Master Thesis

Job quality and institutions in the labour market

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Abstract

This thesis examines the relation between labour market institutions and the quality of employment. The research question at hand is whether labour institutions and job quality are related. Thereby, the institutions that are considered to exert an influence on job quality are trade unions, collective bargaining agreements, unemployment benefits, employment protection legislation, minimum wages and active labour market policies. Job quality on the other hand follows a definition by Eurofound and bases on the dimensions: “Physical environment”, “Work intensity”, “Working time quality”, “Social environment”, “Skills and discretion”, “Prospects” and “Earnings”.

The thesis proceeds the following way. First the theoretical background of job quality and the theoretical impact of the labour market institutions on job quality are discussed. In the next step the development of both job quality and the labour market institutions is analysed. To answer the research question, several multilevel logistic regression models are built. In these models the odds of being in a higher quality job cluster are analysed. The five different job clusters were constructed by Eurofound on the basis of the aforementioned dimensions of job quality. Two findings stand out: On the one hand it is found that trade unions have the greatest positive influence on job quality and on the other hand that for many institutions an impact on job quality is not detectable.

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Abbreviations

ALMP	Active labour market policies
ICC	Intraclass correlation
EPL	Employment protection legislation
ETUI	European Trade Union Institute
EWCS	European working conditions survey
VIF	Variance inflation factor

1. Introduction

Over the last decades one could witness an increasing segmentation in the European labour markets. This division is running mainly between permanent and temporary jobs (Eichhorst et al. 2017), in other words between secure and unsecure jobs. Since the latter are neither a sustainable form of employment nor can people properly live of their income it is a highly relevant topic with far reaching implications. A study published by the ILO suggests that segmented labour markets deteriorate job quality (Neuman 2014) and the EU has declared the increasing segmentation of labour markets as a topic of interest and adopted a resolution to improve job quality it in its member states[1]. In this context the question arises how labour market institutions and job quality are related. Minimum wages, unemployment benefits, employment protection legislation, trade unions and collective bargaining agreements are institutions in the labour market that are typically considered to have an impact on the job quality (Eichhorst 2017; Gazier 2013; Koeniger et al. 2007).

The existing literature has dealt with the relation of labour market institutions and the quantity of employment to a great extent, but the concept of job quality is way too often neglected. However, Eurofound recognizes that "high employment rates and high-quality jobs are not mutually exclusive" (Eurofound 2013, p.1) and that "good-quality jobs are an important precondition for fostering and safeguarding sustainable working careers […] Good-quality jobs also lead to less work-related ill-health and fewer occupational accidents, and overall improvements in occupational health" (Eurofound 2013, p.1). Job quality might even have further economical implications as a study by the OECD suggests that job quality can be an important determinant of work productivity (Arends et al. 2017). Moreover, job quality might also positively affect the choice of labour supply (Arends et al. 2017). In other words, higher job quality can increase a countries competitiveness and the level of employment at the same time.

The EU has now addressed the issue of job quality for almost two decades and tries to create more and better jobs (Eurofound 2018). This work adds to the literature that deals with this topic and investigates if institutions in the labour market exert influence on job quality. Since there is (to my knowledge) no cross-country study that investigates this relationship and

[1] See http://www.europarl.europa.eu/news/en/press-room/20180524IPR04234/meps-call-on-eu-countries-to-end-precarious-employment-practices; last checked 06.03.2019

literature that deals with this relation is rather scarce, there is particular importance attached to this research. The research question of this thesis is:

How are labour market institutions and the quality of jobs related?

To find an answer to this question this thesis proceeds as follows. In the first step the theoretical background of job quality and the labour market institutions is discussed. Seven dimensions of job quality that are the foundation of the later analysis will be introduced. The next chapter seeks to identify trends by analysing the development of job quality and the labour market institutions over the last decades. Chapter four introduces the methodological approach and the data that is used in the analysis. In the next step the results of the logistic regression models are presented. These results show how the labour market institutions affect the odds of being in a job cluster with a higher job quality. In the next steps the results are analysed, the limitations of the applied approach are discussed, and a conclusion is drawn.

2. Theoretical background

This chapter serves to give the reader a literature overview. Thereby, the concept of job quality will be discussed and the dimensions of job quality considered in this thesis are presented. After that, the theoretical impact of institutions in the labour market on employment relations is introduced followed by a presentation of empirical findings and an examination of the link of each institution to the dimensions of job quality.

2.1 Job quality

When approaching this topic, one must answer the following question: How to define job quality? This is not as straightforward as it may seem at first glance as a “good job […] consists of multiple dimensions that an individual values. The relative importance of these dimensions is not necessarily the same for everyone or even the same person at different times” (Clark 2015, p.4). One can say that measuring job quality is a complex and elusive concept that can base on subjective and objective factors (Smith et al. 2008). This gets more evident when comparing two studies by Eurofound (2012; 2013). One can see that both

examine the quality of employment relations in Europe and that both base on data from the fifth European Working Condition Survey (EWCS). However, the reports show different results when creating a typology of job quality in Europe. A main reason for this is that the reports use different dimensions for measuring job quality. Nevertheless, the dimensions "Contract security" and "Earnings" can be identified as a common ground in both reports. Those aspects are quite straightforward as for instance "Earnings" are measured by wages and when taking a countries income distribution into account it allows to say whether a wage is low or high. "Contract security" can be referred to by looking at the type of contract, e.g. fixed or temporary contracts. Apart from those commonalities there are, for instance, dimensions like "Intrinsic Job Quality" (Eurofound 2012) taken into considerations while the other typology bases on subjective factors like "perceived employability" (Eurofound 2013). Hence, there is not a universally accepted measure of job quality and job quality indices may vary depending on the factors that are taken into account. Job quality can base on objective and subjective factors. The first tends to be rather easy to measure as it refers to economic indicators. The latter can be rather difficult to gasp as it bases in subjective sociological factors (Eichhorst et al. 2015).

2.1.1 Eurofound definition of job quality

The seven dimensions of job quality that are considered in this thesis originate from the 6th EWCS report by Eurofound (2017a). These dimensions are presented and briefly explained in the following.

In the Eurofound report the dimension "Physical environment" takes 13 indicators into consideration that are connected with specific physical hazards such as being exposed to fumes or carrying heavy loads. The dimension "Work intensity" compromises 13 indicators that include factors such as time pressure, frequent interruptions, pace determinants and emotional demands. "Working time quality" is composed of 4 subdimensions. It covers the duration (e.g. long working hours/days), atypical working time (e.g. night or shift work), working time arrangements (e.g. possible to choose schedule) and flexibility (e.g. need to work in free time to meet work demands). Whether a worker experiences positive or negative social interaction at the workplace is covered by the dimension "Social environment". The underlying 15 indicators can be grouped into adverse social behaviour (e.g. verbal or physical abuse) and social support (from colleagues or the management). The

dimension “Skills and discretion” considers the skills required from a worker in his job (e.g. solving unforeseen problems), his ability to participate in his organisation and the possibility to receive training. In contrast to all other dimensions “Earnings” bases on only one indicator. This indicator measures the monthly earnings of the participating worker in the survey. “Prospects” as a dimension of job quality reports an workers employment status (type of contract), his career prospects, perceived job security and downsizing of the workers company in the last couple of years. Job instability as a part of this dimension has far reaching (economic) implications. As workers rotate often between employers and long periods of unemployment lead to lower productivity and lower career prospects in the future (ILO 2012). An important determinant for job instability and hence for job quality is the type of employment contract between an employee and an employer. Therefore, the different types of employment contracts deserver greater attention and will be discussed in detail.

On the one hand there are “normal” employment relations which imply a long-term, full-time work relation between an employee and a sole employer (Eurofound 2017a). On the other hand, there are the so called “non-standard” employment relations. In the latter category one finds employment relations like fixed-term contracts, agency work and part-time employment. Fixed-term contracts and agency work differ from “normal” contracts as they are not continuous forms of employment (Giesecke 2009). Part-time employment diverges from “standard” employment with regard to hours worked (Giesecke 2009). It is worth to highlight that these non-standard types of employment are not a homogenous group but differ in terms of their socio-economic consequences (e.g. higher risk of unemployment). According to Giesecke (2009) more negative implications are attached to fixed-term contracts and agency than to part-time employment.

When talking about different types of employment one also as to mention self-employment as a category. This category not only includes entrepreneurs but also “dependent self-employed” (Hevenstone 2010). The latter are “contractors who are essentially employees but have a service rather than employment contract” (Hevenstone 2010, p.316) and have a higher probability to become unemployed (Muehlberger and Pasqua 2009). Of course non-standard types of employment are not necessarily a problem as for instance part-time jobs might be preferred because it enables individuals to combine their work-life with other activities such as taking care of children (Eurofound 2018). Nevertheless, Eurofound (2018)

points out that the non-standard types of employment are characterized by less favorable employment conditions across the dimensions of job quality (the same dimensions as in this thesis) and that permanent employment relations score the best in overall job quality. According to the Eurofound (2018) report temporary employment relations are less favorable in terms of working time, prospects for career advancement and job security. Part-time workers on the other hand do better in job quality dimensions such as work intensity and flexible working time arrangements but are less likely to work autonomously, use their skills and have a worse social environment at work (Eurofound 2018). Moreover, it becomes evident that some type of employment relations are more prevalent in some sectors of the economy and that education and country regimes are important determinants for the type of employment relation (Eurofound 2018).

What are factors that favour or diminish the prevalence of certain employment relations? The ILO (2012) distinguishes between micro- and macroeconomic factors when identifying determinants of non-standard employment. Thereby, microeconomic factors cover the individual characteristics of a worker (e.g. sex, age, education, past unemployment experience etc.). Macroeconomic factors refer to variables like labour market reforms or unemployment rates. Macroeconomic factors might play an important role as pressure resulting from globalization may lead to increasing part-time and temporary work according to the ILO. Regarding microeconomic factors it is shown that younger rather than older people are hired as temporary workers and women are more often part-time employed. Previous unemployment increases the probability of future non-standard employment. It is sometimes argued that non-standard employment can be a “stepping stone” in the transition to standard employment for the unemployed (ILO 2012). However, among EU countries the transition rates from temporary employment to permanent employment are decreasing and the transition rates from temporary employment to unemployment are increasing (Eurofound 2015). This casts doubt on the “steppingstone” mechanism of non-standard employment.

2.1.2 Job quality, precarious employment and job satisfaction

When talking about job quality it is important to distinguish this concept from precarious employment and job satisfaction which are similar yet different concepts.

Akin to the concept of job quality there is no universally accepted definition of precarious employment. However, one can say that precariousness is an outcome of low job quality and implies insecurity about maintaining a stable income (Kalleberg 2009). This rather vague definition gets more obvious when looking at the indicators the EU applies to detect precarious employment. On the one hand non-standard employment relations (ranging from temporary job over internships to informal work) and on the other hand factors such as low pay, health and career development are considered (European Parliament 2016). According to this concept one could say that a precarious job is one that this thesis would label a low-quality job.

Moreover, job satisfaction is a subjective approach and assesses how satisfied individuals are with their job (Gallie 2007). This approach usually relies on surveys and leaves it to the individual to evaluate whether he/she has a good job (Gallie 2007; Munoz de Bustillo et al. 2011). In contrast to precariousness one can say that job satisfaction can be a dimension of job quality.

