The Effect of Flexibility and Wage Dispersion on Job Quality

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Introduction

In European labour market policy debate the flexibility-security nexus has been on the agenda for the last decades. For sure, one reason is that it captures one of the most conflictual dimensions in industrial relations, namely the power to dismiss (Emmenegger, 2014). A top priority for employers is to have the power over the hiring and firing process to achieve flexibility, while employees find job security as one of the most important facets of a job. Flexicurity has been an influential policy proposal that promises to solve this conflict, primarily by suggesting high numerical flexibility for employers (i.e. liberalized employment protection legislation), while employees' potential increased job insecurity are compensated by employment security (support to find a new job) and income security (generous unemployment benefits) (Vulkan 2016).

However, the focus on the flexibility-security nexus disregards another, or perhaps the most important, dimension in employment relations which is the financial remuneration of employment. Here too, the material interest of employers and employees are more or less antagonistic. Dispersed wages give the employers greater wage flexibility, which allows them to modify them in response to changes in demand or economic performance. Employees, however, gain more security from generally undispersed wages, and avoiding downward wage competition.

In the theory of flexicurity, there are only minor references to wage-setting as an essential feature of a flexicurity model. However, in another model with similar characteristics as flexicurity – the policy of solidaristic wages (with Sweden in 1960-80 as the most famous example) – a focus on programmes that should facilitate mobility and structural transformation of the economy is combined with an equal focus on wage policy. Wages of

similar jobs in the same industry should remain as equal as possible, avoiding wage dispersion and wage competition. In this way, profitable companies are benefiting, while less competitive companies come under pressure and are forced to rationalize or close down. In Sweden, this wage-setting model was an important factor behind the modernization of the economy and the labour market with a growing share of more well-paid and better jobs.

In this paper, we want to test how the two dimensions of the flexibility-security nexus and wage dispersion affect and interact on the quality of the jobs in European national labour markets. Our main hypothesis, that we will work out and explicate in the paper, is that labour markets that combine high levels of flexibility with low levels of wage dispersion have a larger extent of high quality jobs than other combinations of the dimensions of flexibility-security and wage dispersion. The main mechanism of this expected outcome is mobility into high quality jobs that evolve because of solidaristic wage policies.

We will study these assumptions by multi-level regression models, and test if variations in the combination of labour market flexibility and wage dispersion are related to subjective assessments of working conditions and job satisfaction. The data that will be used is the European Working Condition Survey 2010.

The Concept of Job Quality

Our general hypothesis in this paper is that job quality generally is higher in labour markets characterized of low wage dispersion and high mobility compared to other combinations of these dimensions. There is no strict consensus on how job quality should be defined, although certain aspects are recurrent within different disciplines (Findlay et al., 2013). Economists usually focus on pay, while sociologists often define job quality according to one of two distinct approaches (Gallie, 2007). The first approach stresses aspects of the working conditions that shape the competencies and opportunities of employees, by measuring the complexity of the work tasks or the degree of autonomy that employees can exercise in their job. This is commonly operationalized on the basis of the employee's own account of these aspects of the work situation. The second approach, which is also common in psychology, emphasizes the 'subjective' level of satisfaction or dissatisfaction that employees feel in their jobs. Although these two methodological approaches have different theoretical starting points they have been shown to result in rather similar results when used as definitions of job quality (Gallie, 2007).

Another job quality aspect relevant for our discussion is whether the job is physically straining, an aspect of job quality that has been used to identify jobs as either high-strain (Holman, 2013) or tightly constrained (Vidal, 2013). We will discuss the solidaristic wage policy more thoroughly below, but a main effect that is expected is the rationalization of production methods, mainly by replacing manual work with machines. Consequently, labour markets with the features of solidaristic wage policies should be characterizes by less physical straining jobs than other combinations.

Flexibilization and Job Quality

Employers normally strive towards a labour market characterized by high flexibility in order to allow for quicker adaptations to changes in economic performance, competition or technological developments (Kalleberg, 2003). This flexibility often takes the form of numerical flexibility, the ability of employers to adjust the size of the workforce depending on changes in demand, which is dependent on employers' right to hire and fire at will. This ability, in turn, is dependent on the employment protection legislation, which is often stricter for regular employment. One way of achieving numerical flexicurity has been for employers to hire or engage more non-standard employees, for instance short-term temporary workers. Some workers, with a high degree of control over resources such as portable skills can benefit from a more flexible labour market (Kalleberg, 2003), and flexibility in the shape of voluntary job mobility can lead to better matching effects in the labour market, with a positive effect on job quality. Conversely, low flexibility can also exacerbate lock-in effects, where employees are unable to change to a different job even if they want to, which can negatively effect job quality (Furåker et al. 2014; Hirschmann, 1970).

However, high flexibility in the labour market has resulted in lower job quality for many employees through insecure and non-standard employment (Kalleberg et al. 2000). Some argue that a rising desire for flexibility has helped bring about a dualised labour market, with a greater gap between high and low quality jobs (Kalleberg, 2003). Flexibility can thus be seen as preserving and even expanding low quality jobs in the labour market.

Wage Dispersion and Job Quality

One aspect of job quality is wages (Findlay et al., 2013). In labour markets with high wage dispersion both good and bad jobs therefore have a tendency to exist, i.e. a polarization of

working conditions. On the one hand, this may increase the competition of workers with a high level of human capital, which may lead to the increase of high quality jobs in the upper-end of the wage distribution. On the other hand, high wage dispersion enables employers to remain competitive through wage flexibility that may tend to promote low quality jobs. However, in labour markets with compressed wage dispersion that act according to the mechanism of solidaristic wage policies, wages are kept at a certain level to prevent low-wage and low job quality competition. A notable example of this approach is the Rehn-Meidner model, as it was implemented in Sweden in the mid 20th century. Wages would be kept at a uniform level industry-wide, regardless of the employers' productivity or profitability. This forced companies to be competitive and profitable by improving their efficiency or become bankrupt. Weak and declining industries would thus be forced out of the labour market, ensuring a more dynamic and competitive industry (Gourewitch et al., 1984, Van den Berg et al., 1997). Employees who lost their jobs would be re-allocated to competitive industries who could manage the industry wage level while still turning a profit, thus allowing an influx of manpower to enable the growth of these companies (Vulkan, 2016). This can be considered an arrangement that causes a split among employers where certain elements, in particular the large companies, have more to gain from the development as they are in a more advantageous position to use their resources to invest to become more efficient, while small companies to a larger extent are dependent on wage flexibility to remain competitive. Organized labour, on the other hand, agree to a high level of employee mobility, which in itself can be stressful, but also lead to insecurity during periods of economic downturn when jobs become more scarce. The solidaristic wage policy can thus be considered a large compromise between both capital and labour.

