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The influence of labour market institutions on business survival in European countries: what affects the survival of new businesses?

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Abstract: New ventures' survival chances are becoming increasingly lower threatening economic growth and the innovation capability of each country. Research on business survival has focussed on many internal and structural drivers, however, there is a large gap regarding external influences, especially the influence of labour market institutions. This thesis fills the gap by extracting and analysing certain labour market regulations set up by national governments with the help of the varieties of capitalism approach. Subsequently, European countries are clustered according to this approach in order to have a macroeconomic comparison of business survival patterns depending on governmental influence in the labour market. Moreover, the thesis uses very recent survival data from Eurostat as well as labour market data from other official sources in a multivariate regression to investigate correlations between labour market institutions and survival rates. The results give insights on the influence certain regularities, created by policy makers, have on business longevity. Furthermore, the thesis suggests several starting points for further research in this fairly untouched area.

Key words: Business Survival, Varieties of Capitalism, Labour Market Institutions, Multivariate Regression

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List of Abbreviations

AUS	Austria
CIT	Corporate income tax rate
CME	Coordinated Market Economy
EE	Education expenditures
EP	Employment protection
EU	European Union
GDP	Gross domestic product
HR	Human Resources
LME	Liberated Market Economy
MW	Minimum wages
OECD	Organization for Economic Co- operation and Development Business
PPP	Purchasing power parity
QOG	Quality of government (index)
SWE	Sweden
UD	Trade union density
UE	Unemployment rate
UK	United Kingdom
VoC	Varieties of Capitalism
WSI	WSI Institute of Economic and Social Research

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Influence of labour market institutions on business survival in European countries: what helps new businesses to survive?

1. Introduction

Nowadays businesses are confronted with a more and more complex environment. Different endogenous and exogenous factors make a long-term survival increasingly arduous. As a matter of fact, the average lifespan of firms has decreased tremendously. Especially young firms are in a hazard, since presently one out of three new listed firms dies within its first five years (at least in the United States), a six-fold rise compared to 40 years ago. In addition, this development is independent from sectors or industries (*Reeves, Levin & Ueda 2016, SBA 2012*).

Such a progress is alarming, because enterprises are the backbone for each economy. Companies give people work, an occupation and on top of all regular income which is needed to support the family. For a government, companies are the main source of income, both due to corporate taxes as well as the income taxes paid by the employees. Most important, mainly companies are responsible for the creation and diffusion of innovation and thus are necessary to enable sustainable development and overcome challenges like overpopulation or resource scarcity. Furthermore, many new start-ups are financed by venture capitalists, loans or private equity firms, all of them having stakes in businesses. Therefore, business survival is also vital in order to keep a part of the financial market intact.

With that being said, it becomes clear that business survival (or business longevity) is a highly relevant research area. In particular, it is interesting to know which drivers nourish business survival and which are harmful. With that knowledge one could work out a rich body of policy implications so that governments can improve the business amicability in their countries.

Existing literature on business survival categorizes its drivers in endogenous, structural and exogenous (*Box 2005*). The first category encompasses mainly factors related to the entrepreneurship literature meaning the education, experience and traits of the person founding the venture (*Parker 2009, Asoni & Sanandaji 2016, Nielsen 2015, Roberts, Klepper & Hayward 2011, Klepper 2002, González-Sánchez 2015, Renski 2015*). Due to the recent popularity of entrepreneurship research, there already is a substantial amount of studies about these factors.

Also structural factors have been constituted in detail. These are in front of all the firm's age (*Coad, Segarra & Teguel 2013, Fukuda 2012, Cefis & Marsili 2005, Capasso, Gallucci & Rossi 2015 and Klepper & Thompson 2006*), but also size and growth rates

of the enterprise (*Mas-Verdú, Ribeiro-Soriano & Roig-Tierno 2015, Giovannetti, Ricchiuti & Velucchi 2011*) as well as local externalities and business cycles (*Tsvetkova, Thill & Strumsky 2014, Ejermo & Xiao 2014, Pe'er & Keil 2013*).

Nevertheless, when it comes to the exogenous factors, the literature becomes less dense and also not comprehensive. There is some evidence for the influence of competition (*Zajc Kejžar & Ponikvar 2014, Velu 2015, Fontana & Malerba 2010*), taxes (*Carroll et al. 2001, Keuschnigg & Nielsen 2003, Hut & Williams 1999, Masso, Meriküll & Vahter 2011*) and access to the financial market (*Carpenter & Petersen 2002, Deng & Hou 2014*). Apart of from taxes, however, there is hardly any research on how legislation set by the government sway business survival rates in different countries. Especially labour market institutions have apparently not been interesting for the research, yet. The term encompasses the whole legal framework within the labour market, including the micro relationship of an employee with his employer as well as everything that influences the skillset of a working population or their general rights.

This is a considerable shortcoming, because labour market institutions involve the relationship between the firm and its most important resource: employees. In addition, most survival research is focused on one country only; a macroeconomic approach has almost never been chosen, yet.

On that account, this master thesis intends to shed light on these specific factors helping the businesses to survive. Since the expression “labour market institutions” is rather fuzzy it needs clarification and also the extraction of specific variables to analyse their influence on business survival rates. Therefore, the author applies the varieties of capitalism (VoC) framework to achieve these necessities. Moreover, the VoC framework has been used to create classifications of countries due to common HR practices or strictness of labour market regulations (*Witt et al. 2015, Walker, Brewster & Wood 2014*). This allows for the assumption that different countries can be clustered according to their labour market institutions, hence giving possibly more insights in the reasons of differences in the business survival rates.

Basically, the VoC describes how legislative constructs and governmental intervention influence the economy and how different nations can be clustered according to these interferences. With the help of this framework and recent survival data from Eurostat the author intends to answer the two following research questions:

Are there patterns of business survival in the different varieties of capitalism clusters? And also: Is there a significant correlation between specific labour market institutions and national business survival rates?

To answer these questions, the thesis is structured as followed: In the second part, the theoretical framework of the varieties of capitalism is explained and the labour market institution variables are extracted. Third, the data set and methodology are presented and critically reviewed. Fourth, the results of the descriptive statistics as well as the regression analyses are shown. Fifth, an encompassing discussion will parse the outcomes. Finally, conclusions are drawn and implications for policy makers and future research are suggested.

2. Theoretical Framework: Varieties of Capitalism

To demonstrate the causality between business survival and labour market institutions, a framework that depicts theoretical connections of firms with the institutions posed by its home country is mandatory. As a matter of fact, there is a fairly new theoretical construct that offers an insightful framework for this thesis: the varieties of capitalism theory, developed by Hall & Soskice (2001). This section shows how this framework classifies economies and how firms generally behave in these clusters, in front of all towards workers. Afterwards, the different dimensions of the VoC approach will be shown in detail in order to extract the labour market factors being used in the later analyses.

2.1. Different Clusters of Varieties of Capitalism

The varieties of capitalism framework is a macro-economic construct that describes how different organizations act and behave with respect to their national economic policies (Wood 2001). Broadly speaking, the viewpoint of this approach is that of a firm. How do different firms behave and which kind of investment pattern do they have? Which sector-specific competitive advantages has a firm and how are these advantages generated by the national institutional environment of the firm's home country (Schneider & Paunescu 2012, Hancké 2007)? Hall & Soskice (2001) claim that a firm success is not determined by its endogenous abilities but rather on its capabilities to coordinate with different actors within the institutional framework imposed by the country's legal system. These actors could be suppliers, clients, collaborators, trade unions, business associations and governments, so basically every stakeholder a firm interacts. Hall & Soskice categorized the areas in which firms deal with these stakeholders and they compared these areas or dimensions in different countries to work out clusters for different national economies.

By doing this, they worked out two different extremes of economies regarding their institutional environment: the liberal market economies (LMEs) and the coordinated market economies (CME). Both categories provide insights on how companies behave and which factors determining business survival are different in specific countries.

In LME's the firms' institutional ground rules are formed by hierarchy and market driven demand and competitiveness (Hall & Soskice 2001). A fairly loose regulatory framework regarding the market leads to inter-firm relations on an "arm's length" and usually strong formal contracting for every business relation. Firms' strategies are strongly dependent on market demand which leads to marginal price calculations and their products often compete on a price level rather than on a quality level (Wood 2001). But also employee relations are different in the two clusters. The focus on short term profits and the looser labour protection framework produces a much higher employee fluctuation in firms. Therefore, firms tend to do a lot more external recruiting and invest

less in in-company training (*Walker, Brewster & Wood 2014*). Regarding the workers, in LMEs, people tend to absolve a much more general education and resist to only learn company or even industry specific skills, since their job is less secure and a switch in industries would be more difficult (*Hall & Soskice 2001, Wood 2001*).

The high fluctuations in employee contracts but also in inter-firm relations affects the innovation patterns. It is argued that firms in LMEs have a strong tendency for radical innovations. The rather short and loose relations with suppliers or customers prohibit incremental innovations; furthermore, knowledge transfer through workers is relatively high and ultimately, financial pressure forces LME companies much faster to enter new markets with new product (*Hancké 2007, Lane & Wood 2014*).

On the other hand, in coordinated market economies, firms rely much less on formal contracting and market driven mechanisms. Instead, there is much more collaboration between firms and also informal information exchange is much more appreciated and less restricted by individual contracts (*Hall & Soskice 2001*). Since markets are stronger regulated, firms' relations are much more based on trust, not only between the partners but also with the authorities. This necessarily leads to much longer business relationships. In addition, firms look more on long-term profits and invest more in qualitative advantages as well as brand reputation (*Lane & Probert 2009*).

In comparison to the LMEs, workers experience a much higher job protection in coordinated markets, due to way stronger unions and labour laws. Therefore, firms are more likely to maintain skilled workers and also develop their industry or company specific skills (*Morgan & Hauptmeier 2014*). Moreover, the state is much more involved in vocational training through its institutions (*Hassel 2007*).

The longer relations with other firms and employees consequently foster incremental innovations (*Lane & Wood 2014, Hall & Soskice 2001*).

Hall & Soskice emphasize that neither of the two VoC “extremes” is better than the others. Furthermore, they point out that an economy cannot simply change single institutions to react to sudden exogenous shocks. This is because the institutions have developed path dependent, thus they depend on each other and function only well in connection to the other and cannot be considered in isolation. This implies that economies cannot just turn their institutional system upside down; rather, changes are only happen incrementally in order to make it all actors possible to follow.

Naturally, an encompassing theoretical framework like the varieties of capitalism, provokes a lot of critique and further research. Hancké (2007) wrote a whole book reevaluating the approach of Hall & Soskice. Some major critique points summarized by Hancké are that VoC ignores underlying power structures (e.g. lobbyism), it is strongly biased by the manufacturing industry or that considers nations as sealed and reluctant to exogenous political influences.

Recent researches build on these critique points and refine some of the original arguments of the VoC.

Witt & Redding (2013) give empirical evidence that the classic distinction in LMEs and CMEs is only applicable to western economies. In their analyses of Asian nations, they reveal that in this hemisphere institutional systems are much more diverse. Tarrant, Coen & Cadman (2014) postulate that a continental institutional framework like the EU veils national systems and enables companies to act in two different frameworks. Moreover, studies show that the classical clusters seem to merge more and more, meaning the liberated market economies establish more and more laws and that coordinated economies tend to give more and more power to the market itself (*Schneider & Paunescu 2012, Pierre 2015, Witt et al. 2015*).

Due to this criticism the author decided to use one of these more recent and sophisticated classifications of countries within the VoC approach. In the paper of Witt et al. (2015), the authors claim that the two classifications are too broad especially in the CME cluster, since there are significant differences between the developed coordinated market economies. So instead, they introduce a multi-variety model which gives more insight in the institutional structure of especially European countries. This classification is chosen for several reasons: First the conducted cluster analyses appears like a solid research design to the author. Furthermore, they worked with employment variables as well. Thirdly, their clusters encompass most of the countries used in this thesis. The reader has to notice that although the cluster names resemble geographical grouping the basis Witt et al. used for the clustering are employment variables only and that the naming followed afterwards.

