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The rise of precarious employment in Germany

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The Rise of Precarious Employment in Germany

David Brady and Thomas Biegert

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THE RISE OF PRECARIOUS EMPLOYMENT IN GERMANY

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BIOGRAPHIES

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THE RISE OF PRECARIOUS EMPLOYMENT IN GERMANY

ABSTRACT

Long considered the classic coordinated market economy featuring employment security and relatively little employment precarity, the German labor market has undergone profound changes in recent decades. We assess the evidence for a rise in precarious employment in Germany from 1984 to 2013. Using data from the German Socio-Economic Panel (SOEP) through the Luxembourg Income Study, we examine low-wage employment, working poverty, and temporary employment. We also analyze changes in the demographics and the education/skill level of the German labor force. Although employment overall has increased, there has been a simultaneous significant increase in earnings and wage inequality. Moreover, there has been a clear increase in all three measures of precarious employment. The analyses reveal that models including a wide variety of independent variables – demographic, education/skill, job/work characteristics, and region – cannot explain the rise of precarious employment. Instead, we propose institutional change is the most plausible explanation. In addition to reunification and major social policy and labor market reforms, we highlight the dramatic decline of unionization among German workers. We conclude that while there are elements of stability to the German coordinated market economy, Germany increasingly exhibits substantial dualization, liberalization, inequality, and precarity.

The German labor market has long been studied and praised for its coordinated market economy with robust labor market institutions, vocational training and apprenticeship systems, and high productivity (Brady 2011a; Casper and Vitols 1997; Hall and Soskice 2001). Compared to other rich democracies, Germany has been regarded as a success story of balancing economic performance with relative egalitarianism (Brady et al. 2010; Brady 2011b; Esping-Andersen 1990; Vitols 2004). For several decades, Germany maintained effective school-to-work transitions and a robust labor market for workers without college degrees (Unger 2015). Partly driven by a strong manufacturing industry, German workers have been perceived as highly skilled, productive, efficient, stable, and secure (Casper and Vitols 1997; Vitols 1997). Traditionally, scholars, think tanks, and policymakers have presented Germany as a model for emulation. At least prior to the fall of the Berlin Wall, a lot of the acclaim was probably warranted (Blau and Kahn 2002; Brady 2011b; Fuchs-Schuendeln et al 2009; Pontusson 2005; Unger 2015; Vitols 1997).

However, Germany has undergone profound changes in recent decades, and the contemporary German labor market differs considerably from this classic image (Brady 2011a; Hassel 2010; Palier and Thelen 2010; Thelen 2012; Unger 2015; Vitols 2004). After the 1980s, Germany's unemployment rose to some of the higher levels among the rich democracies (Vitols 2004). Then, in the 2000s, unemployment declined considerably and economic growth recovered (Thompson 2013). Scholars and commentators began to refer to a "German miracle" (Burda 2016) as employment and economic outcomes appeared to convincingly improve. During this period of rising employment however, there is evidence of rising inequality, and the dualization of social policy and labor markets (Emmenegger et al. 2012; Streeck 2009). For instance, working poverty emerged as a relatively new and prominent phenomenon in Germany as more

workers and their families experienced heightened economic insecurity (Brady et al. 2010; Gautie and Schmitt 2009; Lucifora et al. 2005; Standing 2011). As we document below, there is also evidence of rising precarious employment in the forms of low-wage work, working poverty, and temporary employment. German scholars and commentators have devoted some attention to some of these labor market changes and the underlying social forces (e.g. Fuchs-Schuendeln et al 2009; Unger 2015). Indeed, there has been growing interest in how Germany exemplifies the evolution of the coordinated market economy (e.g. Thelen 2012).

This paper further investigates and provides evidence on three related issues. First, we demonstrate an increase in precarious employment in Germany. While overall employment has improved, there has been a clear increase in inequality, low-wage work, working poverty, and temporary employment. Second, we assess if leading explanations of labor market change can account for the over-time increases in these adverse outcomes. Specifically, we analyze whether rises in low-wage work, working poverty, and temporary employment can be explained by demographics, education/skills, or job/work characteristics. Third, because these factors cannot explain the temporal change, we propose institutional change is the most likely explanation.

THE CHANGING GERMAN LABOR MARKET

This section describes several of the most important changes in the German labor market from 1984 to 2013. In the “Data and Methods” section, we fully describe the data and measurement of these variables. Table 1 contains information on the changes in a variety of key labor market outcomes in recent decades.

Our study concentrates on the period 1984-2013 in part because of data availability (see below). However, this period is ideal for tracing the evolution of the German labor market. We

include two time points (1984 and 1989) during the period of West Germany exemplifying the prototypical coordinated market economy (CME). Germany's economy at that time was performing at a high level and all the CME characteristics were in place. We also include three time points (1994, 2000 and 2004) during the transition period of reunification, when Germany experienced relatively slow economic growth and higher unemployment. Further, we include three recent time points (2007, 2010, and 2013) after major labor market reforms had been implemented, and two after the Great Recession of 2008. Thus, our time period spans the CME era, the reunification transition, and the post-reform recent years.

As Table 1 shows, there has been an increase in employment among the working aged (defined as those 18-64 years old and not in education, training, service or leave).¹ In 1984, about 71% of this population was employed. This rate increased to 76% in 1989, and was relatively stable 1994-2004. This is somewhat surprising as it is well known that unemployment rates were higher in the 1990s. The employment rate then rose to 78% in 2007, 78.7% in 2010, and 80.3% in 2013. Thus, a higher share of adults are engaged in employment than in the 1980s.²

On balance, this rising employment rate has not been shared equally across the German labor force. For instance, young adults have experienced declining employment. In 1984, the

¹ Identifying those in education/training is particularly important given the ambiguous quality of some training programs (Thompson 2013). The LIS/SOEP data contains fine-grained information on the type of schooling/training in which an individual is currently enrolled until at least 2010. Among the categories, these codes are available with frequency counts in 2010: "Vocational School: unknown type" (52), "Vocational Retraining" (38), "Continued Vocational Education" (118), "Professional Rehabilitation" (5) "practical training preparation year" (14), "Vocational School No Apprenticeship" (8), "Apprenticeship" (365), "Specialized Vocational School" (58), "Specialized Technical School" (33), and "Other Vocational Training" (50). It is difficult to discern which of these categories might not actually involve "real" training. However, since the largest category is an apprenticeship, it seems plausible that most of those in training are gaining real investments in human capital and skills.

² The employment trend was similar among those in the labor force, although there was a bigger decline in the 1990s. 93.5% of the labor force was employed in 1984, 96% in 1989, 89.2% in 1994, 91.6% in 2000, and 91.2% in 2013. Thus, there has been fluctuation, but little trend.

employment rate was almost 90% among 18-24 year olds who were not in education, training or service. This rate held fairly steady until 2004. However, since then, there has been a sharp decline in young adult employment. By 2013, only 74% of young adults were employed.

Although employment has increased, there has been an even larger increase in earnings and wage inequality. Although data are unavailable on hourly wages in 1984, the Gini coefficients in hourly wages and annual earnings were fairly stable in the 1980s and 1990s. However, since the late 1990s, there has been a dramatic increase in inequality. The Gini in hourly wages rose from .26 in 2000 to .31 in 2013 – a 16% increase in only 13 years. The gini in annual earnings rose from .32 in 1994 to .42 in 2013 – a 29% increase. In both cases, the rise of inequality has accelerated in the last decade and 2013 is the high point in Germany inequality.

The trend of rising inequality is not solely about the average worker losing ground. In Germany, median real hourly wages increased 1989-2004. Since, wages declined modestly but held steady 2007-2013. Overall, wages were at the same level in 2013 as in 1994. Instead, a major part of the story is that workers at the bottom of the distribution have fallen relative to the middle of the earnings distribution. Specifically, we argue that three adverse labor market outcomes exhibit significant increases over time.