The Significance of Unions for Job Quality

The solidaristic wage policy illustrates that organized labour, especially unions, can be instrumental in shaping wage dispersion and flexibility in the labour market. Union coverage is usually negatively related with wage dispersion on an industry level, and indicates an impact on wage dispersion on the economy as a whole (Freeman, 1982, Thelen, 2007:43). However, unions may also be instrumental in shaping job quality as well. Edlund and Grönlund (2010) find that the influence of trade unions play a great role in explaining national variations in the autonomy enjoyed by employees. Bender and Sloane (1999) show that trade union membership tend to both increase job security and tenure among employees. We therefore expect the role of unions to be an important component when analyzing the

relationship between job quality and flexibility and wage dispersion, where unions, *ceteris paribus*, should promote higher and less dispersed wages as well as more secure but also less mobile employees.

The Combination of the Flexibility-Stability Nexus and Wage Dispersion

The general idea in this paper is to combine what has been described as the flexibility-security nexus and the question of wages and wage dispersion. Starting with the flexicurity-security nexus, it is related to mobility in the labour market. Usually, mobility can either be involuntary or voluntary. In the first case, it is the employer who decides to terminate an employment contract, which forces the employee to try to find a new employment. In the second case, it is the employee who quit a job trying to find another one – usually in search of better pay, or better working conditions. However, both kind of processes affect the general tenure in the labour market – shorter mean tenure indicate a high level of mobility (flexibility) in the labour market, while longer tenure indicates the opposite.

One central institutional factor affecting mobility/tenure in the labour market is the employment protection legislation (EPL). Previous research show that EPL both affect employers firing and hiring decisions, as well as voluntary mobility. The last effect is a consequence of the investments in protection that remaining at the same employer generally imply for the employee. Consequently, stricter EPL lead to longer mean tenure (Berglund and Furåker, forthcoming; OECD 2004, 2010). The presence of strict EPL is usually considered a result of organized labour and unions in particular. However, collective agreements also make it harder for employers to fire many employees. This is expected to result in generally longer mean tenure and thus lower mobility, compared to other labour market that are more characterized by less regulations and weaker forces of organized labour, that is, stronger free market principles.

The other dimension we will focus on is wages and wage dispersion. Following the ideas behind the solidaristic wage policies, a high wage level force companies and organizations to rationalize production methods to remain competitive in the market, in other words, they always trying to reduce wage costs by decreasing the number of personnel and replace them with new technology and better organization. The general effect of this mechanism should be an upgrading of the jobs that remain. However, beside a high wage level, the other important mechanism is wage dispersion. In the paradigm of solidaristic wage policies, the wage level

should be equal within the labour market for jobs that have similar characteristics. This mean that companies should not be allowed to compete by wage flexibility, that is, letting the wage mirror the profitability of the organization as well as the competition in the labour market for the jobs. In a liberal labour market, both these mechanisms are in place: Employers will try to decrease salaries if the profitability shrink, and wage levels may decrease if the supply of workers are large. In a labour market characterized of solidaristic wage policies, on the other hand, companies that are not profitable at a specific wage level will suffer, while companies that are highly profitable will be boosted by low market wages. Unprofitable companies will therefore fire personal to remain in business, while profitable companies can expand. In such labour markets, we therefore expect an overflow of workers into the expanding sectors of the economy.

This kind of labour market also needs an institutional backing. Following conventional wisdom, this backing comes from the unionization of workers. If the unions have many members (high union density), the labour market is regulated by collective agreements, and negotiations between workers and employers are centralized, the propensity for solidaristic wage policies should be high. And the effect on wages is expected to be visible in high general wage levels, as well as low wage dispersion.

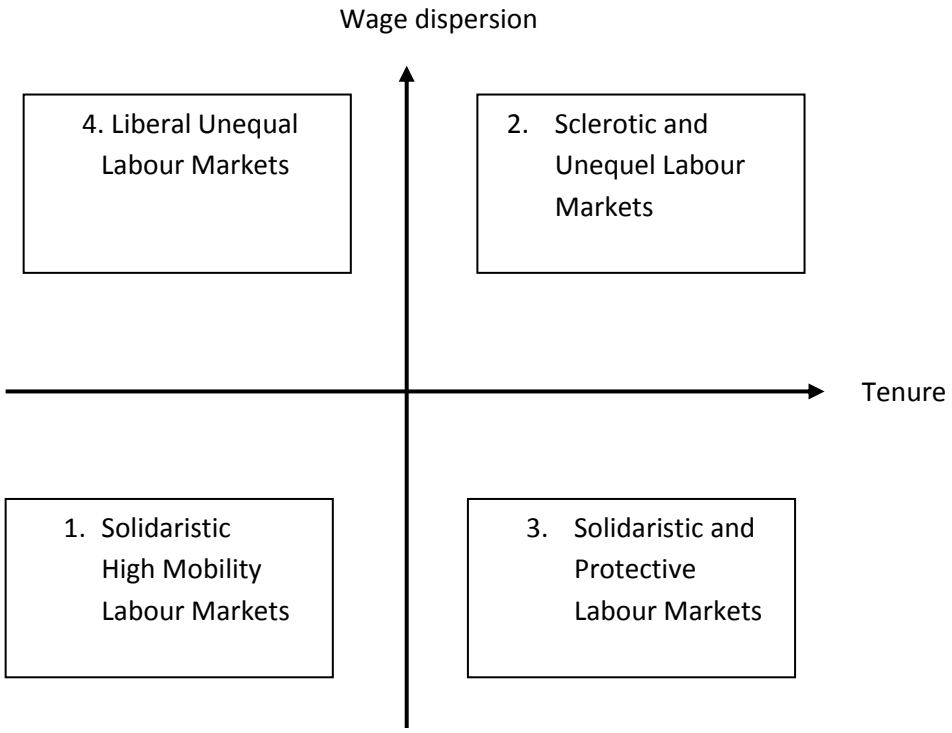

Figure 1: Theoretical combinations of flexibility and wage dispersion

In figure 1, we combine the two axes that we focus on. The first, we call "tenure" which is our empirical indicator of (in)flexibility and (im)mobility. The second represent wage dispersion which we consider the central sign of solidaristic wage principles. These two axes can be regarded as the mechanisms by which the institutions of EPL and union organization work. By combining these axes 4 different labour market contexts or types emerge which we expect have different consequences for job quality.