The clusters are called and described as followed

- Southern European Countries: According to Witt et al. this cluster is characterized by high general education and long-term employment relations. Also union density is characterized by the craft sector.
- Central European Countries: This cluster shares the same characteristics as the Southern European countries. However, these countries are less developed in terms of being a welfare state.
- CMEs: Witt et al. stay with the traditional definition of Hall & Soskice in this cluster
- CMEs with a twist: This cluster combines characteristics of both CMEs and LMEs, especially regarding the relatively low employment protection.
- LMEs: Definition according to Hall & Soskice

Their research furthermore presents empirical evidence of the closeness of countries and firms within the clusters (according to eight institutional dimensions) and their distance between the clusters. The clusters are going to be used in the descriptive analyses to see whether business survival differs in different institutional frameworks.

Yet, for the second research question, it is necessary to have concrete variables that can also be deployed in multivariate regressions. With that being said, the thesis will now present more detailed how certain spheres of VoC theory affect business routines and therefore also survival.

2.2. Spheres of Varieties of Capitalism

The clustering demonstrates how the institutional framework differs in various countries. For a quantitative analysis, however, the leverage of governmental institutions has to be portrayed in greater detail. As mentioned above, besides the macroeconomic grouping, Hall and Soskice have also worked out certain dimensions describing the ascendancies on firms, which helps the thesis to extract important labour market variables. Witt et al. (2015) also identified their data for their research on the basis of these dimensions and this is why this thesis will use a similar approach. Moreover, Hall & Soskices spheres align the best with the data availability and scope of this thesis. The dimensions, or “spheres” are (Hall & Soskice 2001, Lane & Probert 2009):

- Corporate governance
- Industrial relations
- Vocational education and training
- Inter-firm relations
- Relations between management and labour

Corporate Governance

The premise of the VoC approach is that every corporate structure depends on the national regulatory regime. So does the corporate governance of a firm. This sphere concerns the non-hierarchical relations between private and public actors or only between private actors (Lütz, Eberle & Lauter 2011). Especially for listed firms, corporate governance institutions define how the management of a company colludes with the capital markets and investors. Therefore, this sphere is crucial for the firm when it comes to access to finance or how to secure the funds of investors (Hall & Soskice 2001). So basically, the regulatory framework in this sphere consists of banking-, credit- or stock market regulations. Although not using the VoC framework, Grittersová (2014) shows how financial institutions affect corporate governance and financial development in several modern democracies. Since new ventures are in need of financial liquidity, the regularities encompassed by this sphere have a strong influence on their survival.

Industrial Relations

The sphere of industrial relations is one dimension of the labour market institutions since it describes the relations between the employers of an industry with their collective employees, labour unions respectively. In many countries, there are specific wage

and labour condition negotiations between representatives of the industry's employers and the labour unions. The legal framework for unions in a country is highly interesting, since unions can develop significant power by using strikes for example (*Hassel 2007*). Collective bargaining in addition can have a strong effect on the firm's performance or survival. A positive effect would be less employee fluctuation within one industry. As wages are bargained collectively, workers are less likely to go to an employer of the same industry because he usually would not get paid more (*Hall & Soskice 2001*). The regulatory framework in the industrial relations sphere also determine the collaboration between different firms, not only in terms of disputes with unions. On a national level the industrial relations are "the core mechanisms by which citizens and major social groups come together to solve new policy problems" (*Martin 2014*). Therefore, this sphere determines firms in the way that new changes can be facilitated by the industry relation institutions. Especially for firms in the manufacturing sector, industrial relations play a significant role, because employees there are more likely to join unions. The following data analyses will therefore integrate the power of trade unions as a variable influencing business survival.

Vocational Education and Training

A country's education level has an impact on the relationship between a firm and its workforce as well as the whole human capital of a nation. The institutions in this sphere have a twofold leverage: first, firms have to coordinate to ensure a workforce with the most suitable set of skills and second, workers face the decision of how much to invest in their own education (*Hall & Soskice 2001*). Consequently, the institutions acting in this sphere are the regulatory framework of compulsory education, the authority of the state regarding worker education and the government investments (and rules) in academic education. Besides its micro-economic dimension, this sphere also determines the macro-economic competitiveness of an economy. By shaping the general business and technology understanding of the workers, the training and education institutions provide the ability of an economy to absorb new product paradigms and flexibilize change management (*Lane & Probert 2009*). *Hassel (2007)* also sees vocational training as policy's most effective tool to reduce youth employment and close the gap between regular unemployment and youth unemployment. The national education institutions also play a role when it comes to the competitiveness of university education in a global context, e.g. are national academic degrees appreciated by other countries (*Graf 2009*).

As the literature review above has shown, education has a significant muscle on business survival and will also be integrated in this thesis' research design.

Inter-Firms Relations

Since the varieties of capitalism framework is a firm-centric approach it is self-explanatory one sphere describes how the relationships between different firms in the daily business are interfered by national institutions. The sphere holds a variety of different aspects when considering inter-firm relations, for example how is knowledge secured when firms work together in a joint venture and how detailed are contracts set up (*Hall*

& Soskice 2001, Lane Probert 2009). Research on inter-firm relations in the VoC approach have shown that it is rather difficult to empirically measure inter-firm relations, also because Hall & Soskice were rather unprecise regarding a clear definition. Schneider & Paunescu (2012) attempt to measure them with “Strategic Alliances” and “Merger & Acquisitions”, yet they acknowledge that every informal relation between firms cannot really be measured, although they are highly important. The analysed literature on business survival has shown how local externalities and competition sway business longevity.

Relations between management and labour

Hall & Soskice’s traditional definition of the “Relations between management and labour” concerns rather the coordination of the workers’ skills and knowledge to work well with others and in line with the company’s goal.

In their research, Bedu & Montalban (2014) find evidence that a strongly coordinated labour market decreases private equity investments in firms. In other words, the easier it is to fire workers, the better for the financial environment of a firm. Especially when it comes to unskilled labour, it is rather favourable for a firm to have a large degree of flexibility regarding the hiring and lay off practices, in order to achieve a high performance (Chacar, Newburry & Vissa 2010).

Management-labour relations also have an effect on the cost structure of a company. In the sphere of inter-industry relations this could be caused by strikes or time consuming negotiations with labour unions. In the employee relation sphere, we have of course the cost associated with employing people. Since the VoC approach is said to be biased by the manufacturing sector one has to consider minimum wages, since manufacturing companies can be expected to hire more unskilled and therefore low-paid workers. With that being said, unskilled labour cost, defined by the labour market regulations might have a negative effect on corporate performance (Chan, Isobe & Makino 2008).

Besides, management-labour relations also shape the capability of firms to deal with crises. There are theoretical implications of the VoC approach that more flexible job security laws and the more general training of workers in LMEs is more suitable for firms to be resilient increasing their survival chances (Lane & Wood 2014).

While the mentioned results show a rather negative correlation between labour market flexibility and firm performance, Kılıçaslan & Taymaz (2008) find empirical proof that labour market flexibility is actually benefitting labour productivity. However, this study looks at industry specific wage differentials. This means that the productivity of an industry increases, if the income diversity in this industry is low.

In conclusion the varieties of capitalism approach offers several theoretical implications which and how labour market institutions influence the business survival in different countries. From the descriptions of the spheres one can extract the factors employment protection, minimum wages, trade union power as well as education provided by government. Other factors that have been mentioned in this literature review are not chosen; either because they have already been evaluated in existing survival

literature (counts for the corporate governance and inter-firm spheres), or because of a lack of data availability. Nevertheless, the chosen variables represent the three VoC spheres being related to the labour market quite well.

Furthermore, the classifications of Witt et al. (2015) for several countries give a good foundation to investigate potential patterns of business survival on a macroeconomic level dependent on the whole institutional framework.

The subsequent section explains the data representing the named labour market institutions and the methodology which applies these data and the VoC classifications in order to find causal relationships between LMIs, VoC and business survival.

3. Data and Methodology

The mentioned novelty of this thesis' topic could also be accounted to the lack of data availability so far. Business survival has not been measured in every country for centuries and if it has been measured recently the consistency of the data sourcing between the different countries can be doubted. Furthermore, "labour market institutions" as depicted in the VoC approach is a rather broad term which cannot be represented by one single quantitative variable. Rather, there are more variables needed which in combination describe how the labour market is shaped by federal law. This section is going to illustrate how the data for the described variables are chosen, including a critical review of the data's validity. Afterwards, the methodology being used to fulfil the research aim is going to be portrayed.

3.1. Dependent Variable

Since this thesis aim is to measure an influence of labour market institutions on business survival rates, these survival rates are going to be the dependent variable. The author uses newly available data: the business demography statistics gathered by Eurostat (*Eurostat 2016a*). Starting in 2008 Eurostat gathered information about the life cycle of all newly born enterprises and their probability to survive up to five years after their foundation. The author extracted the survival rates of new business in 23 European Countries between 2008 and 2013. For each of these years one can see which percentage of firms has survived one, two, three, four or five years until the observed years. For example, in Spain, 55% of the firms founded in 2006 are still alive in 2009. This survival percentage is used as the dependent variable and it is intended to show how the business longevity differs in different countries according to the labour institutions framework. In order to gain even deeper insights, the survival rates were gathered for both the manufacturing (NACE Rev.2 Code: C) sector as well as the professional, technical and scientific service sector (NACE Rev.2 Code: M). Generally, the

author expects a higher sensitivity of the manufacturing business survival for differences in the LMIs, because the chosen variables affect more (low-skilled) and labour intensive sectors.

Besides the data availability the countries are chosen to see how survival rates differ in the different varieties of capitalism Witt et al. (2015). The examined countries are:

CME	CME with a twist	Southern European	Central European	LME	Undefined
Austria	Denmark	Spain	Czech Republic	Ireland	Estonia
Belgium	Norways	Italy	Hungary	United Kingdom	Bulgaria
Finland		Portugal	Poland		Slovenia
Germany		France	Romania		Luxembourg
Netherlands			Slovakia		
Sweden					

Table 1: Examined countries categorized by Witt et al. 2015

The chosen data-source is biased in two ways. First of all, the observed time span is probably influenced by the aftermath of the financial crisis in 2008. Any conclusions drawn from the results could be swayed by the impact of this special economic time. Hence, the results cannot be valid for any other time period. Second, by only observing European countries a geographical generalizability is also not possible. However, it would have not been possible to compare developed countries with developing countries for both data availability and internal validity. The European countries have at least to a sufficient extent stable democracies and open market economies. If comparing e.g. South-East Asian countries with African countries one would assume that other factors than labour market institutions, such as degree of democracy or political stability, are more influential on business survival.

An advantage of the Eurostat data is the consistency in measurement. Regarding enterprise deaths, a two-year lag is foreseen in the methodology in order to confirm whether a presumed death is in fact reactivated (*Eurostat 2016b*). For this reason, there is no data older than 2013, yet. In addition, Eurostat established a unified way of data measuring based on a recommendations manual to collect the survival rates for all countries. Nonetheless, there are still some mismatches between the countries data due to different size thresholds in business registers that may have a substantial impact on comparability especially on data for start-ups. The metadata of the business survival has annexes for each country in case the country's methodology differs gravely from the recommended manual. The author will make sure to control for this differences in case there are any outliers. Still, through the data collection of Eurostat usual problems in data inconsistency in macro-economic comparisons can be avoided or at least controlled (*compare Bollen et al. 1993*).

3.2. Independent Variables

To establish a quantitative measurement of correlations between business survival and labour market institutions or VoC categorizations, respectively, the author has

chosen the proxies: employment protection, minimum wages, trade union density and education expenditures.

The first variable, employment protection, is chosen, since it plays a crucial role in the sphere of relationship between management and employees. Depending on the labour laws given by policy makers, an employer has more or less power over his personnel and so employment protection, which is vital for the company's flexibility in hire and fire practices.

In order to capture it quantitatively the author relies on the employment protection index of the OECD. These indicators of employment protection are synthetic indicators of the strictness of regulation on dismissals and the use of temporary contracts. The rating is based on readings of statutory laws, collective bargaining agreements and case law as well as contributions from officials from OECD member countries (*OECD 2016a*). Since the index is rather an interpretative result one can of course doubt its validity. Yet it offers a unique and consistent way to compare how one important aspect of the sphere "relationship between management and labour" is established in each country.

Minimum wages, on a national level, also take in an important role in the sphere of relationship between management labour. They describe the cost a business has to carry for its workers, because of the demands of governmental decisions. Furthermore, this variable is chosen because the used data shows wide gaps in the wage levels of the chosen countries, promising more interesting regression results.

The data is extracted from the WSI minimum wage database (*WSI 2016*).

