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To what extend does a relation exist between the national economic situation and the employment possibilities for persons with disabilities in the EU?

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1. Introduction

Unemployment[1] bears economic and social risks for the affected person (Blanchard & Illing, 2009). Even in societies with generous unemployment benefit systems, people in long-term unemployment are threatened by the risk of poverty (Beck, 2011). Furthermore, the exclusion from society, through inactivity or stigma, reduces the overall confidence and denies the possibility of further development through a learning process (Stiglitz & Walsh, 2008, pp. 29–30). In addition, unemployment drives people into the dependency of benefits and thus of the society (Applica, 2007, p. 53). Despite personal misfortune and economic risk, unemployment increases the costs for welfare states to compensate the unemployed through benefit systems (Buckup, 2009).

Persons with disabilities are particularly threatened by unemployment. They face discriminatory stereotypes, especially in the labor market environment such as inefficiency and disturbance for the production flow (Degener, 2006, p. 1). The reasons for the low chances of employment are complex and exceed the sole economic or social dimension. Still, in literature the employment chances for persons with disabilities are regarded as much better in economic well-doing countries (Greve, 2009, p. 4). In the following work it will be analyzed whether there is a relation between the national economic situation and the employment possibilities for persons with disabilities.

The structure of the thesis is as follows: Before carrying out the quantitative analysis, an introduction into labor market policies of the EU and the situation of persons with disabilities in the EU will be given in chapter one. After the presentation of the theoretical framework in chapter two as well as the methodology of the survey in chapter three, the research will be conducted in chapter four. Findings and further consideration will be made within the conclusion in section five.

1.1 Persons with disabilities in the EU

Within the EU25 16.2% of the working age population[2] can be classified as living with a disability (Eurostat, 2008d). The prevalence range of persons with disabilities reaches from Romania (5.8%) to Finland (32.2%) (ibid.). Hence persons with disabilities can be considered

[1] People are considered as unemployed, when they are willing to work but are not able to find a job (Beck 2011, p. 31).
[2] 16-64 years (Eurostat, 2008a)

as the largest minority group within the European society (Center for International Rehabilitation, 2007).

The employment rate[3] of persons with disabilities differs within the EU. In average 65% of this population group is committed to a working relationship. Malta with 56.1% has the lowest employment rate whereas in Norway 78.2% of the population with disabilities are employed (Eurostat, 2008b).

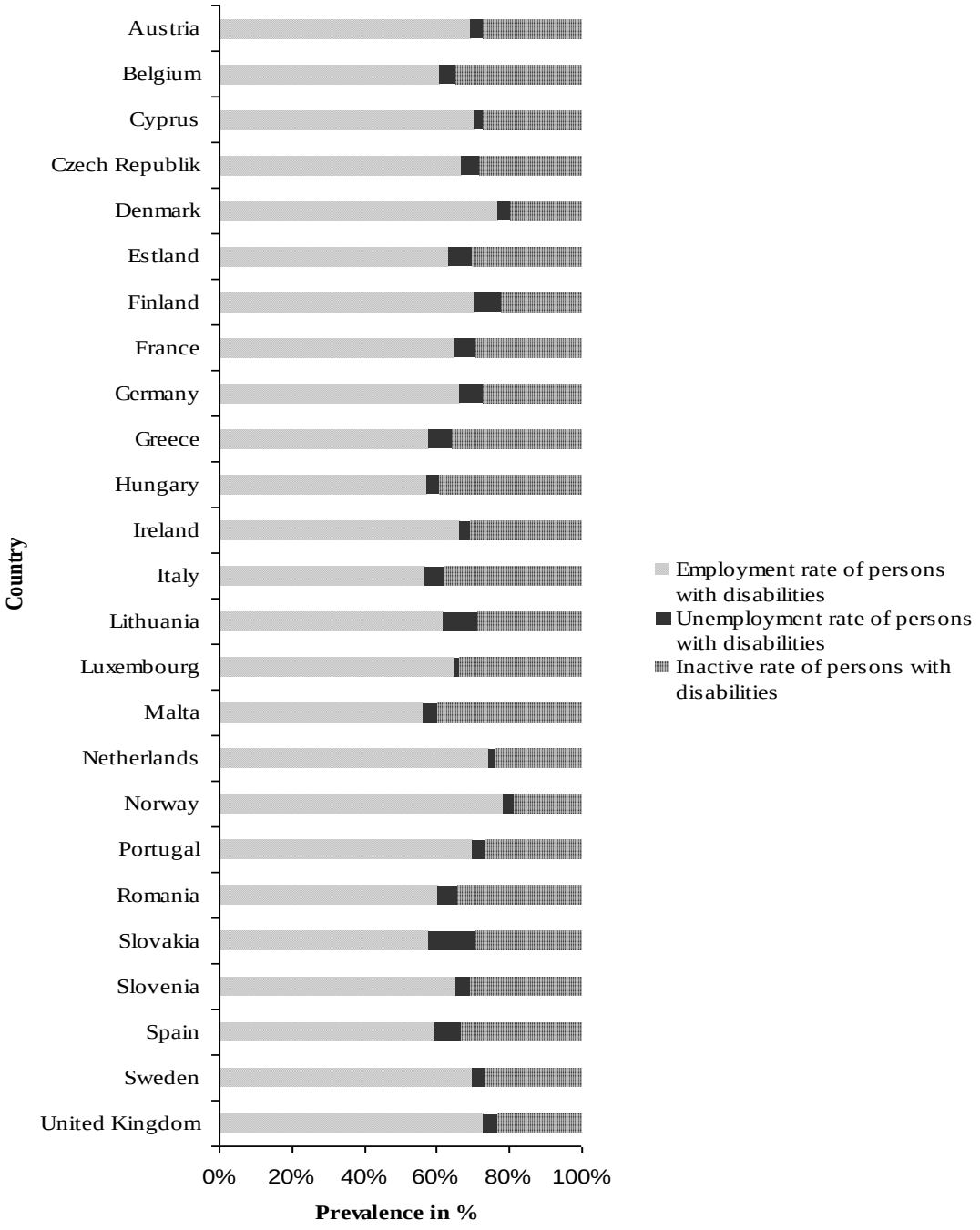


Figure 1: Structure by activity status of persons with disabilities in the European countries
Source: (Eurostat, 2008b)

[3] As employed are those persons considered with an employment contract of at least one hour per week (Eurostat 2008a).

Figure 1 presents the status prevalence among the national population of persons with disabilities by economic activity. As visible, there is a certain variation among the different countries, but the spectrum is limited. The unemployment rate of persons with disabilities among the European countries does not differ much. In average just 5.5% of the population are classified as unemployed, whereas 29.5% are labelled as inactive[4] (Eurostat, 2008b). The highest unemployment rate of persons with disabilities occurs in Slovakia (13.3%) whereas the lowest unemployment rate has been measured in Luxemburg (1.7%). Consequently, the pattern among the analyzed 25 EU countries is similar. The majority of the persons with disabilities is employed, a small minority unemployed and between 18.6% (Norway) and 39.8% (Malta) are inactive (ibid.). Reason for the differences in employment might be, despite economic differences, a lack of harmonization policy from the EU regarding labor market activation policies particularly for persons with disabilities. 1.2 will provide a short overview of the past and current EU policy regarding persons with disabilities in the EU.

