Employment practices, institutional determinants, and income inequality: A country comparison using fuzzy-set QCA

Abstract

Employment practices of firms are recognized as an important reason for societal income inequality in richer countries (Cobb, 2016). They are believed to translate countries' institutional characteristics into organizational structures that in turn shape the distribution of incomes (Davis, 2017). However, empirical evidence is still scarce whether and to what extent this is the case. In this paper, we employ fuzzy-set QCA in order to identify interactions between countries' institutional arrangements and their firms' employment practices that establish causal mechanisms explaining income inequality. The analysis is based on panel data at country-level for 22 OECD countries between 1996 and 2012. We find that employment practices highly matter: externalizing employment practices and temporary work for high income inequality; internal labor markets, less frequent temporary but frequent part-time work for lower income inequality. While different employment practices often arise from countries' diverse institutional characteristics (Amable, 2003), employment practices that lead to high income inequality also pervade countries whose institutions differ substantially.

Scholars increasingly argue that changes in organizational policies and structures are crucial for understanding inequality at the societal level (Bapuji, Ertug, & Shaw, 2020). Within this research stream, Cobb (2016) makes a plausible case how a well-documented trend toward more market-oriented employment practices may contribute to higher societal income inequality. These practices comprise externalizing employment practices such as outsourcing or contract labor (Bidwell, Briscoe, Fernandez-Mateo, & Sterling, 2013) and other non-standard work arrangements (Cappelli & Keller, 2013b). Supporting this claim further, it has recently been argued that employment practices are a constituting factor for income inequality: They translate countries' institutional characteristics into organizational structures that in turn shape the distribution of incomes (Davis, 2017).

Empirical support for these suggestions is scarce. Only few regression analyses support the inequality effects of either externalizing employment practices (Cobb & Stevens, 2017; Davis & Cobb, 2010; Goldschmidt & Schmieder, 2017; Handwerker & Spletzer, 2015) or non-standard work arrangements such as temporary work (Cazes & Laiglesia, 2015; Pfeifer, 2012). Several empirical issues remain: First of all, we are not aware of any study that has examined

how externalizing and non-standard employment practices may combine to influence income inequality. Do both practices have similar trends in a country and therefore cumulate to explain high income inequality? Or do their effects on inequality differ? Secondly, analyses for externalizing employment practices have been only carried out within single countries. An analysis of panel data is thus needed to derive more general results. Thirdly, regression analyses with the aim to reveal net-effects of single variables might only provide limited insights into the empirical importance of employment practices. Often variables coincidence, leading to smaller coefficients. For instance, financialization triggers staff downsizing (Jackson, 2005; Lin, 2016) and poses a major factor for income inequality (Lin & Tomaskovic-Devey, 2013). Therefore, a range of interaction terms would be needed to overcome this issue though this is difficult to implement. Lastly, the country-specific institutional determinants of these employment practices have not yet been addressed. Although institutions are rather stable (Bertola, 2009), they may strongly interact with variables of interest: They are perceived to crucially shape companies' choices of employment practices and thus income inequality (Brewster, Wood, & Brookes, 2006; Davis, 2017). Moreover, institutions such as employment protection might condition possible effects of employment practices, for example attenuating wage gaps for temporary work (Cazes & Laiglesia, 2015). Previous research has scrutinized the inequality effects of several institutional factors (Antonelli, Calia, & Guidetti, 2019; Judge, Fainshmidt, & Lee Brown III, 2014) but only paid little attention to employment practices and organizational structures.

In this paper, we therefore address the question of how externalizing employment practices and non-standard work arrangements combine to explain income inequality and how such links depend on institutional environments. The theory implies that firms' employment practices interact with a multitude of institutional factors when affecting income inequality and that employment practices may influence income inequality in ways that depend on different configurations of institutions. Given this type of complex causality, configurational methods rather than linear models such as regression are appropriate. Hence, we apply fuzzy-set QCA (fs/QCA), a method that has been used before to uncover causal links in cross-country data (Pajunen, 2008; Schneider, Schulze-Bentrop, & Paunescu, 2010). Similar to our study, it has been recently applied to analyze the role of entrepreneurial activity as a further important factor in explaining income inequality and its embeddedness in different institutional contexts (Lewellyn, 2018).

Based on panel data at country-level for 22 OECD countries between 1996 and 2012, we compute causal paths to income inequality as measured by a country's Gini coefficient of

gross incomes. We track firms' employment practices by means of the employment concentration, which measures the amount of employment in the largest firms and thus the importance of internal labor markets as opposed to externalized employment (Davis & Cobb, 2010), and aggregate data on the use of part-time and temporary work. Whereas Lewellyn (2018) conceptualizes the institutional environment with the national business systems' framework by Whitley (2000), we analyze the institutional determinants of employment practices according to the Varieties of Capitalism approach (Amable, 2003; Hall & Soskice, 2001) as suggested by Davis (2017).

Our findings support several propositions made in the literature but also give rise to question some arguments. First of all, countries with high inequality of gross incomes reveal a combination of frequent externalizing employment practices and temporary work; countries with lower income inequality are characterized by prevalent internal labor markets and less frequent temporary work (Cobb, 2016). Most remarkably, we find that lower employment concentration as an indicator of externalizing employment practices is a necessary condition and the core of all sufficient configurations explaining high income inequality. Accordingly, high employment concentration – meaning prevalent internal labor markets – is found in most of the paths leading to lower income inequality, underlining its empirical importance (Davis & Cobb, 2010). As also suggested by Cobb (2016), in some countries with high income inequality, firms frequently use part-time work. However, this pattern is not general as countries with lower income inequality are often characterized by frequent part-time work pointing to its opportunity generating function (Hipp, Bernhardt, & Allmendinger, 2015).

In general, we find that the inequality effects of non-standard work arrangements heavily rely on the institutional environment (Cazes & Laiglesia, 2015; Hipp et al., 2015). Part-time work only leads to higher income inequality when legislation denies organizational advantages such as benefits and insurance (Hipp et al., 2015), which is the case in Germany or the United Kingdom. Frequent temporary work leads to income inequality when strict employment protection legislation is missing or when strict legislation is followed by partial deregulation for temporary workers (cf. Lee, 2013). Nevertheless, strict employment protection legislation does not have to be present for less frequent use of temporary work leading to lower income inequality. Also, we do not find any case of lower income inequality where employment protection attenuates inequality effects of frequent temporary work (Cazes & Laiglesia, 2015).

As suggested by Davis and Cobb (2010), the link between employment concentration and income inequality fits into several institutional clusters based on Amable (2003), that themselves are related to income inequality (Antonelli et al., 2019). High income inequality and

lower employment concentration are present in the market-based or Mediterranean model; lower income inequality and high employment concentration are found in the Scandinavian or the continental European model. However, we find that this link also pervades institutional clusters, suggesting that the externalization of employment can occur irrespective of the major institutional landscape (e.g. in Germany). Therefore, the employment concentration seems to capture important aspects of liberalization that are present in different countries with highly diverse institutions (Thelen, 2014). This also implies that no broad-scale institutions have been introduced so far to attenuate the negative effect of lower employment concentration on income inequality, underlining the need of other forms of collective representation in inter-firm production networks (Doellgast, Lillie, & Pulignano, 2017).

The paper is structured as follows: The first two sections elaborate on the theoretical underpinning of the linkages between employment practices, institutional determinants and income inequality. Based on this, seven configurational propositions are laid forward. These are subsequently tested by means of a country-comparison using fs/QCA. First, the general procedure of this method, the calibration strategy and the applied data are introduced. Then, results and further supplementary robustness tests, including a panel fs/QCA approach, are reported. The following discussion draws implications in terms of previous research and policy measures. It also reveals major limitations and opportunities for future research. The last section concludes.