This database gathers the statutory minimum wages internationally and especially for Europe. Wages are PPP adjusted to guarantee a comparability. Since the data is based on the legal frameworks of each country, measurement inconsistencies or biases are not expected. The influence of these hourly minimum wages on new ventures is of course questionable since minimum wages rather apply only in the manufacturing sector. Still, statutory minimum wages reflect a large ascendancy of the state on the labour market. In addition, the author especially hopes to see differences in the business survival rates between the manufacturing and service sector depending on the minimum wages. As manufacturing includes more unskilled labour, one can assume that this industry is more sensitive to minimum wages.

Together with the employment protection index, minimum wages represent a suitable and quantitative reflection of the "relationship between management and labour" sphere of the VoC framework.

Third, the power of trade unions is considered as crucial in the industrial relations sphere. Depending on the degree of power granted to the unions by the national legal framework, the employees have more power against business owners, causing eventually costs through collective bargaining or strikes.

The trade union density, also measured by the OECD was chosen to reflect the power of trade unions within a country. It reflects the percentage of salary earners

that are trade union members, divided by the total number of wage and salary earners (*OECD 2016b*). This proxy reflects the “Industrial Relations” sphere of the VoC approach. If a lot of employees are union member it suggests that unions are probably granted respectable power against employers from the legislative framework. Newly founded ventures could face a lot of drawbacks regarding working hours, salaries and in the worst case strikes if employees join unions. However, the author acknowledges that the establishment of work councils and also union membership is more likely to occur if the company grows in size of employees. Therefore, it is expected to find correlations especially in the T-4 and T-5 survival rates.

Finally, the author chooses expenditures on education as percentage of GDP. The VoC in its vocational education sphere as well as the business survival literature suggests that the longevity of a new business depends on the education of the people or the entrepreneur, respectively. A well trained labour force, provided by compulsory or subsidised education, is substantial for any business, especially when operating in a high skilled industry.

Since the thesis focuses on the statutory influence on business survival the named variable is used to have an indicator for the level of education in the countries. The used data source is the World Bank (*WorldBank 2016*). This variable is not able to show any direct effect on business survival but rather how the government prioritizes the education of its labour force. In addition, the World Bank emphasizes that investments of the private sectors in education are not represented. Hence, the author is aware that found correlations are not representative for the general education in a country. Yet, possible results would induce important policy advice regarding the public investment in education.

One overall weakness of the chosen labour market data is that there is only a manageable amount of changes during the time period which is moreover fairly short. Due to this, the thesis has to apply a cross sectional methodology which will be described later on. Furthermore, a mixture of different sources could generally harm a research’s validity, however, since the source are from official organisations, the author considers this hazard low for this thesis. In the next step, the needed control variables are briefly explained.

3.3. Control Variables

Applying macroeconomic comparisons demands a cautious handling of control variables. National economic environments differ a lot, even on a fairly small continent like Europe. Therefore, the research has to include variables which, being controlled for, improve its validity and give more evidence for the impact of labour market institutions.

Since the general prosperity of a country's economy is expected to increase business longevity, the research will control for GDP growth rates in percent (*OECD 2016c*). A second control variable is cumulated percentage of corporate income taxes for business in each country, which previous literature assumes to have negative effect on business survival. The data is taken again from the OECD statistics (*OECD 2016d*). To control for the different democratic environment, especially in the transition countries, the author uses the "Quality of Government Index". This indicator describes the overall quality of a government including "corruption", "law and order" and "bureaucracy quality" and is scaled between zero and one with one representing a high quality of government. This data is taken from Dahlberg et al. (2016). As a fourth and last control variable, the author uses the annual average unemployment rates of the countries (Eurostat 2016c). Unemployment generally foster entrepreneurship, since several businesses are founded out of unemployment. However, these firms live in a bigger hazard, because the lack often sophisticated business knowledge by the founder (*Box 2005, Simón-Moya & Revuelto-Taboada 2015*).

The control variables have been subject of the investigated literature on business survival and therefore are chosen to cover important macroeconomic factor of the countries. By controlling for these factors it should be more feasible to extract the influence of the independent variables.

3.4. Methodology

The thesis will utilize two steps of data analyses.

First, the author deploys descriptive statistics in order to show overall tendencies of business survival. This means that means of all countries for each survival period are created and compared to their means of the labour market institutions. The author intends to find that countries with very high or low survival rates have also very or low, respectively, minimum wages for example. Furthermore, the VoC classifications according to Witt et al. (2015) are applied to see if there are survival patterns for any VoC cluster. For instance, there could be trend for fairly high T-1 survival rates in one cluster but also very low T-5 survival rates. Moreover, the author will compare whether the theoretical implications about the labour market in each cluster agrees with the used data of the labour market. Since the outcome of this investigation is not known, there is a certain explorative character.

The second step is going to be more sophisticated meaning that the data will be put into a multivariate regression. Multivariate analyses have the advantages to understand the relationship between several variables rather than just between two factors. Regressions are frequently used in the business survival literature or more precisely, in survival analyses of businesses (e.g. *Fontana & Malerba 2010, Masso, Meriküll &*

Vahter 2011). These previous researches have also shown that through regressions it is facile to explain econometric models and to control for other variables.

This thesis will start with putting all control variables together and calculate the R-square values for all these variables and the survival rate for all countries.

Subsequently, the minimum wages, employment protection, trade union density data and education expenditures are added step by step to see if they have any significant impact on the business survival rate. Both, single observations of each variable as well as pooled observation will be applied. The expected results are R2 values that indicate how much a change in the business survival chance can be explained by the independent variables. Simultaneously the regression will give P-values that show whether or not the correlations are statistically significant. The procedure will be repeated for each year to find as many hints for correlation as possible. This cross sectional analyses cannot prove any causality, however, since the business survival data is not extensive enough, yet, longitudinal time series cannot be applied. For this reason, several studies apply cross sectional analyses as well (*Deng & Hou 2014, Chen & Williams 1999, Giovannetti, Ricchiuti & Velucchi 2011, Roberts, Klepper & Hayward 2011*).

For each survival length the year of foundation is used for the associated labour market institutions. This means when looking at the T-5 survival rate in 2012, the data for 2007 is used for the labour market institutions and the control variables. Of course, changes in this 5-year period probably have an impact on the business survival, however, the author has not found a feasible statistical method to include changes within the whole survival period.

Unfortunately, the author discovered that there is obviously a measurement mistake for the T-3 group in the manufacturing sector. The survival rate of firms in the T-3 groups is higher than in the T-2 group. So the T-3 rates in the manufacturing sector are going to be ignored, because it is not logical that there 80% of the firms in 2010, being founded in 2007 are still alive if there were only 70% of them in 2009.

Another issue is that even by adding control variables it is not possible to prove a direct impact of the labour market regulations. The author knows about this limitation and stresses that therefore the results should be of a rather suggestive nature. This is also common in other business survival literature (*e.g. Klepper & Richmond 2011*).

A more insightful methodology would have been a survey or interview based approach with entrepreneurs from the chosen countries. However, the limit of this thesis prohibit this approach. In addition, the author emphasizes again that research on business survival and labour market institutions is a rather untouched area. Hence, the results of this thesis are unique and might only give reason for further, more sophisticated research when more data is available.

In conclusion, the shown data and methodology will produce first insights about how VoC cluster and labour market regulations correlate with business survival. The following section will present the results.

4. Results

This section is going to present the results drawn from the data in two ways. First, the data is presented according to the clusters of Witt et al. (2015). Doing so, the mean values for the dependent and independent variables are compared to see patterns within the clusters. On top of this, the LMI variables will be compared to the survival rates in order to find first assumptions about the connection between the variables. Second, multivariate regression will be conducted to find statistical significant correlations between the LMI variables and business longevity.

4.1. Descriptive Results

Since the clusters of Witt et al. are based on employment institutions, one would expect a certain grouping of this research's variables within the clusters. Table 2 presents the means of all variables in the investigated time frame. Since the T-4 and T-5 survival rates are affected by the LMI in 2004 and the T-1 survival rates by the LMI in 2012, the means of all LMI values between these years are taken. EP represents employment protection, MW minimum wages in real € per hour, UD percentage of employees being member in trade union and EE education expenditures as a percentage of a countries GDP. As described above, the survival rates are divided in the manufacturing (Manu) and professional service (Serv) sector. Romania had to be deleted from the analyses since survival rates were obviously measured in a wrong way; survival rates sometimes exceeded 100%.

		Manu Survival (Means 2008-2013)					Serv Survival (Means 2008-2013)					LMI (Means 2004-2012)			
		T-1	T-2	T-3	T-4	T-5	T-1	T-2	T-3	T-4	T-5	EP (Index)	MW (in real €/h)	UD (%)	EE (% of GDP)
Czech Republic	Central	84.355	63.890	72.373	57.575	53.470	82.492	69.712	61.108	54.063	49.274	3.12	0.11	17.31	4.04
Hungary	Central	80.245	58.762	67.550	52.868	46.964	80.952	70.192	63.070	57.775	52.922	2.00	0.01	14.11	5.10
Poland	Central	89.647	59.275	73.992	51.545	45.880	92.432	80.988	69.750	62.972	58.208	2.23	0.77	15.90	5.13
Slovakia	Central	79.542	54.038	64.163	47.413	42.286	79.583	66.103	56.790	51.450	47.262	2.17	2.60	18.95	3.86
Netherlands	CME	91.128	71.008	81.952	62.388	57.522	91.804	88.413	70.274	66.932	61.392	2.86	9.34	19.22	5.30
Austria	CME	91.888	79.915	84.678	75.192	71.112	89.293	79.882	73.753	68.818	64.494	2.37	0.00	30.01	5.43
Finland	CME	79.032	59.533	67.018	53.818	48.208	77.953	65.960	57.900	51.973	46.176	2.17	0.00	69.84	6.27
Sweden	CME	96.995	79.427	87.973	71.883	65.756	97.487	89.207	80.052	72.252	65.788	2.61	0.00	71.16	6.53
Belgium	CME	91.045	76.138	82.610	70.578	65.630	89.203	79.075	72.844	67.913	62.190	1.94	8.76	54.49	6.09
Germany	CME	78.688	54.978	64.188	48.505	43.566	75.428	60.235	50.973	44.452	40.248	2.68	0.00	19.67	4.61
Ireland	LME	85.170	68.670	76.522	59.510	54.095	87.830	79.674	70.508	62.857	56.455	1.32	7.88	32.76	5.25
United Kingdom	LME	91.077	61.250	76.175	52.330	45.122	90.323	76.002	59.478	50.463	41.992	1.26	10.73	27.24	5.34
France	Southern	84.378	67.470	74.475	61.985	58.580	84.528	73.023	66.537	62.932	59.996	2.43	9.17	7.66	5.55
Spain	Southern	82.267	60.810	69.908	54.838	48.242	79.533	67.273	59.235	53.988	48.822	2.33	4.48	16.45	4.45
Italy	Southern	87.597	66.453	75.913	58.320	51.528	82.175	72.322	65.062	59.232	53.968	2.76	0.00	34.44	4.34
Portugal	Southern	79.793	53.965	65.575	46.808	41.038	73.125	56.767	46.827	41.618	36.643	4.26	3.60	20.48	5.09
Denmark	Twisted	73.956	55.330	62.070	50.786	46.800	68.414	56.110	49.092	44.560	40.406	2.15	0.00	68.00	8.10
Norway	Twisted	83.483	59.333	69.927	51.388	45.104	78.838	63.075	51.777	43.252	36.622	2.33	0.00	53.75	6.83
Estonia	Undefined	83.910	63.894	72.392	57.296	53.208	84.744	72.286	64.384	59.796	55.205	2.43	2.44	7.80	5.22
Bulgaria	Undefined	84.898	63.293	71.973	56.465	50.932	84.543	74.367	66.915	61.607	57.604		0.79		
Slovenia	Undefined	91.073	73.482	81.320	68.473	63.752	91.165	79.993	71.617	65.665	60.794	2.64	5.01	25.14	5.46
Luxembourg	Undefined	93.300	67.700	80.425	63.130	58.530	89.688	79.405	71.233	63.977	57.216	2.25	9.58	37.41	

Table 2: Means of Survival rates and LMI variables orderly to clusters. (own calculations)

Cluster	LMI Characteristics	Survival Characteristics
Central European	<ul style="list-style-type: none"> • MW very low • EE and UD average to low 	<ul style="list-style-type: none"> • Manufacturing survival rates much lower than service survival rates
Southern European	<ul style="list-style-type: none"> • High EP • Low UD and EE 	<ul style="list-style-type: none"> • Average survival rates with no differences in the sectors
Coordinated Market Economies	<ul style="list-style-type: none"> • MW either very high or zero • UD either very high or low • EP and EE average 	<ul style="list-style-type: none"> • On average very high with two outliers • Survival rates especially high in T-4 and T-5
Liberated Market Economies	<ul style="list-style-type: none"> • Very low EP • Very high MW 	<ul style="list-style-type: none"> • Survival rates high in T-1 but average to low in T-5
Coordinated Market Economies with a Twist	<ul style="list-style-type: none"> • No MW • High UD and EE 	<ul style="list-style-type: none"> • Very low survival rates, especially in the service sector
Undefined		<ul style="list-style-type: none"> • Average to high survival rates • No sudden drop in any survival period

Table 3: Summary of the descriptive statistics observations

Central European Cluster: The four countries in this cluster share several similarities in terms of labour market institutions. Minimum wages are comparatively low and almost non-existent. Union density also is on a fairly low level in all countries. Education expenditures range from average to very low standard. Only employment protection shows some differences, as Czech Republic shows the second highest value of all countries and Hungary one of the lowest.