In flexible labour markets employees are expected to change jobs more than in inflexible and immobile labour markets. As has been discussed, if protection is strong employers are more restricted to fire employee, and employees have less incentives to change jobs. In labour markets with much wage dispersion, we believe that less productive jobs survive to a higher degree than in labour market with less dispersion and guarded by solidaristic wage principles.

In context 1, the "Solidaristic High Mobility Labour Market", we expect job quality to be highest. Mobility, however, is mainly of the involuntary kind as a consequence of employers being forced to constantly invest and rationalize production. Moreover, the employment protection is low to reinforce these processes. This can render employees to experience job

insecurity. However, the employability prospects are believed to be high, which mean that employees return to employment relatively fast, and to a high degree in the expanding sectors in the economy. This can imply a constant upgrading of workplaces and jobs. We therefore expect that this context have the best outcomes on job quality.

Context 2 is expected to have the opposite signs on job quality. The high level of wage dispersion imply that low pay sector in the economy have a larger probability to survive in the economy by competing with low wages. The incentive of employers to rationalize production is therefore low. Moreover, job mobility is low due to strict employment protection legislation. This hinders the movement of workers in the economy to growing sectors – especially employees with rather high human capital.

The liberal context 4 has large wage inequalities in common with context 2. This means that less productive companies have a higher probability to survive than in context 1. However, we still believe that the dynamism in the economy is higher due to the higher rate of mobility. Employers are less restricted to fire employees in this context. This fact, together with large wage dispersion, may increase the incentive for voluntary mobility, and especially among categories with a high level of human capital. Employees have strong incentives to constantly look for another job with better conditions. As a consequence of large wage dispersion, however, we can expect a polarization of working conditions (cf. Goos and Manning 2007:131-132). Because of the volatile labour market (high rate of voluntary job mobility in the top end of the distribution), we expect working condition to be favorable in the upper end of the wage distribution – employers have to strongly compete to attract these occupational strata. However, in the bottom end we expect working conditions and job quality to be much worse. Here, it is the employers' market with no or little job protection (laws or unions) guarding workers – workers are therefore strongly exposed to the tides of the market.

The last quadrant is 3 which we name "Solidaristic and Protective Labour Markets". In this context relatively low wage dispersion coincide with strong job protection. This means that one of the aspects of the solidaristic wage policy is in place. We therefore believe that the same pressure on companies to rationalize production exist as in 1. Processes of general upgrading may therefore take place. However, because of less mobility in the labour market, the speed of these processes is expected to be slower. Job quality should therefore be ahead in 1 compared to 3. An additional feature of these labour markets could be dualization processes

(cf. Keune, 2015). In highly protected labour markets may the liberalization of temporary contracts work as a functional equivalent to general liberalization of job protection. The side effect of this strategy, i.e. temporary employment, is that certain segments of the labour force are exposed to rather poor working conditions.

An overview of the institutional factors in focus

The theoretical model we propose include several factors that should be understood as either institutional or "mechanisms", that is, traits in the labour market that are outcomes of the institutions, and mediate the effects of the institutions on the outcomes (i.e. job quality). In our case the mechanisms, or traits, of importance are the mean tenure and the dispersion, as well as the level of wages in the national labour markets. In Table 1 the indicators of these mechanisms are presented in the last three columns. Tenure, that is the mean number of years a worker is employed at the same employer, varies from a minimum of 7.9 years (Slovak Republic) to a maximum of 11.6 years (Greece). Wage dispersion, indicated by the Gini coefficient varies between 0.381 (also Slovak Republic) to 0.536 (Ireland). Notice that we have chosen to use market wages (before taxes) because it much better relate to the actual costs of wages for the employers. Consequently, we also use gross earnings per hour to measure the wage level of the country. The lowest level is 3.4 Euro per hour and found in Hungary, while the highest level is found in the two Nordic countries Denmark and Norway (25 Euro).

If we follow previous research some institutions are vital for the distribution of these factors. Employment protection legislation (EPL) has an impact on tenure (Berglund and Furåker, Forthcoming; Cazes and Tonin, 2010). In countries with strict EPL, tenure is usually longer. Comparing the correlation coefficient between EPL and tenure at the bottom of the table (0.501), this expectation seems also to find some support in our data. Strictest regulation is found in Greece and the most liberal in the UK.

Table 1 EPL strictness, union density, collective bargaining coverage, tenure and wage dispersion 2010.

	EPL Total	Union density[1]	Collective bargaining coverage[2]	Coordination of wage setting[3]	Tenure, years (means)	Wage Dispersion[4] (gini)	Gross Earnings per Hour (median Euro)[5]
Austria	2.14	28.4	98.0	4	10.7	0.432	13.0
Belgium	2.34	50.6	96.0	5	10.5	0.419	16.4
Czech Republic	2.58	17.3	51.2	2	9.1	0.389	4.4
Denmark	1.92	68.5	83.0	4	8.3	0.388	25.0
Estonia	1.95	8.1	23.0	1	8.2	0.423	4.1
Finland	2.19	70.0	78.2	3	10.3	0.422	16.0
France	3.10	7.9	93.0	2	10.1	0.449	13.7
Germany	2.20	18.6	59.8	4	10.5	0.403	15.4
Greece	2.91	25.4	64.0	5	11.6	0.474	9.1
Hungary	1.84	16.8	23.4	2	8.6	0.425	3.4
Ireland	1.11	36.6	40.5	1	9.6	0.536	18.3
Italy	2.64	35.5	80.0	3	11.4	0.44	11.9
Luxembourg	2.93	37.3	59.0	2	10.5	0.423	17.8
Netherlands	2.13	19.3	89.6	4	9.4	0.387	15.3
Norway	2.53	54.8	68.0	4	9.9	0.391	25.0
Poland	2.24	14.1	14.8	1	9.2	0.431	4.0
Portugal	3.32	19.3	75.4	2	11.3	0.464	5.1
Slovak Republic	2.20	16.9	40.0	2	7.9	0.381	3.9
Slovenia	2.44	26.3	80.0	3	11.5	0.401	7.2
Spain	2.74	15.6	77.4	3	9.0	0.457	9.4
Sweden	1.79	68.9	88.0	4	11.0	0.385	14.9
United Kingdom	0.87	27.1	30.9	1	8.2	0.477	12.6
Correlations (r)	*EPL*	UD	Cov	Coor	Ten	Gini	Gross
EPL	1						
Union density	-.214	1					
Coverage	.404	.414	1				
Coordination	.252	.464	.720	1			
Tenure	.501	.217	.580	.485	1		
Wage disp	-.156	-.215	-.208	-.370	.122	1	
Gross Earnings	-.160	.712	.481	.460	.132	-.057	1