Income Inequality and Employment Practices

Empirical research has shown that across the last three decades income inequality has increased in most developed countries (Foerster & Tóth, 2015; Ostry, Berg, & Tsangarides, 2014; Roser & Cuaresma, 2016). In many of them, income inequality is at its highest level since data collection (OECD, 2015). In addition to this overall trend, stark variation between countries and differences in country-specific changes remain (Alvaredo, Atkinson, Piketty, & Saez, 2013; Roser & Cuaresma, 2016). These differences levels of income inequality are the focus our comparison.

Moreover, the increase in income inequality in most OECD countries has largely occurred in terms of wages and salaries, which account for 75 percent of household incomes of working-age adults (OECD, 2011). This places the focus on the contribution of employers to rising trends and persistent cross-country differences of income inequality. While early sociological work already emphasized employers‘ role in social stratification (Baron & Bielby, 1980), economists have recently analyzed matched employer-employee data in order to clarify where exactly wage

dispersion occurs (e.g. whether within or between firms) (Song, Price, Guvenen, Bloom, & Wachter, 2019). Both approaches refer to firms‘ employment practices: the creation of job ladders and pay structures within firms (Baron & Bielby, 1980); the use of outsourcing between firms (Song et al., 2019). Despite of that, only few scholars from business research and particularly Human Resource Management have addressed employment practices as a reason for income inequality.

One study that has systematically theorized the linkage between employment practices and income inequality is Cobb (2016). Basically, he argues that income inequality has increased because firms have dismantled their internal labor markets and have adopted an employment strategy based on externalizing employment practices such as outsourcing or contract labor and other non-standard work arrangements. The rise of such employment practices has been well documented in sample analyses for both externalizing employment practices (Cappelli & Keller, 2013a; Goldschmidt & Schmieder, 2017; Kalleberg & Marsden, 2005) and non-standard work arrangements (Brady & Biegert, 2018; Katz & Krueger, 2019). Yet, the empirical recording on the country-level is still a major challenge. While data is available for the prevalence of non-standard work arrangements (OECD, 2015), the measurement of externalized employment has only been addressed via proxy variables. Again, a study by Davis and Cobb (2010) suggests such a proxy variable: the employment concentration of a country. Both the theoretical suggestions and the employment concentration will be presented in more detail below.

The employment practices of firms have been characterized as being either following a market or an organizational orientation (Jacoby, 2005). Based on this, Cobb (2016) theorizes that an economy whose firms use organizational-oriented employment practices will have lower income inequality than economies whose firms rely on market-oriented employment practices, other things equal. Companies that follow an organizational orientation establish a so-called internal labor market (Doeringer & Piore, 1971). In internal labor markets fairness perceptions are present, leading to the use of formal job evaluations (Dulebohn & Werling, 2007). As a result, wage structures are compressed, thus raising the income of lower-level employees (Weil, 2014). By contrast, with market-oriented employment practices equity norms and job evaluations are not present any longer. Instead, workers are paid based on competitive market prices for their performance, skills and references, which leads to wages being closer to workers’ marginal productivity (Weil, 2014). In fact, significant wage penalties have been identified for externalizing employment practices and non-standard work arrangements (Goldschmidt & Schmieder, 2017; ILO, 2016; Katz & Krueger, 2019). First studies also show

how wage inequality is increased due to penalties for outsourcing (Goldschmidt & Schmieder, 2017; Handwerker & Spletzer, 2015) and for temporary work (Cazes & Laiglesia, 2015; Pfeifer, 2012).

In order to track the degree of firms' usage of externalizing employment practices within a country, Davis and Cobb (2010) suggest a convenient measure: the employment concentration. This measure is defined as the employment share of the ten largest firms in a country. Although ten firms only represent a tiny fraction of a country's firms, it is supposed to be an indicator for a broad-based trend toward relatively larger companies. Accordingly, Davis and Cobb (2010) show for the United States that the share of the ten largest firms correlates strongly with that of the 25 or 50 largest firms. Given that, they suggest that the employment concentration captures the presence of internal labor markets because they were traditionally implemented in large firms (cf. Cobb & Lin, 2017). However, both the unwinding of internal labor markets with significant downsizing (Jung, 2015) and the adoption of externalizing employment practices have exactly taken place in large firms (Bidwell et al., 2013; Cappelli & Keller, 2013a; Goldschmidt & Schmieder, 2017). Therefore, the increasing use of externalizing employment practices should be captured by a lower employment concentration. Finally, Davis and Cobb (2010) yield support for the claims that are later made by Cobb (2016): Countries with lower employment concentration show higher income inequality in terms of a higher Gini coefficient in 2006, and a time series for the United States between the years 1950 to 2006 shows a strong negative correlation between employment concentration and the Gini coefficient (cf. Cobb & Stevens, 2017 for US states). Correspondingly, we make the following configurational proposition:

1. *A high (lower) employment concentration is sufficiently related to lower (high) income inequality.*

The employment concentration primarily captures the degree of externalizing employment practices. As argued above, market-oriented employment practices also include non-standard work arrangements such as temporary and part-time work (Cobb, 2016). On the one hand, a higher employment concentration should also indicate less prevalent non-standard work arrangements: For example, theory suggests that internal labor markets are characterized by long-term employment (Cappelli, 2001). Accordingly, temporary work should be less prevalent in large firms. As a matter of fact, about fifty percent of temporary and part-time work in the

OECD area are exactly found in smaller firms (OECD, 2015).[1] On the other hand, it cannot be excluded that temporary and part-time workers are also used by large firms, thereby counting towards a higher employment concentration. As aggregate data is provided by the OECD, we decided to consider them separately. Based on Cobb (2016), we expect:

2. F*requent (less frequent) non-standard work arrangements are sufficiently related to high (lower) income inequality.*

Institutional Determinants of Employment Practices

Davis (2017) suggests that employment practices translate countries' institutional characteristics into organizational structures that in turn shape the distribution of incomes. In other words, national institutions may enlarge or constrain the availability of business strategies (Brewster et al., 2006). Moreover, institutions might regulate wage levels of certain employment practices and thus condition their inequality effects (Cazes & Laiglesia, 2015). This chapter elaborates which institutional determinants are of importance and how they affect income inequality by influencing companies' employment practices and their organizational structures, i.e. staff sizes and the employment concentration.

It has been noted earlier that a country's institutional environment influences income inequality (Rueda & Pontusson, 2000). What is specific to this claim and the following line of research is that they try to overcome the argument that single factors add up to explain income inequality. Rather, scholars compare countries in a more holistic way with respect to their organizational arrangements of production regimes and the underlying institutional environment. Here, two major frameworks of national economic organization have been offered and applied in research of income inequality. On the one hand, Judge et al. (2014) and Lewellyn (2018) analyze income inequality in different institutional settings that are suggested in a framework of different national business systems proposed by Whitley (2000). On the other

[1] This is especially the case in countries where there is loose dismissal protection (e.g. Portugal) (Portugal & Varejão, 2009). In countries where there is strong individual dismissal protection (e.g. Germany), temporary work is more common in large firms (Eichhorst, Marx, & Tobsch, 2013; Hohendanner & Stegmaier, 2012). However, in both cases temporary work in large firms is more likely to be transferred into permanent jobs and thus rather serves as a screening instrument (Hohendanner & Stegmaier, 2012; Portugal & Varejão, 2009). By contrast, non-standard work in small firms substitutes for standard employment (Hohendanner & Stegmaier, 2012) and therefore fulfills a churning or buffer-stock function (Portugal & Varejão, 2009).

hand, Antonelli et al. (2019) base their analysis on the Varieties of Capitalism approach provided by Hall and Soskice (2001).