In business survival matters, this cluster has certain properties. Manufacturing firms have a rather low survival rate, however, in the service sector the survival rates are on European average and in Poland even on a high level. Furthermore, the manufacturing firms seem to die already after the first year, because the survival percentage has its biggest drop from T-1 to T-2.

Southern European Cluster: As per Witt et al., the Southern European countries are closely connected to the central cluster regarding their institutions. The on hand data only supports this claim to a certain extend. Minimum wages are considerably higher in this cluster, except for Italy which has no countrywide wage level. Moreover, employment protection is more consistent, ranging from high average to the highest value of all countries (Portugal). A high employment protection could be a possible reflection of the long-term employment relations described by Witt et al. A commonality between the south and central countries are the medium to low values in union density and as well as education expenditures.

The survival rates are, compared to other clusters, ordinary to low with Portugal even being the country with the lowest rate for most groups in both sectors. Yet, there is no obvious difference between the two industries, unlike in the Central European cluster. Also there is no sudden drop in the survival rates in any group.

Coordinated Market Economies: Of all clusters, this one is the largest and also the one with largest inner differences. In terms of labour market institutions, the countries share that there is an average employment protection and also a medial to loftily education expenditures. Indeed, statutory minimum wages are either very high or not established. Also, union density ranges from a fairly low value to the highest (Sweden). These values reflect some CME characteristics of the definition opposed by Hall & Soskice, e.g. the high investments and education and the strong presence of labour unions. However, it is difficult to judge on the difference of the minimum wages, because the missing of a statutory MW does not mean that different industries within the country apply no minimum wage either.

Business survival in this cluster also presents interesting commonalities and disparities. In general, the survival rates are high with Sweden and Austria having the highest survival rates in all sectors and groups. Nevertheless, Germany and Finland are two outliers whose survival levels are more on Central European level. Supplementary, the gap between the average survival rate of the CME cluster and the other clusters grows bigger in the T-4 and T-5 survival rates. This indicates that new ventures in the CME clusters are more sustainable.

Liberated Market Economies: The two countries in this cluster, UK and Ireland, share labour market characteristics that also represents the LME definition of Hall & Soskice as well as Witt et al. Both countries have by far the lowest value in employment protection. Moreover, union density and education expenditures are ordinary. What seems to be like untypical governmental involvement in the labour market is the high minimum wage in both countries.

Simultaneously, the countries have common features in their survival rates. In T-1, both survival rates are comparably high in both sectors but in T-5 only average in Ireland and low in the United Kingdom. In this development exists also a sectorial difference. The service sector's survival rates are much higher than the manufacturing rates in T-2 but afterwards the level becomes more equal again.

CMEs with a twist: This cluster, also consisting only of two countries, shows the most definite results. Denmark and Norway both have average employment protection, no minimum wages, high union densities and the highest education expenditures. Yet, the author does not see necessarily a mixture of LMEs and CMEs considering the present labour market institutions. Rather only an institutional framework that reflects the CME cluster, though having a gap regarding the education expenditures.

Nonetheless, the two countries have (together with Portugal) the lowest survival rates of all countries. Furthermore, the values are specifically low in the service sector.

Undefined cluster: The countries that have not been included in Witt et al.'s clustering logically show no commonalities in their LMIs, what is partly caused by missing data. Yet surprisingly, the survival rates are on an ordinary high level in all countries. Like the CME cluster, the countries also show a certain stability in the business longevity over time meaning that their level stays medial in each group and sector.

Since the LMIs of Slovenia and Luxembourg are comparable to those of the CME cluster, one could add them. Doing this would also support the survival characteristics in the CME cluster.

Estonia and Bulgaria, however, would not fit in the Central European country, what would be geographically most appealing, because their survival rates are much more stable and higher, especially in the service sector.

The clusters definitely show certain characteristics in business survival. Moreover, Witt et al. definitions are mostly supported by the present dataset. Because of these insights one would indeed expect that correlations between the LMIs and survival rates exist. Before this hypothesis is analysed in detail, one will now proceed with a comparison of the mean values outside of the clusters. On that account, the survival rates for each group (T-1 to T-5) are ranked from the lowest to the highest, so it is perceivable whether the LMI variables are sorted as well in any way.

Sorting the T-1 group, one can extract the following observations: employment protection has not pattern in either sector; Germany and Portugal, having a high employment protection, show low survival rates. Nonetheless, Sweden and the Netherlands for example, have both high employment protection and survival rates. The LME countries' values are fairly discrete. Minimum wages seem to be positively correlated, particularly in the service sector. However, this observation is disturbed by Sweden and Austria which reveal high survival rates without a statutory minimum wage level.

Union density, if at all, has a U-shaped correlation in the manufacturing sector, because the countries with the lowest density have average survival rates and those with high membership rates generally either very high or low rates. Education expenditures demonstrate now irregularities in the T-1 group.

The T-2 group also shows no dependence on employment protection in either sector. Minimum wages show an even stronger positive impact in the service sector than in the T-1 group, however, less impact in the manufacturing sector.

Union density also reveals no influence in the manufacturing sector, yet, in the service sector would have been a positive correlation if not for the CME countries with a twist. Surprisingly, education expenditures now could have a U-shaped influence on the survival rates, still, only in the service sector.

As mentioned before, the T-3 group has measurement failures in the manufacturing sector. Hence one will investigate the service sector here. Employment protection seems to be insignificant. Minimum wages are also becoming less determining because of the fairly low survival rates of the UK and France.

Admittedly, union density and education expenditures both show a U-shaped pattern again. The lowest values show ordinary longevity and the highest values are either associated with low or high survival rates.

For the T-4 survival rates, the patterns disappear even more. EP is still uncorrelated. Minimum wages could be positively correlated with survival rates, yet, Sweden, Austria and the UK are disturbing this trend.

Union density loses any systematic characteristics and education expenditures, if any, have a U-shaped pattern in the service sector.

Finally, one will consider the T-5 group survival rates. Since there seems to be the least drop between the survival rates between T-4 and T-5, the ranking does not change significantly. Yet, the service sector survival rates show a somewhat stronger pattern in the minimum wages (again with the problem of SWE, AUS and UK) and a U-shaped character in education expenditures.

As the descriptive analyses of the mean values of all important variables show, there seem to be surprisingly few dependencies. How is this possible, despite fairly good consistencies of survival rates and LMIs in the clusters?

The author has some assumptions according to the data set. First of all, there are two outliers in the CME cluster (Germany and Finland) with low survival rates, although their LMIs justify their presence in the cluster. Second, employment protection and education expenditures do not have a big variance within the countries. Therefore, the partly marginal differences might not be significant enough for business survival. Third, minimum wage seems to be a difficult variable, because the data does only show whether there is a statutory minimum wage and no sectoral wages or wage differences.

Finally, it is difficult to show correlations with mean values from time periods which have on top a different length. Therefore, the following regression will use more detailed data to explore possible correlations. Because of the descriptive analyses, one can still have certain assumptions or rather questions:

- Are minimum wages positively correlated with business survival?
- Is the service sector generally more dependent on LMIs than the manufacturing sector?
- Could there still be a correlation between union density and/ or education expenditures and business survival?

The following regression analyses is going to find answers for these questions.

4.2. Regression Results

After using the mean values of the survival rates and labour market institutions to see patterns in the clusters and to extract overall tendencies of possible correlations, the

data set is now being used for a multivariate regression. First a regression is conducted with the survival rates of all countries and all the corresponding control variables. As explained, when using the control or independent variables, the year of the business' creation is used. So when e.g. looking at the T-2 survival rates in 2010, the independent variables and control variables of 2008 are used.

After the regression with the control variables, the first independent variable (education expenditures) is added, to see how R2 values change for each survival rate (T-1 to T-5) and for each year 2008 to 2013. Consequently, the other independent variables are added one by one to ascertain whether and how strong the survival rates are influenced by any LMI variable on a macroeconomic level. Moreover, it is observed how the P-values of each independent variable changes through the adding of a new variable. The regression is also exercised for both the manufacturing sector and the service sector (except for manufacturing for the T-3 period).

The author has also checked whether there are any drastic changes in the LMI variables during the observed period, which could lead to possible regression outliers. None of them, however, has any grave fluctuations. Employment protection sometimes even stays the same value in some countries. The other variables also only have constant changes.

In addition, the survival rate data was not complete for every country. In the case of Ireland and Estonia any survival rate for the year 2013 was not available, same goes for the Netherlands for the T-4 and T-5 rates, so the author calculated the averages from the previous years. Since this calculation of the survival rates could lead to inaccurate results, the author has decided to leave out the results of the years 2008 and 2009, as there are four countries with missing survival rates.

The results look as followed:

		T-1										T-2																		
		2010		2010		2011		2012		2012		2013		2013		2010		2010		2011		2012		2012		2013		2013		
		Manu	Serv	Manu	Serv	Manu	Serv	Manu	Serv	Manu	Serv	Manu	Serv	Manu	Serv	Manu	Serv	Manu	Serv	Manu	Serv									
CONTROL VARIABLES		Manu 201	Serv 2010	Manu 201	Serv 2011	Manu 201	Serv 2012	Manu 201	Serv 2012	Manu 201	Serv 2013	Manu 2013	Serv 2013																	
	R Square Value	0.082223	0.053979	0.226785	0.248001	0.157724	0.196935	0.049234	0.134615	0.267167	0.030303	0.084171	0.080432	0.124628	0.185224	0.058423	0.098392													
	P-Values	0.890331	0.800266	0.155622	0.163752	0.608772	0.280327	0.613174	0.263499	0.599435	0.671741	0.319361	0.827913	0.696508	0.247594	0.874972	0.375026													
	CIT	0.715207	0.859889	0.414019	0.204878	0.716875	0.542623	0.916573	0.553659	0.377636	0.833096	0.701473	0.589158	0.899367	0.306412	0.728922	0.680206													
	QOG	0.710713	0.730125	0.975754	0.604416	0.861688	0.488713	0.692577	0.870768	0.58976	0.914382	0.955662	0.792541	0.440476	0.557595	0.94619	0.715943													
	UE	0.578377	0.417763	0.280982	0.390763	0.239624	0.515503	0.617864	0.91133	0.134557	0.640598	0.509263	0.430212	0.5815	0.52412	0.456261	0.793996													
INDEPENDENT VARIABLES																														
	Only EE R Square Value	0.100467	0.120625	0.243208	0.248413	0.275026	0.222975	0.236931	0.211147	0.267268	0.053005	0.095685	0.143278	0.12609	0.185506	0.060229	0.119409													
	P-Values EE	0.589374	0.303188	0.576771	0.929012	0.140104	0.489197	0.073966	0.246371	0.964449	0.557686	0.66	0.310799	0.876253	0.943543	0.86746	0.558546													
	Add UD R Square Value	0.110983	0.135636	0.265686	0.251368	0.305466	0.224889	0.329168	0.346482	0.292445	0.054323	0.095858	0.163559	0.159696	0.186141	0.06221	0.141398													
	P-Values UD	0.690191	0.629601	0.523304	0.817554	0.446486	0.855135	0.187004	0.110711	0.491881	0.890885	0.959354	0.569406	0.46669	0.918228	0.865921	0.558883													
	EE	0.526664	0.270218	0.434856	0.972589	0.107821	0.491686	0.047494	0.14787	0.839143	0.629367	0.687286	0.261895	0.629029	0.91318	0.832161	0.750601													
	Add MW R Square Value	0.148383	0.302994	0.383066	0.442395	0.518234	0.519403	0.497478	0.542456	0.407296	0.176351	0.120064	0.31816	0.195259	0.385791	0.197975	0.45909													
	P-Values MW	0.463372	0.100722	0.139798	0.054772	0.03232	0.014396	0.057181	0.034595	0.136492	0.188523	0.56011	0.109718	0.461994	0.060478	0.161791	0.016126													
	UD	0.53751	0.29242	0.281802	0.714521	0.115915	0.252684	0.623721	0.45982	0.88425	0.735957	0.878992	0.263943	0.370258	0.484772	0.505402	0.782665													
	EE	0.660775	0.44135	0.691903	0.566112	0.167941	0.788691	0.025805	0.083419	0.623651	0.807458	0.606503	0.426418	0.79023	0.68284	0.936969	0.863642													
	Add EP R Square Value	0.153085	0.337299	0.385764	0.46251	0.527585	0.519841	0.543843	0.575836	0.416279	0.176554	0.120204	0.354632	0.196355	0.422414	0.211961	0.462704													
	P-Values EP	0.800691	0.4459	0.822307	0.515464	0.634778	0.91844	0.291066	0.350343	0.675009	0.957469	0.965871	0.426285	0.900346	0.400169	0.652704	0.781181													
	MW	0.581123	0.221808	0.160299	0.116664	0.041914	0.031365	0.036053	0.028354	0.142459	0.262664	0.618795	0.24117	0.537157	0.137346	0.16351	0.029044													
	UD	0.611131	0.417827	0.290982	0.811315	0.113938	0.282212	0.985292	0.794024	0.986791	0.767583	0.896629	0.386201	0.408451	0.592171	0.453578	0.735009													
	EE	0.669972	0.441807	0.71589	0.608135	0.202612	0.807972	0.028575	0.092564	0.602812	0.811511	0.621764	0.425836	0.792052	0.732199	0.896258	0.843403													

