0.92 (0.11)
ISCO: 6 (skilled agricultural workers) (reference: managers/officials)	0.91 (0.19)	0.50*** (0.13)	1.26 (0.24)	1.22 (0.31)
ISCO: 7 (craft workers) (reference: managers/officials)	1.26** (0.14)	0.52*** (0.06)	1.45*** (0.13)	0.81* (0.09)
ISCO: 8 (plant operators) (reference: managers/officials)	1.37*** (0.15)	0.35*** (0.05)	1.18 (0.12)	0.88 (0.10)
ISCO: 9 (elementary) (reference: managers/officials)	1.27* (0.17)	0.34*** (0.05)	1.05 (0.13)	0.94 (0.14)
ISCO: 10 (armed forces) (reference: managers/officials)	0.42* (0.20)	2.17*** (0.60)	0.47** (0.15)	1.01 (0.34)
Male (reference: female)	0.99 (0.06)	1.16** (0.07)	0.97 (0.07)	0.75*** (0.05)
Age	1.01*** (0.00)	0.95*** (0.00)	0.97*** (0.00)	0.98*** (0.00)
<i>Pseudo R²</i>	0.11	0.11	0.05	0.05
<i>N</i>	15,931	15,931	15,931	15,931

Notes: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$. Odds-ratios from logistic regression estimates with country-clustered standard errors in parentheses. Survey year and country dummies included (not shown). Survey items from ISSP *Work Orientations* 2005 (Q25, Q10c, Q22, Q26c) and 2015 (Q28, Q12c, Q26, Q29c) for 27 countries (Australia, Belgium, Bulgaria, Canada, Croatia, Cyprus, Czech Republic, Denmark, Finland, France, Germany, Great Britain, Hungary, Ireland, Iceland, Japan, Lithuania, Latvia, Netherlands, Norway, New Zealand, Portugal, Spain, Sweden, Switzerland, USA). Sample restricted to full-time dependent employees aged 18-64.