1.2 Political Background – EU policy

The EU policy regarding persons with disabilities took off late, 20 years after EU's foundation in 1951[5] (Waldschmidt, 2009, p. 16). Over the last half century the content of policy significantly changed, mainly based on an altering understanding of the term disability. Definitions of disability previously focused on care, rehabilitation and compensation transformed into paradigms dealing with human rights, citizenship and equal participation (Priestley, 2007, p. 61). In 1974, enhanced employment was formulated as a major goal of a Council Resolution[6] for the first time, which continued in 1986 with the postulation for fair opportunities within the European labor market[7] (Priestley, 2007, p. 66). Until the middle of the 1990s the central theme of EU's disability policy continued to be solely labor market integration (Waldschmidt, 2009, p. 8). Afterwards the EU Disability Strategy of 1996[8], as well as the Action Plans of 2003[9], 2006[10] and 2008[11] influenced the ongoing development of

[4] Inactive were labelled those persons who were neither employed nor unemployed (Eurostat 2008a).
[5] Foundation of the EU's predecessor European Coal and Steel Community.
[6] Council Resolution, of 27th June 1974, establishing the initial Community action programme for the vocational rehabilitation of handicapped persons (Council of the European Communities 1974).
[7] Council Recommendation of 24. July 1986 on the employment of disabled people in the Community (Council of the European Communities 1986).
[8] Equality of Opportunity for People with Disabilities –A New Community Disability Strategy. Communication of 20th December 1996 (European Comission 1996).
[9] Equal opportunities for people with disabilities: a European action plan. Communication of 30th October 2003 from the Commission to the Council, the European Parliament, the European Economic and Social Committee and the Committee of the Regions (European Comission 2003).
[10] Council of Europe Action Plan to promote the rights and full participation of people with disabilities in society: improving the quality of life of people with disabilities in Europe 2006-2015 (Council of the European Communities 2006).

EU social policy concerning disability (Priestley, 2007, p. 66). Over these years the policy approach developed, including a shift from traditional to modern policy, including issues like equal rights and non discrimination legislation, leading to the current European Disability Strategy 2010-2020 (ibid.). The main goals of the strategy are the implementation of the UNCRPD[12], improved data and statistical monitoring as well as improvements in certain thematic areas, including employment (European Commission, 2010, pp. 38–39).

There are several problems which occur from the past and current EU disability policy. First of all, EU policy in the field of disability is not binding (Waldschmidt, 2009, p. 15). Hence the major competence and responsibility, based on the principle of subsidiary[13], rest with the member states and national governments (Priestley, 2007, p. 68). In addition, disability policy is regarded as a measure of positive integration, a field in which the EU is a weak actor (Waldschmidt, 2009, p. 13). Due to the limitation to soft policy measures a full harmonization among the member states has been and still is difficult (Priestley, 2007, p. 69).
Regarding the just mentioned phenomena, it is not surprising that there occur several differences among the living situations of persons with disabilities and the member states disability policies. The quest for the reasons of the differences has been started with the here conducted analysis. In particular the influence of the national economic situation will be examined. With the aid of the analysis results, the composition of the reasons for such differences can be detected. The differences either base on some sort of economical distinctions or policy varieties. Henceforth the study will pursue the following research question:

To what extend does a relation exist between the national economic situation and the employment possibilities for persons with disabilities in the EU?

[11] Situation of disabled people in the European Union: the European Action Plan 2008- 2009 (European Comission 2008).
[12] United Nations Convention on the Rights of Persons with Disabilities, adopted in December 2006 (European Comission 2010, p. 21).
[13] "Under the principle of subsidiarity, in areas which do not fall within its exclusive competence, the Union shall act only if and in so far as the objectives of the proposed action cannot be sufficiently achieved by the Member States, either at central level or at regional and local level, but can rather, by reason of the scale or effects of the proposed action, be better achieved at Union level" (Official Jounral of the European Union 2012, p. 6).

2. Theoretical framework

2.1 Relation between economic situation and employment of persons with disabilities

The aim of the here postulated theory is to built a framework for the perceived relation between the employment chances of persons with disabilities and the economic performance of a country. Based on the work of Robert Solow[14] certain expected developments will be formulated.

The foundation of the theoretical framework is based on two main assumptions:
First of all, labour market main actors (employers) are suggested to be mostly concerned about profit maximization and act according to it (Blanchard & Illing, 2009).
Second, stereotypes and stigma about persons with disabilities in the labour market are known and (subconsciously) adopted by all employers to the same extend. The stereotypes of persons with disabilities, which are indeed widely spread among the European society, are mainly inefficiency, unproductiveness and economic undesirability (Degener, 2006, p. 1). Hence, combining those two assumptions leads to the following conclusion: Employers, trying to maximize their business' profit and thus its productivity, rather tend to employ productive workers to maintain or achieve a high marginal productivity of labour. As a result, persons with disabilities, based on information asymmetry, will only become employed if workers without disabilities (and therefore with a higher anticipated productivity) are no longer available on the labour market.

According to the Solow model, the production depends on a function of capital and labour (Solow, 1956):

$$Y_r = f(L,K)$$

Y_r is the business' production, which is influenced by a combined function of the capital K and labour L. In detail this means that the output of a company only depends on the input of work and capital. As an example the function might be:

$$Y_r = \alpha \cdot L^{\alpha} \cdot K^{1-\alpha}$$

By dissolving through L, the following equation emerges:

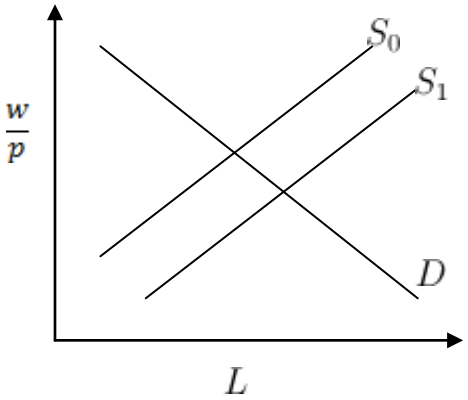
$$L^{\alpha} = \frac{Y_r}{\alpha \cdot K^{1-\alpha}}$$

[14] Robert Solow, an American economist, published "A Contribution to the Theory of economic growth" in 1956 in which he analysis economic growth. For his work he was rewarded with the Nobel Memorial Price in Economic Sciences in 1987 (Nobelprize.org 2005).

Solow's model suggests that there is a positive relation between the amount of labour L and the real productivity Y_r. If we assume a constant capital K, a higher productivity will only be achieved by an increased number of labor (Solow, 1956).

By extending the Solow model through the productivity level of the work force, two major measures for maximal profitable productivity emerge: First employers hire as many workers as its serves their profit interest, second they ensure the maximal marginal productivity of each worker.

In a single labour market model, the relation between employers and labour would be visualized as following:



S_o – standard labor supply

S_1 – altered labor supply

D – labor demand

L – amount of labor

$\frac{w}{p}$ – real wages

Figure 2: Labour market model

Source: (Blanchard & Illing, 2009)

The labour demand curve D is equal to the marginal productivity. With each single additional worker in a business or company the marginal productivity decreases and hence the real wages are reduced. The marginal productivity is not multiplied through every additional worker, because of limited facilities: As en example, too many workers in a factory would just hamper each other instead of working together effectively.

Still employers try to hire the most profitable amount of workers for the maximal productivity. Accordingly not only the amount of workers is important but also the marginal productivity of each additional worker. The marginal productivity depends on the one side on environmental factors (available means in the factory for example) and on the other side on the capability of the individual worker. Naturally hard and well working employees contribute more to the company's productivity than persons who work slower and less efficient. Thus, employers follow in their recruitment policies the following principle: The higher the perceived productivity of a person, the higher the chances to receive a company's job offer.

If the company's or nationwide intended output increases, the labour supply curve (jobs offered by enterprises) changes from S_0 to S_1 in table 2. According to Solow's model employers are only able to expand their output and production through enlarged number of workers. This supply change implies some effects: The offered amount of labour increases, because of the intended enlarged production. The demand for labour (from job seekers) stays equal to a lower intended production and does not change.[15] Thus the labour demand curve D does not alter. Because workers with a high marginal productivity do not occur unlimited in a society, employers have to hire workers with fewer skills to be able to meet the increased amount of workplaces needed. Consequently employers are only able to fill up open work places, if they reduce their requirements for personal productivity.

Based on the fact, that employers rather tend to hire workers according to their perceived skills, one has to conclude, that persons with fewer skills and a lower perceived productivity are rather hired in times of large economic productivity when the majority of people are already employed. Persons with lower education or fewer skills are thus only employed in times of high productivity and general employment. According to the above made assumption that persons with disabilities are regarded as less efficient and unproductive, one can conclude, that persons with disabilities are more likely to be employed if there is high economic productivity. From the above modelled theory, the first hypothesis for the study can be derived here:

H1: There is a positive relation between the economic performance of an EU country and the employment possibilities for persons with disabilities.

2.2 Influence of other factors

Despite of the economic performance, it is suggested that certain other factors influence the employment possibilities for persons with disabilities.