T-3				T-4								T-5							
2010	2011	2012	2013	2010	2010	2011	2011	2012	2012	2013	2013	2010	2010	2011	2011	2012	2012	2013	2013
Serv	Serv	Serv	Serv	Manu	Serv														
2013 Serv	2013 Serv	2013 Serv	2013 Serv	2013 Manu	2013 Serv														
0.054753	0.064353	0.096632	0.095311	0.162255	0.107941	0.193453	0.062041	0.13071	0.06623	0.05209	0.045267	0.080691	0.060845	0.133923	0.089068	0.201941	0.061767	0.125924	0.062092
0.925093	0.404181	0.98027	0.391291	0.924338	0.871694	0.867466	0.763871	0.860738	0.469983	0.877416	0.710354	0.933418	0.739834	0.761633	0.783779	0.679757	0.72515	0.925408	0.640777
0.726536	0.949944	0.710446	0.441405	0.945408	0.318419	0.565096	0.735798	0.473446	0.891444	0.956248	0.633887	0.814287	0.609292	0.739121	0.460869	0.564776	0.756162	0.522921	0.833057
0.703247	0.942523	0.629573	0.779405	0.994734	0.611171	0.49195	0.811359	0.595169	0.850670	0.679037	0.917276	0.993253	0.419847	0.85947	0.830993	0.746631	0.889976	0.644857	0.491913
0.472516	0.499706	0.397907	0.68546	0.148845	0.650226	0.261438	0.5301	0.179823	0.407599	0.607729	0.617499	0.364006	0.53369	0.226798	0.894594	0.135514	0.50281	0.180986	0.397089
0.081992	0.083	0.140604	0.098641	0.172089	0.109968	0.193461	0.069311	0.136961	0.080031	0.052144	0.07411	0.106415	0.061082	0.150923	0.089075	0.205035	0.063036	0.127022	0.086209
0.514814	0.588879	0.394806	0.817075	0.678948	0.855839	0.989954	0.73687	0.74625	0.642063	0.977137	0.504666	0.521058	0.951653	0.591748	0.991328	0.812353	0.888544	0.892544	0.538693
0.087054	0.084466	0.161556	0.115627	0.201779	0.167355	0.20594	0.097462	0.137794	0.080252	0.052707	0.075082	0.12189	0.0806	0.178666	0.135834	0.226902	0.095324	0.129408	0.10602
0.784613	0.883145	0.563627	0.612174	0.482408	0.342626	0.64625	0.519464	0.909048	0.954559	0.928602	0.905186	0.627107	0.594226	0.502894	0.398781	0.539299	0.491249	0.847531	0.586321
0.493308	0.661639	0.326925	0.964441	0.947968	0.566349	0.874837	0.945127	0.800739	0.689033	0.952825	0.579382	0.713126	0.78217	0.850395	0.707865	0.658904	0.899308	0.849447	0.710308
0.093545	0.168253	0.304644	0.360452	0.251666	0.239187	0.256781	0.117002	0.15707	0.173305	0.100352	0.268176	0.140761	0.121966	0.215791	0.206937	0.266407	0.117936	0.160147	0.240464
0.765108	0.273104	0.125897	0.043935	0.368852	0.287993	0.362871	0.600764	0.594826	0.247947	0.421661	0.086858	0.602124	0.447883	0.446811	0.299946	0.417875	0.573603	0.502456	0.153218
0.726976	0.803692	0.273339	0.92267	0.344159	0.217341	0.90588	0.678272	0.772723	0.722472	0.719929	0.62206	0.520185	0.431355	0.386397	0.259603	0.766923	0.657451	0.954468	0.982893
0.538943	0.816747	0.513677	0.538245	0.810185	0.720007	0.776525	0.994327	0.735152	0.85341	0.896854	0.864605	0.723845	0.780576	0.740911	0.868868	0.585978	0.84069	0.760035	0.910996
0.094374	0.168628	0.330806	0.376786	0.256482	0.283088	0.281471	0.131271	0.157071	0.175191	0.100981	0.270234	0.141017	0.150214	0.217117	0.232014	0.283161	0.128217	0.170025	0.241737
0.918253	0.942559	0.506398	0.58525	0.785148	0.408114	0.532853	0.664968	0.997288	0.87121	0.928493	0.857099	0.953347	0.539508	0.888981	0.543058	0.60606	0.713347	0.712099	0.889479
0.822702	0.357597	0.252674	0.092374	0.508081	0.556008	0.293292	0.526886	0.647108	0.349374	0.4568	0.143615	0.665488	0.670469	0.550675	0.51578	0.358188	0.521392	0.459164	0.19464
0.764048	0.834736	0.384006	0.998096	0.400886	0.299334	0.967044	0.776423	0.791078	0.778005	0.722259	0.681015	0.560818	0.557508	0.430612	0.336295	0.878396	0.744362	0.875232	0.984524
0.552403	0.818617	0.516252	0.576982	0.856783	0.622283	0.756642	0.976007	0.747622	0.845002	0.899842	0.86757	0.733575	0.798383	0.772887	0.791468	0.578969	0.831104	0.736469	0.928322

Table 4: Regression results for the years 2010 to 2013. R2 values coloured from the lowest to the highest; P-values coloured from the highest to the lowest. (own calculations)

The results cast doubt on the assumptions made in the previous descriptive part, some suggestions of the business survival literature, as well as expectations of the author. First of all, it seems surprising to the author that the control variables seem to have very little influence on the survival rates at all. Especially GDP has P-values ranging from 0,15 to 0,98. Since GDP growth resembles the economic climate, the author would have expected to see a correlation between the growth rates and the survival rates. Corporate Income Taxes (CIT) and the Quality of Government Index (QOG) both seem to have any correlation at all. Only unemployment rate (UE) seems to be at least a little responsible for differences in survival rates, however it is also still far away from any statistical significance. The author has also conducted the regression using the year of the business death and not their birth year in order to see if the ladder was the wrong approach. However, using the survival rates and the LMIs from the same year even produce less significant results.

The lack of statistical significance continues through the regressions with the labour market variables. As a matter of fact, the F-value representing the total statistical significance of the whole regression is in no case lower than 0,05. Therefore, the combination of all variables does not have coherent influence on survival rates.

Nevertheless, the results can be used to extract some patterns for single LMIs as well as for differences within the survival lengths and sectors.

The labour market variable that has by far the lowest influence on business survival seems to be employment protection (EP), by having a lowest P-Value of 0,29 (in T-1 2013) but several times P-values higher than 0,9 indicating almost no correlation at all. Additionally, the P-values of EP do not differ in the different survival periods or sectors.

Union density (UD), also lacks any contribution to explain the different survival rates. What is, however, surprising is that P-values for UD are usually lower in the service sector survival rates than in the manufacturing rates. In addition, the p-values of UD

seem to be very sensitive to other variables. For example: the p-value for UD for the T-2 service survival rate in 2012 is 0,91 before MW is added and 0,48 afterwards. Education Expenditures (EE) have fairly low P-values in the T-1 rates, one time even statistically significant ($p=0,028$ in T-1 Manu 2013) but for the longer survival periods, the P-values increase dramatically. All in all, EE has several times P-values above 0,9 and seems to have no other pattern concerning certain years or sectors. In conclusion, the previous made question whether UD and EE have influence on survival rates can rather be denied than affirmed.

Finally, minimum wages, once added increase the R2-value dramatically in most cases. Furthermore, MW has several P-values below 0,05 and thus shows some significant influence in some cases, what also supports the observation in the descriptive statistics section. Especially the service sector seems to be significantly influenced by MW. Simultaneously, MW increases usually P-Values for EE when added and decreases P-values for UD several times.

Generally, R2 values are much higher in the periods T-1, T-2 and T-3. Afterwards the values sink substantially. For example, the highest value in T-1 is 0,57 while the highest value in T-5 is only 0,28. The P-values of the variables, except for EP, are consequently lower in the shorter survival periods than in T-4 or T-5.

What does also seem to be suspicious is that in T-1, T-2 and T-3 R2-values are basically higher in 2012 and 2013 than in the previous two years. This changes to the opposite for the T-4 and T-5 survival rates, yet, the R2-values are always relatively low in each case for T-4 and T-5. However, the 2012 or 2013 T-4 and T-5 survival rates concern the founding years 2007,2008 and 2009, which circle the worst years of the financial crises. Simultaneously, these years are pertained for the T-1 and T-2 survival rates for 2010.

A final, general observation is that the service sector is usually much more affected by the labour market institutions than the manufacturing sector, since R2-values are usually higher and P-values for the independent variables lower in the regression of the service sector survival rates. This again supports the assumption made in the descriptive part. In the cases in which this is not true the gap between the R2-values of the manufacturing or service sector is extremely large, indicating outliers for one or both of the survival rates.

With that being said, it becomes clear that this research is far away from giving statistical significant results for the correlation of one of the chosen labour market variables with survival rates in a macroeconomic comparison. Still, there are some tendencies that can be interpreted and discussed.

5. Discussion

There are many hooks in the results that needs to be discussed. First of all, one has to examine why the whole regression analyses shows so little statistically significant results, while the analyses of the clusters shows patterns within different country groups. Then, it is necessary to evaluate the results of the different variables in detail and find possible causes for their contribution to the survival rates. Third, how do the general patterns given by the regression results fit into known research or the VoC approach? Furthermore, the discussion should extract starting points for many future researches.

There could be several reasons for the weak statistical significance of the whole regressions analyses. As explained in the methodology description, the research has its limitations, but still the low level of the results seems to be unexpected. The most standing to reason would be that there is simply no causality between the labour market institutions and the survival rates.

However, the author has cause to assume that the answer lies rather in the research design. Especially the low correlation between survival rates and the control variables casts doubt on the validity of the chosen data.