In conclusion, job quality is an overarching concept that connects various disciplines. It reaches from economic aspects such as wage over sociological factors such as skills or career prospects. However, this work uses the dimensions of job quality as constructed by a report by Eurofound (2017a) on the basis of the 6th EWCS. The following table briefly sums up these dimensions.

Table 1: Dimensions of job quality

Dimension	Measure
Physical environment	Index about physical risks at the workplace
Work intensity	Index about work demands
Working time quality	Index considers working hours, atypical working time and working time arrangements
Social environment	Index about supportive social relations and adverse social behaviour
Skills and discretion	Index regarding possibility regarding learning and training
Prospects	Index about prospects for career advancement and risk of job loss
Earning	Monthly income

In the next step the possible effects of labour market institutions on these dimensions of job quality are examined.

2.2 Institutions in the labour market

There is a great number of institutions in the labour market ranging from mandatory social benefits over apprenticeships to trade unions. However, a common ground for many of them is to protect individuals from uncertainties in the market and risks like poverty and illness. These institutions influence the functioning of labour markets: they state what kinds of employment contracts are permitted, they dictate the boundaries for wages, working hours and working conditions (Betcherman 2012). Moreover, these institutions set the rules for collective bargaining and representation, decree certain employment standards and protect workers (Betcherman 2012). This can be seen as a necessity as labour markets can be subject to imperfect information, asymmetric power relations between employers and workers, labourers suffering from discrimination and the market can lack the capability to provide sufficient protection from employment-related risks (Betcherman 2012). The most common reasons for societies to introduce labour market institutions is the creation of protection for workers, overcoming inequality issues by redistributing income and creating labour market stability (Betcherman 2012). Nevertheless, institutions in the labour market are sometimes also criticized for negatively influencing the efficiency of labour markets and firms productivity (Betcherman 2012).

As stated earlier, minimum wages, unemployment benefits, employment protection legislation (EPL), trade unions and collective bargaining agreements are typical institutions in the labour market that potentially influence the level of job quality. A foundation for the theoretical background for many institutions can be found in the so called “Search Theory” as well as in the “Insider-Outsider Theory”. In the following the theoretical implications of these institutions and some empirical evidence on how they might affect job quality will be presented.

2.2.1 Unemployment benefits

As mentioned before, one of the important theories in the context of the labour market and unemployment benefits is the search theory. At the core of the search theory lies the assumption that searching is costly for the (unemployed) individual and the higher the cost

of searching the less intense an individual will engage in searching for a job (Stigler 1962). The costs of job search are mitigated if the individual is receiving unemployment benefits (Mortensen 1977). These considerations were the reason for many countries to cut back unemployment benefits were reduced as policy makers hoped to reduce unemployment. However, a longer job search can (from a theoretical perspective) be beneficial for the individual as it can result in better employment relations and higher earnings. The idea behind this is that due to the extended search individuals find more suitable and more stable jobs in which they can develop their productivity in a better way (Cahuc and Zylberberg 2004; Tatsiramos and van Ours 2014). Hence, higher unemployment benefits theoretically result in better employment relations i.e. the dimensions "Earnings" (through higher wages) and "Prospects" (through career prospects and job security) may be positively affected by unemployment benefits. One has to mention that some authors include unemployment benefits as an indicator of job quality, e.g. as "Labour market security"[2]. In this thesis this is not the case and only the possible effects of unemployment benefits on job quality are elaborated on.

An opposing thought to search theoretical considerations argues from the perspective of moral hazard. This line of reasoning claims that individuals may prefer leisure and do not use the more generous unemployment benefits for a better job search (van Ours and Vodopivec 2008). According to this logic, less generous unemployment benefits may help to reduce the moral hazard created by the presence of unemployment insurance while more generous benefits could prolong the duration of unemployment without having positive effects on post-unemployment jobs.

Although the relation of unemployment benefits and the duration of unemployment is disputed from a theoretical perspective it is less so from an empirical one. However, the empirical literature comes to ambiguous conclusions when considering whether more generous unemployment benefits lead to better job quality due to the increased efforts of individuals searching for a better job.

A recent study using Austrian data by Nekoei and Weber (2017) finds that an increase of the duration of unemployment benefits caused workers to find jobs that payed a 0.5% higher wage on average. This can be seen as evidence for more generous unemployment benefits

[2] https://www.oecd.org/statistics/job-quality.htm; last checked 07.06.2019

leading to higher job quality in terms of earnings. However, there is a number of studies that find contradicting results. For instance, Card et al. (2007) find (also using Austrian data) no significant effects of extended unemployment benefits on job quality (in terms of wages and employment duration). Similarly, other research does not find any effects from changes in Slovenian unemployment law on wages, job security and duration of post-unemployment jobs (van Ours and Vodopivec 2008). There is also evidence that extended unemployment benefits decrease job quality measured by post-unemployment wages (Schmieder et al. 2016). A possible explanation for this is that (long) unemployment spells lead to decreasing levels of human capital of the unemployed individual and/or stigmatize him. According to Nekoei and Weber (2017) these differences among empirical studies can be explained by different search and selectivity margins of the studied population.

Nevertheless, the literature tends to agree on one condition under which unemployment benefits and job quality are related. When an individual's unemployment benefits are about to expire, he will accept job offers he would have previously rejected. For this group post-unemployment jobs will be of rather low quality (Caliendo and Uhlendorff 2011).

There can also be another trade-off between unemployment and job quality. Some authors argue that it is easier for workers to improve employment conditions in labour markets with a high demand for labour and a high number of open vacancies (Gallie 2013). Conversely, in times of high unemployment (e.g. during an economic crisis) the quality of employment is likely to drop as employers can pick from a greater pool of (cheap) labour and employees face the fear of losing their job (Gallie 2013). Under such conditions there is an imbalance of power. From a search theoretical point of view unemployment benefits lower the cost of unemployment as mentioned before and therefore can potentially improve the bargaining power of workers by combating this imbalance of power. Additionally, some authors find that higher unemployment benefits are related to higher levels of fixed term employment possibly due to the fact that the time between jobs is easier to overcome for workers (Hevenstone 2010). This supports the claim that unemployment benefits influence job quality through the dimension "Prospects".

The impact of unemployment benefits on job quality is disputed in the literature. It might be, however, that the impact of these benefits is improved by the interaction with other labour

market institutions such as sanctioning mechanisms or training programmes (Layard et al. 1991). This will further be elaborated on in section 2.2.5.
As unemployment benefits increase the power of workers by making unemployment less costly the following hypothesis is used:

H1*: Unemployment benefits exert a positive influence on job quality*

2.2.2 Minimum wages

The functioning of minimum wages might be straightforward at first glance as it dictates the lowest boundary of wages thereby protecting vulnerable labourer from being exploited and increasing their earnings. However, in reality this can be more complex as minimum wages can differ among sectors, can be directed only at certain groups or might even exclude some groups completely (Betcherman 2012). For instance, minimum wages do not include self-employed by design (Betcherman 2012). It is also relevant to mention that the process in which minimum wages are set can differ. A minimum wage can be statutory meaning that it was installed by laws or regulations. Besides that, minimum wages can also be set by bargaining processes (Betcherman 2012). However, in this thesis statutory minimum wages are examined separately from collective bargaining agreements.
The effect of minimum wages can also be explained from a search theoretical perspective. During the search for a job an individual sets his reservation wage (Cahuc and Zylberberg 2004). This reservation wage is the minimum wage level at which the individual would be willing to accept to terminate his search and accept a job. As minimum wages should increase the average wages in the labour markets individuals will be more willing to accept a job and stop searching provided that the minimum wage exceeds the reservation wage. Unemployment should then be decreasing for people with a reservation wage equal or lower than the minimum wage according to this logic. The quality of jobs should also be improving as a minimum wage should reduce in-work poverty and low pay. However, when considering minimum wages from a neoclassical perspective the theoretical implications are different. According to the neoclassical approach minimum wages lead to higher unemployment as the higher wages lead to decreasing demand for labour (Krasniqi 2007). Moreover, according to this “standard” model an increase (decrease) in minimum wages leads to less (more) hours worked (Skedinger 2015). Hence, there could be a potential trade-

off between job quality and unemployment potentially hurting those a minimum wage is designed to protect.

Many empirical studies are in favour of minimum wages and detect positive effects. For instance, it is found that the introduction of minimum wages in Hong Kong had a positive wage and employment effect without leading to a decrease in labour demand as proposed by neoclassical economics (Wong and Ye 2015). For the USA, David Card (1992) finds that the introduction of a federal minimum wage led to increasing wages. When examining increases of the minimum wage in the UK between 2001 and 2006, it is found that this increased wages especially for the lowest levels of the wage distribution (Dickens et al. 2009). However, evidence for a decrease in the hours worked for some groups is also detected by Dickens et al. (2009).

Moreover, the extent (high/low) to which a minimum wage is set might play a role. It could for instance be the case that empirical studies find no negative employment effects because governments are aware of the possible negative effects and therefore carefully implement a low minimum wage (Freeman 2009).

Although dual labour market models predict a shift of workers towards the informal sector as a consequence of a minimum wage (Betcherman 2012) this might be less problematic in reality. The empirical literature finds that minimum wages do not only increase the wages in the formal but also in the informal sector (Betcherman 2012; Lemos 2004; Gindling and Terrell 2004).

The relation of minimum wages as an institution to the job quality dimension “Earnings” might be the most obvious. However, the effect of minimum wages is most likely not that one-dimensional. As stated above some authors find a reduction of hours worked as the consequence of minimum wages. Hence, a positive impact on the dimension “Working time quality” is possible. On the other hand, also negative implications for some of the job quality dimensions are conceivable. The main reason for this consideration is that minimum wages increase the cost of labour (Betcherman 2012; Kaufman 2010). Therefore, employers might try to cut down labour cost by for instance spending less money on occupational safety. This would result in a negative relation between minimum wages and the dimension “Physical environment”. Following the logic of cutting down labour cost it might be possible that employers are less inclined to provide on-the-job training which would negatively affect the dimension “Skills and discretion”.