[1]Percentage of employees, 2010 or closest available year. [2]The indicator refers to adjusted bargaining coverage rate, i.e., the share of all wage earners in employment with the right to bargaining (excluding some sectors/occupations which by law have no such right) (Visser, 2015). This indicator (rather than the alternative 'unadjusted coverage rate') was selected because it allows more complete national data. [3]Coordination of wage setting vary between 5 and 1 where 5 mean maximum and 1 minimum centralization of wage bargaining. [4]Wage dispersion is gini coefficient calculated for market wages, i.e. before taxes and transfers for working age population 16-65. [5] The median of gross earnings per hour in Euro is calculated as gross earnings in a reference month divided by the number of hours paid during the same period.

Sources: EPL: OECD database; union density, coordination and collective bargaining coverage: Visser, 2015; tenure: EWCS (Eurofond, 2010)**;** wage dispersion: OECD Income Distribution Database; Gross Earnings: Eurostat database on wages and labour costs.http://ec.europa.eu/eurostat/statistics-explained/index.php/Wages_and_labour_costs).

Concerning wage dispersion and wage levels, there are many factors that may play a role, for example, the industrial structure of the country (OECD, 2011). We will focus on the significance of unions and the industrial relation system in this regard, which also have been showed to matter (Koeniger et al., 2007; Thelen, 2007:43). Our first indicator is union density, where the highest density is found in the Nordic countries (Finland) and the lowest in

France together with Estonia. Union density is strongly related to wage level (0.712), while weakly related to wage dispersion. The second factor is collective bargaining coverage, that is, an indicator of the role of collective agreements in the labour market. The coverage is most encompassing in Austria (98 percent of employees), and least in Poland (14.8 percent). Coverage is rather strongly related to the wage level (0.481), but less so to wage dispersion. Finally, we use the degree of coordination of wage setting as an indicator, which refer to which level in negotiation (very decentralized on company level to centralized on peak level) are concluded. Belgium and Greece have the most centralized system while Estonia, Poland, Ireland and UK have very decentralized systems. This factor both correlate to wage dispersion (-.370) and wage level (0.460). However, of all the institutional factors included this has the strongest correlation to wage dispersion overall.

This overview of indicators gives some support to our expectations. However, one can conclude that the union and industrial relations components are not that strongly related to wage dispersion as perhaps expected. Equality of wages seems therefore not exclusively be related to the bargaining systems. Other factors may be important as well. The findings of Koeniger et al (2007), for instance, suggest that the generosity and duration of unemployment benefits are positively related to wage equality. Moreover, some of the factors related to unions are also correlated to tenure (see coverage and coordination). This indicates that unions also have a protective function in relation to jobs.

Next step is to study how the different countries are distributed if we plot them in our model, that is, if we plot them by tenure and wage dispersion. Figure 2 and 3 presents the results. Notice that we here use standardized variables on the two indicators. The results show a rather clear picture. It resembles other classifications of countries, e.g. production regimes, employment regimes, or even welfare states regimes (Esping-Andersen, 1990; Gallie, 2007; Hall and Soskice, 2001). However, it also shows some unexpected patterns, where some countries act as “outliers” in relation to conventional regime classifications: The high tenure of Slovenia challenges the image of a low-tenure East-European regime. Similarly, Spain and Denmark, respectively, differs through its low level of tenure compared to other South-European, or North-European, countries. The Eastern-European countries are also somewhat divided with regards to equality of wages, where the Slovak Republic, the Czech Republic and Slovenia have fairly low wage dispersion, while it is higher in Estonia, Hungary and Poland.

Dividing the countries into four quadrants give the following results. The upper-right quadrant includes most of the South-European countries (and France) included in the analysis. However, also Austria is found in the quadrant, and if we exclude the outlier Ireland (figure 3) it also make sense to include Luxemburg in this group of countries. In the coming analysis, we will classify them as examples of the "Sclerotic and Unequal Labour Markets" (type 2).

The upper-left quadrant includes the UK and Ireland. However, Spain is also clearly in this quadrant, which maybe is unexpected. If we look at Figure 3 (excluding Ireland), it also make sense to include the East European countries of Estonia, Hungary and Poland into the category. We will classify them as the "Liberal and Unequal Labour Markets" (type 4).

The lower-right quadrant include the Nordic countries of Finland, Norway and Sweden, as well as Belgium and Germany. Notably, Slovenia is also a clearly part of this group of countries that we classify as the "Solidaristic and Protective Labour Markets" (type 3).

Finally, the lower-left quadrant includes Denmark and Netherlands, as well as the Eastern European countries of the Czech Republic and the Slovak Republic. In the coming analysis these countries will be classified as the "Solidaristic High Mobility Labour Markets" (type 1).