Corporate income taxes (CIT) have been subject of business survival research before. Masso, Meriküll & Vahter (2011) showed that less corporate taxes increase survival of small firms, especially in the time of financial crises. Keuschnigg & Nielsen (2002) found out that high corporate taxes force entrepreneurs to abandon their businesses earlier. Same scientific evidence is given for unemployment and its influence on business longevity in the description of the control variables. GDP growth indicates the climate of a nation and common sense suggests that business survival should at least be to some extent connected to it. Maybe GDP growth is a too broad variable to reflect a direct connection to the business survival, yet the author believes that the chosen time period for the survival rates is the main cause for the weak correlations.

As a matter of fact, the results give stimulus to consider the financial crises of 2008 as having a major influence on business survival as well in the sense that determinants other than the control variables or LMI's drive business survival. Simón-Moya, Revuelto-Taboada & Ribeiro-Soriano (2016) show as well that financial crises change the pattern of firm survival.

The thesis' results give more evidence to this assumption. Correlation with the independent and control variables is generally lower for the survival periods that started in 2007, 2008 or 2009. With that being said, the author suggests that a comparable research has to be conducted once more survival rate data is available. Eurostat should continue to gather this information and make sure that participating countries do not drop out of the collection. Once more and longer survival rates are available it would be possible to perform longitudinal research in order to shed more light on the LMI's influence. So far the relatively short period of available survival rate data is not suitable to ascertain statistically significant correlations.

In addition to the problems with the dependent variable the author realizes that the chosen index variables (EP and QOG) differ fairly little among the European countries. This leads to difficulties in finding correlations through the multivariate regression method. Furthermore, it can be conjectured that the indexes include too many factors that do not influence business survival directly. Yet, since the LME cluster differs a lot in its employment protection and shows certain characteristics in its survival pattern, the author suggests further research in which employment protection is divided into more sophisticated variables. Hire and fire flexibilities for the firms play an important role in the varieties of capitalism approach; therefore, it is not too farfetched to consider their influence on business survival as well.

Simultaneously, the power of trade unions should also be re-examined as well once better survival data is available. The assumption that the variable's influence grows in the longer survival lengths, came not true.

Instead, it would be interesting to know whether the service sector is really more influenced by it than the manufacturing sector. Due to that, one should divide the service sector into different areas. The author cannot imagine that for example IT-service firms are affected by trade unions, but rather such as administrative or construction firms, since their employees tend more to be members in unions. These "lower" service firms would then suffer more from strikes or collective bargaining, because their main cost position would be their employees.

Education expenditures' decreasing can be interpreted quite logically. When a firm is founded, the first year might be decided by the initial quality of the employees. In the following years, however, other factors might become more decisive. Further research should therefore also other determinants controlled by the policy makers in the education area.

Eventually, minimum wage is the only LMI in this research that shows significant influence on business survival in some cases. Yet, it has to be noted that only statutory minimum wages are considered. Particularly in the countries with no national MW, one should evaluate whether different sectors or industries still have minimum wages, established through trade unions, exemplarily. Checking for correlation between those sectoral wages and sectoral survival rates could give more evidence on this thesis results. The underlying assumption would still be that minimum wages are associated with increased costs for some enterprises. Not only for the very low skilled workers but cumulatively for the subsequent lower skill levels. Eventually, firms have to bear more costs; costs that firms in other countries might not have. Hence, further research should also include the macroeconomic component again in order to evaluate international as well as inter sectoral influence of minimum wages.

Finally, one has to interpret the patterns of the combined effect of the LMI's on business survival. The results suggest that the survival of the enterprises seem to be more influenced in the early years and that this influence decreases once the enterprise has passed its third year. How could this be explained?

The author assumes that a lot of entrepreneurs underestimate the role of the labour market regulations. Not only the cost of wages, but for example also the time and cost

associated with union negotiations or severance payments in case of redundancy are factors might surprise an entrepreneur who is too much focused on his new business idea. Once the cost and struggle a new employer could have with the LMI's become real, a lot of entrepreneurs might terminate their business, because they and their business plan was not prepared for this part of entrepreneurship.

Alternatively, the general vulnerability of firms in their founding years could also be affected by the statutory labour market framework. The quoted business survival literature shows that firms are in an increased hazard of dying in their first years. Especially high wages or the lack of qualified personnel might harm a young business a lot, since it does not necessarily have the financial resources or experience to cope with high employee lawsuits or training. The national framework for employment protection or education might thus have an augmented influence on young businesses. Just as the company has survived and stabilized sufficiently, other factors, such as competition or market demand become more determining.

Besides, it is interesting to evaluate why the service sector survival probability seems to be more influenced by the labour market institutions. This observation contradicts with the initial expectation of the author.

It does not seem logical that particularly minimum wages influence the service sector a lot, since workers are usually fairly skilled. Hence, the author highly recommends that future research should divide the service sector depending on the level of expertise. It can be expected that such a differentiation will show more details of the influence of LMI. Education expenditures, exemplarily, could show more influence in the high skilled service sector while minimum wages or trade union density show an even higher influence than in this thesis.

Generally, the service sector might be more influenced by the institutional set up of the labour market because employees represent their main good. This is why unfavourable labour laws would especially harm service business. Manufacturing firms on the other hand are more dependent on financial capital or resource prices and thus have different survival patterns.

As the discussion shows, the research offers, despite the lacking statistical significance a number of insights and suggestions for further research. This thesis will now end with an overall conclusion of the research design and results.

6. Conclusion

The thesis' goal was to examine whether labour market institutions influence the survival rate of new ventures. Therefore, the author wanted to research both if certain countries, grouped by their institutions, show different survival patterns and if specific variables correlate with business survival on a macroeconomic level. As a theoretical

framework, the author used the varieties of capitalism approach, in order to find a clustering for different countries and to extract specific labour market variables.

The methodology consisted of both descriptive statistics which was used to evaluate whether there are survival patterns in specific VoC clusters and a multivariate regression being used to find correlations between labour market institutions and business longevity. The data about survival rates was taken from Eurostat and shows different survival rates of manufacturing and service companies between 2008 and 2013. The corresponding LMI, employment protection, minimum wages, union density and education expenditures were as well taken from official databases.

The descriptive statistics showed that survival rates differ between the VoC clusters and thus one can assume that the institutional frame work indeed influences the survival probability of new ventures. Nonetheless, the regression results showed almost no statistical significance for the correlation between any LMI variable and the survival rates. The author concludes that this is caused by the chosen survival data, which represents the time of the financial crises and its aftermath. Anyway, some of the results are worth to be investigated further.

It was originally planned that thesis' results could be converted into policy implications. Unfortunately, the lack of consistently significant results makes this impossible. Nevertheless, several results implicate the need of further research.

The main problem of the research design is, in the opinion of the author, the limited of the survival data. Once more data is available the methodology is likely to show more significant result.

The analyses of the clusters, in addition, shows that combining the varieties of capitalism approach with business survival can result in fruitful insights. Since the spheres of the VoC consists of several levers policy makers can use, this framework is highly suitable for the business survival research. Therefore, it is recommended to extract more definite variables from the VoC and see how they influence corporate survival. If labour market institutions are used as independent variables again, the research should eminently focus on the survival rates in the service sector. The increased dependency shown in this thesis insinuates that there could be more insights won.

In addition, as minimum wage was a partly significant variable in this research, it is advised to study its sway on business survival further in, for example, different industries or sectors. Nonetheless, as Hall & Soskice said, changes in an institutional system can only happen incrementally. So, even if one would eventually find strong influencing variables, one should still have in mind that changes can only occur slowly and in dependence with the whole institutional system.

Finally, this thesis has not delivered the desired distinct results but rather, as expected through the explained limitations, a lot of hints for further explorations. New ventures and their survival is and will probably always be an important factor for the economy, innovation and the overall progress of mankind. Therefore, the author hopes that his recommendations are used for more research, so that the people in charge will finally

how their decisions about laws and institutions determine the fate of young entrepreneurs and their companies.

Appendices

	T-1																							
	2008		2008		2009		2009		2010		2010		2011		2011		2012		2012		2013		2013	
	Manu	Serv	Manu	Serv	Manu	Serv	Manu	Serv	Manu	Serv	Manu	Serv	Manu	Serv	Manu	Serv	Manu	Serv	Manu	Serv	Manu	Serv	Manu	Serv
	T-1 Manu	ΔT-1 Serv	20T-1 Manu	ΔT-1 Serv																				
Belgium	91.49	75.43	89.64	92.6	91.42	91.6	90.69	91.09	91.85	93.02	91.18	91.48												
Czech Rep	86.47	83.09	83.85	83.64	83.04	82.54	84.98	83.13	84.36	81.62	83.43	80.93												
Denmark			70.67	63.75	73.71	70.06	76.31	70.92	74.67	69.32	74.42	68.02												
Germany	80.18	76.81	76.15	73.9	78.85	75.12	78.2	75.45	79.83	75.35	78.92	75.94												
Estonia	70.21	84.1	89.9	85.89	86.04	84.37	86.3	84.96	87.1	84	83.91	84.744												
Ireland	85.94	89.22	85.93	89.78	82.45	86.68	86.1	86.85	85.43	86.62	85.17	87.83												
Spain	81.81	82.76	81.73	81.46	85.25	82.37	82.65	76.79	80.8	76.92	81.36	76.9												
France	93.7	94.28	94.22	93.2	80.9	83.27	79.17	78.11	78.73	78.27	79.55	80.04												
Italy	91.67	93.83	87.08	86.74	87.61	90.76	88.59	78.61	86.71	77.52	83.92	65.59												
Luxembourg	93.85	88.14	90.7	90	88.89	92.03	93.18	89.27	96.3	90.42	96.88	88.27												
Hungary	81.76	84.72	79.67	82.96	81.73	84.24	80.79	77.21	80.61	79.33	76.91	77.25												
Netherlands	83.76	82.18	89.08		92.17	94.07	95.04	95.07	93.48	94.43	93.24	93.27												
Austria	94.14	92.47	94.19	91.5	92.34	90.18	91.4	89.61	89.39	85.6	89.87	86.4												
Poland	90.22	93.52	89.98	93.32	90.25	92.61	90.48	92.69	88.03	91.19	88.92	91.26												
Portugal	82.25	77.7	79.34	75.86	78.42	73.29	81.13	70.12	79.7	70.68	77.92	71.1												
Slovenia	93.22	92.15	93.79	90.55	85.31	91.16	91.17	91.32	92.95	91	90	90.81												
Slovakia	71.84	69.67	74.76	79.6	74.54	81.79	87.21	83.06	83.39	78.28	85.51	85.1												
Finland	83.38	83.48	86.37	84.48	86.32	82.78	84.57	83.19	83.48	82.81	50.07	50.98												
Sweden	97.18	97.64	97.18	97.68	96.82	97.78	97.47	97.78	96.18	96.53	97.14	97.51												
United King	97.27	95.23	88.24	78.43	90.86	92.74	87.1	87.83	92.42	94.67	90.57	93.04												
Norway	86.39	79.14	76.24	74.42	82.92	79.85	86.97	80.84	84.02	78.35	84.36	80.43												

A1: Table 5: T-1 Survival rates. Yellow coloured cells were missing values and therefore calculated by the author through the average of previous years (Source: Eurostat 2016a)