We contend these three outcomes are evidence of a rise in “precarious employment” in Germany. Kalleberg (2009, 2011) defines precarious employment as uncertain and insecure, and lacking in social protection and the full citizenship rights of employees in stable employment relationships. Unlike the voluntary flexibility characterized by highly skill entrepreneurs and contract workers, precarity implies deleterious, unpredictable and anxious insecurity. In the

German context, three outcomes are arguably the clearest cases of precarious employment.³

Low-wage work and working poverty indicate economic insecurity, insufficient compensation, and a marginal employment relationship. Temporary employment is unpredictable beyond the short-term contract and generates considerable anxiety for the worker. All three outcomes generate social exclusion, and are harmful to health and well-being.⁴

First, there has been an increase in “low-wage work.” We defined low-wage work two ways, as 50% and 66% of the median wage. Both declined modestly 1984-1994, but both exhibit a sharp increase 1994-2013. The percent low-wage declined from 17.13% to 17.09% or 25.3% to 24.6% from 1984 to 1994. Since 1994 however, there has been a steady increase to 24.0% or 31.1% in 2013.

Second, there has been an increase in working poverty in Germany. While low-wage work is a measure of individual employees, working-poverty is a measure of individuals in employed households. The working poor are defined as those living in a household (HH) with less than 50% of the median equivalized post-fisc income. Working poverty is a smaller share of employees, as most HHs rely on transfers and multiple earners to make ends meet. Indeed, this

³ In analyses available upon request, we also examined part-time employment. However, in Germany, this is not as clearly precarious employment. The exception is the growth of mini-jobs, which we discuss below, but mini-jobs are a minority of those in part-time employment and are better considered a subset of low-wage work. For the most part, part-time employment is largely a strategy for working parents (especially working mothers) to balance work and family, and even in professional jobs. Indeed, large numbers of working parents work 30-35 hours per week. Unlike the U.S., these jobs typically come with full benefits and employment security. For instance, since the mid-2000s, German mothers are legally entitled to part-time employment without penalty (Blome 2017). That the “right to part-time employment” for working parents was presented as a “right” and a work-family policy reform gained for working parents is a clear indication of its status being fundamentally different than in contexts like the U.S. – where part-time employment (especially involuntary part-time) is an indicator of precarity.

⁴ Relatively few German workers experience multiple precarious employment outcomes, and this pattern has been fairly stable over time. In 2013, only 5.8% of the employed were low-wage and temporary, 4.0% were low-wage and working poor, 1.2% were temporary and working-poor, and 1.1% were low-wage, working poor and temporary.

means that working poverty is a more stringent definition of precarious employment than low-wage work. In contrast to working poverty, a low-wage worker might not be as deprived if s/he is relying on the earnings of other HH members or transfers. Despite these differences, the trend in working poverty was similar to the trend in low-wage work. Working poverty fell from 2.03% to 1.6% 1984-1989. However, working poverty rose to 2.9% in 1994, 3.2% in 2000, 3.7% in 2004, and 4.4% in 2013. Thus, working poverty has increased 178% 1989-2013.

Third, there has been an increase in the percent of workers on a temporary contract. In Germany and many other European countries, workers can receive a “permanent contract” that guarantees certain benefits and provides a variety of protections against dismissal. Those without a permanent contract do not have any obligations of retention, and it is widely understood that these workers are on a more provisional and temporary basis. In 1984 and 1994, only about 11.5% of employees were temporary.⁵ By 2004, temporary employment had surpassed 14%, and by 2013, 14.6% of employees were on a temporary contract.

On balance, the rise of precarious employment is more pronounced among women. This is partly because the classic German CME was based on the male breadwinner, while women always had a more precarious position in the labor market (Schaefer and Gottschall 2015). Nevertheless, all three measures of precarious employment have also increased among women. Working poverty among women increased from 2.2% in 1989 to 5.3% in 2013. Low-wage work (50%) among women increased from 28.8% in 1994 to 35.3% in 2007, and low-wage work (66%) among women rose from 40.6% in 1994 to 47.2% in 2007. Temporary employment among women rose from 13.3% in 1994 to 17.2% in 2007. Therefore, while the trends are more

⁵ Our analyses suggest there is a problem in the measurement of temporary employment in 1989 that is not present in prior or subsequent years. Therefore, we omit 1989.

pronounced among men, the rise of precarious employment has been experienced by both women and men.

This point can be further illustrated by examining the trends in what are often called “mini-jobs.” Mini-jobs are difficult to measure, and our data only allow us to construct a tenuous approximation.⁶ Mini-jobs are a subset of low-wage jobs that do not require the employer to pay social insurance taxes or provide employment protection. The deregulation of the German labor market (discussed below) enabled the expansion of mini-jobs, although something like them have existed for some time in Germany. By our definition, there was a significant increase in mini-jobs among both men and women, even though the prevalence of mini-jobs is much higher among women. By our calculations, about 6.6% of women worked in the equivalent of mini-jobs in 1984, and this increased to about 16% in 2013. About nine-tenths of 1% of men worked in the equivalent of mini-jobs in 1984, and this increased to 5.8% in 2013.⁷ Thus, for both sexes, there has been a significant increase in mini-jobs 1984-2013.

In sum, the German labor market has exhibited an increase in employment and inequality coupled with an increase in three adverse labor market outcomes: low-wage work, working poverty, and temporary employment. We argue these three adverse outcomes provide evidence

⁶ We define mini-jobs as follows: From the early 1980s until the late 1990s, these are workers who earned less than 390 DM per month. From 1999 to 2003, these are workers who earn less than 530 DM. From 2003 to 2012, these workers earn less than 400 EUR. And in 2013, these workers earn less than 450 EUR per month. To construct this measure, we multiplied the monthly thresholds by 12 and defined workers as in a minijob if their annual earning was less than or equal to that amount. Until 1996, the definition of min-job also required that the worker work less than 15 hours per week. However, we did not include that restriction in the calculations, as we suspect it would not change the trends (i.e. one would have to work for less than 6.50 DM per hour (or 3, 25 EUR) to violate this restriction).

⁷ More specifically, women’s prevalence of mini-jobs was 6.6% in 1984, 2.6% in 1989, 3.5% in 1994, 9.8% in 2000, 12% in 2004, 15.8% in 2007, 14.8% in 2010, and 16% in 2013. Men’s prevalence was .9% in 1984, 1% in 1989, 1.5% in 1994, 2.3% in 2000, 3.8% in 2004, 4.6% in 2007, 5.6% in 2010, and 5.8% in 2013

of a rise of precarious employment in Germany in recent decades. To understand why this has happened, we now review leading theoretical explanations for the rise of precarious employment.

EXPLANATIONS FOR RISING PRECARIOUS EMPLOYMENT

The literature on the rise of precarious employment provides a variety of theories and explanations for its increase (see e.g. Kalleberg 2009, 2011; Kalleberg et al. 2000). We review four of these explanations – demographics, education/skill, job/work characteristics, and institutional change – that we will analyze empirically.

First, certain demographic characteristics are closely associated with precarious employment (Brady et al. 2010; Kalleberg 2007; Lohmann 2009). A shift in demographics on the labor market might therefore be responsible for the growth in precarious jobs. As a greater share of workers carry the demographic vulnerabilities associated with precarious employment, this could constitute a compositional change that is associated with increasing precarious work. Past research has identified the role of being an immigrant, marital status, family structure, and age. For instance, single motherhood is associated with a higher likelihood of working poverty (Brady et al. 2010; Lohmann 2009). In addition, the steady increase in female and maternal employment could be associated with precarious employment because women and mothers are overrepresented among involuntary part-time workers (Blau and Kahn 2013; Esping-Andersen 1999; Smith et al. 1998). Labor market entrants typically face disadvantages due to their lack of experience and weak bargaining position (Breen 2005; Kahn 2007). As a result, temporary contracts are particularly concentrated among young workers. Demographic shifts in recent decades mean there is a smaller proportion of young workers on the labor market. Nevertheless, a larger share of older workers already entrenched in their positions may have worsened the

bargaining positions of labor market entrants. In combination with institutional changes, this may have caused a rise in precarious work (Kahn 2007).

