

# JENA ECONOMIC RESEARCH PAPERS



# 2018 – 005

## **Self-Employment and Well-Being Across Institutional Contexts**

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[www.jenecon.de](http://www.jenecon.de)

ISSN 1864-7057

The JENA ECONOMIC RESEARCH PAPERS is a joint publication of the Friedrich Schiller University Jena, Germany. For editorial correspondence please contact [markus.pasche@uni-jena.de](mailto:markus.pasche@uni-jena.de).

Impressum:

Friedrich Schiller University Jena  
Carl-Zeiss-Str. 3  
D-07743 Jena  
[www.uni-jena.de](http://www.uni-jena.de)

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March 2018

### Abstract

This paper investigates whether the relationship between a person's occupational status and well-being differs across countries with varying institutional contexts. We find that the relationship between job- and life satisfaction of self-employed people as well as of paid employees varies considerably across countries. Our results indicate that entrepreneurship-friendly institutions in a country are conducive to the well-being of self-employed. Remarkably, the quality of entrepreneurial institutions also increases the levels of well-being of paid employees, but the effect is more pronounced for the self-employed.

Keywords: Entrepreneurship, institutions, well-being, life satisfaction, job satisfaction

JEL codes: L26, I31, D01, D91, P51

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## List of Abbreviations

DoB	Doing of Business
EU-SILC	EU Statistics on Income and Living Conditions
GEI	Global Entrepreneurship Index

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## Executive Summary

1. We investigate the extent to which job and life satisfaction varies between self-employed persons and paid employees based on a country's institutional context. The primary data base for the analysis of 32 European Countries is the EU Statistics on Income and Living Conditions (EU-SILC).
2. In a first step, we distinguish different groups of countries using the Varieties of Capitalism approach. In a second step, we use the country scores of the Global Entrepreneurship Index (GEI) of the Global Entrepreneurship Development Institute and the World Bank's Doing of Business (DoB) scores as measures of entrepreneurship-friendliness of the institutional environment.
3. We find a number of significant differences in job and life satisfaction between groups of countries. Self-employed people report significantly higher levels of job satisfaction than paid employees in Anglo-Saxon countries (Iceland, Ireland, UK), in Nordic countries (Denmark, Finland, Sweden and Norway), and in Continental countries (Austria, Belgium, France, Germany, Netherlands, Luxembourg and Switzerland). Paid employees report significantly higher levels of job satisfaction than self-employed individuals in Mediterranean countries (Cyprus, Greece, Italy, Malta, Portugal and Spain), and in some Eastern European countries (Bulgaria, Romania and Serbia). The differences between job satisfaction of the self-employed and paid employees are not statistically significant in the Baltic States (Estonia, Latvia, Lithuania) and in another group of Eastern European countries (Croatia, Czech Republic, Hungary, Poland, Slovakia, Slovenia).
4. The two occupational groups in our study show less pronounced differences for life satisfaction than job satisfaction. Life satisfaction of the self-employed is higher than of paid employees in a group of Continental countries (Austria, Germany, Netherland and Switzerland) and Eastern European countries (Hungary, Poland, Czech Republic, Slovakia, Slovenia and Croatia) but it is significantly lower in Mediterranean countries (Cyprus, Greece, Italy, Malta, Portugal and Spain) and in certain Eastern European countries (Bulgaria, Romania and Serbia).
5. The level of job and life satisfaction in a country increases with the entrepreneurship-facilitating quality of its institutions, as measured by the GEI and DoB scores. This pattern is consistent across both occupational groups, the self-employed and paid employees, after controlling for a wide set of individual-level factors that may affect an individual's well-being. These factors include formal level of education, income, socio-demographic characteristics, and health status. Hence, a variety of entrepreneurship-facilitating institutions can be beneficial to job and life satisfaction of both the self-employed and paid employees. The increase is, however, more pronounced for people in self-employment.