In this paper, we will follow the Varieties of Capitalism approach. The basic rationale of this approach is the differentiation between two forms of efficiently working economies that primarily differ in their degree of non-market market coordination: coordinated market economies (Germany as prime example) and liberal market economies (United States as prime example) (Hall & Soskice, 2001). Overall, the institutional arrangements in liberal market economies will produce higher income inequality, which is clearly supported by recent work (Antonelli et al., 2019). In subsequent work, further country groupings have been introduced (Amable, 2003). In their original paper, Davis and Cobb (2010) indicate that the link between employment concentration and income inequality seems to integrate well into these country groupings. Correspondingly, Davis (2017) argues that the five domains which the Varieties of Capitalism approach suggests might have an influence on employment practices, staff sizes and thus income inequality. labor market regulation, educational system, product market competition and capital market structure. In the following, the influences of each domain will be presented (except social security as our focus will be on the distribution of gross incomes).

First of all, labor market regulation is recognized to inhibit a crucial role to reduce wage inequality (Koeniger, Leonardi, & Nunziata, 2007). Obviously, employment protection legislation (EPL) affects the availability and attractiveness of certain employment practices. Hipp et al. (2015) review intensive research on the relationship between EPL and the prevalence of non-standard work arrangements. They find that research is unanimous about the positive effects of *partial deregulation* on the use of temporary contracts. However, Hipp et al. (2015) also point out that the relationships for the overall EPL, which is also used in our analysis, are inconclusive. The reason for this is that the overall EPL includes protection for permanent workers, which can also encourage and actually increase the use of temporary employment (OECD, 2010). Such mixed results hold for part-time work, too. While regulations on working hours and legal provisions for part-time workers (same pay or vacation time) are considered as relevant reasons for the incidence of part-time work (Hipp et al., 2015), empirical accounts of the OECD (2010) do not find support for this assumption. Recent comparative work seeks to reconcile these ambiguities and finds that strict EPL for permanent workers combined with weak protection for temporary workers (*partial deregulati*on) leads to a high incidence of temporary *or* part-time work (Lee, 2013).

Whereas research offers plenty of insights on non-standard work arrangements, the linkages between EPL, the use of outsourcing and the general size of companies have not been

addressed yet. Therefore, we suggest that the same ambiguities might be plausible here, too. EPL may lead to larger companies because of stricter obligations when introducing temporary or terminating working contracts, thus encouraging long-term employment and the use of internal labor markets (*proposition 3a*). By contrast, strict overall EPL in the form of extensive protection for permanent and *partial deregulation* for temporary workers may lead to smaller companies (*proposition 3b*).

Our study is not only interested in the prevalence of employment practices under different extents of EPL, but also in how institutions may condition possible effects of given employment practices. Whereas for example the protection of part-time workers against organizational disadvantages – which is common in many European countries (Hipp et al., 2015) – is not found to increase their prevalence, they may still reduce their inequality effects. However, in some countries further legislation may also enhance the inequality effects of non-standard work arrangements. In Germany, marginal part-time employees ("Minijobber") are excluded from organizational fringe benefits and public social insurance systems (Hipp et al., 2015). Moreover, temporary agency workers are excluded from branch or company collective agreements in Germany and Portugal (Cazes & Laiglesia, 2015). As EPL is often followed by other wage-compressing institutions, Cazes and Laiglesia (2015) argue that high EPL might attenuate inequality effects of frequent temporary work (*hypothesis 3c)*. However, the case of Germany with an overall high EPL already shows that this does not have to be generally true. As we are only able to include the overall EPL index in an analysis of income inequality and variables for country-specific legislation are missing, we will seek to further explain our country-specific findings on the basis of such national legislation. Overall, we expect:

3a. *Generally, strict (looser) employment protection combines with high (lower) employment concentration and less frequent (frequent) non-standard work arrangements when sufficiently explaining lower (high) income inequality.*

3b. *If limitations on the use of temporary work are deregulated (partial deregulation), strict overall employment protection can also encourage companies to rely on frequent non-standard work arrangements and on downsizing (lower employment concentration). In turn, this would sufficiently lead to high income inequality.*

3c. *If wages of temporary worker are anyway strictly protected, the combination of strict overall employment protection, frequent non-standard work arrangements and lower employment concentration can also lead to lower income inequality (asymmetrically to 3b).*

The education system has a major role in reducing income inequality as it lowers skill premia received by a small group of highly skilled employees, generally increases productivity and thus leads to a larger amount of higher paying jobs (Roser & Cuaresma, 2016). Hence, general increases in education lead to a higher participation of the workforce in high value-added production that is common in large companies (Autor, Dorn, Katz, Patterson, & van Reenen, 2020). Also, it has been found that workers with lower levels of education have the highest and workers with high levels the lowest share in non-standard work arrangements (OECD, 2015). Correspondingly, we expect:

4. *High (lower) human capital investments combine with high (lower) employment concentration, less frequent (frequent) non-standard work arrangements when sufficiently explaining lower (high) income inequality.*

The deregulation of product markets has been found to be an important factor for income inequality (Antonelli et al., 2019). Again, there are several arguments that this deregulation has implications for employment practices: As a result of deregulation, high product market competition encourages or even necessitates firms to follow a market orientation, which grants them the flexibility to economically survive (Jacoby, 2005). With such a market orientation, firms are likely to use non-standard work arrangements (Kalleberg, 2011). Accordingly, the use of outsourcing is mainly found in hypercompetitive and volatile markets (Bernhardt, Batt, Houseman, & Appelbaum, 2016). This should also affect the employment concentration. According to Davis (2009), the size of firms is also significantly shaped by the extent of product market competition (Deeg, 2012). Extensively regulated product markets made the emergence of large-scale monopoly-like companies in the United States possible. However, blaming these companies for charging higher consumer prices, a combination of deregulation and antitrust laws was implemented to increase product market competition and to limit the size of companies. In sum, we propose:

5. *High (lower) product market competition combines with lower (high) employment concentration, frequent (less frequent) non-standard work arrangements when sufficiently explaining high (lower) income inequality.*

The capital market structure is found to have significant effects on societal income inequality: Income inequality is high in countries where firms predominantly rely on external financing via stock markets rather than credit financing via banks (Lewellyn, 2018). In such countries, non-finance firms are increasingly financialized by aligning their corporate governance and strategy to the demands of financial markets (Krippner, 2005; van der Zwan, 2014). Financialization and the strategic reorientation to achieve shareholder value goals are supposed to have significant implications for employment practices (Cobb, 2016; Flaherty, 2015; Thompson, 2013). Cobb (2016) also theorizes that in countries where practices that are common under a shareholder value orientation are applied (e.g. equity-based compensation or takeover markets), employers will favor market-oriented employment practices. Unfortunately, we are not aware of any study that examines the linkage between financialization and the prevalence of non-standard work arrangements. However, several studies yield support for a connection between financialization and externalizing employment practices as they find a positive relationship between financialization and workforce downsizing (Goergen, Brewster, & Wood, 2009; Jackson, 2005; Jung, 2015; Lin, 2016). We presented above that downsizing and the externalizing employment practices are especially pronounced in the largest firms. In addition, large companies rely on external financing and are more likely to follow a shareholder orientation (Aoki, Jackson, & Miyajima, 2007; Deeg, 2009). With this, financialization should highly matter for the employment concentration. Consequently, we expect that:

6. *High (lower) financialization combines with lower (high) employment concentration, frequent (less frequent) non-standard work arrangements when sufficiently explaining high (lower) income inequality.*

Overall, we follow Davis (2017) and argue that the link between employment concentration (together with non-standard work arrangements (Cazes & Laiglesia, 2015; Hipp et al., 2015)) and income inequality integrates into the five institutional cluster offered by Amable (2003): the market-based capitalism (Australia, United Kingdom, United States and Canada); the Asian capitalism (Japan and Korea); the Continental European capitalism (Switzerland, Netherlands, Ireland, Germany, France, Norway, Belgium and Austria); the social-democratic capitalism (Denmark, Finland and Sweden) and the Mediterranean capitalism (Greece, Italy, Spain and Portugal). Recent research shows that these clusters actually bring about different levels of income inequality (Antonelli et al., 2019). In line with this research, we propose:

7. *High employment concentration and less frequent non-standard work arrangements leading to lower income inequality are primarily found in the social-democratic, the continental European model and in the Asian model. Lower employment concentration and frequent non-standard work arrangements leading to high income inequality are found in the Mediterranean and the market-based model.*

Overall, theory suggests that there might be a causal chain between employment practices, their institutional determinants, and income inequality (Davis, 2017). Moreover, a first few proposals have been formulated that institutions may condition inequality effects of employment practices. Together, this implies more involved links between the variables of interest. Hence, these complex interactions should be examined in a more explorative way. Qualitative comparative analysis is a well-suited method to be used for such an endeavor.