Second, rising precarious work could result from changes in education and skill. Shifts and mismatches in the educational composition of the workforce (i.e. labor supply) as well as the skill-requirements of the labor market (labor demand) might cause a rise in precarious work (Kalleberg 2007). Educational expansion creates a more skilled workforce that should initially lead to a larger proportion of individuals with good jobs (Oesch and Rodriguez Menes 2011). However, this simple view neglects labor market dynamics such as job competition and crowding out processes (Mare 1981). Plausibly, a larger share of high educated workers increases the pressure on the low educated to accept precarious jobs, which might lead to an increase in precarious jobs in absolute terms (Gebel and Pfeiffer 2010). Further, scholars have argued that concurrent with educational expansion, skill biased technological change (SBTC) increased demand for skilled workers, lowering demand for workers with low education (Acemoglu and Autor 2011; Card and DiNardo 2002). In developing SBTC accounts, research on routinization contends that it is the medium skilled parts of the economy that have seen the largest declines in jobs and job quality, while employment increased for the high skilled and low skilled (Goos and Manning 2007). This literature documents a polarization in the labor market between the high skilled in good jobs and the low skilled in precarious jobs. One result of this shift could be a rise in precarious employment (Goos and Manning 2007; Goos et al. 2009; Oesch and Rodriguez Menes 2011).

Third, job and work characteristics could explain a rise in precarious employment (Kalleberg 2009, 2011). Similar to arguments about SBTC and labor demand, there have been structural shifts in labor markets in terms of their sectoral and occupational composition. These

shifts have encouraged a broader movement toward employment casualization (Kalleberg 2003; Standing 2011). Even compared to other rich democracies, Germany has experienced a more rapid decline of manufacturing employment (Brady and Denniston 2006). This deindustrialization has contributed to a decline of well-protected long-term jobs with standardized working conditions. Occupations are strongly associated with earnings and other job qualities, such as contract type and working hours. As a result, changes in the occupational composition of the work force have also increased wage inequality (Mouw and Kalleberg 2010). In Germany, too, there is significant occupational heterogeneity regarding the use of atypical and low-wage work (Bol and Weeden 2015). Furthermore, over recent decades, there has been a decline in occupations characterized by stability and “standard” employment while there has been a growth in occupations that rely disproportionately on atypical and low-wage jobs (Eichhorst et al. 2015). Therefore, the rise of precarious employment could be the consequence of broader long-term changes in occupations, industries and jobs.

A final explanation for the rise of precarious employment focuses on institutional change. By institutions, we mean stable agreements, historical settlements, rules, laws and politically powerful collective actors (Campbell 2004; Fligstein 2001; Pierson 2004). Institutions channel, constrain and regulate the behavior of firms, workers and other actors, and define the range of legitimate actions of market actors (Fligstein 2001; Thelen 2012). As has been amply demonstrated (e.g. Brady et al. 2016), institutions have tremendous influence on the amount of inequality in society. Particularly important to the rise of precarious employment has been the decline of organized labor (Brady et al. 2013; Lohmann 2009; Pontusson 2005; Western and Rosenfeld 2011) and the evolution of social policy (Brady et al. 2010; Emmenegger et al. 2012; Lohmann 2009). Rather than viewing the rise of precarious employment as the natural outcome

of demographic and economic change, institutional explanations highlight the role of political context, the state, and power relations.

Germany was in many ways the prototype of the CME, and thus was expected to exhibit institutional stability via institutional complementarity and comparative advantage (Hall and Soskice 2001). Nevertheless, the changes in German labor market policies since the 1980s were considerable (Eichhorst and Marx 2011, Seeleib-Kaiser and Fleckenstein 2007). Within institutional change explanations, it is important to acknowledge at least two accounts (Campbell 2004; Thelen 2012). On one hand, some have emphasized the decline and weakening of egalitarian institutions. This account emphasizes “liberalization” whereby unions and social policies have eroded and lost power (e.g. Hassel 1999; Streeck 2009; Western and Rosenfeld 2011). In this account, precarious employment has resulted because institutions have weakened. On the other hand, others stress the path dependency of historically established institutions that shape the trajectory of rising precarity (Pierson 2004). This account interprets the rise of precarious employment as reflecting both liberalization and the inherited legacies of the German CME (Palier and Thelen 2010; Thelen 2012). Rather than simply weakening institutions, institutions have become “dualized” whereby some “insiders” (e.g. middle-aged skilled men in the manufacturing sector) remain protected while “outsiders” (e.g. young, women, and immigrants) are excluded (Biegert 2014; Eichhorst and Marx, 2011; Emmenegger et al., 2012). Of course, these two explanations are not mutually exclusive and a full understanding of rising precarity needs to consider both.

DATA AND METHODS

Our data are the German Social Economic Panel (SOEP; Wagner et al. 2007). The SOEP is a large, nationally representative survey of the German population with detailed questions on employment. The SOEP is a panel dataset with repeated observations for the same people over time. The original panel was nationally representative, but the SOEP has also been replenished at various points to ensure continued representativeness of the German population, each region/state, and key demographic groups. Therefore, with weights, the SOEP can also be used as a representative cross-section at one point in time, which is how we analyze the data. The SOEP began in 1984 and has been fielded annually since. We access the SOEP through the Luxembourg Income Study (LIS). We do so because the LIS adds a variety of useful and standardized variables (e.g. high quality income measures with estimates of taxes and transfers), and thus makes the SOEP cross-nationally comparable with other relevant surveys. The one cost to accessing the SOEP through the LIS is we only have eight cross-sectional waves of the survey: 1984, 1989, 2000, 2004, 2007, 2010, and 2013. Still, this provides more than enough data across several decades of recent German history. Our samples are also sufficiently large to allow for fine-grained comparisons within and between years.

Dependent Variables

The main analyses focus on three outcomes, which we argue capture the most important aspects of the rise of precarious employment in Germany. *Low-wage work* is a binary measure of whether an employed individual is below a certain threshold, anchored relative to the median individual annual earnings. Thus, this measure is indexed on annual earnings, which is the sum from all jobs in a year. We examine two thresholds: below 50% of the median and below 66% of the median. In analyses available upon request, we also estimated models of employment, annual

earnings and hourly wages. Because our focus is on the growth of jobs at the low end of the distributions of those variables, we concentrate on low-wage work here.

While low-wage work is an individual-level measure, individuals are typically embedded in households. Therefore, it is also informative to examine sub-optimal labor market outcomes as a HH-level condition. Also, while low-wage work assesses economic standing solely as a matter of “pre-fisc” labor market compensation, people are buffered by taxes and transfers and “post-fisc” income more realistically captures the economic resources at their disposal. *Working poverty* is a binary measure of whether an adult resides in a HH with less than 50% of the median HH equivalized post-fisc income (reference=at or above 50% of median) (Brady et al. 2010, 2013; Rainwater and Smeeding 2004).⁸

Temporary employment is a binary measure among employed adults of whether the respondent is employed on a temporary contract (reference=permanent contract). In Germany and several other European labor markets, it is common to refer to a “regular” or “permanent” contract that carries with it various protections against dismissal and requires a set of other mandatory benefits.

Time Variables

Our models incorporate dummy variables for the eight waves of data. The reference is usually 1984 (unless the first available time point is 1989), and thus we include dummies for 1989, 1994, 2000, 2004, 2007, 2010 and 2013. These indicators serve as fixed effects that adjust for universal over-time nonlinear changes experienced throughout Germany. Our aim is to assess which independent variables best “explain” the temporal trends in the dependent variables. Thus,

⁸ While low-wage work is measured from the LIS variable “pil”, working poverty is based on the LIS variable “dhi”.

one of our analytical goals will be to assess which (if any) independent variables can lead to the attenuation of any significant effects of these time dummies.

The traditional, and probably most effective, way to assess the effects of institutional change on labor markets is to compare multiple countries or regions/states over time (e.g. Brady et al. 2013). Doing so advantageously allows one to distinguish the effects of institutional change from other factors. Unfortunately, it is not really feasible to do so in this study as the core German labor market institutions do not vary as substantially across German states. Nevertheless, a single country study can inform debates about institutional change by utilizing the literature and scrutinizing key descriptive trends to account for the residual historical changes in labor market outcomes.