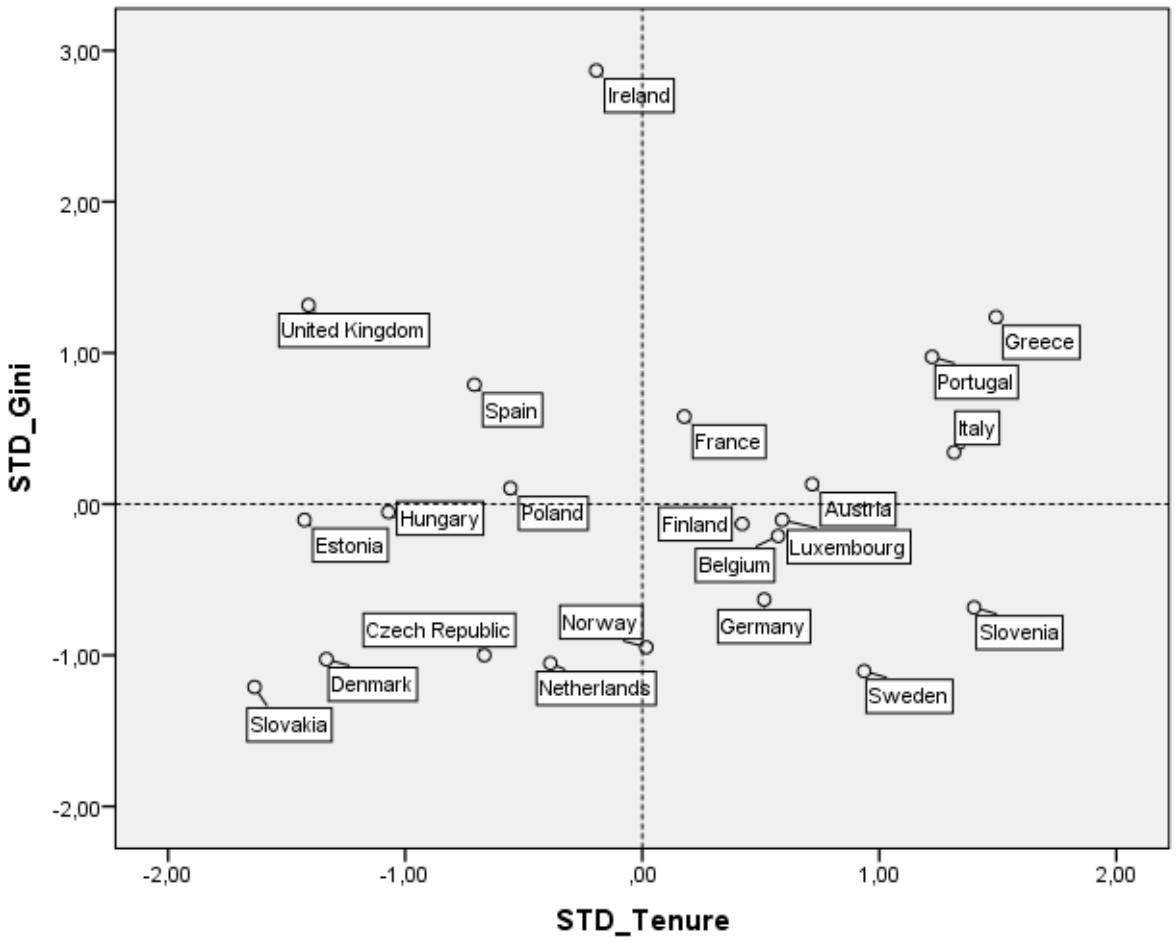

Figure: 2: Included countries plotted by tenure and wage dispersion. Standardized measures.

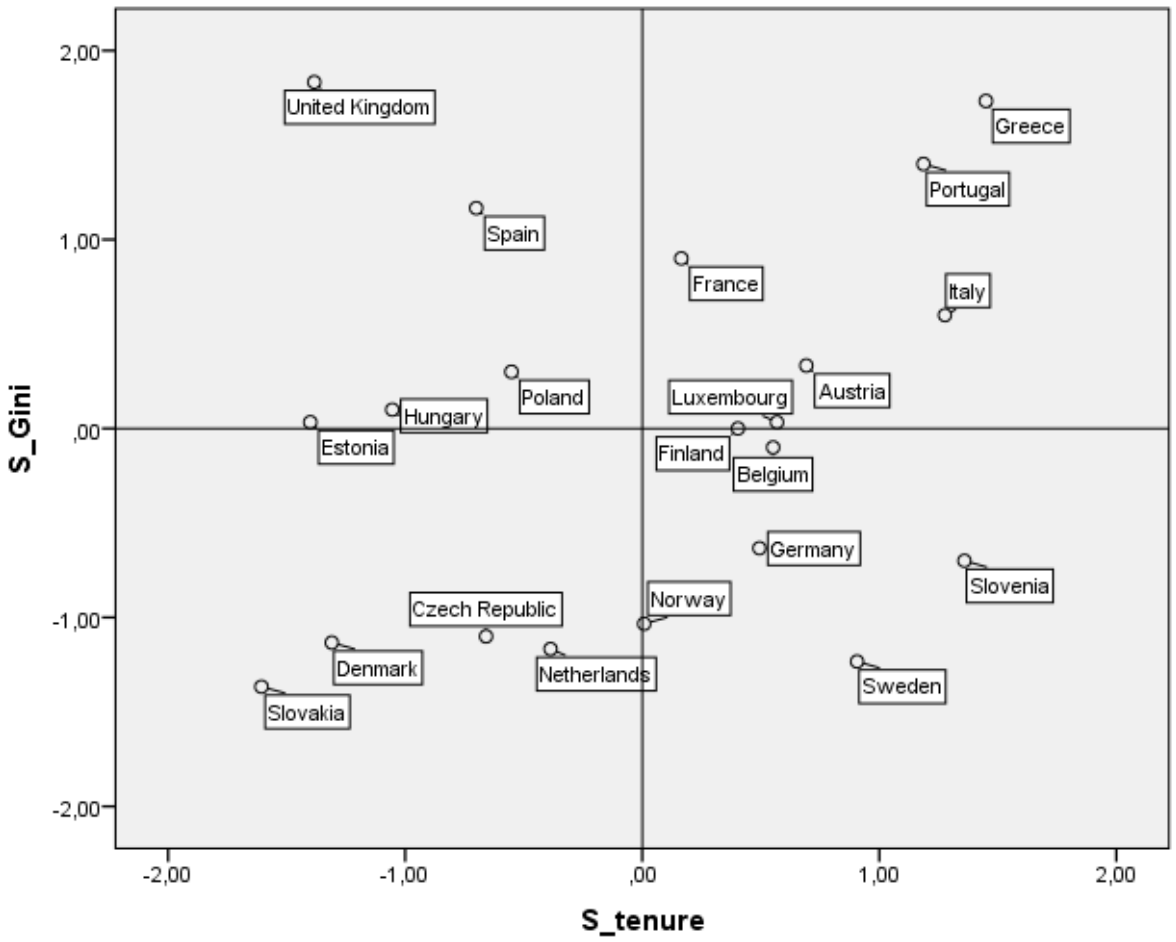

Figure: 3: Included countries plotted by tenure and wage dispersion. Ireland excluded. Standardized measures.

Data and Method

This paper use data from the European Working Conditions Survey 2010 (EWCS 2010) administered by the European Foundation in Dublin. In total 33 countries are included in EWCS, however, in the analyses below 22 European countries are included (21 EU member states plus Norway). The drop-out of countries is due to missing data on one or more national-level indicators. Each of the surveys is based on random sampling of persons aged 15 years and above, residing in the country and employed during the reference week. The achieved sample sizes vary between approximately 1,000 and 4,000 (Eurofound, 2010). After internal drop-outs and after using weights calculated by the European Foundation to compensate for biases in the datasets the effective sample size for the regression analyses below varies between 18 782 (max) and 18 550 (min) individuals.