	T-2																							
	2008		2008		2009		2009		2010		2010		2011		2011		2012		2012		2013		2013	
	Manu	Serv	Manu	Serv	Manu	Serv	Manu	Serv	Manu	Serv	Manu	Serv	Manu	Serv	Manu	Serv	Manu	Serv	Manu	Serv	Manu	Serv	Manu	Serv
	T-2 Manu	ΔT-2 Serv	20T-2 Manu	ΔT-2 Serv																				
Belgium		67.93	75.02	68.75	77.48	82.25	74.36	84.58	78.14	84.32	75.69	86.62												
Czech Rep	63.64	66.42	63.32	68.59	65.33	76.6	69.01	68.86	61.57	70.11	60.47	67.69												
Denmark			57.47	52.13	53.69	54.78	54.95	59.28	54.55	58.14	55.99	56.22												
Germany	56.89	60.54	54.28	60.81	54.34	58.67	52.94	60.22	56.13	60.86	55.29	60.31												
Estonia	67.27	71.91	67.71	73.22	52.84	71.99	69.2	71.09	62.45	73.22	63.894	72.286												
Ireland		85.09	76.31	80.52	69.44	82	63.15	74.65	65.78	76.11	68.67	79.674												
Spain	67.48	71.12	61.87	68.11	56.65	69.72	59.27	66.94	61.31	64.71	58.28	63.04												
France	69.37	80.95	75.16	79.74	75.45	81.12	72.4	68.1	55.76	62.12	56.68	66.11												
Italy	69.13	80.96	65.51	82.57	65.69	76.54	65.17	71.77	66.81	66.83	66.41	55.26												
Luxembourg	70.45	78.52	73.47	77.33	69.23	80.96	60.47	82.92	66.67	78.05	65.91	78.65												
Hungary	61.92	76.25	61.85	74.76	58	73.02	58.01	70.86	58.52	63.56	54.27	62.7												
Netherlands	62.59	64.73	59.49	120.29	92.03	94.07	68.97	84.43	71.02	83.53	71.95	83.43												
Austria	83.24	80.57	80.29	85.23	83.54	82.91	79.38	80.21	78.45	77.56	74.59	72.81												
Poland	60.26	79.94	59.92	83.02	59.14	82.18	58.39	81.08	58.54	80.89	59.4	78.82												
Portugal	58.1	63.19	58.24	59.51	52.65	56.8	49.56	54.68	52.38	51.55	52.86	54.87												
Slovenia	80.49	84.83	78.31	81.45	74.1	78.79	71.87	79.25	65.73	78.84	70.39	76.8												
Slovakia	60.03	66.6	52.09	56.76	45.63	70.71	53.92	70.77	54.3	65.44	58.26	66.34												
Finland	68.88	76.74	62.62	70.75	59.87	71.09	64.43	68.91	60.65	67.96	40.75	40.31												
Sweden	81.09	89.17	81.8	90.03	80.01	90.51	78.48	89.43	77.76	89.01	77.42	87.09												
United King	67.02	81.13	66.71	77.21	62.02	65.14	54.52	76.77	59.11	75.85	58.12	79.91												
Norway	58.65	66.41	65.23	60.18	59.47	59.12	52.36	65.02	58.93	64.65	61.36	63.07												

A2: Table 6: T-2 Survival rates. Yellow coloured cells were missing values and therefore calculated by the author through the average of previous years (Source: Eurostat 2016a)

	T-3																							
	2008		2008		2009		2009		2010		2010		2011		2011		2012		2012		2013		2013	
	Manu	Serv																						
	T-3 Manu	T-3 Serv																						
Belgium					82.71	62.53	79.13	65.79	83.86	77.25	83.19	79.29	84.16	79.36										
Czech Rep	72.24	57.18			74	57.82	77.06	60.25	69.93	70.63	71.94	60.4	69.07	60.37										
Denmark					58.9	44.24	60.92	50.14	63.85	48.91	65.72	51.84	60.96	50.33										
Germany	65.01	53.13			63.88	49.86	61.64	51.26	64.89	49.51	64.8	50.75	64.91	51.33										
Estonia	76.67	69.2			60.82	62.79	78.3	63.87	71.32	63.54	74.85	62.52	72.392	64.384										
Ireland	83.64				78.82	79.28	72.04	72.18	74.04	65.03	74.07	65.54	76.522	70.5075										
Spain	73.46	65.88			66.83	60.09	69.31	59.05	73.2	59.33	68.53	56.83	68.12	54.23										
France	78.86	72.47			86.33	72.84	82.18	71.12	66.45	72.29	65.13	57.1	67.9	53.4										
Italy	77.95	71.58			77.18	71.41	73.82	75.34	76.88	58.25	77.38	61.82	72.27	51.97										
Luxembourg	85.71	70.22			83.08	71.59	72.09	69.7	77.78	73.08	75	74	88.89	68.81										
Hungary	71.44	65.56			67.39	68.22	67.44	67.85	67.32	64.69	67.42	60.34	64.29	51.76										
Netherlands	66.56	60.17			104.17	57.6	76.76	70.274	80.1	85.27	82.8	75.71	81.32	72.62										
Austria	85.84	76			88.68	74.17	86.05	78.22	84.95	74.87	81.89	71.26	80.66	68										
Poland	73.46	69.47			75.76	70.15	73.65	71.48	74.56	70.84	74.68	68.6	71.84	67.96										
Portugal	69.87	52.83			65.61	51.92	59.59	47.42	63.86	43.96	65.85	43.11	68.67	41.72										
Slovenia	84.76	76.66			83.17	76.78	81.9	72.29	76.08	68.9	80.87	68.11	81.14	66.96										
Slovakia	63.77	58.41			56.55	56.81	58.89	51.16	67.39	63.95	69.66	54.66	68.72	55.75										
Finland	71.65	65.92			70.18	66	73.04	60.84	73.25	61.44	70.67	58.28	43.32	34.92										
Sweden	90.09	79.92			88.46	80.75	88.61	82.01	87.22	81.03	87.63	79.32	85.83	77.28										
United King	82.91	69.25			82	63.66	70.92	49.06	73.86	50.49	72.63	63.16	74.73	61.25										
Norway	74.89	52.23			71.25	54.54	61.03	48.04	68.21	48.73	72.78	54.4	71.4	52.72										

A3: Table 7: T-3 Survival rates. Yellow coloured cells were missing values and therefore calculated by the author through the average of previous and following years (*Source: Eurostat 2016a*)

	T-4																							
	2008		2008		2009		2009		2010		2010		2011		2011		2012		2012		2013		2013	
	Manu	Serv																						
	T-4 Manu	T-4 Serv																						
Belgium							71.1	60.58	71.41	62.27	68.77	73.66	71.03	75.14										
Czech Rep	55.83	48.73			56.62	50.67	57.27	52.2	59.05	53.97	63.58	65.45	53.1	53.36										
Denmark					51.99	41.13	53.37	44.28	49.2	45.9	50.07	45.32	49.3	46.17										
Germany	49.97				49.39	46.16	47.83	43.33	48.06	45.17	46.88	43.2	48.9	44.4										
Estonia	58.67	62.98			59.68	63.19	58.33	56.5	47.7	58.57	62.1	57.74	57.296	59.796										
Ireland							66.49	71.09	55.56	58.5	56.48	58.98	59.51	62.85667										
Spain	63.06	62.54			58.31	57.33	53.71	53.01	49.16	50.43	51.18	51.78	53.61	48.84										
France	60.52	66.25			64.82	65.88	66.56	65.56	66.49	64.36	63.88	64.97	49.64	50.57										
Italy	60.67	64.45			59.03	64.41	56.69	65.55	57.67	58.75	57.48	51.78	58.38	50.45										
Luxembourg	76.74	60.64			63.64	65.76	63.27	63.31	61.54	62.71	55.81	66.35	57.78	65.09										
Hungary	57.41	57.38			53.97	59.38	54.65	61.61	50.42	60.91	50.62	57.27	50.14	50.1										
Netherlands	57	55.31			57.94	54.59	49.68	50.21	83.61	98.16	62.82	77.37	63.28	65.95										
Austria	76.53	72.12			76.7	70.66	75.72	67.74	77.68	71.07	72.77	67.29	71.75	64.03										
Poland	53.59	61.69			53.72	63.75	50.44	62.78	50.81	64.71	50.02	63.33	50.69	61.57										
Portugal	50.54	45.79			49.19	45.02	48.15	43.21	44.84	38.44	41.32	35.63	46.808	41.618										
Slovenia	75.75	68.93			75.58	70.85	70.37	68.59	66.34	64.63	64.51	61.45	58.29	59.54										
Slovakia	53.39	54			50.28	50.45	44.06	52.17	42.72	47.27	47.25	56.28	46.78	48.53										
Finland	58.25	56.09			60.91	58.32	54.74	57.52	52.98	54.07	54.39	52.41	41.64	33.43										
Sweden	74.73	73.78			73.25	72.37	72.73	72.58	71.51	73.76	71.24	73.38	67.84	67.64										
United King	56.73	58.91			55.95	56.36	54.25	51.41	51.32	41.05	46.44	43.08	49.29	51.97										
Norway	54.52	40.54			50.3	44.11	55.78	45.94	51.5	40.93	45.39	41.95	50.84	46.04										

A4: Table 8: T-4 Survival rates. Yellow coloured cells were missing values and therefore calculated by the author through the average of previous years (*Source: Eurostat 2016a*)

	T-5																							
	2008		2008		2009		2009		2010		2010		2011		2011		2012		2012		2013		2013	
	Manu	Serv	Manu	Serv	Manu	Serv	Manu	Serv	Manu	Serv	Manu	Serv	Manu	Serv	Manu	Serv	Manu	Serv	Manu	Serv	Manu	Serv	Manu	Serv
Belgium								65.63	62.19	66.52	57.47	67.99	59.35	62.38	69.75									
Czech Republic			51.19	43.91	52.04	46.24	51.85	47.32	53.58	48.95	58.69	59.95												
Denmark			45.84	37.67	48.46	41.03	48.54	40.72	45.01	41.56	46.15	41.05												
Germany			44.47	42.74	44.51	41.11	43.22	38.66	43.64	40.32	41.99	38.41												
Estonia			53.43	57.87	53.09	55.21	51.88	52.73	54.43	55.01	53.2075	55.205												
Ireland					52.63	55.14	56.28	59.75	51.91	53.16	53.60667	56.01667												
Spain			54.68	55.35	51.18	51.63	47.44	46.06	42.83	44.51	45.08	46.56												
France			57.62	60.91	57.53	60.2	59.62	60.12	59.1	58.63	59.03	60.12												
Italy			52.83	58.94	51.76	59.69	50.63	54.41	51.2	51.74	51.22	45.06												
Luxembourg			74.42	54.21	54.55	58.56	57.14	57.05	55.38	55.3	51.16	60.96												
Hungary			50.85	52.27	48.06	54.7	48.14	55.76	44.95	54.14	42.82	47.74												
Netherlands			52.51	50.71	52.59	49.29	47.89	48.06	77.46	90.07	57.16	68.83												
Austria			72.71	67.88	70.95	65.86	71.15	62.07	72.88	66.02	67.87	60.64												
Poland			48.48	57.61	47.26	58.3	44.9	57.66	44.67	59.27	44.09	58.2												
Portugal			43.83	39.61	42.14	38.5	40.91	36.37	37.27	32.09	41.0375	36.6425												
Slovenia			69.08	63.27	69.17	65.44	63.39	60.9	58.91	59.41	58.21	54.95												
Slovakia			47	47.81	43.39	44.88	41.47	48.97	37.74	42.74	41.83	51.91												
Finland			52	50.65	52.74	52.36	48.7	51.44	44.53	45.42	43.07	31.01												
Sweden			68.25	67.53	65.22	64.87	66.17	66.07	66.47	68.01	62.67	62.46												
United Kingdom			49.04	49.76	46.65	46.06	45.43	42.03	44.48	35.48	40.01	36.63												
Norway			48.13	34.2	43.54	38.06	48.95	39.4	44.84	35.3	40.06	36.15												

A5: Table 9: T-5 Survival rates. Yellow coloured cells were missing values and therefore calculated by the author through the average of previous and following years (Source: Eurostat 2016a)