6. The increase of job and life satisfaction with the entrepreneurship-enhancing quality of a country's institutions is more pronounced for paid employees working in small firms than for those who work in larger firms. We interpret this insight as an additional indication that flexible, less routinized and more entrepreneurial working environments are conducive to individual well-being, perhaps because they give people more opportunities for self-realisation and a higher level of self-determination and autonomy.
7. The main policy lesson that can be derived from our study is that promoting entrepreneurial institutions may increase the levels of well-being in a society, above and beyond the advantages realized for innovation and growth. The results of our analysis indicate that this benefit is not to the detriment of employees, as paid workers in countries with entrepreneurship-facilitating institutions tend to also enjoy higher levels of well-being. Hence, policies aimed at promoting entrepreneurial societies are a Pareto-improvement in the sense that it is likely that these policies will not decrease the well-being of paid employees.
8. One limitation of our study is that the EU-SILC data does not provide us with much information on the composition of entrepreneurship. For instance, the data tell us little about the motives for self-employment.
9. Further research should investigate the effect of single elements of the institutional framework on the well-being of self-employed persons as well as of paid employees. Such investigations could be of great help in identifying those parts of the framework that are most important for well-being. Moreover, it would be important to know more about the effect of single institutions on different categories of workers, such as mainly necessity driven self-employed, ambitious opportunity self-employed, and of course different types of paid employees. A related important field for future research concerns the effects of institutions and well-being on individual behaviour. The results of our study indicate that in some countries the self-employed may realize lower levels of job and life satisfaction than paid employees. This raises the question of why these entrepreneurs remain in self-employment. Necessity may well be an explanation for this finding. In that case, improving the institutional framework for productive, opportunity driven entrepreneurship would also work positively for these people.

## 1. Introduction<sup>1</sup>

Creating a more entrepreneurial society is now an important topic of discussion in the political dialogue (Audretsch and Thurik 2001; Audretsch 2007). It is, for example, an explicit goal on the policy agenda of the European Union (e.g., European Commission 2010; 2013; 2016). A main motivation behind the attempts of creating a more entrepreneurial society is the recognition that entrepreneurship can be an important driver of economic growth. In particular, entrepreneurship strengthens a country's or region's innovative capacity, may trigger growth processes, and can be of key importance for coping with the challenges of structural change (Schumpeter 1934; Wennekers and Thurik 1999; Fritsch 2013). In this paper we explore another potentially relevant motivation for striving to create an entrepreneurial society. Focusing on self-employment as the main form of entrepreneurship, we investigate the extent to which running an own business might be a pathway to self-realization, achieving economic freedom and general well-being. This is particularly relevant since stimulating personal initiative and self-employment is a key issue in any attempt to create a more entrepreneurial society. Accordingly, 'Why do people become self-employed?' and 'How can the incentives for self-employment be improved?' are essential questions in this respect.

While there seems to be general agreement that promotion of self-employment has a positive effect on the general economic welfare of a society, much less is known about the potential impact of efforts to build a more entrepreneurial society on the well-being of individuals. One of the most important concerns in this respect is whether more entrepreneurship-friendly institutions would disproportionately favour the entrepreneurially active part of population, at the expense of those who prefer to stay in paid employment.

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<sup>1</sup> Financial support for this paper's research was provided by the European Commission under the Horizon 2020 project "Financial and Institutional Reforms for the Entrepreneurial Society (FIRES)", Grant Agreement Number 649378. We are indebted to Niels Bosma, Selin Dilli, Kyriakos Drivas, Andrea Herrmann, Catarina Matos and Mark Sanders for helpful comments on earlier versions of this study.