In the analyses multilevel regression methods are used because data are nested, i.e. individuals within countries (Hox, 2002). The general assumption is that variations in national contexts, for example regarding strictness of EPL and union density, can affect job quality. Consequently, and in line with the general aim of this paper, the analyses will focus on the effects of country-level factors on individual outcomes.

In the EWCS, several questions are asked about the working conditions of the respondent. As has been discussed, we have focus on factors that in a broad sense capture the quality of the job of the respondents. Our main argument is that variations in the general features of the labour market will affect which type of jobs that are created. Labour market with high levels of mobility and low wage inequality will be characterized by jobs of better quality than labour markets with the opposite signs of both factors. In the following, this proposition will be tested by analysing four outcome variables.

The first indicate the characteristics of physical strain in the job. We have created an additative index of four questions (α=0.72). The questions ask if the job involve tiring or painful positions, carrying or moving heavy loads, standing, and repetitive hand or arm movements. All the four questions have a 7-grade response scale (from all the time to never). The index spans from 0 to 24 indicating more physical strenuous jobs. The second dependent variable measure the complexity of the job. It is also an additative index created by three questions (α=0.61): If the paid job involves solving unforeseen problems of your own, monotonous tasks (reversed), and complex tasks. Each of the questions have two response

alternatives (yes/no), and the complexity index span between 0 and 3. The third dependent variable measures the degree of control or discretion in the job and is an additative index as well. It is constructed by three variables (α=0.78) measuring if the respondent are able to choose or change the order of work tasks, methods of work, and the speed or rate of work. All the questions are yes/no question and index span between 0 and 3. Lastly, the fourth dependent variable is an overall measure of job satisfaction on a four grade scale spanning from very satisfied to not at all satisfied.

The focal independent variables are measured on a country-level and presented in table 1. Our theoretical model focuses on mobility and wage dispersion as central factor for the rationalization of jobs and changing working conditions. We have selected four institutional factors that may affect the general mobility level in the country as well as wage dispersion. Concerning mobility employment protection legislation (EPL) is a central factor. Most evidence seems to indicate that stricter EPL decrease mobility in the labour market (see Berglund and Furåker forthcoming; OECD 2004, 2010). We therefore include the OECD index (version 3) on overall EPL in the analysis. Concerning wage dispersion, unions are believed to play an important role of decreasing dispersion (Thelen, 2014: 43). We therefore have included three indicators that capture the role of unions: Union Density, Collective Agreement Coverage, and Centralization of Wage Bargaining (see table 1). All of the indicators are from the ICTWSS Data base (Visser 2015).

We have also indicators referring to the two central mechanisms in the model: Mobility and Wage Dispersion. Mobility, or rather immobility, is measured by tenure. We have calculated the mean for each country in the analysis on the basis of a question in EWCS asking how many years the respondent been in the company or organization. Wage dispersion is indicated by the gini coefficient of market wages before taxes and transfers (OECD Income Distribution Database). These two variables will be studied as continuous variables, although standardized. We have also created a categorical variable on the basis of figure 1 and 2, and combined tenure and wage dispersion. The reference category in this variable is the high tenure/high dispersion countries, "Sclerotic and Unequal Labour Markets" (Gre, Por, Ita, Lux, Aus, Fra). The second category is the low tenure/low dispersion countries, "Solidaristic High Mobility Labour Markets" (Svk, Den, Ne, Cze). Theoretically, we believe that these are the most dissimilar concerning the outcome variables. The variable also includes two other categories, less theoretical clear. The third category is the low tenure/high dispersion countries, "Liberal

and Unequal Labour Markets" (Ire, UK, Spa, Pol, Hun, Est) and the fourth category is the high tenure/low dispersion countries, "Solidaristic and Protective Labour Markets" (No, Fin, Ger, Swe, Bel, Slo).

Beside wage dispersion, the variable measuring gross hourly-wages is also included in the analysis and regarded as an important mechanism behind improvement of working conditions – the higher the wage level, the more important it becomes to rationalize production.

The analyses will also include one additional country-level variables, which is unemployment level. However, this variable only works as a control variable and is necessary because the large variation in unemployment between the selected European countries.

Beside these country-level variables, we also control for so called compositional effects by including several individual level independent variables. These consist of age, gender, civil status, children at home, origin, education, occupational category, industry, public or private sector, working time, permanent or temporary employed and size of workplace. However, the presentations of the regressions will not show the effects of these factors as the focus is on the significance of the country-level for the working conditions of the individuals.

The multilevel regression analysis will be conducted in several models. In the first is the separate effect of each of the focal variables analysed. This model also includes the unemployment level as well as the individual level variables. The subsequent models also include these controls. The second model focuses on the institutional factors. However, only factors that are significant or work as an important control for other effects are included, a so-called "best institutional model". The third model includes the three variables we regard as "mechanisms" in the theoretical model: Tenure, wage dispersion and wage level. Model 4 is a total model including all country-level variables and model 5 is a reduced "best" model, only including relevant country-level variables. We end with an analysis of the categorical variable combining tenure and wage dispersion, where we also include other relevant country-level variables.

Results

We start the presentation of the results with an analysis of the physical straining aspect of job quality. This variable measure if the work situation implies physical activity, for example moving heavy loads or standing. Theoretically, we expect the combination of low wage dispersion and high mobility (low tenure) to manifest in physically straining jobs to the lowest degree, while high wage dispersion and low mobility will manifest in a high degree of physical straining jobs, hypothesizing that a low wage dispersion and high mobility have resulted in reducing the rate of physically straining jobs through rationalization to a higher degree. To really be able to assess the analysis, it is important to control for the compositional effect of the industrial structure (for example a large agricultural sector), which is done in all the analyses to come.

Table 2: Physical straining jobs. Multi-level Linear Regressions.

	Model 1: Separate analyses[1]	Model 2: Best institutional model	Model 3: Mechanism	Model 4: Total model	Model 5: Best model	Model 6: Categorical model
EPL	.675+	.782+		.350		
Union Density	.009	.015		.015		
Coverage	.016+			.007		
Centralization	.170			-.123		
Tenure (Std)	.660**		.656**	.441	.660**	
Wage dispersion (Std)	.227		.019	.153		
Gross hourly-wages	.002		.004	-.028		
Gini-Tenure Combinations (ref: High Gini-High Tenure)						
Low Gini-Low Tenure						-2.124***
High Gini-Low Tenure						-1.307*
Low Gini-High Tenure						-.179

Levels of significance: +p<0.10; * p< 0.05; ** p< 0.01; *** p< 0.001.