Independent Variables

We include sets of independent variables to assess the first three explanations outlined above. To measure the role of demographics, we begin with *female*, which is a binary variable in reference to male. *Foreign born* is an indicator for immigrant status. With married as the reference, we include indicators for *single*, *separated/divorced*, and *widowed*. We adjust for the number (#) of people *over 65* years old and the presence of *children under 5* in the HH. Further, we include an indicator for residing in a non-metropolitan *rural area*. Age is measured in reference to 35-44 year olds, with categories for *18-24*, *25-34*, *45-54*, *55-59*, and *60-64*.⁹

Education/skill is measured in reference to a medium level of education – defined as a secondary school degree. We include indicators for *low education* (less than secondary education), and *high education* (defined as a university degree or higher).

⁹ In analyses available upon request, we experimented with age and age-squared. The results were substantively consistent.

To measure job/work characteristics, we include information on the individual's work history with *job tenure* at current employer in years, and *previous work experience* at all jobs in years. The individual's *industry* is coded with 8 indicators and a reference for wholesale and retail trade, repair, hotels and restaurants.¹⁰ Finally, we include 8 indicators for one-digit *occupations*, with the reference of clerical support workers.¹¹

To control for regional differences, including the enduring divide between East and West Germany, we include dummies for the *state* of residence. The reference is North Rhine-Westphalia and we include indicators for the other German states. Please note however that the states of Rhineland-Palatine and Saarland are consolidated in the SOEP-LIS. Therefore, we have a total of 14 indicator variables and one reference.

RESULTS

Trends in Key Explanatory Variables

Before the analyses, it is informative to describe the basic trends in several of the key independent variables. This can help clarify how the German labor market has and has not changed. To arrive at representative figures, we use population weights. See Table 2.

Until 2013, there was a relatively stable share of workers who were foreign born. This rate rose from 8.9% in 1984 to 10.31% in 1989, but was 11.92-11.97% from 1994 to 2004. It

¹⁰ The industry categories are agriculture, forestry and fishing; mining, manufacturing, and utilities; construction; other industries; transport, storage and communications; financial intermediation; real estate, renting and business activities; and, public administration, education, health and social work.

¹¹ The occupation categories are skilled agricultural, forestry, and fishery workers; managers; professionals, technicians and associate professionals; service and sales workers; craft and related workers; plant and machine operators, and assemblers; and elementary occupations.

then fell to 9.7% in 2007 before returning to 11.5% in 2010. Only in 2013, the foreign born share spiked upwards to 15.8%.¹²

Table 2 also shows that the female share of the employed has risen substantially from 1984 to 2013. In 1984, only 40.8% of the employed were women. This rose steadily, and by 2007, women constituted a slight majority (50.9%) of the employed in Germany. This trend continued, and by 2013, women were 52.3% of the employed. It is important to acknowledge that the rise of the female share of the employed conceals the large share of women in part-time employment. Throughout the period from 1984 to 2013, approximately 80% of part-time employees were female. This rate rose slightly, but was mostly stable. Therefore, women have become a much larger share of German workers, although many remain part-time.

Table 2 also shows the trends in the educational composition of the workforce. The most noteworthy trend is the dramatic decline in the low-educated. Almost 30% had low education in 1984, and this fell to 20.5% in 1994, below 17% 2000-2004, below 15% 2007-2010, and all the way to 12.7% in 2013. Thus, the rate of low education was less than half in 2007-2013 of what it had been in 1984. The percent with high education commensurately grew from 16.9% in 1984 to about 25% in 2000-2004, all the way to 29.1% in 2013. At the end of the period almost 30% of the employed have a university degree, and only 12.7% lack a secondary degree.

In contrast to the trends in the low and high educated, the share of workers with medium education has been steady – always between 53% and 58% of German workers. Although data are not available in 2013, we can identify more specific educational categories through 2010 and the trend is consistent. For instance, those with lower education plus vocational training declined

¹² In 1984, the largest foreign born groups were from Eastern Europe (3.3%) and Turkey (2.4%). In 2010, the largest foreign born groups were from Eastern Europe (5.4%) and Western Europe (2.6%), while the Turkish-born had declined to below 2%.

only modestly from 45.3% in 1984 to 41.9% in 2010. This was offset by the share of the working-aged with medium education plus vocational training. This group grew from 10.7% in 1984 to 14.3% in 2010. Combined, the share of the working-aged population with vocational training was quite stable – 56.1% in 1984 and 56.2% in 2010.

We display these trends partly to counter simple explanations for the rise in precarious employment. An increase in precarious employment is not likely to have been caused by a rise in immigration as the % foreign born has been quite stable up until 2013. While the foreign born share has increased, this largely occurred after, not before or at the same time, as the rise of precarious employment. Precarious employment could be partially linked to the rise in female employment as women as a share of the employed has increased while the share of women in part-time employment has been stable. Although women have constituted a slight majority of German workers since 2007, female concentration in part-time employment probably is associated with rising precarious employment overall.

Finally, it seems unlikely that education/skill can explain a rise in precarious employment. There has been a sharp decline in those with low education, a sharp increase in those with higher education, and notable stability in those with medium levels of education. Hence, the education/skill level of the workforce has increased considerably, and there simply has not been a growth of those with insufficient education/skills.

Models of Temporal Change in Labor Market Outcomes

Our analytical strategy is to see if we can “explain” the temporal trends identified earlier. We assessed if any set of demographic, education/skill, or job/work characteristics could account for the temporal trends in the dependent variables. We do so by scrutinizing to see if the coefficients for the time dummies became insignificant or attenuated considerably when we

included sets of variables. We estimated models with each group of variables separately and in every combination. None of these permutations resulted in the coefficients for the time dummies becoming insignificant or attenuating considerably. All of these models are available upon request. Therefore, we only present two models for each dependent variable in Table 3. In the first, we include only the time dummies. This shows the unconditional temporal trends in the dependent variables. In the second model, we include all independent variables. This shows the conditional temporal trends net of all independent variables.

With both operationalizations of low-wage work, the first model for low-wage work reveals a clear increase over time. Except for 1989, the coefficients for the time dummies are significantly positive and increase in magnitude over time. The confidence intervals do not overlap between the 2013 dummy and even the 2010 dummy. Therefore, there has been a clear increase in low-wage work, and especially at the end of the period. The second model demonstrates that the full set of independent variables cannot explain this temporal trend. Indeed, the coefficients for the time dummies actually grow in magnitude once we control for all independent variables. Although the coefficients for the 2013 dummies are slightly smaller in the second models for both operationalizations of low-wage work, the coefficients remain large and statistically significant. Therefore, these models demonstrate that the full set of independent variables cannot explain the increase in low-wage work over time.

The models for working poverty demonstrate a slightly more complex trend over time. Nevertheless, the conclusion is the same as for low-wage work. The first model shows that working poverty declined 1984-1989. Then, there was no temporal trend 1994-2004 (compared to 1984). The coefficients for the time dummies are not statistically significant for that period. However, the 2007 dummy is significantly positive. Moreover, the coefficients for 2010 and

2013 are significant and grow in magnitude. The second model, with all independent variables, shows a similar pattern as to the first model. The second model exhibits a significant negative coefficient for the 1989 dummy, followed by insignificant coefficients for the 1994-2007 dummies. However, the 2010 and 2013 coefficients remain highly significant and positive. Although the magnitude of these coefficients modestly attenuates, the full suite of independent variables cannot explain the increase in working poverty 2010-2013.

Finally, the first model for temporary employment shows a significant over-time increase. Compared to 1984, there was a significant increase in temporary employment 1994-2013. The coefficients for those time dummies are all significant and increase in magnitude over time. In the second model, the coefficient for 1994 attenuates to insignificance. However, the coefficients for 2000-2013 are all significantly positive. Indeed, the coefficients for 2004, 2007, 2010 and 2013 increase in magnitude from the first to second model.