As the empirical literature find mostly positive effects the following hypothesis is used:

H2*: Minimum wages are positively related to job quality*

2.2.3 Employment Protection Legislation

Employment protection legislation (EPL) refers to "the rules governing the initiation and termination of employment" (Betcherman 2012, p.19). These rules determine which types of contracts are allowed and the way employment relations may be terminated including rules regarding financial compensation (Betcherman 2012). This institution in the labour market protects employees by e.g. limiting an employer in hiring workers on a non-permanent basis and firing workers by imposing a "penalty" when an employment relation is terminated.
The effect of EPL on job quality seems intuitive at first glance as the name itself suggests that it secures employment. However, EPL could potentially also lead to lower job quality as EPL can be seen as a type of tax a firm has to pay when terminating an employment relation. Since employers expect to pay this 'tax' at some point in the future they refrain from creating jobs (Pissarides 2011). This means that employers are more reluctant to hire new employees and might tend to offer more flexible labour contracts as the cost of labour increases. Due to this ambiguity one has to be careful and examine which type of contracts are protected by EPL and which are not. Thereby, EPL that only aims at protecting regular contracts potentially decreases overall job quality in an economy as flexible contracts are then a cheaper alternative. On the other hand, EPL that protects non-regular contracts increases job quality in an economy as it protects the "outsiders" in the labour market (Pfeiffer 1999). In other words, EPL can increase workers job security and hence the quality. If EPL is designed to increase the division between the "insider" and the "outsider" in the labour market, however, this will have a negative effect on the job quality of an (outsider) individual and on general job quality in a labour market.
The Effects of EPL can be far reaching and can be found throughout the different dimensions of job quality. A strict EPL may deter labour-saving technological change as dismissing workers is expensive. On the other hand, as strict EPL increases an employer's commitment to his employees there are more incentives to invest in human capital and on-the-job training (Betcherman 2012; OECD 2004). Therefore, EPL might not only increase job quality through the dimension "Prospects" by providing security but also through "Skills and

discretion". Moreover, wages can also be influenced by the type of EPL. The OECD (2011) finds that by putting less restrictions on temporary contracts income inequality increases. Hence, an impact of EPL on the dimension "Earnings" is not neglectable. As stated before, EPL increases the cost of labour. This could potentially have similar negative effects on the dimensions of job quality as discussed in section 2.2.2., i.e. employers might try to cut down labour cost elsewhere by for instance spending less for occupational safety. According to Eurofound (2018) temporary workers besides having less job security compared to workers on a permanent contract are also less flexible in determining their working time and hence score worse on the dimension "Working time quality". Therefore, more stringent EPL for temporary jobs can influence this dimension of job quality on an aggregate level.

From an empirical perspective one can say that the degree of EPL usually differs from country to country. Thereby, the protection can range from rigid to flexible. A highly protective policy would for instance restrict temporary employment contracts, limit dismissal rights, make severance pay mandatory and set administrative burdens (e.g. government approval) (Betcherman 2012). An extremely flexible protection legislation on the other hand does not impose (many) restrictions on the forms of contract and employers dismissal rights with only little administrative costs (Betcherman 2012). It is found that countries with stricter EPL showed less labour market disruptions during the economic crisis of 2008 (Heyes 2011). However, it is important (and difficult) to find a balance between providing workers with employment protection and at the same time allowing firms to adapt to changes in the economy and market conditions (OECD 2004).

Gordon Betcherman (2012) and the OECD (2004) find that it is mostly prime-age males and highly educated workers that are protected by EPL. On the other hand, women, young and low-skilled workers are usually not protected by EPL. One could infer from this that from a theoretical perspective EPL plays a crucial role in protecting employees but in reality, it might not be protecting the most vulnerable groups but instead the ones who already enjoy good preconditions.

Although the empirical literature has examined the relation between EPL and unemployment to a great extent (see e.g. (Nickell 1997)) studies that focus on the relation between EPL and job quality are rather scarce. A reason for this might be that the relation between EPL and job quality is likely to be subject to simultaneity and reverse causality

issues (Berton et al. 2017). A recent study that investigates changes in Italian EPL comes to the surprising result that a reduction of EPL strictness led to a higher probability of good employment (matches)(Berton et al. 2017). According to Berton et al. (2017) there is evidence that the flexibilization of employment protection induced labour re-allocation (which could be the mechanism behind the increase of good employment relations) and that a decrease in under-education of mainly older workers also played an important role. A different study which uses data from the Spanish Labour market finds that workers in protected jobs build up higher levels of human capital (Garcia-Cabo 2017) which usually is related to higher wage growth for the individual. This substantiates the previous considerations about the impact of EPL on the dimensions "Earnings" and "Skills and discretion". A detailed discussion about the implications of human capital and job quality is given in the context of ALMP in section 2.2.5.

Due to this analysis the effect of EPL on job quality might be ambiguous and the effect depends on which labour market groups are covered by EPL. The hypotheses are therefore:

H3*: Employment protection legislation (EPL) that protects non-regular contracts will increase job quality*

H4: *Strong protection of regular contracts leads to decreasing levels of job quality*

2.2.4 Trade Unions

Trade unions are "collective organizations whose primary objectives are to improve the pecuniary and nonpecuniary conditions of employment of their members" (Ehrenberg and Smith 1994, p.443). They are usually seen as the only institution in the labour market that represents the interests of workers and has historically achieved improvements of labour rights to a great extent (Borjas 2013). Trade unions increase the bargaining position and coordination of workers and emerge from the imbalance between individual workers and employers (Aidt and Tzannatos 2002; OECD 2017). As a collective interest representation trade unions negotiate wage increases and better working conditions for their members (Betcherman 2012). Therefore, trade unions protect their members from the risks and uncertainties of (imperfect) labour markets (Checchi and Lucifora 2002). As they give a

representative voice to workers, they increase the efficiency in the communication and negotiations between workers and employers thereby increasing overall working conditions, productivity levels and equality (Aidt and Tzannatos 2002; Freeman and Medoff 1997). However, not only the efficiency of communication and negotiations is increased but more importantly the social relations and distribution of power at the workplace are altered due to the enhanced power of workers (Freeman and Medoff 1997). Trade unions influence the labour market on a broad scale because they also decrease labour turnover and prolong job tenure (Aidt and Tzannatos 2002; Betcherman 2012). Since trade unions (in some countries) also engage in offering training and qualification programmes (Checchi and Lucifora 2002) one can say that trade unions potentially influence job quality across all dimensions. Based on this it seems as if trade unions might be the most influential institution in the labour market.

Nevertheless, the influence of trade unions can vary across countries. This variation can be due to behavioural norms of employers, degree of product market liberalization or the attitude of the government (Betcherman 2012). Furthermore, there are also differences of collective bargaining regarding the level of centralization. Collective bargaining can happen on the firm (decentralised), industry (organised decentralisation) and the national level (centralisation) (Betcherman 2012; OECD 2017). In centralized bargaining systems the wage markup tends to be higher (Aidt and Tzannatos 2002).

As trade unions can vary widely in their design, power, centralisation and coordination they are complex institutions. Therefore, it comes as no surprise that they also vary widely in terms of their design and performance across OECD countries (Aidt and Tzannatos 2002). What does this tell us? One implication is that trade unions do influence job quality but that their specific design can make a difference in how big the effect is.

Due to the nature of trade unions their influence mainly regards employer-employee relations. This is especially relevant for low-income countries where many people work as farmers or are self-employed (Betcherman 2012). Furthermore, the achievements of trade unions usually only apply for its members. Hence, trade unions could increase the distance in job quality between “insiders” and the “outsiders” in the labour market (OECD 2017). However, it is possible that the positive effects of trade unions also “spill-over” to the non-members as for instance in some countries collective bargaining agreements cover both members and non-members of trade unions (Aidt and Tzannatos 2002). Moreover, there is

some evidence that in regions with high rates of unionization there are also positive wage effects for non-unionized workers (Western and Rosenfeld 2011).
From a theoretical perspective also some negative voices on trade unions exist which often concern the labour supply monopoly of trade unions and the related efficiency costs (Aidt and Tzannatos 2002). Furthermore, employment growth tends to be slower in unionized than unionized firms (Aidt and Tzannatos 2002).
What does the empirical literature say about trade unions? Research points out that jobs are of higher quality in countries with a strong interest presentation (Piasna 2017) and that decreasing rates of unionization are to blame for declining job quality in some industries (Warhurst et al. 2012). Additionally, one can find evidence that members of trade unions receive higher wages compared to non- members both in developing (Freeman 2009) as well as in developed countries (Aidt and Tzannatos 2002). Furthermore, trade unions and collective bargaining coverage also have an influence on wage dispersion and can reduce wage inequalities (Aidt and Tzannatos 2002; OECD 2017). For the UK it is found that members of trade unions receive training more often and for a longer period of time which is related to greater wage growth compared to non-members (Booth et al. 2003). Moreover, trade union members work less hours and are more likely to get paid for their overtime work compared to non-members (Aidt and Tzannatos 2002). Other authors find that trade unions can increase health and safety measures (Green et al. 1985). Due to this the power of trade unions can positively influence the job quality dimension “Physical environment”.
What can be said about the connection between trade unions and collective bargaining agreements? One can say that a higher trade union density is related to higher collective bargaining coverage while the opposite does not hold true (Aidt and Tzannatos 2002). Regarding the level of centralisation it can be said that in most countries collective bargaining agreements are set at the firm level (OECD 2017). However, the OECD (2017) states that coverage of collective bargaining is the highest in countries with agreements at the industry or national level.

Trade unions might also interact with the other institutions in the labour market. This concerns the interaction between other institutions in the labour market and the incentive to unionize oneself. When other institutions in the labour market offer similar protection and/or services then the incentive for workers to join a union is small (Checchi and Lucifora

2002). Hence, if a labour market is strongly regulated meaning that for instance EPL is strong, a statutory minimum wage is in place and unemployment benefits are generous the trade union density might be smaller. Moreover, according to Eurofound trade union membership is less common among workers on non-permanent contracts[3]. Hence, a less stringent EPL for temporary contracts can have a negative effect on trade union density.

In conclusion, as trade unions can be seen as a collective interest representation their impact on job quality is most likely of a strong nature and affects job quality across its different dimensions. Through collective bargaining trade unions can directly influence the dimension "Earnings". By giving a collective voice to workers an effect for the non-pecuniary dimension is giving. The empirical literature finds a positive effect on the "Physical environment" and "Skills and discretion" (see above). Additionally, it does not seem unrealistic that due to the increased power of workers a positive effect on the dimension "Work intensity" (e.g. by influencing work pace), "Working time quality" (e.g. by limiting atypical working time or by giving workers a greater stake in determining schedules) and "Prospects" (by increasing job security see (Betcherman 2012)).
The impact of collective bargaining agreements on the dimensions may be different. As stated before, higher trade union density is related to higher collective bargaining coverage, however, the opposite does not hold true. Therefore, in a case in which collective bargaining coverage is high but trade union density is not it might be possible that this constellation positively influences job quality through the dimension "Earnings" but might have negative implications for other dimensions. This follows the considerations of higher costs of labour as pointed out in the previous sections. In this case the relatively lower power of a trade union might not be sufficient to prevent lower spending on e.g. occupational safety.

H5: *The impact of trade unions on job quality is positive and increases with its power*

H6: *The more workers covered by collective bargaining agreements the higher job quality*

[3] https://www.eurofound.europa.eu/publications/report/2002/non-permanent-employment-quality-of-work-and-industrial-relations; last checked 09.06.2019

2.2.5 Active Labour Market Policies

Active labour market policies (ALMP) are also a considerable institution in the labour market that could potentially influence job quality although this relation might not seem too obvious at first. This will be explained in the following.

First of all, one has to state that there is a vast number of instruments that can be regarded as ALMP. Nevertheless, these instruments aim at improving the matching process between employers and employees and can be grouped into the following types of ALMP: training (qualification), job creation programmes, job broking and activation (Boeri and van Ours 2013; Franz 2013).

From an empirical perspective the general impact of ALMP is rather small (Calmfors and Skedinger 1995). If the policies, however, are designed to increase the qualification level of the individual (i.e. by training programmes) they are found to be effective and can lead for instance to higher wages for individuals (Abadie et al. 2002; Calmfors and Skedinger 1995). As these training programmes make an individual more valuable to firms and increase the quality of the employment relation it may also qualify an individual for a better job (Jackman et al. 1990; Calmfors and Skedinger 1995). Hence, ALMP expenditures for training programmes exert influence on job quality through the dimension “Earnings”. Another possible inference is that if these programmes make an individual more valuable to an employer his perceived job security increases which has a positive impact on the dimension “Prospects”. Additionally, it is found that work-related training is a crucial factor for the career development of an individual (Dieckhoff et al. 2007). Again, this positively affects “Prospects” as advancements in the career seem more likely. Moreover, an impact on job quality through “Skills and discretion” seems also possible. An increased qualification level might allow an individual to take on more responsibilities on the workplace (affecting the subdimensions “Cognitive dimension” and “Decision latitude”) or to be more integrated in the organization (affecting the subdimension “Organisational participation”).