Several empirical studies argue and demonstrate that the choice of self-employment is not solely driven by income prospects but that non-pecuniary motivations, such as achieving higher procedural utility from more freedom of decision making, flexibility, and autonomy, can play an important role (for an overview, see Croson and Minniti 2012, and Shir 2016). Self-employed people have often been found to experience higher levels of subjective utility or well-being in terms of work and life satisfaction<sup>2</sup> due to higher degrees of self-determination and self-enhancement (e.g., Binder and Coad 2013, Benz and Frey 2008a, b). To put it in the words of Schumpeter, this sense of well-being is achieved by trying to realize the “dream and the will to found a private kingdom” (Schumpeter 1942, 93). In terms of values, this orientation can be understood as putting emphasis on autonomy or as “... a desirability of individuals independently pursuing their own ideas and intellectual directions” and “pursuing affectively positive experience” (Licht, Goldschmidt, and Schwartz 2007, 662). The idea that non-pecuniary benefits play a significant role in opting for self-employment is supported by empirical evidence showing that the income of the self-employed is not necessarily and systematically higher than that of paid employees (e.g., Hamilton 2000; Moskovitz and Vissing-Jorgensen 2002; Sorgner, Fritsch and Kritikos 2017).

An important shortcoming of the available empirical studies of well-being by occupational status is that they neglect the role of institutional framework conditions.<sup>3</sup> These institutional conditions can play a key role for the attractiveness of self-employment, and, hence, for the allocation of entrepreneurial talent that determines the supply of people in self-employment (e.g., Baumol 1990; Sobel 2008). Consequently, one should expect that distinct institutional envi-

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<sup>2</sup> In this paper we use the term well-being to denote the general concept of subjective utility that entails work- and life satisfaction as two separate but related dimensions.

<sup>3</sup> Institutions can be generally defined as “the rules of the game” that govern the interaction of people in a society (e.g., North 1994). It is common to distinguish between formal institutions that are understood as the set of codified rules, such as laws and constitutions, and informal institutions that comprise non-codified norms, conventions, codes of behaviour, and the conduct of a society.

ronments influence the well-being of the self-employed, as well as of paid employees.

This paper investigates whether the relationship between occupational status and well-being varies across countries with different institutional contexts. Well-being is measured by people's subjective assessment of their level of overall job and life satisfaction. Our aim is to enhance the understanding of the effect of institutions on well-being by drawing a comparison between self-employed persons and paid employees. This is grounded in the idea that institutions determine not only a person's selection into self-employment, but also the utility that she may gain from being self-employed. Accordingly, the non-pecuniary utility obtained from self-employment should be lower in countries with entrepreneurship-inhibiting ruling institutions, as compared to countries with an entrepreneurship-facilitating institutional framework. In more general terms, there is good reason to expect that the considerable cross-country variation in the degree to which formal and informal institutions are supportive for self-employment influence an entrepreneur's level of well-being across countries, as well as compared to their paid employed counterparts.

We begin our analysis by using a recent classification by Dilli, Elert and Herrmann (2018) to create distinct groupings of European countries based on their entrepreneurship-related institutional frameworks that we then extend to additional European countries. We find that there are significant differences regarding the relationship between entrepreneurship and well-being across country groups defined in this way and even between countries within the groups. To account for a possible effect of income on well-being, we also investigate these relationships across different income quartiles.

We find that the ratio of job and life satisfaction of the self-employed over paid employees shows pronounced variation across countries, and that this variation is clearly related to the entrepreneurship-facilitating character of the respective institutional framework. Hence, higher levels of well-being of the self-employed that have been found in several earlier studies (McGrath and MacMil-

lan 1992; Benz and Frey 2008a, b; Croson and Minniti 2012; Shir 2016) cannot be regarded as a stylized fact. Rather, country-specific conditions play an important role in determining the actual level of well-being. Although the effect is more pronounced for the self-employed, another important key result of our study is that the entrepreneurship-facilitating quality of entrepreneurial institutions increases the levels of well-being for both entrepreneurs and paid employees.