Across the models, there is a clear pattern. First, there were significant increases in the low-wage work, working poverty, and temporary employment over time. Second, these increases accelerated in the last three waves of data 2007, 2010 and 2013. Third, adjusting for all independent variables does not explain these temporal trends. Fourth, the time dummies even increase in magnitude for low-wage work and temporary employment once we adjust for all independent variables. Therefore, one cannot explain the rise of these three aspects of precarious employment with demographic, education/skill, or job/work characteristics. In the next section, we propose that institutional change is the most plausible explanation for this residual rise in precarious employment.

THE CASE FOR INSTITUTIONAL CHANGE

Certainly, the fall of the Berlin Wall in 1989 and the subsequent unification of Germany in 1990 has put significant pressure on the German economy. For political reasons as well as to protect West German institutions and workers, East Germany was included into the West German institutional system (“Institutionentransfer”) and the low wages in East Germany were artificially increased in order to avoid wage competition with their Western peers. Eventually, and perhaps unsurprisingly, Eastern productivity did not match wages, which contributed to high unemployment (Streeck 1997). The German government tried to counter this by introducing measures to curb labor supply – for instance, short-time work schemes (Eichhorst and Marx 2011). But, such efforts were largely unsuccessful. As a result, high unemployment created a context that pressured workers to accept precarious job offers. As shown by the rise in earnings and wage inequality, the mid-1990s was the point when inequality started its upward trend. This was surely influenced, at least in part, by reunification challenges.

In the long-run, the post-unification economic downturn caused several institutional strains and changes (Hassel 2010; Streeck 1997, 2009). How Germany’s labor market evolved during and after the reunification challenges in the 1990s certainly set the stage for a variety of changes in the mid- and late-2000s. Nevertheless, there are two reasons we caution against viewing reunification as the dominant institutional change driving the rise of precarious employment in Germany. First, our models include control for states. These state dummies capture the enduring divide between East and West Germany. Our analyses consistently show rising precarious employment even net of these state dummies. Therefore, it is unlikely that the basic differences between East and West can account for rising precarious employment. Second, the timing of reunification does not match the timing of the sharpest increases in precarious

employment. As we demonstrated above, the sharpest increases did not occur until the mid-2000s. By then, Germany had made considerable progress in raising employment from the high unemployment of the 1990s. Because the models in Table 3 show that the most striking increases in low-wage work, working poverty and temporary employment did not occur until after 2004, it seems less likely that reunification was the driving force.

Rather, we conjecture that one of the most important institutional changes to the German labor market has been the decline of unionization (Hassel 1999). As Table 2 shows, unionization declined considerably in terms of both membership (aka “density”) and coverage (Brady et al. 2014; Visser 2013). In 1984, union density in Germany was nearly 35%. This was squarely within the middle of the distribution of unionization in the rich democracies (Western 1997). Germany maintained this moderately high level of unionization into the mid-1990s. However, since then, unionization has declined to below 25% in 2000, below 20% in 2007, and below 18% by 2013. Thus, German union density has been nearly cut in half since 1984. Union coverage has always been higher than density, as is typical (Western 1997). In the 1980s, union coverage was at 85%. This was a fairly high level of coverage even compared to high union density countries. Coverage fell to 76% in 1994, although that was still a fairly robust level. However, coverage continued to fall to below 69% in 2000 and below 65% in 2007. By 2010, union coverage had fallen all the way to 61.1%. Thus, over the period, union coverage declined by more than 28%.

Although union coverage of 61.1% is not low, it is much more similar to countries like France than what Germany was historically (Western 1997). France exhibits fairly healthy union coverage, but low union density. Moreover, as the trajectory of decline appears clear for both density and coverage, this provides evidence that Germany corporatism and labor-management relations have qualitatively changed over the past few decades (Hassel 1999). Rather than

viewing Germany statically as the prototypical CME, it seems more appropriate to understand Germany as experiencing the evolution of the CME model towards a more liberalized labor market (Streeck 2009). All these changes were particularly consequential to workers at the bottom of the German labor market. Previous research clearly establishes that strong unions reduce wage inequality and working poverty, and improve working conditions (Brady et al. 2010, 2013; Kalleberg 2009; Western and Rosenfeld 2011). Thus, as Germany has converged on French-style unionization, workers face a more precarious environment.

Another consequence of unions' declining membership and coverage was a smaller role in the political process. Germany has often been characterized as integrating a CME with a male breadwinner model, both of which relied on strong unions (Schaefer and Gottschall 2015). Until the mid-1980s there were only few temporary workers and unions strongly opposed deregulation. Confronted with rising (long-term) unemployment, the influx of workers that were not the traditional male single earners, and their own dwindling membership, unions agreed to deregulation at the margins of the labor market in order to protect core workers. In contrast to countries like the Netherlands, who faced similar challenges, German unions have begun only recently to represent contingent workers (Shire and Jaarsveld 2008). Moreover, unions were not in a position to fight what has been described as the state's withdrawal from a commitment to full employment (Dingeldey and Gottschall 2001).

Instead, the German government has instituted a number of labor market reforms in the spirit of an activating/enabling approach to reduce unemployment (for an extensive overview of the reforms 1991-2005, see Ebbinghaus and Eichhorst 2006). While the reforms may have perhaps encouraged increasing employment, the reforms also contributed to the rise of inequality and precarious employment. As has been well-documented, such reforms contributed to the

dualization of the German labor market (Biegert 2014; Brady 2011a; Eichhorst and Marx, 2011; Emmenegger et al., 2012; Palier and Thelen, 2010). According to the dualization account, the labor market has become increasingly divided into insiders and outsiders who are differentially granted access to better compensation, benefits, and protections. In one of the key developments in terms of dualization, Germany gradually allowed greater use of short fixed-term contracts for temporary employment. The result of allowing temporary employment to grow among those at the margins of the labor market is that core workers remained protected and largely untouched by the reforms. The end result is the increasing emergence of two tracks, with those at the margins in precarious employment.

Finally, furthering its role as an activating/enabling welfare state, Germany adopted at least two major social policy reforms in the mid-2000s that undermined worker security. First, Germany significantly expanded its work-family reconciliation policies by lengthening paid parental leave, protecting the right to part-time work, and expanding access to childcare (Blome 2017). Available evidence suggests women were certainly more likely to work in 2013 than in earlier decades. Nevertheless, there is legitimate concern that work-family reforms might have facilitated the growth of temporary and low-wage employment. This may have occurred as more women and mothers were enabled to work, but remained confined to do so on a limited and part-time basis. On balance, any effect of work-family policy reforms was probably modest. Nevertheless, along with all the other institutional changes, these reforms could have contributed to precarious employment.

The second, and more important, social policy reform was the so-called Hartz reforms in the mid-2000s. Initially, the government led by the Social Democrat Gerhard Schröder in coalition with the Green Party in 1998 rolled back some of the measures to flexibilize the use of

atypical employment by the previous administration under Helmut Kohl. For instance, fixed-term contracts without valid reason were restricted solely to initial hirings. However, the economic downturn after 2001 and the dramatic drop in approval ratings for the Schröder government paved the way for a paradigm shift in labor market and social policies (Eichhorst and Marx 2011; Kemmerling and Bruttel 2006). While the initial reform path taken at the end of the 1990s tended towards a more human capital oriented approach, the Hartz reforms and the “Agenda 2010” that were implemented between 2002 and 2005 emulated liberal welfare states such as the UK (Seeleib-Kaiser and Fleckenstein 2007). These reforms marked a significant cultural and institutional shift in labor market policies towards notions of “activation” (Burda 2016; Eichhorst et al. 2010). A rise in precarious employment following these reforms is plausibly the consequence of two distinct sets of policy reforms and their interaction. First, there was a reduction in income maintenance for the long-term unemployed and tightened conditions in order to increase job search efforts. Most importantly, the reforms dismantled the previous earnings-related but means-tested unemployment assistance received by the long-term unemployed. Subsequently, the long term-unemployed were forced to rely on meager social assistance once their initial unemployment insurance expired. The new benefit (the infamous “Hartz IV”) constitutes a minimum income support scheme with strong activation elements, particularly much stricter job search monitoring.