Qualitative Comparative Analysis

We employ fuzzy-set qualitative comparative analysis (fs/QCA) in order to examine the research questions formulated so far. This set-theoretic method is well suited for exploring the complexity of interconnectedness between the relevant variables. It argues that differing causal paths may produce the same outcome and that causation is conceptualized more in terms of sufficiency and necessity (Ragin, 2000, 2008) rather than linear effects. It also allows for asymmetric causation – the causal paths explaining high income inequality may include other factors than paths explaining lower income inequality (cf. *propositions 3b* and *3c*). In terms of procedure, variables are first translated into sets using further knowledge about the concepts under examinations. Fs/QCA then searches for single conditions or configurations of conditions that are sufficiently (respectively necessarily) related to the outcome.

Calibration strategy

Calibration is the translation process from raw data into set membership values for each country-year observation (cases). The calibration strategy for nearly all sets in this analysis is driven by a comparison between the data used and a larger dataset containing nine more countries and up to nine further periods dependent on data availability. We use the minimum, the 75th percentile (as we are searching for high values of each set) and the maximum of this larger dataset as anchors for set membership scores of 0.05, 0.5 and 0.95 respectively. As the literature does not offer any scheme for defining anchors for most of the sets (especially income inequality), we employ this strategy in order to meet literature's demand to use knowledge

external to the data at hand (Schneider & Wagemann, 2012). Only the set for "financialization" is calibrated with 1 as 0.5 anchor, as suggested by Lewellyn (2018)[2], resulting in the anchors depicted in table 1.

Table 1

Descriptive Statistics of raw variables and sets & calibration anchors

Variable/ Set	Mean	Std. Dev.	Min	Max	TFNM	0.5 anchor	TFM
Gross Gini	0.48	0.04	0.39	0.60	0.30	0.49	0.60
G	0.46	0.15	0.17	0.95			
Employment concentration	6.66	5.52	0.51	26.26	0.40	7.03	26.77
C	0.37	0.26	0.05	0.95			
Share of part-time work	15.28	7.41	2.79	37.62	1.59	19.20	38.55
PT	0.36	0.23	0.06	0.95			
Share of temporary work	34.19	16.01	3.72	76.24	3.72	44.62	78.24
T	0.36	0.24	0.05	0.94			
Employment protection legislation	2.35	0.67	1.10	4.58	0.26	2.65	4.83
E	0.41	0.17	0.12	0.93			
Human capital investments	3.11	0.43	1.88	3.72	1.80	3.47	3.74
H	0.41	0.22	0.05	0.94			
Product market competition	0.37	0.08	0.27	0.62	0.15	0.40	0.62
P	0.43	0.20	0.18	0.95			
Financialization	0.84	0.61	0.01	5.05	0.01	1.00	5.05
F	0.34	0.20	0.05	0.95			

Outcome set & conditions

Data for countries' Gini coefficients of gross incomes (before taxes and transfers) are derived from the Standardized World Income Inequality Database (SWIID) (Solt, 2016). The first two rows of table 1 summarize the variable Gross Gini and the outcome set "high income inequality" (G). With a gross Gini coefficient of only 0.39, Switzerland in the year 2000 has the lowest membership value of 0.17 in the set of countries yielding high income inequality, while Hungary in the year 2012 displays a gross Gini coefficient of 0.6 and has the highest membership value in the set G (0.95).

We employ two groups of conditions: three sets which represent aggregate employment practices of a country's firms and four sets that resemble the institutional arrangements of a country. The first group consists of the sets "high employment concentration" (EC), "frequent

[2] Values higher than 1 indicate that the market capitalization of listed companies is higher than domestic bank credits provided to the private sector (Lewellyn, 2018).

part-time work" (PT) and "frequent temporary work" (T). The employment concentration is defined as the share of the working population of a country working in the ten largest companies of that country (Davis & Cobb, 2010). Data for the employment figures in the ten largest listed companies of a country are collected from the Worldscope Global Database (Thomson Reuters/Refinitiv). Research has shown that especially companies that are listed on the stock market often follow a shareholder value orientation (Aoki et al., 2007; Deeg, 2009) and are thus more inclined to engage in downsizing initiatives (Jung, 2015; Lin, 2016). A problem, however, is that the underlying employment figures also include foreign employment. To show that the relationship between foreign and domestic employment is rather stable, Davis and Cobb (2010) reveal a high correlation between the number of domestic and total employees of US companies (cf. Lin, 2016). This does not necessarily have to be the case between European countries with common cross-border mergers and acquisitions (Deeg, 2009; Jackson & Miyajima, 2007). Therefore, our measure does not include several internationally expanding companies in countries with a rapidly growing employment concentration (Denmark and Sweden). For the same reason, we excluded employment figures for international employment agencies such as Randstad and USG People in the Netherlands. Finally, we intentionally dropped Luxembourg due to its extreme level of employment abroad. Data for the labor force are obtained from the World Bank and include employed persons and job-seekers. We use OECD data for the shares of part-time and temporary work. The OECD defines temporary work as dependent employment with a pre-determined termination date and part-time work as main jobs of employed persons (including self-employed) that are performed less than 30 hours per week.

The second group consists of four conditions, which aim to identify the institutional arrangements of a country, namely its employment protection legislation (E), its human capital investments (H), its level of product market competition (P) and its degree of financialization (F). Human capital investments are measured by the Human Capital Index of the Penn World Tables 9.0 (Feenstra, Inklaar, & Timmer, 2015). This measure is based on average years of schooling (Barro & Lee, 2013) and on estimated returns to education (Psacharopoulos, 1994). It thereby captures the quantity and quality of human capital investments. We employ a measure for the reliance of economies on equity financing versus bank lending in order to gain an understanding of the degree of financialization in a country. By following Hotho (2014) and Lewellyn (2018), we divide the market capitalization of domestic companies as percentage of the GDP by the share of domestic bank credits to the private sector. Data are retrieved from the

World Bank.[3] The strictness of employment protection legislation (EPL) is measured using the overall Employment Protection Legislation Index provided by the OECD. This index varies between 0 and 6 and reflects degree of legislative protection for regular employment, temporary employment and collective dismissal. We opted for this measure because we do not want to restrict our analysis neither to regular nor to temporary work. Although the deregulation of product markets could also be measured by means of a common OECD index, we refrained from this measure due to data availability. Instead, we approached the actual degree of product market competition using the labor income share (the part of national income accruing to wages) as a proxy, following recent arguments by the OECD (Pike, 2018). These arguments trace back to Autor et al. (2020), who show that higher product market competition leads to increased product market concentration, where some highly productive firms (termed superstar firms) dominate markets. In turn, they identify a negative relationship between product market concentration and the labor income share within industries. Following this conception, the inversion of the labor share (1 - labor income share) is used to measure the strength of product market competition.[4] Data for the labor income shares are retrieved from the OECD.