Business' employers hire as many workers as it is necessary to maximize profit.

$$\pi = y(L) \cdot p - w \cdot L$$

The income of a business is the amount of production y (in dependency of labour L) times the price p of the product. The costs for an enterprise are the wages times the amount of labour. Income minus costs equals the profit (π) of a company.

[15] No matter the economic situation of a country, the demand for work by the population stays the same.

This equation is fairly simplified by assuming first that the output only depends on the amount of labour (L) and second that the only costs of an enterprise are wages (wage times amount of labour). The question now is, how many employees are ideal to achieve the highest gain?

Therefore π should be maximized. The first order condition needs to be fulfilled:

$$\pi' \doteq 0$$

$$\pi' \doteq \frac{\partial y}{\partial L} \cdot p - w \doteq 0$$

This results in the final equation:

$$\frac{\partial y}{\partial L} = \frac{w}{p}$$

Hence the maximum profit is achieved, when the real wage is equal to the marginal productivity. Based on this finding it is now possible to argue, that employers hire workers with a certain minimum degree of perceived marginal productivity.

In addition to the above made assumptions one can expect that education, work place environment and health assistance are more developed in economic well-doing countries compared to others (United Nations, 2013). By assuming that these factors increase the productivity of persons with disabilities, it is possible to expect that persons with disabilities are more likely to get work places in economic well performing countries: The higher the productivity of a person, the higher the chances that an employer is willing to offer a job.

Regarding the above made assumptions and theory model, the second hypothesis for the study is:

H2: Education, work place environment and health assistance influence the employment chances for persons with disabilities positively.

So far, the whole model was based on the assumption of a lower perceived productivity of persons with disabilities. Hence, not only an increased productivity as just mentioned in H2 could be leading to better employment possibilities, but also an improved information exchange. In a society, where persons with disabilities are not wrongly regarded as unproductive or inefficient, their employment chances should increase. In a society with a relatively high share of persons with disabilities, employers are more likely to have regular everyday life contact with persons with disabilities. Everyday life contact reduces existing stereotypes. Therefore the third and last hypothesis for the study is formulated as following:

H3: The higher the share of persons with disabilities in a country, the better the employment chances for persons with disabilities.

The validity of the hypothesis will be measured through different variables, presented in the following passage 2.3. Their operationalization will be conducted during the methodology in chapter 3.5.

2.3 Variables

The study is conducted through three different types of variables: The independent, dependent and influencing variables.

2.3.1 Independent variable

The independent variable is the economic situation of a country. There are different approaches to evaluate a national economic situation. By using the GDP, the overall production of all means in a country and hence the general economic productivity can be measured (Stiglitz & Walsh, 2008, p. 17). The GDP is the most used macroeconomic figure to compare the economy of different countries. Within this research the nominal GDP will be used.[16]

Relating to the economic situation of the population, the GDP per capita indicates the purchasing power of the individual citizen in average (Blanchard & Illing, 2009, p. 55). The GDP per capita can be understood as an indicator for the standard of living.

The unemployment rate of the whole population is on the one hand a key figure to measure a country's economic performance and on the other hand gives hints for the economic situation of single households (Stiglitz & Walsh, 2008, p. 15). A high unemployment rate is a sign for an unproductive economy as well as for economic struggle of many households because of low income.

In addition, the Human Development Index (HDI) is an index trying to measure the wealth among countries' population. It is composed of three different areas: Economics, health and education. The economic living standard again is measured by the GDP per capita, the health of the population through the life expectancy and the education by two indicators, mean years and expected years of schooling (Beck, 2011, p. 12).

[16] The nominal GDP contains rising prices whereas in the real GDP prices are rectified to measure production differences over time periods (Blanchard and Illing 2009, p. 57). For the research purpose, both GDPs would be applicable.

2.3.2 Dependent variable

The employment possibilities for persons with disabilities are the dependent variable of the research. Employment possibility is not a fixed term, which can be measured. Consequently, it has to be operationalized by an indicator.

A strong evidence for good chances of employment is the actual employment rate. Employment rate is the ratio of people with workplaces to people able and willing to work in a country (Beck, 2011, p. 59).

2.3.3 Influencing variables

As derived from theory above, the employment chances are not only related to the economic situation but also to a variety of influencing factors. As postulated in hypothesis H2, education, the health care system and the work place environment affect the employment chances of persons with disabilities. It is impossible to include all other possible factors, but the most likely indicators suggested by literature will be implemented in the analysis.

Literature shows that persons with disabilities face barriers at work, which hinder them from carrying out their work properly and effective (Chapman-King, 2007). Hence provided assistance could increase their productivity and thus improve their work place environment. Same applies for supported employment, in which the employers are greater aware of specialties needed by persons with disabilities at work (Beyer, Borja Jordán de Urríes, & Verdugo, 2010).

Furthermore the condition of the health care system could have a positive impact on employment chances of persons with disabilities. Through an improved infrastructure and medical knowhow persons with disabilities might be less restricted and hence could also increase their productivity. The chances of persons with disabilities might be also highly related to the educational level of persons with disabilities in a country (Chapman-King, 2007). Productivity is highly influenced by educational degrees. Henceforth the higher the educational average of persons with disabilities in a country, the higher might be the chances of them to get hired (Network of Experts in Social Sciences of Education and Training (NESSE), 2012).

All of these factors are on the one side shaping and on the other side shaped through the national social system. Thus different social systems and a historical approach were included

in the analysis to investigate its implication on the employment possibilities for persons with disabilities.

Considering the past of a country, recent historical developments of the EU states might still have an impact on the situation in 2002. Nearly a quarter of the surveyed countries was still ruled by either communist or nationalist principles 20 years before 2002 and thus was nondemocratic (Gallus & Jesse, 2004). During this period states were neither acting according to welfare principles, nor were they influenced through the EU's guideline policy regarding persons with disabilities. The national circumstances might therefore differ for persons with disabilities.

The circumstances might not only differ because of non-democratic effects, but also due to different social systems in the here analyzed countries. There are different characteristics of welfare states influencing the approach of states towards their citizens, including persons with disabilities. In his work "The Three Worlds of Welfare Capitalism" (1990) Esping-Andersen introduced three different types of welfare states: The social-democratic, the conservative and the liberal model. The social-democratic model is based on the principle of universalism, the conservative type on subsidiary and the liberal model is mainly dominated by a strong market (Esping-Andersen, 1990). The main difference among the three models is the degree to which labour and thus persons are de-commodified and the state interferes with the social security of its citizen. In the liberal welfare regime the dominant principle is the free market. Social assistance and benefits are granted only partly and labour market activation policies are rare (Schmid, 2007). The conservative welfare state, on the other hand, provides several social aids mainly focussed on labour and social insurances. Interventions and policies are primarily launched in the interest of the state (ibid.). In the third welfare regime, the socio-democratic model, equality is the main principle. The public sector is heavily involved into the labour market through striving for full employment (ibid.). These different sorts of involvement suggest that the employment rate of persons with disabilities is higher in countries with a socio-democratic welfare regime compared to liberal or conservative regimes.

Moreover the labor market integration of persons with disabilities might be highly influenced through particular government's policy measures. Simplifying national policy measures can be divided into two different approaches: A compensation approach and integration approach (OECD, 2003). The compensatory approach is rather focussed on the access and distribution

of benefits among persons with disabilities whereas the integration method consists of strong employment measures and low public benefits (ibid.). It is suggested that the integration method leads to higher employment chances for persons with disabilities compared to the compensation approach. An analysis to investigate this relationship was carried out by the OECD in 2003. Henceforth there was no relationship detected[17] between the degree of integration policy of a country and its employment rate of persons with disabilities, this aspect will be left out in the coming analysis.[18]

In addition, remembering the theory model being based on perceived productivity and the hypothesis H3, the employment chances would already be increased, if the information asymmetry of the employers was reduced or abandoned. If entrepreneurs did no longer act according to stereotypes, employment possibilities for persons with disabilities would already grow (Chapman-King, 2007). There are two different aspects of the possible overcoming of stereotypes. One might be the general education level in a society, the other the share of persons with disabilities among the population. Stereotypes are mainly based on low information and knowledge (Schur, Kruse, & Blanck, 2005). Through a high educational level of a society the chances for decreased stereotypes are therefore higher than in societies with a general low educational level. In addition in a society with a high share of persons with disabilities stereotypes might be less, because of everyday life contact between employers and persons with disabilities. The society might be more aware of their strengths and potential work force.