The remainder of the paper is organized as follows: Section 2 discusses the link between institutional framework conditions and well-being in entrepreneurship in some more detail. The data and the empirical approach are introduced in Section 3, and Section 4 presents the results of the empirical analysis. Section 5 summarizes the main results, discusses implications for theory and policy, and identifies avenues for further research. The final section (Section 6) concludes.

## **2. The effect of institutions on well-being in self-employment and paid employment**

Prevailing institutions in a country might differently affect the well-being of the self-employed and paid-employed people due to a number of reasons. Assuming that a person's occupational choice (i.e., the decision of being self-employed or work as a paid employee) is governed by his or her subjective utility (e.g., Lucas 1978; Holmes and Schmitz 2000; Kihlstrom and Laffont 1979), the relationship between institutions and well-being in different types of occupations may be approached by examining the effect of institutions on monetary and non-monetary returns (Elert, Henrekson, and Stenkula 2017).

The well-being of people in self-employment and paid work is commonly measured by a respondent's subjective assessment of his current level of overall life and job satisfaction (for details see Section 3.1). While job satisfaction pertains to issues that are related to a person's work, life satisfaction is a much broader concept. Since satisfaction with work is a key element of someone's life satisfaction, there should be a positive correlation between the two types of as-

assessment. However, high work satisfaction might also have negative effects on life satisfaction. For example, a rather satisfying job with high emotional engagement and long working hours could crowd out other activities that are important for life satisfaction, such as satisfying social relationships and good health. For this reason, the correlation between the two concepts may be quite low or even negative.

Being self-employed may be related to higher levels of well-being as compared to paid employment for several reasons. A central reason discussed in the literature is based on the concept of procedural utility (Frey, Benz and Stutzer 2004). Applied to the generation of economic value, this concept argues that people may draw utility not simply from the outcome of their work process but from the actual work process itself. Beyond this argument, self-employment offers the advantages of higher levels of autonomy and flexibility (Benz and Frey 2008a, b). Pursuing one's own goals through self-employment can stimulate a feeling of self-determination, and may be a way of experiencing a high level of self-efficacy that is positively related to job and life satisfaction. A possible reason for the occurrence of higher levels of self-efficacy among self-employed people is because self-employment may require more frequent goal setting and decision making than a position in paid employment.<sup>4</sup> Higher levels of well-being engendered by high degrees of job and life satisfaction could then explain why people stay in self-employment despite less economic security and often lower incomes than in paid employment (Benz and Frey 2008a).

Quite a number of empirical studies have confirmed that self-employed people experience significantly higher levels of job satisfaction than paid employees.<sup>5</sup> Other studies report slightly higher levels of life satisfaction for the self-

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<sup>4</sup> Some psychologists argue that the fact that people pursue personal goals alone is positively related to well-being (Emmons 1996). See Shir (2016) for a more detailed exposition.

<sup>5</sup> See for example Benz and Frey (2008a, b), Binder and Coad (2013), Blanchflower (2000, 2004), Block and Koellinger (2009), Coad and Binder (2014), Millán et al (2013), van Praag, Frijters and Ferrer-i-Carbonell (2003). Hanglberger and Merz (2015) found that the difference in job satisfaction of the self-employed and paid employees is the highest in the first years after self-

employed than for paid employees, with the difference being less pronounced than for job satisfaction (Binder and Coad 2013, 2016, Hessels et al. 2017). Benz and Frey (2008a, b) identify several reasons for higher work satisfaction among the self-employed: a higher level of autonomy, work being more interesting, and being able to use one's own initiative. Furthermore, they find that paid employees who work in small firms have higher levels of job satisfaction than those working in larger firms. The notion is that the more pronounced hierarchical structures of larger firms can impede personal autonomy. Binder and Coad (2013) show that people who moved into self-employment from a position in paid employment experienced a considerably stronger increase in life satisfaction than those who set up a business out of unemployment. The final level of life satisfaction for the second group is not significantly different from those who switch from unemployment to paid employment. Binder and Coad (2013) explain these differences based on the motives for becoming self-employed. They argue that a transition into self-employment out of regular paid employment is most likely motivated by the desire to realize a certain opportunity (opportunity entrepreneurship), while transitioning into self-employment out of unemployment is mainly driven by a lack of alternatives in paid employment (necessity entrepreneurship).