[1]Separate regression for each of the focal variables, with control for individual level variables and country-level unemployment

The analysis is made in several models. In the first model, the main independent variables are analyzed separately, that is, without control for each other, but with control for the individual level variables and unemployment on country-level (2010). Three variables have statistical significant effects (at least on p<0.10 significance level). Two of them relate to institutional factors: EPL and Coverage and the third relate to one of the main mechanisms in the paper: Tenure. All of them have a positive direction, that is, the stronger EPL, or the higher the coverage of collective agreements, or the longer the mean tenure in the country, the higher rate of physical strenuous jobs among employees. All these variables are interrelated (see

table 1 and cf. Berglund and Furåker, forthcoming): Stronger EPL and higher coverage imply longer tenure.

Model 2 is what we have called the "Best institutional model", that is, we have tried only to include variables that have a significant impact, or are important controls for the impact of other variables. One reason for this is to save degrees of freedom due to few cases on country-level (n=22). In the current analysis, we control for union density because the positive effect of EPL becomes somewhat stronger (still $p<0.10$). The third model focus on the independent variables that we regard as mechanisms in our analysis. These are tenure, wage dispersion and gross hourly-wages. Only tenure has a rather strong positive impact on the rate of physical strenuous jobs among employees. Model 4, we call a total model including all country-level variables in one analysis. This is just to check if the effects of any of the variables survive the rather strong correlation between the independents (cf. table 1). In our case none did. Model 5, we have named the "Best model", in which we try to fit a model of the independent that explain as much as possible as well as saving degrees of freedom. We concluded that tenure was the only country-level variable (unemployment still as a control) that we should include in the model.

Lastly, in model 6, we also tried a categorical variable of countries based on combinations of tenure and wage dispersion (compare figure 2 and 3). The reference category is High Tenure-High Wage Dispersion which corresponds to context 2 in our theoretical model. We can conclude that context 1, that is, Low Tenure-Low Wage Dispersion has the lowest rate of physically strenuous jobs. Second lowest rate has context 4 (Low tenure-High wage dispersion), while there is no statistical significant difference between 2 (High tenure-High Wage dispersion) and 3 (High tenure-Low wage dispersion). We conclude that we got some support for our theoretical expectations. However, the rate of physical strenuous jobs seems rather to be driven by tenure than wage dispersion. Still, if we compare 1 and 4, the rate is somewhat higher in the liberal context which indicates that wage dispersions play a role, or the institutions that affect dispersions.

In table 3, we turn the focus on job complexity (e.g. complex work tasks). All in all, the analysis shows that the theoretical model does not explain much of the outcome. However, in the Best model (model 5), we find weak effects of EPL and wage dispersion (both negative),

which is in line with our expectations. However, the direct effect of tenure does not seem to play any role, and our categorical model does not produce any significant differences.

Table 3: Job Complexity. Multi-level Linear Regressions.

	Model 1: Separate analyses[1]	Model 2: Best institutional model	Model 3: Mechanism	Model 4: Total model	Model 5: Best model	Model 6: Categorical model
EPL	-.132+	-.161*		-.137	-.185*	-.109
Union Density	.004+			.002		
Coverage	.000	.002		.002	.003	
Centralization	-.008			-.052	-.040	
Tenure (Std)	-.065		-.051	-.004		
Wage dispersion (Std)	-.049		-.044	-.078	-.078+	
Gross hourly-wages	.008		.009	.003		
Gini-Tenure Combinations (ref: High Gini-High Tenure)						
Low Gini-Low Tenure						.080
High Gini-Low Tenure						.042
Low Gini-High Tenure						.123

Levels of significance: +p<0.10; * p< 0.05; ** p< 0.01; *** p< 0.001.

[1]Separate regression for each of the focal variables, with control for individual level variables and country-level unemployment

In table 4, we make an analysis of workers discretion in their job (job control). The index is constructed by questions about the possibility of choosing methods of the work tasks. In model 1 we find that two variables seem to be important: Union density and wage dispersion. The first goes in a positive direction indicating that higher union density in a country the greater the discretion at work for the employees. Wage dispersion goes in the other direction. However, after investigating the different models, we end up with a best model including three variables with significant effects and two non-significant controls. The two variables from model 1 are still significant. Especially, the effect of wage dispersion (higher dispersion, less control) has become stronger. Moreover, the variable measuring centralization of negotiations between social partners in the national labour market has also become significant. The direction of the effect is negative, meaning that a higher centralization of negotiations seems to imply less discretion among employees. In model 6, we present the categorical model, including two controls. It shows that employees in low tenure contexts seem to experience higher discretion in comparison to the reference category of high tenure and high wage dispersion. However, this result also makes it possible to conclude that it is not wage dispersion *per se* that drive the results of this variable, but the low discretion generally in context 2.

Table 4: Discretion in the job. Multi-level Linear Regressions.

	Model 1: Separate analyses[1]	Model 2: Best institutional model	Model 3: Mechanism	Model 4: Total model	Model 5: Best model	Model 6: Categorical model
EPL	-.048			.048	.023	.179
Union Density	.006*	.007*		.006+	.006+	.008*
Coverage	.000			.001		
Centralization	-.004	-.044		-.075	-.083*	
Tenure (Std)	-.077		-.043	-.044		
Wage dispersion (Std)	-.102+		-.107*	-.108	-.135**	
Gross hourly-wages	.012		.015+	.007	.011	
Gini-Tenure Combinations (ref: High Gini-High Tenure)						
Low Gini-Low Tenure						.277+
High Gini-Low Tenure						.386+
Low Gini-High Tenure						.125

Levels of significance: +p<0.10; * p< 0.05; ** p< 0.01; *** p< 0.001.

[1]Separate regression for each of the focal variables, with control for individual level variables and country-level unemployment

Finally, we also made an analysis of a more subjective indicator of job quality, which is job satisfaction. Starting in Model 1, we can see that one factor stands out, and that is gross hourly-wages. It implies that the higher the wage level in the country, the more satisfied are the employees. This effect holds across all the models we test. Beside wage level, EPL has also a rather strong effect. This effect is negative meaning that stricter EPL correlates with lower satisfaction. Beside these variables, we also find that union density play a role with a positive effect on job satisfaction. However, this effect does not hold across all the models, and are not included in the so called best model. We can also note that tenure has some significance (model 3), and similar to EPL a negative relation to satisfaction. Lastly, the categorical model shows that job satisfaction is highest in the liberal context.