3. Research methodology

3.1 Definition of persons with disabilities

The issue of defining disability has always been highly discussed and similarities among definitions have been rare. In a nutshell there are two major methods of defining disability: The medical (also called individual) method focuses on the personal level and the problems caused by the health condition (European Comission, 2002, p. 20). Whereas the social model implies that disability derives not from the impairment but is caused through societal incapability of coping with the differences (Castles, 2010, p. 407). Throughout the last decades, the social model gained importance over the medical method (Degener, 2006, p. 1).

[17] A non-significant Pearson correlation coefficient of 0.19 was measured for the employment rate of persons with disabilities and the integration policy for 19 countries, including eleven countries relevant in the here conducted research (OECD, 2003).

[18] For further reading please see "Transforming Disability into Ability" published by the OECD in 2003.

The most commonly used definition internationally is the International Classification of Functioning, Disability and Health (ICF) of the WHO (World Health Organization, 2011, p. 7). Due to a combination of internal (individual health) and external (societal and environmental) problems the definition is named: bio-psycho-social model (Degener, 2006, p. 1). This model is also the definition mostly used by the EU (European Comission, 2010, p. 4). Here, persons with disabilities are defined as those, "who have long-term physical, mental, intellectual or sensory impairments which in interaction with various barriers may hinder their full and effective participation in society on an equal basis with others" (United Nations, 2007, p. 4). The main data concerning persons with disabilities used in this study is derived from the Eurostat LFS ad-hoc module, which is based on self-assessment. Therefore no strict definition was applied, but rather an individual self-reporting of the participants (Eurostat, 2008a).

3.2 Problem of inconsistent definition

The variety of definitions has several impacts on disability studies.

Areas which are dealing with disability on a charity basis rather tend to use the medical approach whereas discrimination law tends to the social model (Degener, 2006, p. 1). Henceforth, people may be considered as having disabilities according to one policy but not according to an other (European Comission, 2002, p. 13). Thus, cross-national comparisons are rather difficult to examine due to different applied definitions among EU member states (Castles, 2010, p. 414, Lepper, 2007, p. 16).

If people are characterized as persons with disabilities based on different definitions and thus different indicators, variation of figures will not be resulting out of actual differences but rather definitional distinctions. The same applies to studies carried out by different institutions (Applica, 2007, p. 4). Some rely on figures provided by the national statistical offices others on surveys among the population. The figures of the national statistical offices are based on policy definitions, whereas the surveys among the population rather tend to self-assessment. The difference of the methods bears the threat of including and excluding different sicknesses or impairment under the term disability. It is possible that persons rather tend to self assess themselves, whereby policy definitions would not remark them as disabled.[19] Ergo, the comparability of these two different sorts of studies is limited.

[19] The same scenario vice versa might be also possible.

In the here conducted research, data concerning persons with disabilities was only used of the LFS ad-hoc module to exclude comparability threats. The figures of the LFS module are based on self-assessment.

3.3 Data and sources

Definitions across countries, policy areas and studies differ and henceforth decrease the comparability of different datasets. Some studies, based on figures provided by national statistic bureaus, do not even provide real cross-country comparability within a single study (Applica, 2007). Generally spoken the available data for persons with disabilities among the societies, their living conditions and especially their involvement on the labor market are very rare. In addition, the origin and use of data sources are very inconsistent. The main sources are household surveys and population census followed by establishment surveys and administrative registers (Lepper, 2007, pp. 14–15).

main data of this thesis concerning the prevalence of persons with disabilities as well as their employment rate are derived from the ad-hoc module in 2002. The survey was carried out among 25 participating states and therefore bears cross-national comparability. The questionnaire was similar in all countries, except of little changes due to cultural understanding (Eurostat, 2008a). The disadvantage of this data set is its limited currentness. Unfortunately the data of the LFS ad-hoc module of 2011 is not available yet and hence the results of the same survey of 2002 have to be analyzed instead. To measure the other variables, such as the indicators of economic strength and influencing variables, databases of the UNDP and Eurostat have been mainly utilized. For the detailed dataset please see the annexes at chapter six.

3.4 Research design

The research aim is to measure the extend of a relation between the economic situation and the employment possibilities for persons with disabilities in the EU.

Due to the fact that the EU grew during the last decade by gaining new member states in 2004, 2007 and recently in 2013, the data is not available for all current 28 member states. The survey was carried out among the then 15 EU member states, as well as nine candidate countries (Czech Republic, Estonia, Cyprus, Latvia, Hungary, Malta, Slovenia, Slovakia and Romania) and additionally Norway (Eurostat, 2008a). The research aim could be either achieved through a qualitative study by comparing a small number of countries with a content

analysis of the labor market situation of persons with disabilities or a quantitative study by comparing the data of the maximum possible cases by statistical means. Through analyzing the given data with statistical means the kind and degree of relation can be investigated. The advantage of a quantitative study is the possibility to detect relationships between phenomena with certain validity. Therefore, a quantitative empirical study was chosen to achieve the research aim.

Due to practical reasons the only possible research strategy bears the characteristic to be non-randomized, because there was no possibility to influence the sampling. Hence, already existing data will be analysed, only a longitudinal or a cross-sectional research design could be applicable. Within the longitudinal design a smaller amount of states could be observed over a certain period of time, including different economic periods (economic regression and boom). The cross-sectional design analyses differences among participants independently of the time factor. As already mentioned the only available dataset concerning the employment rate of persons with disabilities originates from 2002. Hence an analysis over a time period is not possible and thus only the cross-sectional research design is applicable.

The cross-sectional research design bears some disadvantages which need to be kept in mind regarding the validity of the results. The internal validity is especially threatened through a lack of control group. Pre and post comparisons are impossible. Referring to the research question, developments of the employment rate of persons with disabilities within the same countries under different economic situation can not be investigated. Another disadvantage of cross-sectional designs is the selection of variables. Omitted variables and multicollinearity problems influence the research results. The variable threats will be limited through statistical means, further explained in chapter 3.6.

3.5 Variables

To answer the research question, it is necessary to measure (i) the economic situation of a country and (ii) the employment possibilities for persons with disabilities. Both terms have to be operationalized by different variables to be able to grade the performance. In addition (iii) influencing variables have to be considered.

(i) Economic situation

As introduced in 2.3, the economic situation is measured through the GDP, the GDP per capita, the general unemployment rate and the HDI.

The GDP score is taken from the Eurostat database of the year 2002 in Euros[20] for each country individually (Eurostat, 2013). The variable ranges from the lowest to the highest score with Malta (4653 million Euros) and Germany (2132200 million Euros). The average GDP of the relevant countries is 396926 million Euros (ibid.). Based on the same source the countries' GDP per capita is derived (ibid.). It varies from 2200€ per inhabitant in Romania to 53700€ per inhabitant in Luxemburg with an average of 21044€ per inhabitant (ibid.). The general unemployment rate of a country was also measured by Eurostat and utilized in the study here (Eurostat, 2002). The average unemployment rate is 7.35% and has a range of Luxemburg's 2.6% to Slovakia's 18.8% (ibid.). The HDI is only measured and published in five year periods. The here utilized HDI score is derived from the Human Development report of 2003, which published the HDI score of 2000 (United Nations, 2003). The lowest score was calculated for Romania with 0.709 points, whereas Norway with 0.922 was registered with the highest score. The mean score of the relevant countries is 0.834 (ibid.).

(ii) Employment possibilities for persons with disabilities

The employment rate of persons with disabilities is based on the LFS ad-hoc module from Eurostat in 2002. It was measured through household surveys carried out by the member states' statistical bureaus (Eurostat, 2008a). The lowest employment rate occurs in Malta with 56.1% of employment among persons with disabilities and the highest employment in Norway with 78.2%. The average employment rate is calculated at 65% (Eurostat, 2008b).