It has been shown that the levels of job and life satisfaction that someone experiences in a certain type of occupation—self-employment or paid employment—varies according to her or his individual characteristics, such as education, income, personality, motivation and preferences, as well as with the characteristics of the tasks to be performed (see Shir 2016 for an overview). Another important category of factors that influence the levels of well-being in the different types of occupations are the institutional framework conditions. The institutional framework shapes the level and the type of entry and self-employment in a country.

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employment, and it diminishes in the following years due to adaptation effects. For a comprehensive overview see Shir (2016).

Many of the empirical studies that deal with the impact of formal institutions on self-employment focus on entry barriers.<sup>6</sup> These analyses, however, only tell a rather small part of the story. The reason is that most of the entry barriers (such as the effort of registration, etc.) occur only at the time a business is first established. These barriers may have some effect on the start-up rate, particularly on entry of marginal entrepreneurs, but not necessarily on the well-being of those already in self-employment. The set of formal institutions that is relevant for the well-being of the self-employed include regulations that affect how business is conducted, and that determine the monetary and non-monetary returns of their economic activity. The main areas governed by these regulations include: the rule of law, protection of property rights, bankruptcy law,<sup>7</sup> regulation of goods and service markets, taxation of profits and labour income, availability of finance, labour market regulation, the organization of the social insurance system, as well as the level and type of R&D activities in a country or region (Elert, Henrekson, and Stenkula 2017). Little is known, however, about which of these formal institutions have the most influence on the well-being of the self-employed or dependently employed people.<sup>8</sup> The informal institutions that are most relevant for self-employment are the social legitimacy of entrepreneurship (Kibler, Kautonen and Fink 2014), or the presence of an entrepreneurial culture (Freytag and Thurik 2007; Fritsch and Wyrwich 2017). These institutions include the traditions and attitudes of the population towards self-employment.

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<sup>6</sup> E.g., Djankov et al. (2002); Fonseca, Lopez-Garcia, and Pissarides (2001); Fonseca, Michaud, and Sopraseuth (2007); Klapper, Laeven, and Rajan (2006); Braunerhjelm and Eklund (2014).

<sup>7</sup> The easier and less costly it is to close down or sell a venture, the higher the propensity to become self-employed. This pertains particularly to the danger of bankruptcy when unfulfilled financial obligations remain. Therefore, insolvency regulations in the tradition of the Varieties of Capitalism approach (Hall and Soskice 2001) regard those institutions that regulate finance that include discharge clauses, the postponement of debt service and repayment, as well as the possibility of restructuring the business, should not only be conducive to the decision to start an own business, but also lessen the fear a self-employed person might feel of suffering from financial hardships in case of bankruptcy.

<sup>8</sup> Authors, labour, and know-how to be of key importance for the operation of businesses. See for example Dilli, Elert and Herrmann (2018).

In general, one may expect that the more the national or regional ‘entrepreneurship ecosystem’ favours entrepreneurial activities, the greater the well-being of the self-employed. It is, however, unclear whether an entrepreneurship-facilitating ecosystem is merely beneficial for the self-employed, or whether it also provides advantages for paid employees. It appears plausible to assume that rule of law, protection of property rights, a highly functioning financial system, appropriate regulation of markets for goods and services, as well as a sufficiently large and efficient innovation system are beneficial for people in both occupational categories.