Werner Eichhorst (2017, p.13) claims that “investment in human capital is of utmost importance when it comes to create good jobs and ensure individual employability […] in the future”. This argumentation can be applied to all forms of education and training over an individual’s life course since employees constantly need to update and adjust their skills (Eichhorst 2017). For the individual a higher education level can be seen as a signal for employers that he/she can be allocated into a higher productivity group (Borjas 2013;

Jackman et al. 1990). What gives special weight to increasing the qualification of the labour force is that technological advances and globalization are making unskilled labour more and more obsolete (Eichhorst 2017). Hence, qualifying the work force can prevent this progress from causing unemployment and continuous professional development is a key factor for both unemployed and workers.

Another aspect of ALMP is that they can potentially mitigate the moral hazard problems that arise with unemployment benefits (Boeri and van Ours 2013). According to Boeri and van Ours (2013) this is the case if for instance sanctioning mechanisms are in place or participation in training programmes are mandatory. Hence, there is another possible interaction between labour market institutions. In the case of ALMP and unemployment benefits it might be that the combination of both institutions has a positive impact on job quality as ALMP mitigates the negative side effects that arise with the existence of unemployment benefits.

However, the studies that examine effects of ALMP are despite of new econometric approaches not able to completely correct for selection-bias as usually only people who are interested in training programmes actually sign up for them (Borjas 2013).

It is important to point out that ALMP can also have unwanted and negative side effects. If an individual participates in training programmes it might stigmatize him for potential employers (Pfeiffer 1999)

H7: *ALMP that are designed to increase an individual's level of qualification are positively related to job quality*

H8*: The interaction of ALMP and unemployment benefits increases job quality. The effect of this interaction is stronger than the singular effects of these institutions*

As a concluding remark for the theoretical implications some more elaborations about (possible) interactions between the institutions in the labour market have to be made. For instance, the IMF (2003) claims that a stricter EPL can increase unemployment but a higher trade union density mitigates this effect. Although some authors (van Ours and Belot 2000) come to different conclusions regarding the interaction of trade unions and EPL the inference is clear: there is interaction between institutions in the labour market. Moreover,

some authors suggest that the institutions in the labour market can act complimentary meaning that their effect is greater when they are implemented jointly (Coe and Snower 1997). Although most of the studies concern unemployment it does not seem unrealistic that some interaction and complementarity effects are also present in the context of job quality.

Furthermore, the OECD (2004) argues that finding a balance between the different institutions in the labour market largely depends on the circumstances of a country. The so called "flexicurity" approach is found to be effective in finding the balance between ensuring an efficient functioning of the labour market and offering sufficient protection for workers (OECD 2004). This flexicurity approach will be discussed in more detail in the next section.

3. Development

This section examines the developments of the phenomenon job quality and tries to identify trends within this concept. After that an overview over the development of labour market institutions is given and the flexibility of labour markets will be further discussed.

3.1 Trends in Job Quality

As stated before, measures of job quality can vary widely among authors as there is no universally accepted definition of this concept. This makes it rather difficult to compare and draw conclusions from different studies about job quality. Nevertheless, this chapter tries to give an overview of findings in job quality and to identify trends of this phenomenon.

For a long time, job quantity was is in the academic and political focus although job quality is not a new issue in policymaking. Especially the trade-off between unemployment and job quality can at least be traced back to the 1990s with the OECD (2006) stating that although employment rates were high in many countries "working poverty" was prevalent.

The neglect of job quality has changed rather recently with the rise of precarious employment coming to the fore (Eichhorst et al. 2015). Regarding the individual dimensions the wage level was for a long time seen to be the key (and sole) determinant of job quality with working conditions only sometimes being taken into consideration (Erhel and Guergoat-Larivière 2010). Rather recently a number of approaches which include various dimensions to capture job quality have emerged.

Across countries there are three different scenarios for quantitative developments of job quality that can be identified: jobs are getting better, jobs are getting worse and job quality becomes more polarized (Warhurst et al. 2012). Moreover, four qualitative scenarios can be identified: good jobs get better, bad jobs get worse, good jobs go bad and bad jobs get better (Warhurst et al. 2012). The less regulated labour markets of Anglo-Saxon countries are by some authors characterized as polarized in terms of job quality (Gautié and Schmitt 2010).

Reason for changes in job quality are rather difficult to determine as there is a great variety of factors that are partly contradictory. On the on hand a rise of the skill level in the EU was expected to improve job quality (Piasna 2017). On the other hand the crisis of 2008 deteriorated workers bargaining power thereby lowering working conditions (Piasna 2017). To add to the complexity it is found that initially the financial crisis actually improved job quality as a number of low-quality jobs were destroyed (Piasna 2017).

Furthermore, some authors point out that changes in business strategies over the last decades have led to a greater focus on cutting labour costs thereby undermining job quality (Warhurst et al. 2012). As globalization has been proceeding off-shore production becomes more prevalent and puts pressure on wages (Warhurst et al. 2012). Even free-trade agreements are identified as influential cases that can affect job quality (Warhurst et al. 2012).

The before mentioned report “Trend in Job Quality” from Eurofound (2012) finds that many indices of job quality (e.g. “Skills and Discretion” or “Good Physical Environment”) stayed relatively constant between 1995 and 2010. However, some increases in “Work Intensity” but also in “Working Time Quality” are found. Overall, the indices of job quality have been converging over time (Eurofound 2012). The European Trade Union (ETUI) Institute has also constructed a job quality index and compared this index for the years 2005, 2010 and 2015 (Piasna 2017). There it is found that overall job quality has been decreasing in Europe (Piasna 2017). However, one has to mention that this comparison of the overall job quality index is only for the non-pecuniary dimensions of this index. In many countries there has been a drop in 2010 and a slight recovery in the 2015 data which points at a negative impact of the economic crisis on job quality. When looking at the specific dimensions of job quality one can see that changes in real compensation per employee has been increasing in most countries while overall in-work at risk of poverty rate increased and job security decreased in

the EU with some differences across the individual countries (Piasna 2017). Nevertheless, similar to the comparison of job quality by Eurofound the ETUI dimension "Working conditions" shows an overall increase (Piasna 2017). Contrary to the report of the ETUI other authors find that a general trend towards lower job quality can not be identified and that this trends are country specific (Eichhorst et al. 2015). Nevertheless, there are some trends regarding specific factors as for instance wage inequalities and work intensity have been increasing (Eichhorst et al. 2017). When considering job quality from a region perspective it can be said that jobs in the south tend to be of lower quality than jobs in central and northern Europe (Erhel and Guergoat-Larivière 2010).

When analysing the development of the different types of employment the following becomes evident. Although standard forms of employment are still the most common employment relations non-standard types of employment have become more prevalent. In the European Union 33% of the workforce were working in such an employment relation in 2015 (Eurofound 2018). Although there are great variations among countries the EU average of the share of temporary employment has been relatively stable, standard employment decreased slightly and self-employment has increased slightly between 2005 and 2015 (Eurofound 2018). Involuntary part-time and temporary employment are found to have declined in some northern and central European countries while in many Eastern and Southern European countries it is more prevalent (ILO 2012).

The ILO (2012) states in their "World of Work" report that jobs have become more unstable and more precarious over the last years with women and the youth being disproportionally being affected. In most countries the share of involuntary part-time and temporary employment has increased and the people who hold these type of jobs receive lower wages (ILO 2012).

All in all, a general trend in European job quality can hardly be identified. This might be due to the fact that definitions of job quality differ among authors. Nevertheless, some country specific trends and trends of specific dimensions of job quality are found in the literature.

3.2 Development of institutions in European labour markets

The concept of institutions in the labour market can be traced back to the second half of the 19th century with the beginning of the industrialization of Western Europe (Betcherman

2012; Checchi and Lucifora 2002). As stated in the previous section the institutions and regulations were developed to protect workers from uncertainties of the market and to protect from risks such as poverty, illness and disability. The implementation of an institutional framework as it is known today (including rules for trade unions, active labour market programs and extensive labour standards) can be traced back to the 1930 and decades after the second world war (Betcherman 2012). Since this time most of the institutions in most countries have undergone changes regarding their specific design. In the following it will be examined whether labour markets have become more flexible. Although flexibility in the context of labour markets can be defined in various ways here a labour market will be regarded as more flexible if it is less regulated by labour market institutions i.e. if no statutory minimum wage is in place, power of trade unions is restricted or no restrictions regarding the hiring or firing of employees exist (Deakin and Reed 2000; Solow 1997). In other words, if a (statutory) minimum wage is in place, if unemployment benefits are high, if there are many restrictions regarding the hiring and firing of employees and if trade unions are powerful a labour market will be regarded as less flexible or rigid (Solow 1997).

The empirical literature suggests that a deregulation of labour markets can lead to lower levels of unemployment (Di Tella and MacCulloch 2005). What might seem beneficial at first glance does not hold under more scrutiny since the result does not consider the quality of the jobs. For instance, several reforms in the German labour market in the early 2000s led to a deregulation mainly by cutting back unemployment benefits. These reforms resulted in decreasing unemployment (Krause and Uhlig 2012). However, due to the increased pressure unemployed are accepting jobs they would have previously not accepted implying a lower quality of employment relations. It is also found that the reforms have led to a drop in wages for workers returning to work (Engbom et al. 2015). Hence, a deregulation could lead to decreasing levels of job quality in an economy.

The European labour markets are usually seen as less flexible compared to the North American ones (Nickell 1997). After the crises of the 1970s a discourse over the inflexible and strictly regulated European labour markets arose. Compared with the more flexible labour market of the US and its relatively higher rate of job creation and lower unemployment the strict European labour market regulations, its powerful trade unions and the generous unemployment benefits were regarded as determinants of the relatively

weaker European performance (Betcherman 2012). In the wake of the oil crises and the collapse of the Bretton-Woods-System in the 1970s regulations of labour markets were considered as an interference with the proper functioning of labour markets. These considerations were followed by a trend towards flexibility that reversed the previous focus on workers security (Burroni and Keune 2011; Ferrera 2005).

According to the OECD (2017) in most countries the number of people covered by collective bargaining agreements has been decreased from 30% in 1985 to 17%. Furthermore, a decline in union membership rates is found (OECD 2017). This points at a flexibilization of labour markets from the point of view of unionism.

Regarding minimum wages the OECD finds a mixed development. Compared to 1998 more countries have introduced minimum wages and in some countries the value of the minimum wage has increased while in others it has decreased (OECD 2015).

For unemployment benefits it is more difficult to identify trends as these benefits can be reformed in terms of their duration and the amount received by an individual (Tatsiramos and van Ours 2014). When looking at the public expenditures on unemployment benefits [4] one can see that these diminished before the crisis of 2008, increased dramatically in the years of the crisis and have slowly decreased since then. However, this does not say much as the increasing expenditure can most likely be explained by increasing numbers of unemployment due to the crisis. The OECD finds evidence for a decline in coverage of unemployment benefits which to some extent could be caused by decreasing generosity in some countries (OECD 2018).