(iii) Influencing Variables

Reliable data about the average educational level of persons with disabilities in the countries could not be found. Henceforth only data concerning the prevalence of disability by educational level from Eurostat was available, data has to be adjusted. The prevalence of persons with disabilities by educational level does not work as a proper indicator for the average educational level of persons with disabilities, because the share of persons with disabilities in the overall population has to be kept in mind. It is logical that the prevalence of persons with disabilities at universities is much higher, if the ratio of persons with disabilities in the population is higher. Therefore the prevalence of persons with disabilities at educational level has to be put in relation to the overall share of persons with disabilities in the societies.

[20] Or converted to Euros, if altering national currency.

The prevalence of persons with disabilities with an educational degree of the ISCED levels three until six is measured through the Eurostat LFS ad-hoc module (Eurostat, 2008e). The ISCED 1997 levels three to six involve the upper secondary, post-secondary non-tertiary, first state of tertiary and second state of tertiary education (UNESCO 2006). The data for the overall share of persons with disabilities in the population is derived from the Eurostat LFS ad-hoc module in 2002 (Eurostat, 2008b). The ratio ranges from 0.91 in Portugal and Spain to 2.51 in Austria. The mean score is 1.49. A score of less than one implies a low educational participation of persons with disabilities.

The provided assistance at work for persons with disabilities is derived from the Eurostat ad-hoc module (Eurostat, 2008c). In the survey included were questions concerning assistance needed and provided at the work place. In the Czech Republic just one percent of the surveyed persons with disabilities got assistance provided through the employer. In Belgium 46% did so. The mean lies at 17.1% (ibid.). The supported employment of persons with disabilities was measured through the governmental spending in percentage of the GDP. The data is derived from the Eurostat database (Eurostat). The lowest relative amount was spent in Malta (0.002% of the GDP), whereas the highest percentage of the GDP was spent in the Netherlands (0.602% of the GDP). The mean spending on supported employment by the government was 0.133% of the GDP (ibid.).

The health care system of a society is measured through the governmental spending on healthcare in % of the GDP (UNDP, 2012b) and the life expectancy at birth (UNDP, 2012a). Data is gained from the UNDP database. The life expectancy ranges from 70.2 years in Estonia to 79.6 years in Sweden with a mean of 76.5 years (ibid.). The health care spending is the highest in Germany with 8.2% of the GDP and the lowest in the Czech Republic with 2.4%. The mean accounts for 5.6% of the GDP (UNDP, 2012b).

The overall educational level of a society is measured twofold: The expected years of schooling (UNDP, 2012d) and the gross enrollment in primary, secondary and tertiary levels of education in % of the entire school age population (UNDP, 2012c). All data are derived from the UNDP of the year 2000. In both indicators was the lowest score measured in Romania with an expectancy of 3.5 years of schooling and 68% enrollment in education. Sweden performed best in both categories with 18.9 years of schooling and 112% enrollment

in education. 15.3 years represent the mean amount of expected school years and 87.1% the mean enrollment rate in education (ibid.).

To measure the share of persons with disabilities among the entire working age population, again, results of the Eurostat LFS ad-hoc module of 2002 are used (Eurostat, 2008d). The highest share was measured in Finland (32.2%) and the lowest in Romania (5.8%). The mean score accounts for 15.8% of the entire working age population (ibid.).

It is necessary to dichotomize the variables of former regime and welfare regime. The historic variable of former regime type is dichotomized with "0" for straight democracy between 1982 and 2002[21] and "1" for occurring nondemocratic elements during that period.[22] The welfare regime typology is dichotomized based on a classification conducted through a literature study of Ebbinghaus with "0" for countries with a liberal[23] and conservative[24] regime and "1" for a socio-democratic welfare regime[25] (Ebbinghaus, 2012). An overview over the statistical characteristics of the different variables is displayed in table 1.

[21] Austria, Belgium, Cyprus, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxemburg, Malta, Netherlands, Norway, Portugal, Slovenia, Spain, Sweden and United Kingdom
[22] Czech Republic, Estonia, Hungary, Lithuania, Romania and Slovakia
[23] Ireland and United Kingdom
[24] Austria, Belgium, Germany, Netherlands, Spain, France, Italy and Portugal
[25] Denmark, Finland, Norway and Sweden

Table 1: Characteristics of variables

Type of variable	Name	Minimum	Maximum	Mean	Sample Size (N)
Independent variable	GDP in millions	4653€ (Malta)	2132200€ (Germany)	396926€	25
	GDP per capita	2200€ (Romania)	53700€ (Luxemburg)	21044€	25
	Unemployment rate	2.6% (Luxemburg)	18.8% (Slovakia)	7.35%	25
	HDI	0.709 (Romania)	0.922 (Norway)	0.834	25
Dependent variable	Employment rate of persons with disabilities	56.1% (Malta)	78.2% (Norway)	65%	25
Influencing variable	Ratio prevalence ISCED to population	0.91 (Portugal and Spain)	2.51 (Austria)	1.49	24[26]
	Expected years of schooling	3.5 years (Romania)	18.9 years (Sweden)	15.3 years	25
	Gross enrollment in education	68% (Romania)	112% (Sweden)	87.1%	24[27]
	Provided assistance	1% (Czech Republic)	46% (Belgium)	17.1%	21[28]
	Spending on Supported Employment in % of GDP	0.002 (Greece)	0.604 (Netherlands)	0.133	15[29]
	Spending on healthcare in % of GDP	2.4 (Czech Republic)	8.2 (Germany)	5.6	25
	Life expectancy at birth	70.2 years (Estionia)	79.6 years (Sweden)	76.5 years	25
	Share of persons with disabilities in society	5.8% (Romania)	32.2% (Finland)	15.8%	25
	Former regime typology	0	1	-	25
	Welfare state typology	0	1	-	14[30]

[26] No data available for Malta
[27] No data available for Germany
[28] No data available for Estonia, Lithuania, Luxemburg and Malta.
[29] No data available for Cyprus, Estonia, Hungary, Italy, Lithuania, Malta, Romania, Slovenia, Slovakia and United Kingdom
[30] No classification possible for Cyprus, Czech Republic, Estonia, Greece, Hungary, Lithuania, Malta, Romania, Slovenia and Slovakia.

3.6 Statistical procedure

The aim of the statistical measures is to analyse whether there exist a relation between the dependent, independent and influencing variables. So, in order to answer the first hypothesis, a correlation between the economic situation and the employment chances has to be investigated. Correlation indicates that the variables are either influencing each other or are influenced by a third variable (Bortz & Schuster, 2010, p. 159).

The statistical procedure will be divided in three different steps:

1.) The bivariate correlation will be calculated for each variable pair. The used procedure will be the Pearson Correlation. The Pearson Correlation is the division of the covariance through the product of the standard variances (Kühnel & Krebs, 2001, p. 403).[31] The direction of the correlation, whether x influences y or vice versa, can not be surveyed through the Pearson Correlation but rather has to be examined through logical factors (Bortz & Schuster, 2010, pp. 159–160). Afterwards independent and influencing variables with low or no correlation will be excluded from further analysis. At this state it is already possible to gain some knowledge about causal relationships by interpreting the results.

2.) Multicollinearity is the linear correlation of two or more predictor variables. In case of a correlation between predictor variables, it is impossible to measure the single influence of one variable by constant other predictor variables. Hence, it is questionable which of the here surveyed factors has the greatest impact on the employment possibilities, it is important to avoid a high degree of multicollinearity. To perform a partial correlation, predictor variables with a high degree of multicollinearity have to be excluded. To detect multicollinearity two steps will be conducted:

First the bivariate correlation among the independent and influencing variables will be calculated and analyzed. If bivariate correlations among the independent and influencing variables occur, further investigation will be necessary.

Within the second step the degree of multicollinearity among the variables will be analyzed. Based on the variance inflation factors (VIF) calculated through a multiple regression, multicollinearity can not only be detected, but also the degree as well as the causative

[31] The result of correlation analysis, mostly represented by "r" is a figure between -1 and 1 (Kühnel and Krebs 2001, p. 403). If r=-1 the correlation is strongly negative, whereas r=1 a strong positive correlation indicates. There is no correlation if r=0 (Bortz and Schuster 2010, p. 157).

variables identified. Any VIF with a value of five or higher, can be seen as an indicator for multicollinearity.