In total, our sample contains data from 22 OECD countries and 17 subsequent periods (1996-2012). Unfortunately, our sample does not exactly match the country groupings suggested by Amable (2003). The measure for financialization could not be calculated for Ireland and Canada. Also, limited data availability on temporary or part-time work led us to the exclusion of Korea and the United States. To compensate for that, we included three countries from East Europe (Czech Republic, Hungary and Poland), which also form a separate cluster in more recent research (Antonelli et al., 2019). We also included two lesser developed OECD countries (Mexico and Turkey). The difficulties in the calculation of the employment concentration for earlier years in Eastern European countries determined 1996 as our starting year. In actual fact, the 1990s are a critical period where many firms began to downsize their workforce as a result of a shareholder value orientation (Lazonick & O'Sullivan, 2000), to outsource services to external suppliers (Kalleberg & Marsden, 2005) and to more frequently apply non-standard work arrangements (Hipp et al., 2015). Besides Luxembourg, further OECD countries could not be included because of measurement difficulties beyond this year (Baltic

[3] We use slightly different World Bank data on domestic bank credits based on (Judge, Fainshmidt, & Lee Brown III, 2014). However, our measure is highly correlated with the one employed by Hotho (2014) and Lewellyn (2018) (r.=0.87).

[4] Besides that, the labor income share is considered to be an important mediating factor between aggregate national income and its personal income distribution. It is highly correlated with different measures of income inequality including Gini coefficients (Bengtsson & Waldenström, 2018).

States, Iceland, the Slovak Republic and Slovenia) and missing data on further conditions (Chile and Israel). Descriptive statistics and calibration anchors can be obtained from table 1.

Results

Analysis of Necessary Conditions

The analysis of necessary conditions for high income inequality surprisingly reveals four necessary conditions. These are the absence of high employment concentration (~EC), the absence of frequent part-time work (~PT), the absence of strict EPL (~E) and the absence of high financialization (~F). At first sight these results seem odd. Nevertheless, they are robust to the relevance tests suggested by Schneider and Wagemann (2012: 236) and to a check for skewed membership (Schneider & Wagemann, 2012: 246).

The absence of high employment concentration and the absence of a strict EPL both being necessary for high income inequality is in line with our theoretical arguments (*propositions 1* and *3a*). A more detailed discussion is relevant for ~PT and especially for ~F. The absence of part-time work being necessary for high income inequality contradicts the first intuition asserted by Cobb (2016) (*proposition 2*). This result rather suggests forgone positive effects of part-time work. Indeed, it has been suggested that non-standard work arrangements do not necessarily have to be "bad" or "precarious" (Kalleberg, Reskin, & Hudson, 2000: 273) and that especially part-time work often goes along with job stability (Hipp et al., 2015). Therefore, this finding might also point to a lack of opportunities for participating in the labor market via such alternative contract forms, thus increasing income inequality. In this way, the overall links between non-standard work arrangements, precariousness and income inequality are not empirically clear-cut (Cazes & Laiglesia, 2015; Kiersztyn, 2018).

Even more puzzling is the finding concerning high financialization. Many authors deem a grown financialization to be a prominent driver of corporate downsizing activities. In contrast to *proposition 6*, our results suggest that *lower* financialization is the trigger of high income inequality. Although this result indicates that more differentiated arguments about financialization are appropriate, the opposite generalization of reducing inequality should be also taken cautiously. The results of our necessity analysis are robust regarding relevance tests (Schneider & Wagemann, 2012) but consistency and coverage values of <1 indicate that not each case is covered by this solution. Consistency, coverage and relevance values can be obtained from table 2. The following analysis of sufficiency will further clarify these findings. It will disentangle the impacts of part-time employment between countries and their different

institutions. Also, it will reveal other pathways to high income inequality that might be more insightful than pure financialization.

Table 2			
Necessity of conditions for outcome G			
Condition	**Consistency**	**Coverage**	**Relevance**
C	0.58	0.72	
~C	**0.91**	**0.66**	**0.63**
PT	0.62	0.78	
~PT	**0.91**	**0.66**	**0.62**
T	0.63	0.79	
~T	0.88	0.63	
H	0.70	0.78	
~H	0.88	0.68	
E	0.77	0.85	
~E	**0.91**	**0.71**	**0.71**
P	0.73	0.77	
~P	0.88	0.70	
F	0.62	0.82	
~F	**0.94**	**0.65**	**0.6**

Thresholds for necessity: 0.9 in consistency, 0.5 in coverage and 0.5 in relevance.

Analysis of Sufficient Conditions

With respect to the finding of necessary conditions we applied the Enhanced Standard Analysis developed by Schneider and Wagemann (2012). This procedure is used to avoid untenable assumptions about logical remainders. After applying a frequency threshold of 2 and a symmetry threshold of 0.75, we gain the final truth table presented in table 3b in the appendix. Using a symmetry threshold instead of a raw consistency threshold is meant to exclude paradoxical truth table rows from the solution, so that no configuration, which would also lead to the negation of the outcome, can bias the results. Of 128 possible truth table rows 40 rows remain, which implies a limited diversity of 31.25 percent.[5]

After implementing the simplifying assumptions derived from the theoretical propositions, the analysis results in four causal paths (see table 3), which constitute the enhanced most parsimonious solution. The solution term is sufficiently consistent (0.98) and empirically relevant (0.64) for further analysis.

[5] Caveat: Due to the Enhanced Standard Analysis there are more truth table rows used for minimization but they do not have observations.

Table 3				
Causal paths sufficiently related to high income inequality (G)				
Conditions / Paths	**1**	**2**	**3**	**4**
High employment concentration (C)	⊗	⊗	⊗	⊗
Frequent part-time work (PT)	⊗	●	⊗	●
Frequent temporary work (T)	●	⊗	●	●
High human capital investments (H)	⊗		⊗	●
Strict employment protection legislation (E)	⊗	⊗	●	●
High product market competition (P)		⊗	⊗	⊗
High financialization (F)	●	●	⊗	⊗
Raw coverage	0.4	0.39	0.48	0.38
Unique coverage	0.03	0.08	0.07	0.02
Consistency	1	0.99	0.99	1
Cases	Poland (02-07)	United Kingdom (96-01)	Portugal (05-12)	Germany (04, 09, 10)
Solution consistency	0.98			
Solution coverage	0.64			

Hollow circles mark the absence of a condition while full circles mark the presence of a condition.

Each of these paths is a country specific configuration leading to high income inequality.[6] None of them consists of only one condition, which points to complex causality. Only the absence or presence of multiple employment-related and institutional conditions is sufficient to produce the outcome.

All paths towards high income inequality have the absence of high employment concentration in common (*proposition 1*). Furthermore, the absence of high employment

[6] The four paths resemble country specific configurations implying high income inequality. While most other cases do not contradict their statements, they nevertheless do not have high membership scores in the outcome set. This result is attributed to the quite exclusive anchor setting and the size of the data set.

concentration is always found in combination with the presence of at least one non-standard work arrangement, particularly frequent temporary work. This result yields further support that lower employment concentration in combination with frequent temporary work does seem to indicate the absence of internal labor markets with long-term employment (see above). Concerning *proposition 2*, we find that frequent temporary work is especially related to high income inequality. However, the case of the United Kingdom demonstrates that frequent temporary work can also be absent in line with our analysis of necessity (cf. Cazes & Laiglesia, 2015).[7] For part-time work, the findings now reveal a highly ambivalent character, supporting both lines of argumentation. This ambivalence might be clarified with a simultaneous consideration of institutions.