The ILO (2012) finds that since the economic crisis of 2008 most countries have eased the employment protection legislation for both regular and temporary workers. Furthermore, the rules governing collective dismissals were relaxed (ILO 2012). The OECD finds that since the 1980s EPL across countries is converging as many countries with former strict EPL are relaxing their restrictions (OECD 2004).

In contrast to the other institutions ALMP are a rather new concept and can be traced back to the 1950s in Sweden (Bonoli 2010). Their use was widely promoted by the OECD over the last 30 years and countries expenditures for ALMP have almost doubled between 1980 and

[4] https://ec.europa.eu/eurostat/statistics-explained/images/0/0a/Figure_6_Expenditure_on_social_beneits%2C_expenditure_on_unemployment_related_benefits%2C_GDP_and_numbers_unemployed%2C_2000-2014_Constant_prices.jpg; last checked 19.05.2019

2003 (Bonoli 2010). According to Bonoli (2010) the aim of ALMP across OECD countries has changed over time. In the 1950s and 1960 the qualification of workers was in the focus while in the times following the oil crises in the 1970s ALMPs were rather designed to combat unemployment. Since the 1990s ALMP are primarily designed to stimulate and activate unemployed to re-entry the labour market.

Based on this analysis it is difficult to find a common trend of labour market institutions regarding flexibilization. Labour markets are shown to be less regulated in terms of some institutions (e.g. EPL) while some are more regulated by for instance the introduction of a minimum wage. This disparity could possibly be explained by todays employment strategies which do no longer solely focus on flexibility. Since the 1990 a new approach emerged which aims at combining the demand for labour market flexibility with simultaneously providing protection and security for individuals (Burroni and Keune 2011). This approach has been coined as “flexicurity”. Transferring this logic to the considerations of the previous section a “flexicure” policy would for example on the one hand ease EPL and keep unemployment benefits at a moderate level in order to disincentivize long unemployment spells. On the other hand, ALMP could be applied to a great extent to improve the employability of the workforce and a minimum wage could protect workers against (in-work) poverty. However, this approach primarily focuses on quantitative employment (Burroni and Keune 2011). Additionally, it seems as an extremely difficult endeavour for policy makers to find the right balance between the labour market institutions as some authors argue that in Europe the trend is rather heading towards less security than flexicurity (Heyes 2011).

This also adds to the importance of this research because little is known about the relation between job quality and the institutions in the labour market which makes it hard to evaluate the popular concept of “flexicurity” from the perspective of job quality.

As one can seen there is an increasing number of studies that examine job quality. Also, a vast amount of work (both theoretical and empirical) was done on institutions in the labour market. However, although the previous sections of this thesis have demonstrated that there is a connection between these two concepts studies that investigate the link between these two elements are rather scarce. Therefore, in the following the relation between institutions in the labour market and job quality will be scrutinized.

4. Methodology

In order to examine the relationship between job quality and labour market institutions several two-level logistic regression models are applied. In these multilevel models it is examined how the odds of being in one cluster compared to one of higher job quality are affected by labour market institutions. Since the dependent variable in this analysis is a binominal variable, using a logistic regression is the model of choice (Menard 2010). Another challenge has to be met. The data for the dependent variable is on the level of the individual. However, the individuals in the data are likely to be affected by a higher-level unit e.g. by the country they are in. In other words the individuals in the data are nested in countries and this nesting violates the assumption of independence of the residuals (Hox 2010; Luke 2004). The standard errors of the data are not independent but correlate within groups if the individuals are nested in countries. In other words, individuals that are embedded in the same country are more likely to show the same characteristics as their job quality might be influence by country level factors (e.g. institutions, education systems, etc.). In such a case taking a multilevel approach takes this nesting into account and disentangles the effects. Using different approaches can lead to distortion of statistical inference and biased estimates (Luke 2004; Steenbergen and Jones 2002; Hox 2010). Please refer to appendix 1 for the reported intraclass correlations (ICC). The ICC informs to what extent the variance in the dependent variable is explained by the higher unit groups (which in this case are countries) and the ICC can be seen as an indicator for the need of a multilevel approach (Luke 2004). In some of the models 37% of the variance in the dependent variable can be explained by the countries (appendix 1). Furthermore, for all models the likelihood ratio test shows that the multilevel model is better fitting the data compared to the model that does not account for nesting.

In the following subsections the dependent and independent variables that are used in the models are presented and it will be explained how the data was measured.

4.1 Dependent variable

The underlying data for the dependent variable bases on the 6th European Working Condition Survey (Eurofound 2017b). This survey covers 28 EU member states, Norway, Switzerland, Albania, the Former Yugoslav Republic of Macedonia, Montenegro, Serbia and

Turkey [5]. The survey was conducted throughout 2015 and the considered population are residents above 15 or 16 (depending on the country) that were employed at the time of the survey. The participants were randomly sampled, and the sample size ranges from 1000 to 3300 depending on the size of a countries work force.

As introduced in the theory section, Eurofound (2017a) using this data constructed a job quality index that contains the dimensions "Physical environment", "Work intensity", "Working time quality", "Social environment", "Skills and discretion", "Prospects", and "Earnings". In the next step a job cluster for the 28 EU member states was constructed by Eurofound (2017a). The data for these job cluster were provided by Eurofound to the author. The authors of the Eurofound report grouped workers into five different job quality profiles: "High flying", "Smooth running", "Active manual", "Under pressure" and "Poor quality". According to Eurofound (2017a) the job profiles can be characterized in the following way:

"High flying" jobs show the best results for most of the job quality indicators. Workers in this cluster stand out in skills and discretion, earnings and prospects albeit they face more intense work and enjoy lower working time quality.

"Smooth running jobs" on the other hand score well in working time quality and work intensity but exhibit lower levels of earnings and skills and discretion. Eurofound (2017a) states that workers in this cluster tend to have part-time jobs and that they work less than 48 hours a week. The social atmosphere at the workplace is favorable and the "Prospects" are evaluated as average.

"Active manual" jobs are risky in the physical environment, have lower working time quality due to higher prevalence of atypical and shift work but are characterized by a high score in the social environment. This cluster scores average on the other job quality dimensions.

Workers in "Under pressure" jobs are characterized by low scores in the social environment due to the high prevalence of abuse and little support by colleagues or managers, a high work intensity and low working time quality as atypical work is quite common in this cluster. Nonetheless, the levels of earnings and skills and discretion are quite high.

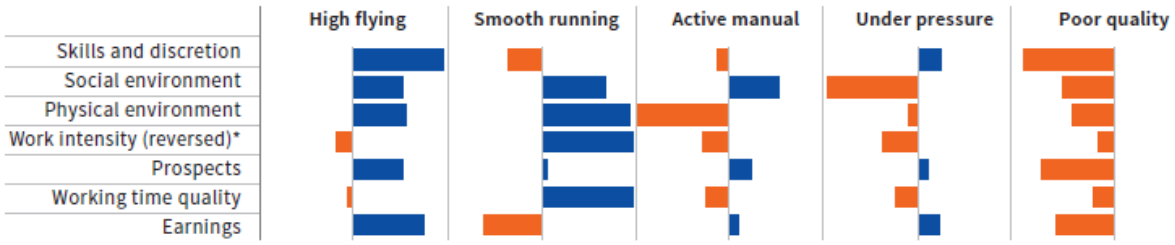
"Poor quality" job are the ones with the lowest overall job quality profile. These jobs score the lowest in skills and discretion, earnings and prospects and only work intensity. One third

[5] https://www.eurofound.europa.eu/surveys/european-working-conditions-surveys/sixth-european-working-conditions-survey-2015/ewcs-2015-methodology; last checked 21.05.2019

of workers in this cluster is afraid of losing their job in the near future and almost half of them states that their job does not offer good prospects for career advancement. Moreover, many workers in this cluster are working on fixed-term, temporary-agency contracts or have no contracts at all. Using skills and receiving training is rather unlikely in this cluster. The dimension "Working time quality" shows average scores and workers are less likely compared to other clusters to work in their free time in order to accomplish their workload or to work more than 10 hours a day.

A visualization of the scores of the job profiles in the different dimensions can be found in figure 1. In this figure a blue (orange) bar indicates above (below) average scores of a job profile in a dimension. Please note that in the following analysis the words "cluster" and "job profile" will be used synonymously. The job profiles are denoted by numerical values and represent the following profiles: Cluster 1 ("Poor quality"), cluster 2 ("Under pressure"), cluster 3 ("Active manual"), cluster 4 ("Smooth running") and cluster 5 ("High flying"). Moreover, the different clusters are ordered with respect to their overall job quality scores. This can be presented the following way: "Poor quality" < "Under pressure" < "Active manual" < "Smooth running" < "High flying". This order allows in the logistic regression of chapter 5.2 to assess whether a labour market institution increases the odds of having a higher quality job.

Figure 1: Job Quality Profiles



Note: * *In contrast to the other job quality indices, a higher level of work intensity lowers job quality. The bars in the figure show the z-scores of each cluster (columns) for each of the job quality indices (rows).*

Source: (Eurofound 2017a; p.128)

4.2 Explanatory variables

For the explanatory variables datasets from Eurostat, ILO and the OECD are used. For an overview and the sources of the explanatory variables please refer to appendix 2.

To capture the effects of EPL two datasets from the OECD are used. One contains data about EPL for regular and the other one for temporary employment. Both of them are indices and both regard individual as well as collective dismissals. The calculation for the indices is based on 21 different facets of EPL and covers procedural inconveniences, notice periods and severance pay, difficulty of dismissal and depending on the index also additional costs for collective dismissals and regulation of temporary contracts[6,7]. The higher the value of the index the more stringent a countries EPL i.e. the stricter the regulations regarding employment protection. Due to the availability the year of the applied data is 2013.

Two different variables are applied to account for the theoretical implications of trade unions. First, a dataset about trade union density is used which shows the ratio of unionized employees to the total number of employees in a country. The bargaining power of a trade union increases with its size in terms of number of members as they e.g. can call more members for a strike. In economies with a higher trade union density trade unions are more likely to achieve their goals like increasing wages (Aidt and Tzannatos 2002). Therefore, this is a good measure of a trade union's power. The data for this variable is from 2013 and 2014 depending on data availability. Second, data about collective bargaining is applied. It is measured in a similar way to trade union density as it measures the ratio of workers covered by such agreements divided by all employees with the right to bargain. Again, the data for this variable is mostly from 2014 but for some countries data from 2013 or 2012 was used depending on availability.

To account for ALMP a dataset about public expenditures for ALMP that aim at training the work force is used. The data is measured in a ratio to GDP. A study published by the IMF suggests that higher levels of public expenditures for ALMP can lower unemployment (Estevao 2003). Hence, it seems plausible that the level of public expenditures can capture the underlying mechanisms explained in section 2.2.

The variable accounting for unemployment benefits is measured by the public expenditure for out-of-work income maintenance and support and is measured as a ratio to GDP. The data for this originates from 2014. Using this data has the advantage to other related datasets as it only accounts for income maintenance in case of unemployment. Other

[6] https://www.oecd.org/els/emp/EPL-Methodology.pdf; last checked 23.05.2019

[7] https://www.oecd.org/employment/emp/oecdindicatorsofemploymentprotection-methodology.htm; last checked 23.05.2019

related datasets also account for benefits such as vocational training allowances and mobility and resettlement benefits[8].