Second, the reforms eased the use of atypical jobs. For instance, newly established firms were allowed to use fixed-term contracts for up to 4 years without having to provide a valid reason. Most prominently, the reforms enabled the expansion of “mini-jobs” (jobs with low hours, low wages, and no benefits). Further, the maximum duration of assignments for agency

workers was increased from 12 to 24 months. As well, to qualify for dismissal protection, workers had to be employed in a firm with at least 10 workers (previously 5 workers).

In sum, protection of workers at the margin of the labor market was reduced while the availability of atypical positions was increased. At the same time, the heightened conditionality of welfare benefits raised the pressure on jobseekers to accept “bad” job offers and contributed to an increase in precarious employment (Clasen and Goerne, 2011; Eichhorst and Marx, 2011; Streeck, 2009). Unions fiercely opposed these reforms, and therefore, the implementation of the reforms may have further weakened unions’ role in German political economy (Streeck, 2009). Since, the Grand Coalition of Christian Democrats and Social Democrats under Chancellor Angela Merkel took small steps towards re-regulation – notably the introduction of a minimum wage – but has not reversed the fundamental changes in the German labor market regime.

CONCLUSION

The German labor market has historically drawn attention for its robust labor market institutions, elaborate coordination, established vocational training and apprenticeship systems, consistently strong economic performance, and equality. The German labor market has also been well-known for its skilled and productive workers, and its stable and secure careers. In these and other ways, Germany was the prototypical case of a CME. Nevertheless, the German labor market has undergone profound changes in recent decades. We argue there has been a substantial increase in precarious employment, as indicated by the increases in low-wage work, working poverty, and temporary employment. This article describes this increase, and in the process, analyzes several changes in the contemporary German labor market.

Our analyses reveal a number of important descriptive trends. The key positive trend is the rise of employment among working-aged adults. Although Germany struggled with high unemployment throughout the 1990s, employment grew considerably in the 2000s. Closely related, Germany has experienced a growing female employment share and maintained a fairly stable share of foreign born workers. These changes have occurred alongside an increasingly educated and skilled labor force. The share of workers with low levels of education declined considerably, the share with the highest level of education increased considerably, and the share with vocational training was stable.

Despite these positive developments, we display evidence that there has been a significant increase in precarious employment. Low-wage work, working poverty and temporary employment all grew in Germany since the 1980s. More strikingly, these aspects of precarious employment accelerated in the 2000s, and especially 2004-2013. The rise of these three forms of precarious employment was also reflected in an increase in wage and earnings inequality.

It is worth underlining the scale of the rise of precarious employment. Even compared to other rich democracies, earnings and wage inequality grew quite substantially. Also, unlike some other rich democracies, Germany's labor market changes have involved workers at the bottom of the distribution losing ground relative to the middle of the earnings distribution. Low-wage work grew from 16.1% in 1989 to above 24% in 2013. Working poverty rose from only 1.6% in 1989 to over 4.4% in 2013. Hence, in just 24 years, low-wage work grew 49% and working poverty increased 178%. Temporary employment increased from 11.3 in 1984 to 14.6 in 2013. Thus, in 29 years, temporary employment increased by about 29%. In sum, the scale of these increases in these aspects of precarious work are substantial.

Our analyses suggest that these increases in precarious employment cannot be explained by changes in demographics, education/skill, or work/job characteristics. Although these three sets of factors certainly matter, the trends in these factors cannot account for the increase in precarious employment. Moreover, it appears that any negative developments in these three factors was probably at least partially offset by positive developments in these factors. In particular, it is significant that the share of workers with low education has declined considerably, the share with high education has increased considerably, and the share with vocational education has been stable.

Our argument is that the most likely explanation for the rise of precarious employment is institutional change. We acknowledge and appreciate that the reunification of Germany has had some underlying influence on the rise of precarious employment. However, we would caution against overstating its role because our analyses control for stable differences between East and West, and because the timing of the sharpest increases in precarious employment did not occur until the mid-2000s. We also acknowledge that work-family policy reforms may have played a modest role in the rise in precarious employment. However, we argue that the other two institutional changes were probably most consequential. First, there has been a substantial decline in unionization. This decline occurred in both density and coverage. Germany is converging on something like a French model with low density and moderate coverage. By the end of the period, it is no longer appropriate to think of Germany as even a moderate unionization country as unionization continues to decline. Second, the Hartz reforms fundamentally changed German employment regulation and social policy. All available evidence suggests that this was a pivotal change, and precarious employment has increased as a result.

This study provides some support for both the liberalization and path dependency accounts of institutional change. Consistent with the path dependency account, the labor market appears to be increasingly dualized into insiders and outsiders who have differential access to labor markets, institutions, and social policies. While the German labor market might continue to protect and benefit older, male, native workers, it excludes and marginalizes the young, women, the less skilled, and immigrants. Indeed, the argument has been that the exclusion of such groups is what has allowed the German system to maintain generous wages, benefits, protections, and social policies for the insiders – especially in an era of financial austerity and with reunification of East and West Germany. That Germany’s traditional successful workers remain insiders and continue to be “winners” makes clear that the outsiders and “losers” include the less skilled, the young, and others. We note again that we do not find that the average worker has lost tremendous ground in Germany. Rather, our evidence indicates that much of the German story is about the bottom of the labor market losing ground relative to the middle. Therefore, our evidence generally buttresses dualization accounts.

Consistent with the liberalization account, many of the institutional changes removed protections for workers and deregulated labor markets. Precarious employment has increased partly as a result of simply weakening the institutions that traditionally contributed to egalitarianism and security. In this way, the liberalization of labor markets and the rise of precarious employment reflects the growing political power of business and other free market oriented political actors relative to the declining power of organized labor. As labor market institutions and political actors like labor unions continue to decline, it is plausible that there will be further liberalization of German labor markets in the future. Moreover, it is an open question as to whether the middle of the labor market will eventually lose ground. One can only speculate

if the middle of the German labor market will remain protected in the future. For these reasons, and given Germany's enduring centrality to debates about varieties of capitalism and the institutional regulation of markets, Germany continues to be a crucial case for understanding work and employment.

REFERENCES

- Acemoglu, D., & Autor, D.H.. (2011). Skills, Tasks and Technologies: Implications for Employment and Earnings. Pp. 1043-1171 in Handbook of Labor Economics, edited by O. Ashenfelter and D.E. Card. Amsterdam: Elsevier.
- Biegert, T. (2014). On the Outside Looking In? Transitions Out of Non-Employment in the United Kingdom and Germany. *Journal of European Social Policy* 24(1), 3-18.
- Blau, F.D. & Kahn, L.M.. (2013). Female Labor Supply: Why Is the United States Falling Behind? *The American Economic Review* 103(), 251-256.
- _____. (2002). *At Home and Abroad* New York: Russell Sage Foundation.
- Blome, A. (2017). *The Politics of Work-Family Policy Reforms in Germany and Italy* New York: Routledge.
- Bol, T. & Weeden, K.A.. (2015). Occupational Closure and Wage Inequality in Germany and the United Kingdom. *European Sociological Review* 31(3), 354-369.
- Brady, D. (2011a). *Comparing European Workers Part A: Experiences and Inequalities*, Research in the Sociology of Work Volume 22A. New Milford, CT: Emerald Books.
- _____. (2011b). *Comparing European Workers Part A: Policies and Institutions*, Research in the Sociology of Work Volume 22B. New Milford, CT: Emerald Books.
- Brady, D., Baker, R.S. & Finnigan, R. (2013). When Unionization Disappears: State-Level Unionization and Working Poverty in the United States. *American Sociological Review* 78(5), 872-896.
- Brady, D., Blome, A. & Kleider, H. (2016). How Politics and Institutions Shape Poverty and Inequality. Pp. 117-140 in *The Oxford Handbook of the Social Science of Poverty*, edited by D. Brady & L.M. Burton. New York: Oxford University Press.
- Brady, D. & Denniston, R. (2006). Economic Globalization, Industrialization, and Deindustrialization in Affluent Democracies. *Social Forces* 85(1), 297-329.
- Brady, D., Fullerton, A.S. & Cross, J.M.. (2010). More than Just Nickels and Dimes: A Cross-National Analysis of Working Poverty in 18 Affluent Democracies. *Social Problems* 57(4), 559-585.
- Brady, D., Huber, E. & Stephens, J.D. (2014). *Comparative Welfare States Data Set*, University of North Carolina and WZB Berlin Social Science Center.
- Breen, R. (2005). Explaining Cross-National Variation in Youth Unemployment: Market and Institutional Factors. *European Sociological Review* 21(2), 125-134.
- Burda, M.C. (2016). *The German Labor Market Miracle, 2013-2015: An Assessment*. SFB 649 Discussion Paper 2016-005, Humboldt-Universität zu Berlin.
- Campbell, J.L. (2004). *Institutional Change and Globalization* Princeton: Princeton University Press.
- Card, D. & DiNardo, J.E. (2002). Skill-Biased Technological Change and Rising Wage Inequality: Some Problems and Puzzles. *Journal of Labor Economics* 20(4), 733-783.
- Casper, S. & Vitols, S. (1997). The German Model in the 1990s: Problems and Prospects. *Industry and Innovation* 4(1), 1-13.
- Clasen, J. & Goerne, A. (2011). Exit Bismarck, Enter Dualism? Assessing Contemporary German Labour Market Policy. *Journal of Social Policy*, 40(4), 795-810.
- Dingeldey, I. & Gottschall, K. (2001). Alte Leitbilder und neue Herausforderungen: Arbeitsmarktpolitik im konservativ-korporatistischen Wohlfahrtsstaat. *Aus Politik und Zeitgeschichte*, 21, 31-38.