The four paths display interesting patterns concerning the interaction between employment practices and institutions. This is particularly true for the EPL. In line with *proposition 3a*, the absence of strict EPL is driving results in Poland and the United Kingdom. However, the latter case also reveals that, contrary to *proposition 3a*, lighter regulation does not necessarily have to be followed by frequent temporary work as workers can be more easily dismissed anyway (Cazes & Laiglesia, 2015). Asymmetrically to this case, the two paths for Portugal and Germany are determined by strict EPL in combination with frequent temporary work, which is exactly in line with *hypothesis 3b* (*partial deregulation*). Notably, both countries have country-specific legislations that exclude temporary agency workers from collective bargaining, thereby enhancing inequality effects of temporary work. In particular, Portugal is one of the countries that scores highest in overall EPL (3.56 in 2012) but has little legislation regarding temporary work (1.94 in 2012) and Germany also witnessed pronounced partial deregulation for temporary work (Hipp et al., 2015). The ambiguous inequality effects of part-time work are also likely the result of county-specific legislation. Frequent part-time work in Germany and the United Kingdom is related to high income inequality, now supporting *proposition 2*, because part-time workers are excluded from organizational advantages (Hipp et al., 2015). In comparison to that, strict EPL in Portugal and anti-discriminatory legislation in Poland, which both include part-time workers, would potentially reduce wage gaps to full-time workers (*proposition 3c*). However, these legislations are found to have no impact on the incidence of part-time work (cf. OECD, 2010). Therefore, the absence of frequent part-time work in both countries is – contrary to *proposition 2* - related to higher income inequality, because labor market opportunities and mobility may be missing. The analysis of necessity

[7] Cazes and Laiglesia (2015) exactly find that in Germany wage-inequality is particularly high within the group of temporary workers and that temporary work is highly concentrated in low-paid work in Poland and Portugal. This does not hold for the United Kingdom.

underlines that this might be true in further countries. Overall, the findings imply that inequality effects of non-standard work arrangements are highly dependent on country-specific EPL, whereas the absence of high employment concentration is unambiguously related to high income inequality.

In Portugal and Poland, high human capital investments are absent, which underlines *proposition 4*. Moreover, the absence of high human capital investments combines with the absence of frequent part-time work in these countries. Complementarily to above, this suggests that less frequent part-time work seems to particularly fuel income inequality when general access to education is missing. However, in other countries such as Germany, high human capital investments can be related to high income inequality. Hence, education seems to be insufficient to overcome the rise of external employment practices and non-standard work arrangements. In line with this, Brady and Biegert (2018) show that the rise of non-standard work arrangements in Germany cannot be explained by the education or skills of employees.

Pr*oposition 5* receives no support from our results. High product market competition in the form of a lower labor income share is absent in nearly all paths. Hence, high income inequality can also be the result of a high dispersion in labor income rather than a high share of capital incomes caused by concentrated product markets as for example in the United Kingdom (Dundon, 2019).[8]

Whereas inequality effects of financialization are clearly rejected based on the analysis of necessity, the sufficient paths now reveal a more nuanced picture that also yields support for *proposition 6*.[9] In particular, our results reveal a highly interesting pattern, which is the quasi-substitutability between sets E and F. In Poland and the United Kingdom, the absence of strict EPL appears only in combination with the presence of high financialization. Hence, financialization is still an important factor for high income inequality, which causes flexible labor markets and a pronounced reliance on outsourcing. However, financialization does not have to be present for changes in the labor market to take place, which would result in higher income inequality. The paths for Portugal and Germany display the opposite to Poland and the United Kingdom: strict EPL and the absence of high financialization. Here, partial deregulation and heavy use of temporary work (and also part-time work in Germany) as well as an equally common use of outsourcing lead to high income inequality. These two patterns are quite

[8] Fs/QCA analyses extreme values of levels of variables. Since these levels were produced over several decades, the recent emergence of highly concentrated product markets is not necessarily captured by our calibration and instead necessitates another kind of analysis, which concentrates on inequality trends, as for example regression analysis.

[9] Thus, cases that are part of the solution do contradict the statement of ~F being necessary for G.

congruent with the institutional clusters suggested by Amable (2003), but differ in terms of their expected levels of income inequality.

Although we were obliged to drop several countries that Amable (2003) considered in his work, some prime examples are still part of the dataset. With the United Kingdom and Portugal, we have prime examples for the market-based and Mediterranean models. In line with *proposition 7*, exactly these two models are related to high income inequality. An Eastern European model has not been introduced by Amable (2003) but more recent work by Antonelli et al. (2019) find support for such a separate institutional cluster. Their analysis reveals that this cluster has, on average, lower levels of inequality in *net* incomes. However, Poland (and also Hungary) record higher inequality of net *and* gross incomes than their neighboring countries. Similar to our results, Tridico (2018) finds that Poland exhibits high income inequality as a result of high financialization and less strict EPL. Consequently, this finding indicates that countries might deviate from their institutional clusters in terms of income inequality. The case of Germany substantiates this further: Although being the prime example of the coordinated market model common in central European countries, the solution for Germany clearly breaks with *proposition 7*. Hence, income inequality of *gross* incomes can also be high in countries that are highly coordinated. Unfortunately, the lesser developed OECD countries do not appear in the solution.

In sum, the analysis of high income inequality as outcome set reveals the following: While the identified pathways include countries from four different institutional clusters, our analysis shows that they share quite similar characteristics in terms of employment practices: lower employment concentration and different combinations of non-standard work arrangements with EPL. Hence, employment practices seem to help to understand income inequality across different institutional clusters.

Analysis of Lower Income Inequality

In a next step, we search for causal paths leading to lower income inequality (negation of set G: ~G). Our analysis detects no single necessary condition for the negated outcome. The analysis of sufficiency results in six paths, constituting an overall consistent (0.97) and empirically relevant (0.65) solution term.[10] First of all, four paths contain the presence of high employment concentration, supporting *proposition 1*. Additionally, three paths include the absence of frequent temporary work, partially supporting *proposition 2* and indicating the

[10] As a result of our anchor setting, unique coverage is again quite low but still above zero in every path.

presence of internal labor markets. Contrarily, in three paths frequent part-time work drives higher equality parallel to the results found earlier. This again substantiates its opportunity generating function (Hipp et al., 2015). Interestingly, each path has to either contain a high employment concentration or the absence (presence) of frequent temporary (part-time) work in order to explain lower income inequality. Hence, these findings underline that employment practices are crucial in understanding income inequality.

Again, the identified paths display interesting patterns concerning the interaction between employment practices and institutions. Each of the paths with high employment concentration contains the absence of high product market competition.[11] This now yields support for *proposition 5*. The absence of high product market competition enables firms to expand their staff sizes and to establish internal labor markets. Moreover, these firms themselves do not overwhelmingly dominate product markets such that capital incomes are not excessively high – they are no superstar firms (Autor et al., 2020). By contrast, we do not find evidence that lower levels of temporary work are followed by strict EPL when explaining lower income inequality (*proposition 3a*). Also, there is only evidence in path 3 that EPL may attenuate the inequality effects of temporary work (*proposition 3c*), which might be present or absent here. However, the inequality-reducing effects of part-time work seem to be the result of favorable legislation provided in the respective countries (Hipp et al., 2015).

Moreover, we find that within these paths, the institutional environment might differ significantly. In contrast to *propositions 4* and *6*, high financialization or high human capital investments might be present or not. Hence, more differentiated arguments on the inequality effects of single aspects of financialization and a shareholder value orientation are appropriate as suggested by Cobb (2016). Similarly, the creation of favorable labor market opportunities seems to be more important for lower income inequality than focusing only on human capital investments. In sum, employment concentration seems to be able to overcome the absence of high human capital investments, strict EPL and the presence of high financialization. In turn, the absence (presence) of frequent temporary (part-time) work together with the absence of high financialization seems to be able to overcome the absence of a high employment concentration (paths 5 and 6).

[11] This finding reveals that the causality of conditions and outcome is not symmetric. As we have seen in table 3, the absence of high product market competition/concentration is also related to high income inequality. This demonstrates the trait of asymmetry: depending on its combination with other conditions, each condition can produce different outcomes.

Cases that are member of this solution are mainly found among Scandinavian and continental European countries, which are predicted to have lower income inequality according to *proposition* 7. In particular, the Scandinavian countries dominate our solution as they also do in other analyses (Antonelli et al., 2019). In addition, Switzerland and the Netherlands as continental European countries have been identified before to be closer to this Scandinavian model (Davis & Cobb, 2010). Despite of that, Australia now clearly breaks with its belonging to the market-based cluster (*proposition 7*). Favorable employment practices seem to mitigate income inequality even when product market competition in the form of high capital incomes is present. Unfortunately, Japan as a prime example for the Asian model does not appear in the identified pathways to lower income inequality.