The variable "Minimum wage" shows a country's statutory monthly minimum wage as a proportion of median gross monthly earnings. Moreover, the minimum wage in the data reports the national minimum wage meaning it applies to all or at least a great majority of workers in the specific country[9]. The dataset for this variable is from 2014 as this is the closest available year to 2015 (the year of the 6th EWCS).

The control variables (Age, Education and Gender) that are applied are on the level of the individual and are derived from the 6th EWCS. As briefly stated in the theory section an individual's age, educational level and gender are determinants of job quality. For the variable "Education" it is important to know that it is coded following the International standard classification of education. Thereby the numbers from one to 9 represent the following education levels[10] in an ascending order: Early childhood education, Primary education, Lower secondary education, Upper secondary education, Post-secondary non-tertiary education, Short-cycle tertiary education, Bachelor or equivalent, Master or equivalent and Doctorate or equivalent.

5. Data analysis

In this section the data will be scrutinized from a statistical perspective. In the first step some descriptive statistics are applied and in the next step the results of the multilevel logistic regressions are presented.

Although available in the data provided by Eurofound the countries Bulgaria, Croatia, Cyprus, Malta and Romania are left out in the further analysis due to the non-availability of data for some explanatory variables. Hence, the number of countries taken into consideration decreases from 28 to 23.

[8] https://ec.europa.eu/eurostat/statistics-explained/index.php/Social_protection_statistics_-_unemployment_benefits; last checked 05.07.2019

[9] https://ec.europa.eu/eurostat/cache/metadata/en/earn_minw_esms.htm; last checked 09.07.2019

[10] http://doc.ukdataservice.ac.uk/doc/8098/mrdoc/pdf/8098_6th_ewcs_master_questionnaire.pdf; last checked 29.05.2019

5.1 Descriptive statistics

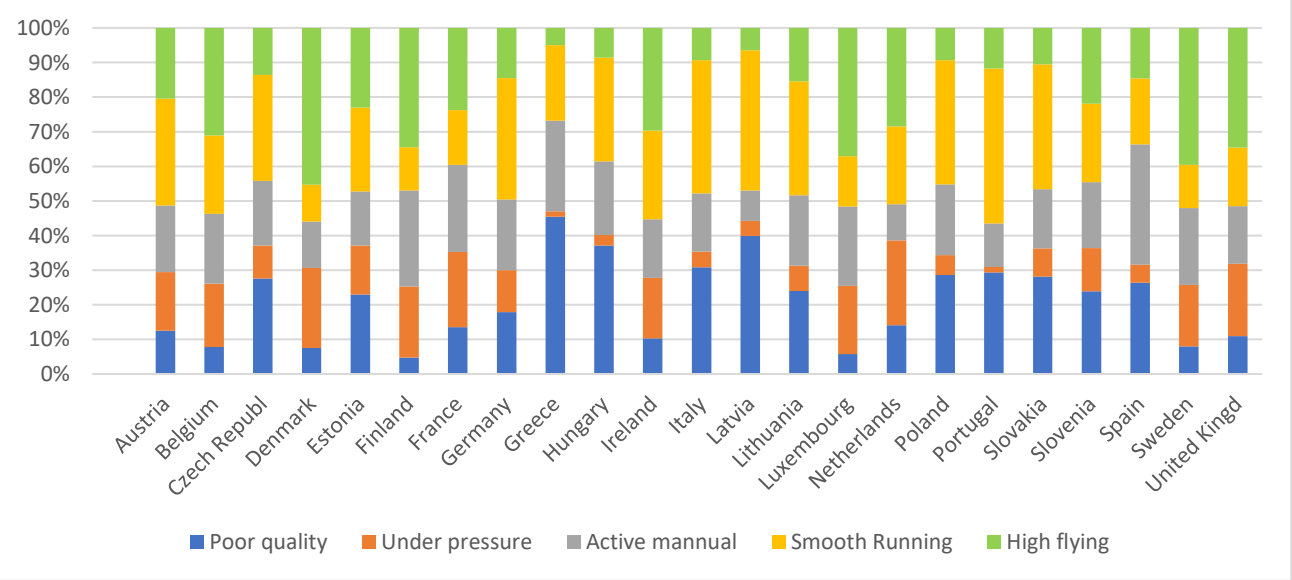
Table 2 shows the frequency of the different job profiles in the dataset. One can see that the "Under pressure" jobs are ones that are the least prevalent. "Smooth running" jobs on the other hand represent the biggest cluster with about one fourth of the workers. The size of the other clusters ("Poor quality", "Active manual" and "High flying") ranges from around 4350 to 5100.

Table 2: Frequency of Job Profiles

Job Profile	Frequency	Percentage	Cumulated
Poor quality	4,356	19.07	19.07
Under pressure	3,063	13.41	32.48
Active manual	4,692	20.54	53.03
Smooth running	5,632	24.66	77.69
High flying	5,096	22.31	100
Total	22,839	100	

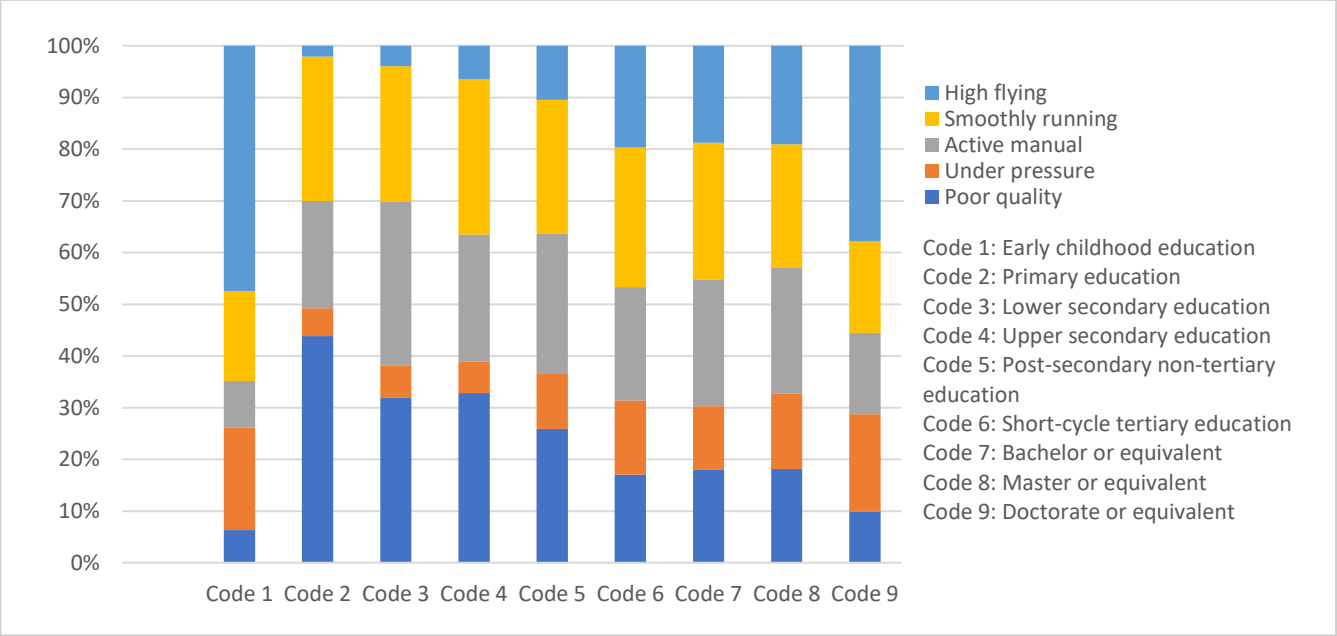
However, this picture changes dramatically when looking at the distribution of the different job clusters by country (Figure 2; Appendix 3 for underlying data). As one can see the prevalence of the job profiles varies greatly from country to country. It is noticeable that in some countries the "Poor quality" job, which score the lowest on overall job quality, represent the biggest group of workers (e.g. Greece and Hungary).

Figure 2: Distribution of Job Profiles by Country



Simultaneously, in some countries (e.g. Denmark and Luxembourg) the “High flying” jobs, which score the best on overall job quality, are the most frequent ones. Denmark and Luxembourg do not only show a great number of these “High flying” jobs but also a low number of “Poor quality” workers. In some countries the “Active manual” jobs are overrepresented compared to the average and sometimes even constitute the biggest group (e.g. France and Spain). This analysis shows that the distribution of the different job profiles can differ drastically between countries. This adds to the importance of this thesis as it is of great interest to examine the stake of labour market institutions in these cross-country differences.

Figure 3: Job Profiles by Educational Attainment



When looking at the distribution of job profiles by educational attainment (Figure 3) a few details stand out. With increasing level of education, the prevalence of “High flying” jobs increases and the frequency of “Poor quality” jobs decreases. This comes as no surprise as in the theory section it was briefly mentioned that an advanced level of education is connected to higher job quality. Yet another trend can be identified as with higher levels of educational attainment the prevalence of “Under pressure” jobs increases. However, the high proportion of “High flying” jobs and small prevalence of “Poor quality” jobs for the lowest educational level (Early childhood education) is somewhat a surprise and can not intuitively be explained.

Table 3 shows the summary statistic of the applied variables. The workers in this sample are between 15 and 87 years old with an average of 43 years. Unfortunately, the dataset

systematically lacks information regarding the educational attainment for all individuals from Germany which can be seen at the lower number of observations. As Germans constitute the third largest group in the sample with a stake of 7.6% and do not lack information for explanatory variables Germany stays in the dataset while the variable "Education" is left out of the logistic regression.

Table 3: Summary Statistic

Variable	Observations	Mean	Std. Dev.	Min	Max
Cluster	22,839	3.177	1.416	1.000	5.000
Age	22,839	43.332	12.159	15.000	87.000
Education	21,111	4.750	2.709	1.000	9.000
Gender	22,832	1.522	0.500	1.000	2.000
Trade union density	22,839	0.272	0.195	0.053	0.692
EPL of regular contracts	22,839	2.519	0.356	1.663	2.995
EPL of temporary contracts	22,839	2.301	0.845	0.542	3.833
Collective bargaining coverage	22,839	0.625	0.292	0.100	0.980
Unemployment benefits	22,839	1.105	0.760	0.172	2.513
ALMP	22,839	0.162	0.140	0.004	0.508
Minimum wages	22,839	0.430	0.218	0.000	0.660

Trade union density in the EU is on average 27.2% and varies from 5.3 to 69.2%. The indices for the strictness of EPL vary as well among countries to a greater extent. Comparing the strictness of EPL one can see that the lowest boundary for the index for EPL of temporary employment is way smaller than for the EPL of regular employment. The upper boundary of the index for EPL of temporary employment is, however, higher than the index for EPL of regular contracts. When considering the mean one can say that on average the EPL is slightly stricter for regular employment. Collective bargaining coverage is on average 62.5% and ranges from 10% to 98%. Public expenditures for unemployment related benefits as a share to GDP is on average 1.1 % and varies between 0.172% and 2.5%. Expenditures for ALMP (training programmes) as a share to GDP is on average 0.16% and ranges from 0.004% to 0.51%. Minimum wages as a proportion to median earnings are on average 43% and ranges from no statutory minimum wage in place to 66%.