Multicollinearity can be reduced by excluding variables with a high multicollinearity degree. Therefore, step by step, the variable with the highest VIF value will be eliminated until all variables have a VIF value of five or lower. After every expulsion a new model analysis has to be computed. With the left over variables, a partial correlation can be accomplished with a low threat of multicollinearity.

3.) The Pearson Correlation does not include the influence of other predictor variables. Henceforth a pure correlation can only be determined, if the influence of other variables has been eliminated. The most used approach to exclude other factors' influences, is to hold all other factors constant, whereas only one single predictor variable is manipulated. Therefore changes in the dependent variable can be ascribed only to the predictor variable only (Kühnel & Krebs, 2001). This aim can be achieved through a partial correlation. A partial correlation will be conducted with all relevant variables of step one and after excluding the multicollinearity variables of step two.

4. Analysis

Following the statistical steps described in 3.6 the analysis will be conducted to verify the accuracy of the three hypotheses postulated in 2.1 and 2.2.

4.1 Relation between economic performance and employment possibilities

The first analysis is conducted between the employment rate of persons with disabilities and the indicators for the economic performance of an EU country. The correlation is calculated for the relation between dependent variable (employment possibilities) and each independent variable individually.

Table 2: Correlation between the economic performance and employment rate of persons with disabilities

Dependent Variable	Independent Variable	Pearson Correlation	N
Employment rate	GDP	0.069	25
	Unemployment general	-0.581**	25
	GDP per capita	0.569**	25
	HDI	0.546**	25

* Correlation is significant at the 0.05 level

** Correlation is significant at the 0.01 level

As derived from table 2, there occur a number of correlations between economic figures and the employment rate of persons with disabilities. The general unemployment rate, the GDP per capita and the HDI correlate all significantly with the dependent variable. The negative correlation of the general unemployment is slightly the strongest with -0.581 on a 0.01 significance level, followed by the GDP per capita with 0.569 and the HDI with 0.546 on the same significance level.

However, there exist no statistical significant relation between the GDP of a country and the employment rate of persons with disabilities. Considering 2.1, the macroeconomic output seems to have no impact contrary to the established theory. Nevertheless, as also argued within 2.1, the overall labour market situation, represented through the general unemployment rate, might have a huge impact on the employment rate of persons with disabilities. This could be a first hint that persons with disabilities only get hired when the labour supply is high and workers with a high perceived marginal productivity are no longer available on the labor market.

The relation between the HDI and the GDP per capita might be strong, because the HDI implies the GDP per capita in combination with education and health indicators. Based on the lower correlation of the HDI compared to the GDP per capita with the employment chances of persons with disabilities, it is possible to assume that the correlation between the employment rate of persons with disabilities and education and health indicators is lower compared with the HDI. These figures will be tested among other influencing variables in chapter 4.2.

4.2 Influence of other factors

As shown in the theory model, it is likely that other factors despite the economic situation influence the employment chances of persons with disabilities. Especially education, work place environment and health care might increase the perceived productivity of persons with disabilities. In addition, factors such as the general educational level and the total share of persons with disabilities in a society might influence the stereotypes persons with disabilities are facing. The bivariate correlations of the influencing variables and the employment rate of persons with disabilities are displayed in table 3.

Table 3: Correlation between influencing factors and employment rate of persons with disabilities

Dependent Variable	Independent Variable	Pearson correlation	N
Employment rate	Ratio Prevalence of PwD ISCED 3-6 to share in population	0.454*	24
	Spending on supp. Employment in % of GDP	0.583*	15
	Provided Assistance at work	0.076	21
	Expected years of schooling	0.474*	25
	Gross Enrolment in % of potential population	0.505*	24
	Prevalence of PwD among population[32]	0.611**	25
	Spending on healthcare in % of GDP	0.255	25
	Life Expectancy at birth	0.312	25
	Type of Regime over last 20 years	-0.384	25
	Welfare state typologies	0.560*	14

* Correlation is significant at the 0.05 level

** Correlation is significant at the 0.01 level

There is no statistical significant correlation between the employment rate for persons with disabilities and the provided assistance at work, which means, that the assistance to improve the work place environment does not affect the employment chances for persons with disabilities. Thus, one could conclude that the work place environment does not seem to be as important as assumed in 2.2. The significant correlation of 0.583 of the spending on supported employment leads to a different conclusion and will be examined further in this analysis. In addition the influencing effect of the health care system on the employment chances can be already excluded, because of an insignificant low correlation. This low correlation also

[32] Working age (16-64)

answers the question, why the HDI has a lower correlation than the GDP per capita with the employment rate of persons with disabilities. Accordingly the second postulated hypothesis H2 has to be already rejected, because the effects of the health care system and the work place environment seem to be overestimated. In contrast the educational level of persons with disabilities has a positive correlation of 0.454 with the employment rate of persons with disabilities on a 0.05 significance level.

Supporting the theoretical assumption of stereotypes influencing the employment chances for persons with disabilities, the general educational level of a country, measured through expected years of schooling with 0.474 and gross enrolment in education with 0.505, positively correlates with the employment rate of persons with disabilities on a 0.05 significance level. Furthermore this tendency is affirmed through the 0.611 correlation on a 0.01 significance level between the share of persons with disabilities among the working age population and their employment rate. Hence it seems that the hypothesis H3 might be true.

Furthermore the welfare state typologies correlate with the employment rate of persons with disabilities with 0.560 on a 0.05 significance level. On the contrary, there is no dependency between the occurrence of dictatorial structures within a country's last 20 years and the employment rate of persons with disabilities.

Based on a low bivariate Pearson Correlation the following independent and influencing variables will be excluded from further analysis: GDP, provided assistance at work, spending on health care, life expectancy at birth and former regime typologies.

4.3 Multicollinearity among the independent and influencing variables

To gain an impression about possible multicollinearity, bivariate correlation among the remaining relevant independent variables and influencing variables will be calculated. If there occur significantly high correlations, multicollinearity is a possible threat to the validity of the study.

Table 4: Correlation among relevant independent variables

	GDP per capita	Unemployment rate	HDI
GDP per capita	1	-0.590**	0.815**
Unemployment rate	-0.590**	1	-0.456*
HDI	0.815**	-0.456*	1

* Correlation is significant at the 0.05 level

** Correlation is significant at the 0.01 level

As shown in table 4 there exist some correlations between various independent variables: The GDP per capita is correlated with the general unemployment rate with -0.590 and the HDI 0.815 on a significance level of 0.01. In addition, the HDI and the unemployment rate correlate significantly with -0.456 on a 0.05 level. These correlations indicate that there might be multicollinearity. Besides, the correlation among the influencing variables will be computed.

Table 5: Correlation among relevant influencing variables

	Ratio ISCED level 3-6	Exp. Years of schooling	Gross Enrollment Education	Spending on supp. Employment	Share of PwD in population	Welfare state typologies
Ratio ISCED level 3-6	1	0.284	0.339	0.247	0.403	0.286
Exp. Years of schooling	0.284	1	0.974**	0.328	0.551**	0.580*
Gross Enrollment Education	0.339	0.974**	1	0.403	0.606**	0.571*
Spending on supp. Employment	0.247	0.328	0.403	1	0.419	0.248
Share of PwD in population	0.403	0.551**	0.606**	0.419	1	0.344
Welfare state typologies	0.286	0.580*	0.571*	0.248	0.344	1

* Correlation is significant at the 0.05 level

** Correlation is significant at the 0.01 level

Again high significantly relevant correlations occur as displayed in table 5. Logically, the two indicators measuring the general educational level of a country correlate strongly with 0.947

on a 0.01 significance level. In addition both variables correlate with the share of persons with disabilities within the working age society with 0.551 and 0.606 on a 0.01 significance level. Hence, there is no logical explanation for this phenomenon, there might exist an omitted variable. The type of welfare state of a country correlates with the gross enrollment percentage at the education system with 0.571 and expected years of schooling 0.580, twice on a 0.05 significance level.

The correlations among the independent variables and influencing variables indicate a high degree of multicollinearity. Therefore the VIF based on a multiple regression will be computed.