To summarize, what can be learnt from both analyses? For high income inequality, the absence of high employment concentration *and* certain combinations of non-standard work arrangements and institutional characteristics are highly important. For lower income inequality, the presence of high employment concentration *or* combinations of non-standard work arrangements and institutional characteristics are important. Employment practices integrate fairly well into the institutional clusters offered by Amable (2003). However, exemptions remain: high income inequality is also present in Germany, a prime example of coordinated market models; lower income inequality is also present in Australia belonging to the market-based model. In both cases, the employment practices help to explain their actual level of income inequality.[12]

[12] The findings of two auxiliary examinations support this claim: Institutional configurations alone are neither sufficiently related to high income inequality nor to the presence / absence of high employment concentration or frequent non-standard work arrangements. This implies that an institutional consideration alone can neither explain income inequality nor certain employment practices in these countries.

Table 5

Causal paths sufficiently related to income equality (~ G)

Condition/ path	**1**	**2**	**3**	**4**	**5**	**6**
High employment concentration (C)	●	●	●	●		
High share of part-time work (PT)	●	⊗			●	●
High share of temporary work (T)				⊗	⊗	⊗
High human capital investments (H)	●	⊗	⊗		⊗	
Strict employment protection legislation (E)			●			
High product market competition (P)	⊗	⊗	⊗	⊗		●
High financialization (F)	●		⊗	●	⊗	⊗
raw coverage	0.34	0.46	0.4	0.39	0.49	0.47
unique coverage	0.02	0.03	0.003	0.003	0.01	0.02
consistency	0.98	0.98	1	0.98	0.99	0.99
Cases	Switzer-land (97-12)	Finland (96-12) Belgium (96-12) France (99-09) Sweden (96-10) Austria (05-11), Denmark (96-08)	Netherlands (96, 02-06, 08-12)	Finland (99-08) Belgium (98-01, 04-07, 10, 12)	Australia (08, 11, 12) Norway (96-05) Netherlands (96, 02-06, 08)	Australia (08, 11, 12) Norway (96, 97, 00-12)
solution coverage	0.65					
solution consistency	0.97					

Supplementary Analysis

Recalibration

Due to a quite exclusive calibration using the 75th percentile of the calibration data set, our first results are prone to skewness and a low number of cases that show membership scores higher

than 0.5 in the solution *and* in the outcome set. Therefore, we conduct a second analysis using the mean of the global dataset as 0.5 anchor as a robustness test.[13]

In this approach all necessary conditions for high income inequality except the absence of high employment concentration vanish. The absence of high employment concentration along with the absence of high human capital investments is also part of most sufficient paths in this solution. This again confirms our hypotheses and emphasizes the importance of employment concentration for the explanation of income inequality. Overall, the solution of the robustness test did not deliver results that severely contradict our results in the main analysis.

Panel fs/QCA

The configurations found so far are prone to critique with right to their coverage and unique coverage. We cannot fully reject this critique for the pooled analysis we have done so far, but we are able to expand our view on the consistency and empirical relevance of our findings with respect to a further dimension. Thus, we want to assess if our results are robust to temporal developments.

Our panel dataset enables us to evaluate the important question whether the relationships we found so far are consistent over time and within countries. The development of time-sensitive QCA-variants is still in progress, but there are already inspiring approaches. Thus, by employing the panel approach to fs/QCA developed by Garcia-Castro and Ariño (2016), we hope to gain a glance at the time- and country-specific developments underlying the paths to high income inequality. We now briefly take a look at the developments of consistencies and coverages of the configurations within countries over years (Within-Consistency / -Coverage) and between years over all countries (Between-Consistency / -Coverage) (Garcia-Castro & Ariño, 2016).

Our calculations of Between-Consistency for the paths from table 2 show that each of the paths is highly consistent between years. No time effects seem to harm the consistency of these paths. Paths 1 and 2 have a drop in Between-Coverage in year 2008. Such kinks in empirical relevance are often observed in this year, which raises the presumption that they are effects of the global financial crisis (both paths include high financialization). The solution based on the mean calibration displays time-independent consistency in a similar manner and a coverage kink in the years around the financial crisis as well. These results show that the results

[13] The exact results of the following robustness and time-consistency test can be obtained from the authors via e-mail.

of our main sufficiency analysis are not the product of time effects. In other words, the consistency of the solution is not challenged by time-varying effects of unobserved conditions.

Concerning the Within-Consistency, while the statement of consistency holds for all cases, there are differences in the Within-Coverage between countries. A high Within-Coverage of a path for a country indicates that the statement of sufficiency manifests itself empirically in this country (Garcia-Castro & Ariño, 2016). Naturally, the relevance of different paths differs highly between countries. For the sake of a robustness test, this information is not described further. Subsequent analysis could use this information to gain a better understanding of the comparability of different countries with respect to the conditions under observation. The Within-Consistency results for the mean solution are similarly stable and mostly consistent. Nearly no country changed its membership in a path over time. These results indicate that the statements of sufficiency found in the solutions are stable.

Overall, the panel fs/QCA developed by Garcia-Castro and Ariño (2016) is a helpful tool suited for gaining an overview of large-N datasets containing a time component. It revealed that all the paths we found are consistent over time and within countries.

Discussion

Main points and implications

Our analysis reveals that employment practices (in the form of externalizing practices and non-standard work arrangements) and their institutional determinants combine to explain high and lower income inequality. In particular, frequent temporary work is related to high income inequality especially in contexts with high EPL and partial deregulation (Germany and Portugal). Correspondingly, less frequent temporary work is mostly related to lower income inequality (except for United Kingdom with anyway loose EPL). Part-time work seems to be an important factor in lowering income inequality as can be observed in Scandinavian countries, which have a strong legislative protection for them. Given this kind of protection, increasing part-time work in countries such as Poland and Portugal might be favorable for reducing income inequality. However, part-time work in countries with less protection might also lead to higher income inequality (Germany and United Kingdom). Overall, these findings yield strong support for previous arguments from the literature (Cazes & Laiglesia, 2015; Hipp et al., 2015; Lee, 2013).

A new insight from our analysis is the identification of the employment concentration inhibiting the highest and clearest explanatory power. This proxy variable, which is intended to

measure the degree of large-firm employment and thus internal labor markets (Davis & Cobb, 2010), is able to explain high *and* lower income equality when absent or present respectively. Hence, the shape of organizations is a highly relevant determinant for the level of income inequality (Cobb, 2016; Davis, 2017).

Overall, employment practices mostly fit into the institutional clusters by Amable (2003) as also suggested by Davis (2017): High income inequality is present in the market-based or Mediterranean model; lower income inequality is found in the Scandinavian or the continental European model. Similar to Tridico (2018), we find that Poland as a new European Union Member States from Eastern Europe exhibits high income inequality as a result of high financialization and less strict EPL. However, Poland seems to be a special case of Eastern European countries that generally exhibit lower income inequality (Antonelli et al., 2019). Our analysis also identifies further special cases (Germany and Australia). The presence of special cases suggests that countries might also vary within a cluster in terms of their employment practices and levels of income inequality. This is also in line with literature seeking to explain rising income inequality and liberalization as its reason in different institutional clusters (Thelen, 2014). In particular, it is suggested that liberalization can take other forms than pure deregulation (say of EPL). Labor market dualization in Germany exemplifies this (Brady & Biegert, 2018): On the one hand, only non-standard work arrangements are partially deregulated and heavily used (Hipp et al., 2015). On the other hand, firm strategies of large multinational firms in Germany might be less influenced by the institutional environment enabling a shareholder value orientation (van der Zwan, 2014). In this way, large firms are able to deviate from employment practices that traditionally built an institution in their own right for equalizing individual incomes, namely internal labor markets. Hence, the resulting use of outsourcing in the form of extraordinarily high downsizing rates (Jackson, 2005) and a lower employment concentration seems to capture important aspects of liberalization in Germany. Major institutions do not necessarily have to change (education, financialization and overall EPL); their limits in constraining forces resulting in higher income inequality have been exhausted with changing employment practices being the result of various experimentation (cf. Deeg & Jackson, 2007).