Referring to appendix 4 one can say that there are slightly more women than men in the dataset. The group with the lowest educational attainment ("Early childhood education") is by far the biggest group and women are overrepresented in the highest educational levels.

Please refer to appendix 5 for a correlation table. As for instance the variable “Education” is of an ordinal nature the spearman’s rank correlation is reported. Furthermore, an interaction term was introduced to account for the possible interaction between ALMP and unemployment benefits as outlined in chapter 2.2.5. The interaction was constructed using mean-centered variables. As one can see there is no greater correlation than 0.71 between the variables. Unsurprisingly there is some (stronger) correlation between trade union density and collective bargaining coverage. It is notable that coverage by collective bargaining is correlating relatively strong with the variables “Trade union density”, “EPL regular contracts”, “Unemployment benefits” and “ALMP”.

An important assumption of logistic regression that must be met is the absence of multicollinearity (Menard 2010). Please refer to appendix 6 for the reported Variance inflation factor (VIF). Although there is no defined value a VIF bigger than 10 is usually considered as problematic (Wooldridge 2013). In case of this analysis the biggest VIF of a variable amounts to 5.28 (collective bargaining) and the average VIF is 2.5.

5.2 Logistic regression analysis

To answer the research question and to test the hypotheses several binominal multilevel logistic regression models are built. For interpreting the results of a logistic regression it is important to know that the results show how an explanatory variable influences the odds of being in a certain cluster as opposed to the base cluster (Menard 2010). By comparing a lower quality with a higher quality cluster one can see how a labour market institution influences the odds of being in a higher quality cluster. The results of all cluster comparison can be found in appendix 7 and form the basis for the following analysis. The denotation in appendix follows the following logic: the first number after “cluster” shows which (lower quality) cluster is compared to a higher quality cluster (second number after “cluster”). For instance, the model “cluster1-2” compares cluster 1 (“Poor quality”) to the higher quality jobs of cluster 2 (“Under pressure”). In the following only the models that compare the higher quality clusters to the lowest quality one (“Poor quality”) are in the focus. A summary of the findings for this analysis is displayed in figure 4.

One can see that the effect of trade union density is one of the strongest and most significant of the labour market institutions. Trade union density influences the odds of

being in the “Under pressure” cluster compared to the “Poor quality” cluster with 3.43 quite strongly but this influence is not significant. Hence, the hypothesis that trade unions increase job quality when comparing the “Poor quality” and the “Under pressure” job profiles has to be rejected. However, it is worth mentioning that with a p-value < 0.06 this result is at the brink of being significant. The strong and positive impact of trade union density on the probability of being in the “Active manual” cluster compared to the “Poor quality” cluster is highly significant. Although it is not possible to disentangle the effects of this variable on the individual dimensions of job quality it is worth to mention that cluster 3 (“Active manual”) scores better than the “Poor quality” cluster in the dimensions “Skills and discretion”, “Social environment”, “Prospects” and “Earnings” (please refer to figure 1 for an overview of the cluster scores in the different dimensions). The exerted influence of trade union density on the probability to be in the fourth cluster (“Smooth running”) compared to the “Poor quality” one is positive but not significant. The effect of trade union density on the odds of having a “High flying” compared to a “Poor quality” job is significant at the p < 0.01 level and shows the strongest coefficient. Regarding the dimensions the “High flying” profile has much better scores in all dimensions except for “Work intensity” and “Working time quality”. The “High flying” jobs have the best scores in the dimensions “Skills and discretion”, “Prospects” and “Earnings”. In conclusion, the hypothesis (Hypothesis 5) that trade union density positive affects job quality can be accepted for some of the binominal comparisons while for others it must be rejected. Moreover, there are some indications that the effect of trade unions is most notable by the dimensions “Skills and discretion”, “Prospects” and “Earnings” i.e. that trade unions tend to target the underlying characteristics of these dimensions. However, this analysis can not completely disentangle the effects on the individual dimensions of job quality which is something future research could possibly pick up on.

Regarding collective bargaining coverage it can be said that this institution has less significant influence on the odds of being in a job cluster with higher job quality compared to the influence of trade union density. The influence of collective bargaining coverage on holding an “Under pressure”, “Active manual”, “Smooth running” and “High flying” job compared to a “Poor quality” job is positive yet only significant for cluster 3. All in all, the hypothesis (Hypothesis 6) that collective bargaining agreements increases job quality can be accepted for the comparison of “Active manual” with “Poor quality” jobs but has to be rejected for the other cluster comparisons.

Public spending for ALMP that aim at training the labour force shows only insignificant results. Hence, the hypothesis that ALMP have a positive effect on job quality has to be rejected (Hypothesis 7).
For the institution “Unemployment benefits” the results are quite similar. The coefficients for the binominal comparisons are fairly small and no comparison yields statistically significant results. Hence, hypothesis H1 has to be rejected. There is not detectable relation between unemployment benefits and job quality.
When looking at the interaction of ALMP and unemployment benefits there is one significant result. The odds of being in the “Active manual” compared to the “Poor quality” cluster are positive and significant. Nevertheless, the hypothesis that the interaction of the two labour market institutions has a positive impact on job quality must be rejected for the other job profiles (Hypothesis 8). Although the coefficients of the interaction are bigger due to the non-significance the joint effect of ALMP and unemployment benefits is not stronger than the isolated impact of the different institutions.
Moreover, hypothesis H2 has to be rejected. No cluster comparison shows a significant influence of the institution minimum wages on job quality.

The variables that are accounting for strictness of EPL yield ambiguous results. Although most coefficients of the cluster comparison show the expected negative signs for the stricter protection of regular contracts only one is significant. An EPL of regular contracts negatively affects the odds of having an “Active manual” compared to a “Poor quality” job. Nevertheless, hypothesis H4 has to be rejected for the other cluster as they do not show significant results. The hypothesis H3 must be rejected as well since no significant results are found for the influence of EPL of temporary contracts.

Across almost all comparisons of clusters it becomes evident that the age of workers is significant and positive. In other words, age is an important determinant of job quality as with increasing age the odds of being in a higher cluster with better job quality increase. Likewise, the gender dummy is significant for all clusters. Please note that men are treated as the reference category. Being a woman only increases the odds of being in a higher

quality job cluster when in the binominal comparison the “Smooth running” is the higher quality cluster.

Figure 4: Summary of Findings

	Under Pressure	Active manual	Smooth running	High flying
Trade Union density				
Collective bargaining				
EPL regular contracts				
EPL temporary contracts				
ALMP				
Unemployment benefits				
Minimum wages				
Interaction (ALMP and Unemployment benefits)				

Note: **Green** cells indicate a positive effect (the odds of being in that job profile compared to the "Poor quality" profile are increased). **Red** cells indicate a negative effect (the odds of being in that job profile compared to the "Poor quality" profile are decreased). **Grey** cells indicate no significant effect

6. Discussion

This analysis adds to the literature that deals with job quality by analysing the relation of labour market institutions and job quality. By comparing how labour market institution affect the likelihood of being in a certain job quality cluster this relation is examined. The analysis has revealed the following.

First, according to this analysis the impact of (many) labour market institutions on job quality is fairly small. Second, the (positive) influence of trade unions on job quality might be the most influential as this institution shows the most significant and positive results. Moreover, as the results were the strongest for comparisons of higher quality clusters with the lowest cluster it turns out that trade union density and collective bargaining coverage can limit the prevalence of “Poor quality” jobs. In the light of this finding the decreasing rates of trade union membership in the European Union are an alarming signal as with decreasing trade union density a decrease in the power of trade unions go hand in hand. To reverse this trend trade unions themselves can for instance undertake initiatives such as promoting the establishment of trade unions in new sectors, appealing to certain groups of workers (e.g.

creating women's departments within a union), and rising awareness of the roles of trade unions (Pedersini 2010). Another approach taken by trade unions to increase membership rates could be giving additional services to members such as health plans, insurances or tax advises (Pedersini 2010). From a policy perspective the promotion of the "Ghent system" could be another way to increase member ship rates. The "Ghent system" is a system in which trade unions instead of government agencies are managing unemployment benefit schemes. Countries (such as Belgium and Sweden) that apply the "Ghent system" have bucked the trend of decreasing union membership rates (Blaschke 2000).

For the other labour market institutions a relation to job quality can hardly be detected. A possible explanation for finding only one significant result for ALMP could be that the capacity of this institution to help large groups of individuals is limited according to the OECD (1996). It is argued by the OECD (1996) that this is partially due to decreasing rates of returns in large programmes which is especially true for training programmes. In order to be successful these training programmes need to be tailored to individual needs (OECD 1996).

For the institution "unemployment benefits" the non-significant findings are not too surprising when one considers how disputed the relation of unemployment benefits and job quality is as it is described in section 2.2.1. The results of this analysis support the findings of Card et al. (2007) and Van Ours and Vodopivec (2008) who as well can not detect a relation between this institution and job quality.

Albeit the theory predicts a (strong) link between EPL and job quality this analysis fails in most cluster comparisons to detect a significant relation. Considering the connection between EPL and the quantity of employment one can say that the theory as well predicts a strong relation between those two (Boeri and van Ours 2013). However, an often quoted study by Nickel (1997) points out that strong EPL does not affect the employment rate. Hence, the theory might overstate the effect of EPL on employment.

When talking about minimum wages it is important to keep in mind that institutions need to be enforced in order to be effective. Although this statement seems evident and holds true for all the labour market institutions this might be especially relevant for minimum wages. Monitoring and enforcing this institution is in reality rather difficult as pointed out by some authors (Bernhardt et al. 2009). For instance, in the USA it was found that the minimum wage legislation is regularly violated and that about 26% of the workers are not paid accordingly (Bernhardt et al. 2009). Hence, the difficulty of enforcing this institution might

undermine its possible positive effect and could explain the non-significant findings to a certain extent.

7. Limitations

A considerable limitation of this research is already attached to the concept of job quality itself as a universally accepted definition of this phenomenon does not exist. Hence, the impact of labour market institutions on job quality is most likely to vary depending on which job quality dimensions are considered. The dimensions of job quality used in this work are a good fit as they cover quite a broad range of job quality dimensions. Nevertheless, not all factors that may make a job a “good” job are taken into account as it is for instance not considered whether a worker in his job is eligible for paid overtime.

Moreover, the individual perception of whether a job is better than another one might vary to a greater extent as individuals possibly value certain dimensions of job quality differently than others. To illustrate this and referring to figure 1 one could think of the following example: an individual that prefers “Working time quality” and “Work intensity” over the dimension “Earnings” would have a stronger preference for a “Smooth running" in comparison to a "High flying" job. In other words, the subjective evaluation which cluster is the better one can differ from the approach used in this thesis and it can even vary from individual to individual. Hence, from a subjective perspective the influence of a labour market institution on being in a higher or lower job quality cluster can be different as it is put in this research.

Unfortunately, this analysis lacks the ability to disentangle the effects of the labour market institutions on the underlying dimension of job quality. It can not clearly be stated which dimensions of job quality are affected by the respective institution albeit there are some indications in the analysis that some dimensions are more influenced than others.