Table 6: Variance inflation factors of all relevant independent and influencing variables

Variable	**VIF**
HDI	21.052
General unemployment rate	4.923
GDP per capita	26.578
Spending on supported employment	5.740
Share of PwD in working age society	2.750
Expected years of schooling	60.004
Gross Enrollment in Education	64.072
Welfare state typologies	6.127
Ratio ISCED PwD to population	4.976

There are six variables exceeding the necessary VIF-score of five for a low multicollinearity in the model, visible in table 6. The variable with the highest VIF-value is the enrollment percentage in the education system followed by expected years of schooling. This indicates, also supported by the above bivariate analysis, that the multicollinearity degree is highly influenced through a linear correlation of these two variables. Therefore gross enrollment in education is the first variable excluded from the model. The VIF-values for the remaining variables change as following:

Table 7: Variance inflation factors of all relevant independent and influencing variables, excluded expected years of schooling

Variable	**VIF**
HDI	20.399
General unemployment rate	3.844
GDP per capita	19.783
Spending on supported employment	3.836
Share of PwD in working age society	2.686
Expected years of schooling	6.686
Welfare state typologies	5.570
Ratio ISCED PwD to population	1.486

The VIF-values have improved through the exclusion shown in table 7. There are just four variables with a VIF-value of five or more left: The HDI, the GDP per capita, the expected years of schooling and the welfare typologies. The HDI and the GDP per capita, with a bivariate significant correlation of 0.815 are influencing the multicollinearity of the model heavily. Hence the HDI has the highest VIF-value it will be excluded from the model for further analysis. Without gross enrollment in education and the HDI the VIF-values of the residual variables are as displayed in table 8:

Table 8: Variance inflation factors of all relevant independent and influencing variables, excluded expected years of schooling and GDP per capita

Variable	**VIF**
GDP per capita	2.964
General unemployment rate	1.883
Spending on supported employment	1.435
Share of PwD in working age society	1.592
Expected years of schooling	1.588
Welfare state typologies	2.398
Ratio ISCED PwD to population	1.288

Through excluding the variables of gross enrollment in education and HDI it was possible to reduce the degree of multicollinearity to an acceptable level, because all VIF-values are lower than five, visible in table 8. Therefore the partial correlation will be conducted for these variables: GDP per capita, general unemployment rate, spending on supported employment, share of persons with disabilities among the working age population, expected years of schooling, welfare state typologies and the ratio of prevalence of persons with disabilities in the ISCED levels three to six to the population share of persons with disabilities.

4.4 Partial Correlation

Through a partial correlation it is aspired to measure the influence of one predictor variable on the dependent variable by holding all other variables constant. The results will display the different degrees of influence of the various variables on the dependent variable. The correlation between the predictor variables and the employment rate of persons with disabilities by holding the other factors constant is listed in table 9:

Table 9: Partial Correlation of significant factors and employment rate of persons with disabilities

Dependent Variable	Significant Variable	Correlation	Significance
Employment rate for persons with disabilities	GDP per capita	0.216	0.681
	General unemployment rate	-0.856	0.030*
	Spending on supported employment	0.385	0.451
	Share of PwD in working age society	0.434	0.390
	Expected years of schooling	-0.791	0.061
	Welfare state typologies	0.848	0.033*
	Ratio ISCED PwD to population	-0.227	0.665

* Correlation is significant at the 0.05 level

Through the partial correlation two variables were discovered to correlate significantly with the employment rate of persons with disabilities by holding all other factors constant: The general unemployment rate and the types of welfare states.

The general unemployment rate of a country correlates with the employment rate of persons with disabilities negatively with a degree of -0.856 on a 0.05 significance level. Within the same significance level, the type of welfare state has a correlation of 0.848. Both correlations are under constant other factors much stronger than in a simple bivariate Pearson correlation.

All other variables do not correlate with the employment rate of persons with disabilities significantly in this model.

Concluding the analysis several findings have emerged:
First of all one has to state, that the employment chances for persons with disabilities does not depend on the general economic output, measured through the GDP. But the economic performance of a country has its impact and particularly the labour market situation. The general unemployment rate highly correlates with the employment rate of persons with disabilities in the partial correlation model. Therefore the first hypothesis H1 has to be accepted. There is a positive correlation between the economic performance of an EU country, measured through the overall unemployment rate and the employment possibilities for persons with disabilities. In addition one has to admit that the correlation of the GDP, GDP per capita and HDI was not significant in a bivariate relation or not significant under constant other variables.

The second significant correlation in the partial correlation occurred among the typologies of the welfare states: The type of welfare state in a country highly influences the employment rate of persons with disabilities. Regarding the conducted dichotomization the social-democratic welfare state enhances the employment chances of persons with disabilities.

Considering the hypothesis H2 the influence of the population's education, the status of the health care system and the work place environment is lower than expected. The health care system (operationalized through the life expectancy at birth and public expenditure for health care) has no influence at all. Same applies for the provided assistance at work. During the first conducted bivariate Pearson correlation a positive relationship between the educational level of persons with disabilities and the supported employment was detected. These positive correlations could have been interpreted as an approval for the hypothesis H2. Due to the fact, that all of these various factors have no influence on the employment rate of persons with disabilities in a partial correlation analysis, H2 has to be refused. There is no significant correlation between the educational level, the health care system or the work place environment and the employment rate of persons with disabilities.

But considering the fact that the welfare state typologies affect the employment rate of persons with disabilities the societal environment seems to be important. The different welfare

states not only distinguish through their social benefit approaches but also include different structures in the social security system and the degree of the public sector's involvement. Hence, there might be factors concerning the social security system, which have not been included here, but still have an influence on the employment chances of persons with disabilities.

It was assumed in 2.2, that the stigma of unproductiveness on persons with disabilities might be reduced in countries with a higher share of persons with disabilities among the society. Therefore in H3 was postulated that the higher the share of persons with disabilities in a society, the better the employment possibilities for persons with disabilities. Through the bivariate Pearson correlation such a relationship was detected. But again by holding the effect of the other variables constant no significant correlation occurred. Therefore the hypothesis H3 has to be denied. Moreover the overall educational level, also possibly indicating a greater awareness of persons with disabilities and less stereotypes has no significant correlation with the employment rate of persons with disabilities in the partial correlation model.

Considering the research question: "To what extend does a relation exist between the national economic situation and the employment possibilities for persons with disabilities in the EU?" one has to answer:
According to the here conducted analysis, there indeed exists a relationship between these two factors. The economic output and productivity of a country as well as the financial levels of households do not influence the employment chances of persons with disabilities directly, but the general unemployment rate in a country is highly correlated with the employment possibilities for persons with disabilities. In addition, it was discovered that the economic performance of a country is not the only relevant factor, but that the type of welfare state also significantly correlates with the employment rate of persons with disabilities. Considering all above found results, the extend of the relation between the economic situation of a country and the employment chances is strong, but the type of welfare states have to be kept in mind.

5. Conclusion & Discussion

Summarizing the analysis' findings, there is a strong relationship between the general national unemployment rate and the employment chances of persons with disabilities. In addition the employment possibilities are also influenced by the different welfare state typologies.

These results help to classify several phenomena and assumptions made in 1.1 until 3.6. As discovered in the introduction, the employment rate of persons with disabilities among the different countries varies from 56.1% in Malta to 78.2% in Norway. The differences of employment chances for persons with disabilities can be explained in multiple ways:

First of all, a common binding European approach regarding the employment for persons with disabilities has not taken place as shown in chapter 1.2. There were and are several mutual strategies addressing the issue, but all of them were rather guidelines than effectively binding for member states. The final policy decision and execution falls under the principle of subsidiarity.