- Ebbinghaus, B. & Eichhorst, W. (2006). Employment Regulation and Labor Market Policy in Germany, 1991-2005. IZA Discussion Paper 2505.
- Eichhorst, W., Grienberger-Zingerle, M. & Konle-Seidl, R. (2010). Activating Labor Market and Social Policies in Germany: From Status Protection to Basic Income Support. *German Policy Studies*, 6(1), 65-106.
- Eichhorst, W. & Marx, P. (2011). Reforming German Labour Market Institutions: A Dual Path to Flexibility. *Journal of European Social Policy*, 21(1), 73-87.
- Eichhorst, W., Marx, P. & Tobsch, V. (2015). Non-Standard Employment across Occupations in Germany: The Role of Replaceability and Labour Market Flexibility. Pp. 29-51 in *Non-Standard Employment in Post-Industrial Labour Markets. An Occupational Perspective*, edited by W. Eichhorst and P. Marx. Cheltenham: Edward Elgar.
- Emmenegger, P., Häusermann, S., Palier, B. & Seeleib-Kaiser, M. (2012). *The Age of Dualization*. New York: Oxford University Press.
- Esping-Andersen, G. (1990). *The Three Worlds of Welfare Capitalism*. Princeton, NJ: Princeton University Press.
- _____. (1999). *Social Foundations of Postindustrial Economies*. New York: Oxford University Press.
- Fligstein, N. (2001). *The Architecture of Markets*. Princeton, NJ: Princeton University Press.
- Fuchs-Schuendeln, N., Krueger, D. & Sommer, M. (2009). Inequality Trends for Germany in the Last Two Decades: A Tale of Two Countries. *Review of Economic Dynamics*, 13(1):103-132.
- Gautie, J. & Schmitt, J. (2009). *Low-Wage Work in the Wealthy World*. New York: Russell Sage Foundation.
- Gebel, Michael & Friedhelm Pfeiffer. (2010). "Educational Expansion and Its Heterogeneous Returns for Wage Workers." *Schmollers Jahrbuch*, 130(1), 19-42.
- Goos, Maarten & Alan Manning. (2007). "Lousy and Lovely Jobs: The Rising Polarization of Work in Britain." *Review of Economics and Statistics*, 89(1), 118-133.
- Goos, Maarten, Alan Manning, & Anna Salomons. (2009). "Job Polarization in Europe." *The American Economic Review* 99(2), 58-63.
- Hall, P. & Soskice, D. (2001). *Varieties of Capitalism: The Institutional Foundations of Comparative Advantage*. New York: Oxford University Press.
- Hassel, A. (2010). Twenty Years after German Unification: The Restructuring of the German Welfare and Employment Regime. *German Politics & Society*, 28(2), 102-15.
- _____. (1999). The Erosion of the German System of Industrial Relations. *British Journal of Industrial Relations*, 37(3), 483-505.
- Kahn, L. M. (2007). The Impact of Employment Protection Mandates on Demographic Temporary Employment Patterns: International Microeconomic Evidence. *The Economic Journal*, 117(521), 333-356.
- Kalleberg, A. L. (2011). *Good Jobs, Bad Jobs* New York: Russell Sage Foundation.
- _____. (2009). Precarious Work, Insecure Workers: Employment Relations in Transition. *American Sociological Review*, 74(1), 1-22.
- _____. (2007). *The Mismatched Worker*. New York: Norton.
- _____. (2003). Flexible Firms and Labor Market Segmentation. *Work and Occupations*, 30(2), 154-175.

- Kalleberg, A. L., Reskin, B. F. & Hudson, K. (2000). Bad Jobs in America: Standard and Nonstandard Employment Relations and Job Quality in the United States. *American Sociological Review*, 65(2), 256-278.
- Kemmerling, A. & Bruttel, O. (2006). 'New Politics' in German Labour Market Policy? The Implications of the Recent Hartz Reforms for the German Welfare State. *West European Politics*, 29(1), 90-112.
- Lohmann, H. (2009). Welfare States, Labour Market Institutions and the Working Poor: A Comparative Analysis of 20 European Countries. *European Sociological Review*, 25(4), 489-504.
- Lucifora, C., McKnight, A. & Salverda, W. (2005). Low-Wage Employment in Europe: A Review of the Evidence. *Socio-Economic Review*, 3(2), 259-292.
- Luxembourg Income Study (LIS) Database, <http://www.lisdatacenter.org> (Germany; May 2017). Luxembourg: LIS.
- Mare, R. D. (1981). Change and Stability in Educational Stratification. *American Sociological Review*, 46(1), 72-87.
- Mouw, T. & Kalleberg, A. L. (2010). Occupations and the Structure of Wage Inequality in the United States, 1980s to 2000s. *American Sociological Review*, 75(3), 402-431.
- Oesch, D. & Rodriguez Menes, J. (2011). Upgrading or Polarization? Occupational Change in Britain, Germany, Spain and Switzerland, 1990-2008. *Socio-Economic Review*, 9(3), 503-531.
- Palier, B. & Thelen, K. (2010). Institutionalizing Dualism: Complementarities and Change in France and Germany. *Politics & Society*, 38(1), 119-148.
- Pierson, P. (2004). *Politics in Time*. Princeton, NJ: Princeton University Press.
- Pontusson, J. (2005). *Inequality and Prosperity*. Ithaca, NY: Cornell University Press.
- Rainwater, L. & Smeeding, T. M. (2004). *Poor Kids in a Rich Country*. New York: Russell Sage Foundation.
- Schaefer, A. & Gottschall, K. (2015). From Wage Regulation to Wage Gap: How Wage-Setting Institutions and Structures Shape the Gender Wage Gap across Three Industries in 24 European Countries and Germany. *Cambridge Journal of Economics*, 39, 467-496.
- Seeleib-Kaiser, M. & Fleckenstein, T. (2007). Discourse, Learning and Welfare State Change: The Case of German Labour Market Reforms. *Social Policy & Administration*, 41(5), 427-448.
- Shire, K. & Van Jaarsveld, D. D. (2008). The Temporary Staffing Industry in Protected Employment Economies: Germany, Japan and the Netherlands. 2008 Industry Studies Conference Paper. [<https://ssrn.com/abstract=1126820> or <http://dx.doi.org/10.2139/ssrn.1126820>]
- Smith, M., Fagan, C. & Rubery, J. (1998). Where and Why Is Part-Time Work Growing in Europe? In J. O'Reilly & C. Fagan (Ed.) *Part-Time Prospects* (pp. 35-56). London: Routledge.
- Standing, G. (2011). *The Precariat*. Bloomsbury: London, U.K.
- Streeck, W. (2009). *Re-Forming Capitalism. Institutional Change in the German Political Economy*. New York: Oxford University Press.
- _____. (1997). German Capitalism: Does It Exist? Can It Survive? *New Political Economy*, 2(2), 237-256.
- Streeck, W. & Thelen, K. (2005). *Beyond Continuity: Institutional Change in Advanced Political Economies*. New York: Oxford University Press.