What are the implications for policy? Our findings already suggest that part-time work coupled with employee-friendly legislation and the reduction of temporary work are likely to reduce income inequality. The most broad-based solution would be the development of larger companies. However, the changing of employment practices might be highly impaired due to global competition. According to Vosko (2010), the chances are slim to ever return to standard

employment relations common in larger firms (Kalleberg & Vallas, 2018). Moreover, catching-up countries (such as Portugal and Poland) cannot simply establish large firms but have to rely on smaller startups that address certain market niches, again contributing to higher income inequality (Lewellyn, 2018). In case of such an inability to establish large-scale firms in these countries, our results suggest that no configuration of institutional conditions is so far able to substitute for the presence of high employment concentration. This calls for alternative forms to inhibit employers to circumvent collective representation via outsourcing (Batt, 2018; Doellgast et al., 2017).

Limitations and future research

While our analysis gives first overall insights into the relationships of interest, further important factors are missing as the total number of variables in fs/QCA is limited. It could be already seen that a separation of the EPL Index for permanent and temporary employment is superior to the overall index (Lee, 2013). We also believe that further important variables are the unemployment rate and female labor market participation, which can also condition on the inequality effects of non-standard work arrangements. However, the identification of variables that condition the inequality effects of the employment concentration is challenging. For example, one could argue that the strength of unions may significantly impact wages for non-standard work arrangements or jobs in outsourced establishments. As trade union density has been generally analyzed in such a manner (e.g. Hotho, 2014), we also carried out analyses replacing EPL with trade union density. Even though the absence of high trade union density is an important factor in explaining high income inequality, there is no proof that it would potentially attenuate the negative inequality effects of the absence of a high employment concentration. Moreover, the same result can be expected from an analysis with collective bargaining instead of trade union density, since Sako and Jackson (2006) argue that industry-wide collective bargaining falls short when employment is externalized between different industries (Deeg & Jackson, 2007). Instead, they suggest that informal social networks are able to address wage differences between client and supplier firms. Hence, variables that somehow capture the degree of solidarity between firms are of high importance. In this sense, it would be also highly interesting to analyze how the welfare state corrects for the use of market-based employment practices with redistributive measures. In Germany, redistributive measures are pronounced as the Gini coefficient of *net* incomes is considerably lower. While our analysis is based on the Gini coefficient of gross incomes, further research could also draw on net incomes

and add variables for the extent of redistribution or active labor market policies (Mai, 2018). Thereby, the flexicurity model in Denmark might be revealed in the analysis, too.

In general, the identified paths to high income inequality in our main analysis (75th percentile) are only present in a limited number of countries. In particular, they only represent a fourth of all cases with high income inequality. For example, our solution is not able to identify determinants of high income inequality in Hungary (1996-2012) or Mexico (2008-2012), although they exhibit parts of the solution paths. Future research could improve on the validity of our results by means of a deeper investigation of within-county mechanisms at the firm- or industry level.

Finally, we suggest a time-differencing fs/QCA approach as inequality research is strongly concerned with rising trends of income inequality in many countries (also Scandinavian). In other work, we also suggest by means of regression analysis that increasingly larger firms might contribute to *rising* income inequality based on the notion of superstar firms (Autor et al., 2020).

Conclusion

It is increasingly claimed that Human Resource practices and organizational structures of companies highly matter for societal income inequality (Bapuji et al., 2020; Cobb, 2016; Davis, 2017). Our findings based on a country comparison using fuzzy-set QCA support these claims: firms' employment practices reveal unambiguous relationships to the level of income inequality in a country. Internal labor markets present in large companies are a crucial factor for lower income inequality; externalizing practices such as outsourcing or contract labor as well as temporary work enlarge income inequality. Whereas these employment practices and resulting organizational structures are often embedded into certain institutional arrangements (Amable, 2003), they also help to understand high income inequality in countries where a consideration of institutions alone would predict lower income inequality (e.g. dualization in Germany). Thereby, employment practices are a fruitful basis for policy actors to invent new institutions that help to address one of the most puzzling social questions of our time.

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Appendix

Table 3b											
Truth table for Outcome "High income inequality" (G)											
C	**PT**	**T**	**H**	**E**	**P**	**F**	**number**	**G**	**raw consist.**	**PRI consist.**	**SYM consist**
0	0	1	0	0	1	1	4	1	1.000	0.978	0.978
0	0	1	0	1	0	0	11	1	0.988	0.814	0.821
0	1	1	1	1	0	0	4	1	0.997	0.818	0.818
0	0	1	0	0	0	1	2	1	0.997	0.787	0.787
0	0	1	0	0	1	0	5	1	0.988	0.617	0.771
0	1	0	1	0	0	1	7	1	0.989	0.765	0.768
0	1	0	0	0	0	1	3	1	0.994	0.764	0.764
0	0	0	0	0	0	1	6	0	0.982	0.626	0.626
1	1	1	1	1	0	0	6	0	0.988	0.579	0.579
0	0	0	0	1	0	0	38	0	0.945	0.517	0.521
0	0	0	0	1	0	1	7	0	0.986	0.482	0.482
0	0	1	1	1	0	0	7	0	0.986	0.476	0.476
0	0	0	0	0	0	0	42	0	0.917	0.460	0.468
0	0	0	0	0	1	0	14	0	0.941	0.449	0.455
0	0	0	0	1	1	0	2	0	0.968	0.436	0.436
0	1	0	1	0	0	0	7	0	0.946	0.428	0.428
1	1	0	1	0	0	0	9	0	0.937	0.399	0.399
0	0	0	1	1	0	0	1	X	0.961	0.399	0.399
0	0	0	0	0	1	1	25	0	0.953	0.338	0.368
0	0	1	0	0	0	0	20	0	0.956	0.298	0.312
0	1	0	0	0	1	1	3	0	0.989	0.275	0.275
0	0	0	1	1	1	0	14	0	0.930	0.266	0.266
0	1	0	1	0	1	1	6	0	0.985	0.238	0.238
0	1	0	0	0	0	0	2	0	0.955	0.199	0.199
1	1	0	0	0	0	1	2	0	0.963	0.187	0.187
1	0	1	0	0	0	0	13	0	0.964	0.169	0.178
1	1	1	1	0	0	0	1	X	0.936	0.176	0.176
1	0	0	0	0	0	1	19	0	0.947	0.140	0.144
1	0	0	0	1	0	1	6	0	0.981	0.115	0.115
1	0	0	0	0	0	0	21	0	0.936	0.104	0.108
1	1	0	0	0	0	0	3	0	0.939	0.104	0.104
0	1	0	0	0	1	0	3	0	0.954	0.067	0.067
0	1	0	1	0	1	0	2	0	0.937	0.064	0.064
1	0	1	0	0	0	1	12	0	0.954	0.053	0.053
1	1	0	0	0	1	0	8	0	0.942	0.048	0.048
1	1	0	1	0	1	0	6	0	0.919	0.045	0.045
1	1	1	0	1	0	0	4	0	0.975	0.037	0.037
1	1	0	0	1	0	1	6	0	0.966	0.029	0.029
1	1	0	0	1	0	0	7	0	0.948	0.016	0.016
1	1	1	1	0	0	1	16	0	0.895	0.010	0.010

Note: Truth table rows below the frequency threshold of 2 (X in G column) were excluded from minimization. Logical remainders (not shown here) were treated according the “Enhanced Standard Analysis” suggested by Wagemann & Schneider (2012).