The theory of 2.1 and 2.2, from which the three hypotheses were derived and according to which the indicators were established, has to be evaluated critically according to the analysis results. The fact that the general unemployment rate highly influences the employment rate of persons with disabilities supports the assumptions that employers rather tend to hire persons with disabilities in economic well doing periods. In addition it indicates that employers tend to hire persons with disabilities only if workers with a higher anticipated productivity are rare. This finding supports the assumption of anticipated inefficiency of persons with disabilities. The non-existent relationships between the major influencing variables of hypothesis two and three and the employment possibilities for persons with disabilities indicate a different conclusion. The share of persons with disabilities in a society does not influence the employment rate of persons with disabilities. Henceforth, either the everyday life contact between employers and persons with disabilities does not alter the stereotypes of inefficiency or a higher share of persons with disabilities does not by default lead to more everyday life contact with employers. It might be more accurate to evaluate the degree inclusion or exclusion of persons with disabilities from a society to measure the quantity and quality of everyday life contact.
The influencing variables of H2 suggested an impact of external factors on the productivity of persons with disabilities. Thus, there was no influence detected the real productivity of persons with disabilities does not seem to impact their employment chances compared to the perceived productivity. Based on an information asymmetry higher educational achievements do not result in a better employment outlook. Same applies for the work place environment and national health care infrastructure.

Third, as suggested in chapter 2.3.3 and proven in the analysis the employment possibilities are higher in countries with the socio-democratic welfare regime. To remember, this welfare regime is characterized through a strong state interference into the labour market and a high degree of decommodified labour. Decommodification is the detachment of a product from market dependency (Esping-Andersen, 1990). Applied on the here relevant subject, in socio-democratic welfare states the labour market is less dominated by free market rules than in the liberal or conservative welfare regime. Which means, that in the socio-democratic welfare country the impact of Solow's model is only limited. Henceforth, worker's productivity or perceived productivity is a less important factor and therefore persons with disabilities have a higher employment chance. The socio-democratic welfare regime is further characterized through a public strive for full employment. Even a relationship between the typology of welfare state and the national employment does not exist[33], the labour market might be ruled differently in the socio-democratic regime. Through the higher public interference, the main labour market principles might differ from the other countries and be less profit orientated.

Based on the analysis results and theoretical evaluation, several aspects are important to improve the employment situation of persons with disabilities.
First of all, the overall unemployment rate of a country and its reduction is one of the primary aims of every government. Therefore policy measures are already in place and the current unemployment rates will not decrease because policy changes can not be expected. But it has to be kept in mind, that unemployment affects persons with disabilities sooner than persons without disabilities.
Second, the fact that the various types of welfare states influence the employment chances of persons with disabilities provides more possible knowledge for policy improvements.
Consequently, there might be policy approaches or social system characteristics with a relevant influence on this realm. Generally spoken, persons with disabilities rather benefit from a strong state interference with the labour market compared to a free market model, as appearing in the liberal and conservative welfare regime.

Following the analysis results, certain future research aspects emerge.
It would be indeed very enlightening to verify the relevant attributes of the various welfare states. Possible explaining aspects could be the benefit systems, but more likely labour market activation policy measures, leading to a decommodified labour market. Therefore the labour

[33] No significant correlation between the type of welfare regime and the general unemployment rate.

market history and current situation is worth analysing, including through which measures the state interferes with the labour market compared to the liberal and conservative welfare regime. It has to be examined, whether the improved employment chances are based on specific policy measures addressing persons with disabilities or if through a decommodified labour market a general employer's paradigm shift has taken place.
Moreover, additional knowledge about causal relationships could be detected by widening the sample size towards a worldwide comparison. In doing so, data limitations have to be kept in mind or overcome.

The problem of reliable data is the main limitation to this analysis. Especially the data of persons with disabilities has only been derived from the Eurostat ad-hoc module and is therefore highly dependent on its validity. Considering the fact that the module was solely based on self-assessment there are possible threats influencing the participants' answers: There might be cultural differences, whether one admits to have a disability or impairment. This might highly influence the data of the module and therefore also the here conducted analysis. In addition, the fact that the welfare state typologies show such a high impact on the employment rate, while all other influencing variables do not, points to the existence of omitted variables. The welfare state types do not only influence the labour market, but affect the entire social security system and relationship of the citizen with the state.

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7. Appendix

Appendix A: Data dependent variable and economic independent variables

Country	Employment rate PwD in %	GDP in €	HDI	Unemployment general in %	GDP per capita in €
AT	69.1	220529.2	0.848	4.2	27300
BE	60.7	268620	0.884	7.5	26000
CY	70.2	11081.1	0.808	3.5	15600
CZ	66.7	83350.5	0.824	7.3	8200
DE	66.5	2132200	0.87	8.7	25900
DK	77	184743.6	0.869	4.6	34400
EE	63.3	7776.3	0.786	10.3	5700
EL	57.8	156614.3	0.81	10.3	14300
ES	59.4	729258	0.847	11.4	17700
FI	70.2	143646	0.845	9.1	27600
FR	64.6	1542927.6	0.853	8.3	25000
HU	57.2	70461.9	0.79	5.6	6900
IE	66.5	130717.1	0.879	4.5	33200
IT	56.7	1301873	0.833	8.5	22800
LT	62	15133	0.756	13.8	4400
LU	64.7	23981.6	0.861	2.6	53700
MT	56.1	4653.7	0.801	7.4	11800
NL	74.5	465214	0.891	3.1	28800
NO	78.2	204073.6	0.922	3.7	45000
PT	70	140566.8	0.783	5.7	13600
RO	60.1	48614.9	0.709	7.5	2200
SE	69.6	266739.8	0.903	6	29900
SI	65.3	24597.1	0.842	6.3	12300
SK	57.8	25971.7	0.785	18.8	4800
UK	72.9	1719805	0.841	5.1	29000

Appendix B: Data for influencing variables with bivariate correlation to employment rate of persons with disabilities

Country	Spending on supported Employment in % of GDP	Prevalence PwD among population 16-64 in %	Expected years of schooling	Gross Enrollment Education in % of potential Population	Ratio Prevalence of PwD ISCED 3 – 6 to share in population	Type of welfare state
AT	0.032	12.8	15.4	91	2.51	0
BE	0.118	18.4	18.4	108	1.36	0
CY	-	12.2	12.4	74	1.18	-
CZ	0.033	20.2	13.8	73	1.63	-
DE	0.144	11.2	15.7	-	1.88	0
DK	0.502	19.9	16.2	96	1.67	1
EE	-	23.7	15	88	1.90	-
EL	0.002	10.3	14.2	81	1.13	-
ES	0.032	8.7	15.9	92	0.91	0
FI	0.096	32.2	17.7	104	1.80	1
FR	0.064	24.6	15.6	92	1.62	0
HU	-	11.4	14.3	80	1.17	-
IE	0.008	11	16.7	91	1.27	0
IT	-	6.6	15	82	1.02	0
LT	-	8.4	14.6	81	1.51	-
LU	0.007	11.7	13.4	75	1.33	-
MT	-	8.5	13.2	72	-	-
NL	0.604	25.4	16.7	98	1.67	0
NO	0.08	16.4	17.5	98	1.62	1
PT	0.038	19.9	15.6	90	0.91	0
RO	-	5.8	11.9	68	1.48	-
SE	0.231	19.9	18.9	112	1.88	1
SI	-	19.5	14.7	85	1.49	-
SK	-	8.2	13.1	71	1.26	-
UK	-	27.2	16.1	90	1.63	0

Appendix C: Data for influencing variables without bivariate correlation to employment rate of persons with disabilities

Country	Provided Assistance at work in %	Past 20 years type of regime	Life Expectancy at birth in years	Spending on Health in % of GDP
AT	7.8	0	78.1	7.6
BE	46	0	77.9	6.1
CY	4.1	0	78	2.4
CZ	1	1	74.9	5.9
DE	14.9	0	78	8.2
DK	14	0	76.6	6.8
EE	-	1	70.2	4.1
EL	9.6	0	78.5	4.7
ES	9.7	0	79.1	5.2
FI	16.5	0	77.7	5.1
FR	21.9	0	79	8
HU	37.2	1	71.8	5
IE	4.8	0	76.7	4.6
IT	14.7	0	79.5	5.8
LT	-	1	71.3	4.5
LU	-	0	77.5	5.2
MT	-	0	77.4	4.9
NL	43.9	0	78.2	5
NO	42.7	0	78.7	6.4
PT	6.7	0	76.6	6.4
RO	8.2	1	70.5	3.5
SE	11.1	0	79.6	7
SI	24.3	0	75.9	6.1
SK	13.9	1	73.3	5.6
UK	7.1	0	77.7	5.6

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Phillip Hocks