	Employment Protection Index										Mean
	2004	2005	2006	2007	2008	2009	2010	2011	2012		
Belgium	1.892857	1.892857	1.892857	1.892857	1.892857	1.892857	2.083333	2.083333	1.892857	1.935185	
Bulgaria											
Czech Republic	3.305556	3.305556	3.305556	3.051587	3.051587	3.051587	3.051587	3.051587	2.924603	3.122134	
Denmark	2.134921	2.134921	2.134921	2.134921	2.134921	2.134921	2.134921	2.198413	2.198413	2.14903	
Germany	2.678572	2.678572	2.678572	2.678572	2.678572	2.678572	2.678572	2.678572	2.678572	2.678572	
Estonia	2.742064	2.742064	2.742064	2.742064	2.742064	2.742064	1.809524	1.809524	1.809524	2.431217	
Ireland	1.436508	1.436508	1.269841	1.269841	1.269841	1.269841	1.269841	1.269841	1.396825	1.320988	
Spain	2.357143	2.357143	2.357143	2.357143	2.357143	2.357143	2.357143	2.214286	2.214286	2.325397	
France	2.468254	2.468254	2.468254	2.468254	2.468254	2.384921	2.384921	2.384921	2.384921	2.431217	
Italy	2.761905	2.761905	2.761905	2.761905	2.761905	2.761905	2.761905	2.761905	2.761905	2.761905	
Latvia											
Lithuania											
Luxembourg	2.246032	2.246032	2.246032	2.246032	2.246032	2.246032	2.246032	2.246032	2.246032	2.246032	
Hungary	2.003968	2.003968	2.003968	2.003968	2.003968	2.003968	2.003968	2.003968	2.003968	2.003968	
Netherlands	2.884921	2.884921	2.884921	2.884921	2.884921	2.821429	2.821429	2.821429	2.821429	2.856702	
Austria	2.369048	2.369048	2.369048	2.369048	2.369048	2.369048	2.369048	2.369048	2.369048	2.369048	
Poland	2.230159	2.230159	2.230159	2.230159	2.230159	2.230159	2.230159	2.230159	2.230159	2.230159	
Portugal	4.416667	4.416667	4.416667	4.416667	4.416667	4.416667	4.130952	4.130952	3.559524	4.257936	
Romania											
Slovenia	2.650794	2.650794	2.650794	2.650794	2.650794	2.650794	2.650794	2.603175	2.603175	2.640212	
Slovakia	2.222222	2.222222	2.222222	2.222222	2.222222	2.222222	2.222222	2.222222	1.714286	2.165785	
Finland	2.166667	2.166667	2.166667	2.166667	2.166667	2.166667	2.166667	2.166667	2.166667	2.166667	
Sweden	2.607143	2.607143	2.607143	2.607143	2.607143	2.607143	2.607143	2.607143	2.607143	2.607143	
United Kingdom	1.261905	1.261905	1.261905	1.261905	1.261905	1.261905	1.261905	1.261905	1.261905	1.261905	
Norway	2.333333	2.333333	2.333333	2.333333	2.333333	2.333333	2.333333	2.333333	2.333333	2.333333	

A6: Table 10: Employment Protection Index per year and country (Source: OECD 2016a)

	Minimum Wages									
	2004	2005	2006	2007	2008	2009	2010	2011	2012	Mean
Belgium	7.772854	7.935769	8.090737	8.260362	8.657149	9.340285	9.310171	9.63389	9.80268	8.755989
Bulgaria	0.510676	0.619612	0.644636	0.713859	0.828362	0.9034	0.914841	0.919669	1.045074	0.788903
Czech Republic	0.094819	0.103619	0.109806	0.118372	0.110125	0.113871	0.115154	0.120974	0.121118	0.111984
Denmark	0	0	0	0	0	0	0	0	0	0
Germany	0	0	0	0	0	0	0	0	0	0
Estonia	1.720528	1.816414	2.19893	2.172324	2.716401	2.79349	2.8492	2.82996	2.898098	2.443927
Ireland	5.820087	6.529339	7.15825	7.781963	8.02864	8.591884	9.023576	9.025431	8.961827	7.880111
Spain	3.540568	3.929182	4.161275	4.33183	4.604058	4.82915	4.898896	4.989066	5.042537	4.480729
France	7.545507	8.098355	8.618488	8.902026	9.173993	9.67952	9.912355	10.18227	10.40828	9.168978
Italy	0	0	0	0	0	0	0	0	0	0
Latvia	1.46506	1.375494	1.47356	1.778771	2.196413	2.517688	2.689858	2.883908	2.876159	2.139657
Lithuania	1.660572	1.805614	1.970626	2.345363	2.573158	2.626865	2.732252	2.707099	2.689072	2.345624
Luxembourg	9.08312	8.749529	9.091499	9.202392	9.326566	9.739541	9.798077	10.47396	10.77982	9.582723
Hungary	0.007276	0.007753	0.008442	0.008436	0.00883	0.009331	0.00969	0.010438	0.012002	0.009133
Netherlands	8.436652	8.536314	8.742279	9.100047	9.470151	9.80025	9.8685	10.02435	10.07912	9.339741
Austria	0	0	0	0	0	0	0	0	0	0
Poland	0.545103	0.549731	0.594683	0.643973	0.769803	0.874041	0.929092	0.986703	1.080381	0.774834
Portugal	2.909084	3.055682	3.187986	3.295203	3.515359	3.790721	4.032284	4.272673	4.368269	3.603029
Romania	0.245547	0.24151	0.252345	0.284529	0.345516	0.409124	0.407862	0.47465	0.490762	0.350205
Slovenia	4.119325	4.294266	5.097842	4.447674	4.525701	4.832149	4.937049	6.292478	6.507218	5.005967
Slovakia	1.838156	2.014801	2.140491	2.380642	2.568568	2.894939	3.102982	3.194995	3.287271	2.602538
Finland	0	0	0	0	0	0	0	0	0	0
Sweden	0	0	0	0	0	0	0	0	0	0
United Kingdom	9.718318	10.25231	10.75067	10.99472	11.16393	11.41764	10.64406	10.72882	10.92836	10.7332
Norway	0	0	0	0	0	0	0	0	0	0

A7: Table 11: Hourly average statutory minimum wages per country and year (Source: WSI 2016)

	Trade Union Density									
	2004	2005	2006	2007	2008	2009	2010	2011	2012	Mean
Belgium	53.99034	53.67688	54.84673	54.65169	54.43862	54.9053	53.77081	55.06705	55.02052	54.48533
Bulgaria										
Czech Republic	21.018	20.17895	18.91302	18.26385	17.7078	16.97407	15.4652	13.89505	13.39615	17.31245
Denmark	70.3723	70.66847	68.4161	67.93806	66.33595	67.68863	66.99732	66.35727	67.20419	67.99759
Germany	22.17101	21.67863	20.71647	19.88737	19.12808	18.9267	18.56448	18.04589	17.86923	19.66532
Estonia	10.08317	9.121518	7.977198	7.354489	7.050431	7.707201	7.647398	6.800396	6.413866	7.795074
Ireland	35.49984	33.9599	32.35484	31.46853	31.9269	33.0828	32.69145	32.59815	31.2254	32.75642
Spain	15.56719	14.8325	14.50321	15.72717	17.35907	17.83094	17.56902	17.21284	17.47347	16.45282
France	7.725285	7.667617	7.586451	7.547652	7.565618	7.681719	7.735645	7.724677	7.744868	7.664393
Italy	34.08441	33.5941	33.24174	33.48911	33.42668	34.70005	35.45781	35.68868	36.27569	34.43981
Latvia										
Lithuania										
Luxembourg	42.25981	41.3947	40.12036	38.73563	36.4577	35.97947	35.10228	33.86122	32.81821	37.41438
Hungary	16.94915	17.46809	15.93853	14.98237	14.44804	12.79593	12.45425	11.376	10.55084	14.10702
Netherlands	20.79764	20.55739	19.98002	19.3077	18.8171	19.0621	18.62865	18.16329	17.6949	19.2232
Austria	34.41766	33.31909	30.98636	29.9361	29.07104	28.65898	28.37641	27.90568	27.44701	30.01315
Poland	19	21.5	16.2	15.6	15.1	15.08972	14.58388	13.54727	12.51608	15.90411
Portugal	21.42159	21.24534	20.83396	20.80058	20.49303	20.14949	19.34075	19.52489	20.53743	20.48301
Romania										
Slovenia	25	25	25	25	28.08043	25	25.02189	23.11545	25	25.13531
Slovakia	23.61296	22.76533	20.55827	18.76409	17.17334	17.0409	16.94828	16.95525	16.76148	18.95332
Finland	71.45221	70.64624	70.35849	70.49793	69.63148	69.85809	69.11848	68.388	68.6336	69.84273
Sweden	78.05231	76.51925	75.14587	70.77094	68.30863	68.41463	68.21984	67.4968	67.50593	71.15936
United Kingdom	28.86299	28.4194	28.05517	27.88224	27.08383	27.08375	26.36254	25.61576	25.83865	27.24492
Norway	54.98084	54.88774	54.15112	52.98073	52.64069	53.60419	53.73913	53.46661	53.2722	53.74703

A8: Table 12: Trade Union Density, percentage of employees being member in any trade union (Source: OECD 2016b)

	Education Expenditures								
	2004	2005	2006	2007	2008	2009	2010	2011	2012
Belgium	5.81385	5.77514	5.82776	5.843	6.27368	6.39845	6.39667	6.36389	6.086555
Bulgaria									
Czech Republic	4.02052	3.89869	4.22392	3.875	3.75273	4.18041	4.07352	4.28418	4.038621
Denmark	8.21188	8.08275	7.72783	7.61377	7.49236	8.48796	8.61798	8.5471	8.097704
Germany	0	0	4.28476	4.34842	4.41596	4.88767	4.921	4.81496	3.459096
Estonia	4.91245	4.84577	0	4.66549	5.51959	5.95739	5.53039	5.09809	4.566146
Ireland	4.50573	4.54981	4.57605	4.7231	5.47034	6.20758	6.14068	5.85089	5.253022
Spain	4.14829	4.13003	4.16759	4.23332	4.50101	4.86779	4.81922	4.84507	4.36743
France	5.63702	5.49981	5.44211	5.44519	5.44403	5.73849	5.68342	5.51584	5.52251
Italy	4.39519	4.24747	4.53567	4.11659	4.40076	4.53407	4.34919	4.14054	4.339935
Latvia	5.07098	0	5.06904	5.00212	5.71456	5.63684	5.02948	4.93482	4.58653
Lithuania	5.16701	4.88093	4.81553	4.63877	4.87659	5.63608	5.35984	5.17268	5.068429
Luxembourg									
Hungary	5.3774	5.38289	5.35814	5.19448	5.02306	5.01172	4.81825	4.64508	5.101378
Netherlands	5.15019	5.20605	5.14168	4.97065	5.11925	5.49481	5.5558	5.52617	5.51428
Austria	5.32094	5.27148	5.25293	5.17663	5.29698	5.7674	5.7332	5.61861	5.429771
Poland	5.38899	5.45666	5.22829	4.87176	5.07496	5.02705	5.09644	4.86121	5.12567
Portugal	5.0423	5.07076	4.90802	4.92191	4.70213	5.56214	5.40289	5.12129	5.09143
Romania	3.27684	3.47503	0	4.24614	0	4.23975	3.52577	3.07337	2.9855
Slovenia	5.63518	5.58241	5.57559	5.10509	5.10609	5.56859	5.56756	5.56984	5.463794
Slovakia	4.10176	3.76648	3.72127	3.54053	3.54412	4.02503	4.13874	3.98871	3.93731
Finland	6.1685	6.03606	5.9381	5.68609	5.84677	6.48518	6.54071	6.48201	7.2187
Sweden	6.72268	6.55951	6.41067	6.21507	6.39073	6.85779	6.62199	6.49112	6.533695
United Kingdom	5.00527	5.19466	5.2469	5.1641	5.12086	5.3124	5.95497	5.75164	5.34385
Norway	7.42405	6.97399	6.48671	6.65829	6.40105	7.24098	6.87153	6.55284	6.82618

A9: Table 13: Education expenditures, percentage of GDP spent on education (Source: WorldBank 2016)

SUMMARY OUTPUT								
<i>Regression Statistics</i>								
Multiple R	0.680224							
R Square	0.462704							
Adjusted R	0.104507							
Standard E	11.42759							
Observatio	21							
ANOVA								
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>ignificance F</i>			
Regression	8	1349.524	168.6905	1.291758	0.332492			
Residual	12	1567.078	130.5898					
Total	20	2916.602						
	<i>Coefficients</i>	<i>andard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>ower 95.0%</i>	<i>pper 95.0%</i>
Intercept	72.89308	33.69939	2.163038	0.051431	-0.53159	146.3177	-0.53159	146.3177
EP	1.765968	6.216134	0.284094	0.781181	-11.7778	15.30976	-11.7778	15.30976
MWI	1.951703	0.787492	2.478378	0.029044	0.235905	3.667501	0.235905	3.667501
UD	0.071757	0.207125	0.346443	0.735009	-0.37953	0.523044	-0.37953	0.523044
EE	0.386464	1.914459	0.201866	0.843403	-3.78478	4.557712	-3.78478	4.557712
GDP	1.914005	1.837252	1.041776	0.31805	-2.08902	5.917033	-2.08902	5.917033
CIT	-0.52436	0.560406	-0.93568	0.367887	-1.74538	0.69666	-1.74538	0.69666
QOG	-7.07418	28.83099	-0.24537	0.810318	-69.8915	55.74315	-69.8915	55.74315
UE	-0.56497	0.795649	-0.71008	0.491225	-2.29854	1.168598	-2.29854	1.168598

A10: Table 14: Example for regression results, here T-2 Service Survival Rates with all variables

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