Additionally, as the logistic regression analysis shows the affected odds of being in one cluster or another the model can not account for the possible effects of the labour market institutions on an individual within a cluster. For instance, the cluster “Active manual” is characterised by a low score on the dimension “Physical environment” and according to Eurofound (2017a) especially workers in the construction and industry sectors are exposed to physical risks. The analysis of this research can not point out how labour market institutions influence the exposure to physical risks. It could be the case that trade unions

decrease this exposure by e.g. obliging employers to offer protective equipment. Therefore, one should rather be careful when stating that many labour market institutions and job quality are completely unrelated.

8. Conclusion

This thesis intents to examine the link between labour market institutions and job quality. As job quality can have far reaching implications for an economy it deservers greater attention. However, this thesis has shown that despite the importance of job quality it is the quantity of employment that is too often in the focus of both policy makers and researchers. This thesis adds to the scarce literature by examining the effect of labour market institutions on job quality. Thereby, the labour market institutions that are considered are unemployment benefits, minimum wages, employment protection legislation, trade unions, collective bargaining agreements and active labour market policies. Furthermore, it is shown that job quality is an elusive concept as there is no universally accepted definition. Nevertheless, the thesis follows the definition of an Eurofound report that measures job quality by the following dimensions: “Physical environment”, “Work intensity”, “Working time quality”, “Social environment”, “Skills and discretion”, “Prospects” and “Earnings”.

When examining the development of job quality over the last decades it is not possible to detect a common trend. This is probably due to the fact that the definition of job quality varies from author to author. Nevertheless, some country specific trends and some trends within certain job quality dimensions are identified. Regarding the labour market institutions it is as well difficult to identify a general trend. Nonetheless, the decreasing numbers of trade union members are an alarming signal in the light of the findings of this research.

In order to examine the relation between the labour market institutions and job quality several multilevel logistic regression models are built. In these models it is examined how the labour market institutions influence the odds of holding a higher quality job. Thereby five different job cluster that were constructed by Eurofound on the basis of the beforementioned dimensions of job quality are used. This analysis shows that the overall effect of the labour market institutions on job quality is rather small. However, trade unions show the greatest positive influence on job quality. For the other labour market institutions

it is hard to draw a conclusion regarding their impact on job quality because the results are often not significant.

Another fact that has been pointed out in this thesis is that little is known about the relation and underlying mechanisms of job quality and labour market institutions. Investigating how labour market institutions affect the dimensions of job quality could be an interesting starting point for future research. It is to be hoped that in the future more research will be done in this area.

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Appendix

Appendix 1: Intraclass correlations

Cluster	ICC
Cluster12	0.368
Cluster13	0.143
Cluster14	0.051
Cluster15	0.311
Cluster23	0.176
Cluster24	0.267
Cluster25	0.024
Cluster34	0.092
Cluster35	0.114
Cluster45	0.213

Appendix 2*:* Overview of explanatory variables

Variable	Data source	Measure	Link
Minimum wage (MW)	Eurostat	Monthly minimum wages (statutory) as a proportion of median gross monthly earnings	https://ec.europa.eu/eurostat/statistics-explained/images/8/84/Minimum_wage_statistics_30.04.2019.xlsx
EPLreg EPLtemp	OECD	Strictness of EPL for • Regular employment • Temporary employment	https://stats.oecd.org/Index.aspx?DataSetCode=EPL_R
Unemployment benefits (Ub)	Eurostat	Public unemployment spending (Out-of work income maintenance and support; %GDP)	https://webgate.ec.europa.eu/empl/redisstat/databrowser/view/LMP_EXPSUMM/default/table?category=lmp_expend

Trade union density (TUD)	OECD ILO	Trade union density	https://stats.oecd.org/Index.aspx?DataSetCode=TUD https://www.ilo.org/ilostatcp/CPDesktop/?list=true&lang=en&country=
Collective bargaining (CB)	OECD ILO	Collective bargaining coverage	https://stats.oecd.org/Index.aspx?DataSetCode=TUD https://www.ilo.org/ilostatcp/CPDesktop/?list=true&lang=en&country=
ALMP	Eurostat	Public expenditures for ALMP (training), %GDP	https://webgate.ec.europa.eu/empl/redisstat/databrowser/view/LMP_EXPSUMM/default/table?lang=en
Age	Eurofound	Age of participant	(Eurofound 2017b)
Education	Eurofound	Education level of participant	(Eurofound 2017b)
Gender	Eurofound	Gender of participant	(Eurofound 2017b)

Appendix 3: Job profiles by country

country	cluster 1	2	3	4	5	Total
Austria	102	138	156	252	166	814
Belgium	161	376	416	466	639	2,058
Czech Republ	179	62	121	199	88	649
Denmark	71	217	126	100	425	939
Estonia	189	117	129	199	190	824
Finland	43	184	249	112	310	898
France	183	293	338	214	320	1,348
Germany	309	209	353	606	251	1,728
Greece	266	9	153	128	29	585
Hungary	178	15	102	144	41	480
Ireland	82	140	135	204	237	798
Italy	234	34	128	291	71	758
Latvia	307	34	67	312	50	770
Lithuania	200	61	170	274	129	834
Luxembourg	44	151	176	112	284	767
Netherlands	118	205	87	188	238	836
Poland	208	42	148	261	68	727
Portugal	171	9	73	261	68	582
Slovakia	204	59	124	262	76	725
Slovenia	297	156	237	282	273	1,245
Spain	595	117	782	431	328	2,253
Sweden	74	166	207	116	369	932
United Kingd	141	269	215	218	446	1,289
Total	4,356	3,063	4,692	5,632	5,096	22,839

Appendix 4: Frequency table of gender and education

education	sex Men	Women	Total
Code 1	2,125	2,631	4,756
Code 2	474	379	853
Code 3	918	702	1,620
Code 4	1,215	1,245	2,460
Code 5	1,092	1,023	2,115
Code 6	1,267	1,525	2,792
Code 7	993	1,142	2,135
Code 8	1,186	1,364	2,550
Code 9	767	1,057	1,824
Total	10,037	11,068	21,105

Appendix 5: Correlation table

	Cluster	Age	Education	Gender	Trade union density	EPL regular contracts	EPL temporary contracts	Collective bargaining coverage	Unemployment benefits	ALMP	Minimum wage	Interaction
Cluster	1											
Age	0.0652	1										
Education	-0.0612	-0.0217	1									
Gender	0.0057	0.0159	0.0217	1								
Trade union density	0.1475	0.0087	0.0345	-0.0484	1							
EPL regular contracts	0.0043	-0.0165	0.0021	0.0025	0.1063	1						
EPL temporary contracts	-0.0787	-0.0442	-0.034	0.0194	-0.4219	0.2249	1					
Collective bargaining coverage	0.0924	-0.0169	0.0534	-0.0294	0.4607	0.4658	0.0804	1				
Unemployment benefits	0.0213	-0.0252	0.0194	-0.0307	0.1774	0.2449	0.2586	0.7142	1			
ALMP	0.0822	0.014	0.107	-0.017	0.4878	0.1423	-0.0784	0.7187	0.6359	1		
Minimum wage	-0.0277	-0.0402	-0.0812	0.0071	-0.3651	0.4491	0.2678	-0.0445	-0.0505	-0.2874	1	
Interaction	0.0044	0.0303	0.0181	0.0355	-0.3037	-0.4379	-0.1041	-0.4025	-0.5767	-0.2444	0.014	1

Appendix 6: Test for Multicollinearity

Variable	VIF	1/VIF
Collective bargaining	5.28	0.189356
Unemployment benefits	3.67	0.272308
Trade union density	2.88	0.346907
Minimum wages	2.33	0.428525
ALMP	2.69	0.371504
EPL regular contracts	2.13	0.469998
EPL temporary contracts	1.55	0.644313
Age	1.01	0.99391
Gender	1	0.996435
Mean VIF	2.47	

Appendix 7: *Results of* Multilevel Logistic Regression

	cluster1-2	cluster1-3	cluster1-4	cluster1-5	cluster2-3	cluster2-4	cluster2-5	cluster3-4	cluster3-5	cluster4-5
main										
Age	0.01***	0.01***	0.01***	0.02***	-0.00	0.01***	0.01***	0.01***	0.01***	-0.00
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Trade union density	3.43	2.92***	1.05	4.34**	-0.38	-2.36	1.00*	-1.76**	1.30	3.27**
	(1.81)	(0.77)	(0.58)	(1.40)	(1.26)	(1.44)	(0.40)	(0.57)	(0.92)	(1.02)
EPL regular contracts	-0.55	-0.79*	0.37	-1.00	-0.28	0.91	-0.42*	1.19***	-0.12	-1.38**
	(0.85)	(0.35)	(0.26)	(0.65)	(0.59)	(0.67)	(0.21)	(0.27)	(0.43)	(0.48)
EPL temporary contracts	-0.27	0.22	-0.16	-0.09	0.48*	0.13	0.17*	-0.37***	-0.30*	0.06
	(0.29)	(0.12)	(0.09)	(0.23)	(0.20)	(0.23)	(0.07)	(0.09)	(0.15)	(0.16)
Collective bargaining	2.31	1.31*	0.03	1.90	-0.98	-2.27	-0.47	-1.21*	0.63	1.83*
	(1.55)	(0.65)	(0.48)	(1.20)	(1.09)	(1.23)	(0.37)	(0.49)	(0.79)	(0.87)
ALMP	-2.99	-1.20	0.53	-1.54	1.59	3.40	0.55	1.74*	-0.25	-1.99
	(2.47)	(1.03)	(0.76)	(1.89)	(1.75)	(1.97)	(0.67)	(0.77)	(1.26)	(1.38)
Unemployment benefits	0.24	0.15	0.04	0.19	-0.05	-0.19	0.03	-0.14	0.01	0.13
	(0.51)	(0.21)	(0.16)	(0.39)	(0.35)	(0.40)	(0.12)	(0.16)	(0.26)	(0.28)
Gender (women)	-0.19***	-1.41***	0.51***	-0.44***	-1.19***	0.62***	-0.29***	1.89***	0.91***	-0.90***
	(0.06)	(0.05)	(0.04)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.04)
Minimum wages	1.19	1.09	0.44	1.92	-0.13	-0.68	0.38	-0.49	0.79	1.37
	(1.40)	(0.58)	(0.43)	(1.07)	(0.98)	(1.11)	(0.36)	(0.43)	(0.71)	(0.78)
Interaction (UB+ALMP)	6.90	3.63*	2.03	4.03	-3.15	-4.87	-2.09*	-1.73	0.41	1.95
	(3.82)	(1.60)	(1.21)	(2.94)	(2.67)	(3.04)	(0.93)	(1.19)	(1.94)	(2.15)
_cons	-1.66	-0.16	-1.56*	-0.76	1.51	-0.18	0.86	-1.73**	-0.83	1.16
	(1.99)	(0.83)	(0.62)	(1.54)	(1.39)	(1.59)	(0.46)	(0.62)	(1.01)	(1.12)
var(cons[country])	0.97**	0.16**	0.08**	0.57**	0.46**	0.60**	0.04	0.08**	0.24**	0.30**
_cons	(0.30)	(0.05)	(0.03)	(0.18)	(0.15)	(0.19)	(0.02)	(0.03)	(0.08)	(0.09)
N	**7416**	**9046**	**9985**	**9450**	**7752**	**8691**	**8156**	**10321**	**9786**	**10725**

Standard errors in parentheses; * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$