Conflicts might arise because of labour market regulation where, for example, a lower level of employment protection may increase the well-being of the self-employed but come at the expense of paid employees who face a greater risk of being laid off.<sup>9</sup> Likewise, low tax rates on profits are beneficial for those who are self-employed, but may require higher taxes on wages or value added that put a burden on paid employees. Summarizing these considerations, one may expect that more favourable institutional framework conditions for entrepreneurship may not necessarily benefit paid employees. This, therefore, remains an empirical matter we aim to address in this study.

### **3. Data and empirical approach**

#### **3.1 Measuring individual well-being**

Our main data source is the EU Statistics on Income and Living Conditions (EU-SILC). These data is the EU reference source for comparative statistics on income distribution and social exclusion at the European level, particularly in the context of the “Programme of Community Action to Encourage Co-Operation Between Member States to Combat Social Exclusion”, and for producing structural indica-

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<sup>9</sup> Labour market regulation is of key importance because it determines the availability of personnel and the conditions for hiring employees, such as protection against dismissal, maternity leave, etc. An obvious expectation in this respect is that the more freedom is left to an entrepreneur’s employment decisions the higher his or her level of well-being.

tors on social cohesion for the annual Spring Report to the European Council. The EU-SILC provides comparable and high quality cross-sectional data for 32 European countries. The reference population of the EU-SILC is all private households and their current members residing in the territory of the countries at the time of data collection. Persons living in collective households and in institutions (e.g., nursing homes) are generally excluded from the target population. Each year EU-SILC includes ad-hoc modules in its survey program that provide additional information in selected realms. For this study, we use the cross-section from the year 2013, which includes an ad-hoc module on well-being.

We use two indicators of individual well-being that are available in the EU-SILC. Namely, an assessment of current overall life and job satisfaction. Overall life satisfaction is a respondent's evaluation of his or her life as a whole. It intends to represent a broad, reflective appraisal a person makes of his or her life. It is the by far most frequently used and best validated concept of measuring well-being (Pavot and Diener 2008). The variable refers to the respondent's feeling about the degree of satisfaction with his or her life in "these days" rather than specifying a longer or shorter period.<sup>10</sup> The level of life satisfaction is measured on an 11-points Likert scale, with the lowest value of 0 meaning "not at all satisfied" and the highest value of 10 meaning "completely satisfied".<sup>11</sup> The second variable of interest is a person's assessment of his or her level of job satisfaction, which is also measured at an 11-points Likert scale. It refers to the respondent's opinion about the current degree of satisfaction with his or her work for money, not the work someone does in the household or for recreation. If the

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<sup>10</sup> Although the measure of life satisfaction is related to happiness, it differs in the sense that responses to the question regarding a person's life satisfaction tend to be considerably more stable over time and less influenced by momentary incidences (Lucas, Diener, and Suh 1996; Diener, Inglehart, and Tay 2013).

<sup>11</sup> The concrete formulation in the questionnaire is as follows: "The following question asks how satisfied you feel, on a scale from 0 to 10. Zero means you feel 'not at all satisfied' and 10 means you feel 'completely satisfied'." The question then is: "Overall, how satisfied are you with life as a whole these days?"; OECD (2013). This type of question is well-established in empirical research on well-being and it has been shown that responses have a high level of validity; see Diener, Inglehart, and Tay 2013).



respondent has several jobs, the answer about the level of job satisfaction refers to the primary job.<sup>12</sup>

Self-employed individuals are identified in the EU-SILC based on their self-reported current labour market status. The indicator includes self-employed persons that work full-time or part-time to earn a profit. We construct a binary variable that equals 1 if a person is regarded as self-employed, and it is 0 if a respondent is a paid employee. Paid employees are defined as persons who work for an employer and who receive compensation, for instance, in the form of wages or salaries. Unemployed, non-employed persons, respondents currently in full-time education, those in compulsory military community or service, and home workers are not considered in our analysis.