- Thelen, K. (2012). Varieties of Capitalism: Trajectories of Liberalization and the New Politics of Social Solidarity. *Annual Review of Political Science*, 15, 137-159.
- Thompson, S. (2013). *States of Uncertainty: Youth Unemployment in Europe*. London: Institute for Public Policy Research.
- Unger, B.. (2015). *The German Model: Seen By Its Neighbors*. Düsseldorf, Germany: Institute of Economic and Social Research.
- Visser, J. (2013). ICTWSS (database, v 3.0 and v 4.0), <http://www.uva-aias.net/207>.
- Vitols, S. (2004). Continuity and Change: Making Sense of the German Model. *Competition & Change*, 8(4), 331-337.
- _____. (1997). German Industrial Policy: An Overview. *Industry and Innovation*, 4(1), 15-36.
- Wagner, G. G., Frick, J. R. & Schupp, J. (2007). The German Socio-Economic Panel Study (SOEP) - Scope, Evolution and Enhancements. *Schmollers Jahrbuch*, 127(1), 139-169.
- Western, B. (1997). *Between Class and Market*. Princeton, N.J.: Princeton University Press.
- Western, B. & Rosenfeld, J. (2011). Unions, Norms, and the Rise in U.S. Wage Inequality. *American Sociological Review*, 76(4), 513-537.

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Table 1. Key Labor Market Outcomes in Germany, 1984-2013.

| | <i>Employment</i> | <i>Employment: Young Adults</i> | <i>Hourly Wages Gini</i> | <i>Annual Earnings Gini</i> | <i>Logged Real Median Hourly Wages</i> | <i>Low Wage (50% of Median)</i> | <i>Low Wage (66% of Median)</i> | <i>Working Poverty</i> | <i>Temporary Employment</i> |
|------|-------------------|-------------------------------------|----------------------------------|-------------------------------------|--|---|---|----------------------------|---------------------------------|
| 1984 | 71.09 | 89.53 | -- | .337 | | 17.13 | 25.34 | 2.03 | 11.33 |
| 1989 | 76.03 | 93.03 | .260 | .325 | 2.31 | 16.11 | 22.95 | 1.60 | -- |
| 1994 | 75.02 | 87.42 | .271 | .321 | 2.67 | 17.09 | 24.58 | 2.85 | 11.58 |
| 2000 | 76.54 | 90.74 | .262 | .353 | 2.72 | 19.11 | 27.61 | 3.16 | 13.39 |
| 2004 | 76.09 | 85.94 | .277 | .372 | 2.73 | 22.15 | 30.81 | 3.69 | 14.03 |
| 2007 | 78.03 | 73.61 | .280 | .403 | 2.68 | 23.41 | 31.31 | 3.35 | 14.59 |
| 2010 | 78.72 | 75.87 | .302 | .405 | 2.67 | 23.01 | 30.98 | 4.09 | 14.10 |
| 2013 | 80.29 | 74.05 | .305 | .415 | 2.67 | 24.00 | 31.08 | 4.44 | 14.62 |

Table 2. Trends in Key Independent Variables in Germany, 1984-2013.

| | <i>% Foreign Born Among Employed</i> | <i>Female Share of Employed</i> | <i>% Female in Part-Time</i> | <i>Low Education</i> | <i>Medium Education</i> | <i>High Education</i> | <i>Union Density</i> | <i>Union Coverage</i> |
|------|--------------------------------------|---------------------------------|------------------------------|----------------------|-------------------------|-----------------------|----------------------|-----------------------|
| 1984 | 8.85 | 40.80 | 79.41 | 29.66 | 53.40 | 16.94 | 34.90 | 85.00 |
| 1989 | 10.31 | 41.56 | 79.50 | 27.96 | 53.88 | 18.16 | 32.41 | 85.00 |
| 1994 | 11.92 | 42.16 | 79.12 | 20.48 | 55.60 | 23.92 | 30.38 | 76.00 |
| 2000 | 11.94 | 45.08 | 80.77 | 16.72 | 57.73 | 25.55 | 24.57 | 68.90 |
| 2004 | 11.97 | 46.89 | 80.64 | 16.40 | 58.22 | 25.38 | 22.17 | 65.75 |
| 2007 | 9.74 | 50.88 | 83.44 | 14.23 | 58.32 | 27.46 | 19.89 | 64.05 |
| 2010 | 11.45 | 51.65 | 82.17 | 13.95 | 58.14 | 27.91 | 18.56 | 61.05 |
| 2013 | 15.81 | 52.25 | 82.36 | 12.70 | 58.20 | 29.11 | 17.72 | -- |

Table 3. Logistic Regression Models of Low-Wage Work, Working Poverty, and Temporary Employment in Germany, 1984-2013.

| | <i>Low-Wage (50%)</i> | <i>Low-Wage (50%)</i> | <i>Low-Wage (66%)</i> | <i>Low-Wage (66%)</i> | <i>Working Poverty</i> | <i>Working Poverty</i> | <i>Temporary Employment</i> | <i>Temporary Employment</i> |
|---|---------------------------|---------------------------|---------------------------|---------------------------|----------------------------|----------------------------|---------------------------------|---------------------------------|
| 1984 | ref. | ref. | ref. | ref. | ref. | ref. | ref. | ref. |
| 1989 | .003 [-.011,.017] | -.002 [-.013,.009] | -.006 [-.022,.010] | -.008 [-.021,.006] | -.008** [-.013,-.003] | -.008** [-.013,-.003] | - | - |
| 1994 | .026** [.013,.039] | .017* [.006,.028] | .030** [.015,.045] | .005 [-.007,.018] | .003 [-.002,.008] | -.002 [-.007,.003] | .013* [.002,.024] | .008 [-.001,.017] |
| 2000 | .034** [.023,.046] | .034** [.023,.045] | .039** [.025,.053] | .034** [.022,.046] | .003 [-.002,.008] | .001 [-.004,.006] | .028** [.018,.039] | .028** [.020,.037] |
| 2004 | .034** [.022,.047] | .049** [.038,.059] | .032** [.018,.046] | .044** [.032,.057] | .002 [-.003,.007] | -.002 [-.007,.004] | .018** [.007,.028] | .034** [.024,.043] |
| 2007 | .059** [.047,.071] | .074** [.063,.085] | .053** [.039,.067] | .066** [.053,.079] | .005* [.000,.010] | .000 [-.006,.005] | .033** [.022,.044] | .052** [.042,.062] |
| 2010 | .064** [.051,.076] | .079** [.068,.090] | .056** [.042,.070] | .072** [.059,.085] | .013** [.008,.018] | .008** [.002,.013] | .035** [.024,.046] | .059** [.049,.069] |
| 2013 | .093** [.081,.104] | .076** [.065,.086] | .083** [.070,.096] | .062** [.050,.074] | .022** [.017,.027] | .009** [.004,.014] | .050** [.040,.060] | .051** [.042,.060] |
| Other Independent Variables Included | No | Yes | No | Yes | No | Yes | No | Yes |
| N | 78486 | 64378 | 78486 | 64378 | 78486 | 64378 | 66453 | 548274 |

* p<.05; ** p<.01; Notes each cell contains coefficients and confidence intervals. Although the Ns change from model 1 to model for each dependent variable, maintaining a consistent N does not change any of our conclusions. We retain all cases in the first model to display the generic trends for as much of the SOEP sample as possible.