Table 5: Job Satisfaction

	Model 1: Separate analyses[1]	Model 2: Best institutional model	Model 3: Mechanism	Model 4: Total model	Model 5: Best model	Model 6: Categorical model
EPL	-.122*	-.099+		-.032	-.092*	
Union Density	.004*	.003+		.001	-.001	
Coverage	.000			.001		
Centralization	.004			-.003		
Tenure (Std)	-.057		-.065*	-.064		
Wage dispersion (Std)	.044		.040	.041		
Gross hourly-wages	.021***		.020***	.017+	.021**	.023***
Gini-Tenure Combinations (ref: High Gini-High Tenure)						
Low Gini-Low Tenure						.073
High Gini-Low Tenure						.149*
Low Gini-High Tenure						-.027

Levels of significance: +p<0.10; * p< 0.05; ** p< 0.01; *** p< 0.001.

[1]Separate regression for each of the focal variables, with control for individual level variables and country-level unemployment

Conclusion

Regarding the relation between institutional factors we find that EPL is, with no great surprise, related to longer tenure – employees tend to stay longer with same employers when legislation regarding dismissal is stricter. It is also notable that EPL is negatively correlated with union density, since strict legislation can make the unions less relevant for employees to join since unions to a lesser degree can bargain with companies about keeping employees if strong laws already protect them. This illustrate that the goals of high security and high wages can come in conflict depending of the strategy pursued by organized labour.

These results indicate that the role of unions differ depending on their composition. High union density is strongly related to high wage levels, but does not correlate to the same extent with low wage dispersion. High degree of bargaining coverage is also related to higher wages, but shows only a weak relation with equal wage levels. This could indicate that the individual unions primarily look to the wages of their respective members, which in itself does not guarantee a strong tendency towards equal wages. However, higher centralization of the wage bargaining process has the strongest correlation to wage dispersion overall. It therefore seems reasonable that the most efficient way to achieve equal wages is through centralized

coordination of the wage setting process, even though this relationship is still not noticeably strong. Equality of wages seems not exclusively to be related to the bargaining systems.

Plotting the countries into four quadrants with regard to tenure and wage flexibility produces a picture that is to some extent similar to other regime classifications of European labour markets. To a large extent our classification remains similar to well-known regimes but some of the results challenge a conventional division according to geographical division (Northern, Eastern etc.).

Looking at the regression results for job quality, our model works very much as planned with regard to physically straining jobs. The "Solidaristic High Mobility Labour Markets" show a lower rate of physically straining jobs compared to "Sclerotic and Unequal Labour Markets", which is in line with our hypothesis. The combination of low tenure and low wage dispersion seem to correlate with a labour market characterized by fewer physically straining jobs, which could be an effect of mobility and solidaristic wage policy changing the labour market towards higher job quality. It should however be noted that tenure seems to be the main driver of this specific effect. Our model does not specify the expected strength of each of the processes (wage dispersion and mobility), so it is interesting and an area of further research to see why mobility has the larger impact in this regard.

The results relating to job complexity do not support the hypothesis to the same degree, with only a weak effect of low wage dispersion and low EPL, respectively, correlating with greater complexity at work for the employees. No significant differences between the four labour market contexts can be found.

The results with regard to job control as an aspect of job quality show that low wage dispersion correlate with higher control, which in itself is in line with what we expect. However, high level of wage bargaining centralization is correlated with lower control, while higher union density is correlated with higher control, results relating to the role of trade unions that are hard to explain put together. It would be of interest to further expand on components relating to the wage bargaining process, such as minimum wage legislation, and see if the results still stand..The "Solidaristic High Mobility Labour Markets" show higher levels of control as an expression of job quality compared to the "Sclerotic and Unequal Labour Markets". However, the "Liberal and Unequal Labour Markets" show even higher

rates of control, indicating that is not wage dispersion in itself that drives the result, but rather the generally low levels of control in the "Sclerotic and Unequal Labour Markets". The specific combination of low tenure and low wage dispersion does not seem to affect the job quality in the labour market as distinctly as our theory expects, although equal wages in itself has a notable effect.

Concerning the final aspect of job quality, high wages is positively correlated with high job satisfaction, indicating that high wage labour markets are correlated with high job quality. One interpretation of this is that high wages have driven a process of rationalization that resulting in a higher rate of high quality jobs, but could also be an expression of high general wages driving the results when employees are asked whether they are satisfied with their job. High EPL (and tenure) is correlated with low job satisfaction, which could be an indication of low mobility and lock-in effects in the labour market causing dissatisfaction among employees. With regard to the labour market contexts, "Liberal and Unequal Labour Markets" report higher levels of job satisfaction compared to "Sclerotic and Unequal Labour Markets", which is unexpected with regard to our hypothesis on the role of low wage dispersion and low tenure.

Looking at the different aspects of job quality, our model seems to work as planned with regard to the physically straining aspect of job quality, but the results are much more ambiguous with regard to the sociological focus on skill and autonomy (and job satisfaction). One interpretations of the results are that the twin effects of low wage dispersion and low tenure have changed the material characteristics of the labour market, but the more intrinsic and sociological components relating to complexity and control, and general job satisfaction can not be considered transformed in accordance to this process. A tentative interpretation is that the processes captured do change the structure of the labour markets in a certain direction, but does not to same extent transform the qualitative content of the jobs. Mobility and wage equality have, individually, notable effects on different aspects of job security, showing that they are of importance, but also demands further research on what they constitute when combined in relation to the job quality aspects. The results also raise the question of how job quality is defined. No universally accepted definition is available, which also stresses the need of more in-depth analysis of what the chosen components and the results actually represent with regard to the concept of high quality jobs and if they can

further defined and operationalized to capture the process in the labour market that our hypothesis aims for.

Our current model offers several ways to develop the paper further. With regard to factors outside the wage bargaining system that effects the wage dispersion, our model can be developed to take into account the level and duration of the unemployment benefits, which can affect the reservation wage and stop the wages from going below a certain level. Legislation concerning minimum wages should also be included to better see how it relates to the wage bargaining process and affects the wage dispersion. The model can also be expanded to take more into account of potential interaction effects. One interesting component to study further is how the rate of low wage jobs and temporary contracts in the labour market interact with wage dispersion and mobility to better understand the consequences on job quality of either polarization and dualisation.

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