The EU-SILC includes a set of socio-demographic variables such as age, gender, and marital status that we use as control variables in our analysis. Furthermore, we use the information about the highest level of education (defined according to the ISCED classification),<sup>13</sup> occupation (defined at a 2-digits level of ISCO-08),<sup>14</sup> industry sector (according to the NACE rev.2),<sup>15</sup> the number of hours usually worked per week in the main occupation, and information on change of job in the previous year.

We account for a person's financial situation, because this may significantly affect the level of individual well-being. The EU-SILC contains information on gross monetary income of paid employees and gross monetary income or losses for self-employed persons during a previous 12-month period (such as the

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<sup>12</sup> The question is "How satisfied are you with your job?"; OECD (2013).

<sup>13</sup> The International Standard Classification of Education (ISCED) has been developed by the United Nations Educational, Scientific and Cultural Organization (UNESCO) and provides internationally comparable education statistics. We distinguish between primary education, secondary education, and tertiary education in our analysis.

<sup>14</sup> The International Standard Classification of Occupations (ISCO) provided by the International Labour Organization is used by Eurostat to provide internationally comparable information on occupational participation.

<sup>15</sup> The statistical classification of economic activities (NACE; Nomenclature Statistique des Activités Économiques dans la Communauté Européenne) is employed by Eurostat to provide internationally comparable information on participation in industrial sectors.

previous calendar or tax year) in national currency.<sup>16</sup> We construct country-specific income quartiles to make the income measure comparable between countries.<sup>17</sup> Since health status is an important determinant of the overall life satisfaction (van Praag et al. 2003; Binder and Coad 2013), we include self-reported information on a person's current health condition.<sup>18</sup>

The final sample contains a total of 161,127 observations. Table A1 in the Appendix shows the correlations of the variables used in the analysis and Table A2 provides descriptive statistics.

## **3.2 Measurement of institutional contexts**

### **3.2.1 Varieties of entrepreneurial capitalism**

As a first approach of accounting for varieties of institutional contexts, we form groups of countries with similar institutional conditions. The starting point of our classification is the work by Dilli, Elert, and Herrmann (2018) who distinguish between the following "varieties of entrepreneurial capitalism": (i) Liberal market economies (including Anglo-Saxon economies), (ii) Coordinated market economies (including Continental and Northern European economies), (iii) Mediterranean market economies, and (iv) Eastern European market economies.

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<sup>16</sup> In Ireland, the survey is continuous, and indication of income refers to the last twelve months.

<sup>17</sup> The only available information about wealth is about homeownership of one of the household members (whose occupational status is not identified). Adding the variable "homeownership of one of the household members (yes/no)" to the empirical models leads to a significantly positive coefficient but leaves the basic results unaffected.

<sup>18</sup> Health status is measured on a 5-points ordinal scale ranging from 1 (very bad) to 5 (very good).

**Table 1: Country groups used in the analysis**

Varieties of entrepreneurial capitalism	Country groups	Score in the Global Entrepreneurship Index	Doing of Business score	Countries
Liberal market economies	Anglo-Saxon	67.4	84.8	Iceland*, Ireland, UK
	Nordic	69.9	83.0	Denmark, Finland, Sweden, Norway,
Coordinated market economies	Continental-I	64.7	78.0	Austria, Germany, Netherlands, Switzerland
	Continental-II	62.5	70.5	Belgium, France, Luxembourg*
Mediterranean market economies	Mediterranean	39.9	68.1	Cyprus*, Greece*, Italy, Malta*, Portugal, Spain
Eastern European market economies	Baltic States	46.7	75.1	Estonia, Latvia*, Lithuania*
	Eastern European-I	28.9	64.0	Bulgaria*, Romania*, Serbia*
	Eastern European-II	41.4	70.0	Croatia*, Czech Republic, Hungary, Poland, Slovakia, Slovenia

*Notes:* \*The country was not considered in the analysis by Dilli, Elert, and Herrmann (2018). Scores are weighted by country-specific population numbers. A GEI score is not available for Malta. High DoB scores indicate closeness to the frontier that is defined as the best performance across countries and over time. A score of 100 indicates the frontier.

We modify this classification in several respects. First, we add a number of countries that are available in our data, but were not considered by Dilli, Elert, and Herrmann (2018). Specifically, we add Cyprus, Greece, and Malta to the group of Mediterranean market economics, Luxembourg to the Continental Europe countries and Bulgaria, Croatia, Romania, and Serbia to the group of Eastern European market economies. Based on the assumption that the Baltic States (Estonia, Latvia, and Lithuania) have much in common, they enter the analysis as a separate group.

A second refinement to the approach of Dilli, Elert, and Herrmann (2018) is that we form subgroups of larger clusters of countries to account for heterogeneity within the country groups. Hence, we divide the group of Continental European countries by forming a Continental-I group consisting of Austria, Germany, The Netherlands, and Switzerland, and a Continental-II group that comprises those countries that follow a more French type of economy, Belgium, France, and Luxembourg. Among the Eastern European market economies, we

distinguish between those countries where large areas were once a part of the Habsburg Empire (Eastern European-I: Croatia, Czech Republic, Hungary, Poland, Slovakia, and Slovenia) and the rest (Eastern European-II: Bulgaria, Romania, and Serbia). Table 1 provides an overview of the definition of country groups used in the analysis.

### **3.2.2 Variables representing the entrepreneurship-facilitating quality of institutions**

While distinguishing between different country groups based on the quality of their entrepreneurial institutions provides us with a first insight into the importance of institutions for individual well-being, the variety of institutional contexts within these groups remains unexplored. To investigate the variation of contexts within the different groups we use two metrics that indicate the entrepreneurship-facilitating context of a country's institutions: the Global Entrepreneurship Index (GEI) and the Doing of Business (DoB) index provided by the World Bank.

The GEI is a comprehensive measure for the quality of a country's entrepreneurship ecosystem, and accounts for factors such as education, cultural support of entrepreneurship, availability of risk capital, innovation, and internationalization (for details, see Acs et al. 2017). The GEI is focused more on the conditions for newly founded businesses than for incumbent firms. The indicators of the GEI are based on individual assessments of representative population samples, or on assessments made by experts. The higher the value of this index, the more entrepreneurship-facilitating the institutions and economic conditions in a country are supposed to be. The GEI scores for most of the countries in the sample refer to the year 2013.<sup>19</sup>

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<sup>19</sup> For several countries the GEI scores were not available for 2013 and, thus, they were taken from an available wave closest to 2013. This was the case for Iceland (2010), Denmark and Austria (2012), Serbia (2009), Bulgaria (2015), and Cyprus (2017). No GEI score was available for Malta.

An alternative indicator of the quality of national institutions regarding the conditions for entrepreneurship that we use in robustness checks is the Doing of Business (DoB) scores for the year 2013 as provided by the World Bank (2013). In contrast to the GEI, the DoB index is not particularly focused on start-ups, and is, to a lesser degree, based on subjective assessments of experts and the surveyed population, but more on hard facts. The DoB score assesses the regulatory performance of 189 countries in terms of general business-friendliness, an assessment that is also relevant for established companies. It covers diverse areas that are relevant for self-employment such as the procedures, time and cost of starting a business, dealing with construction permits, registering property, enforcing contracts, resolving insolvency, as well as the total tax rate on profits.

Both overall indicators for the quality of the institutional environment of a country measure the distance of each country to the 'frontier,' which represents the best performance observed across all countries in the sample since 2005.<sup>20</sup> A country's distance to the frontier is reflected on a scale from 0 to 100, where 0 signifies the lowest performance and 100 represents the frontier. For example, a score of 75 means that a country was 25 percentage points away from the frontier, constructed from the best performances across all countries and across time.

Despite the differences in the definition of the GEI and the DoB score, both indicators show closely corresponding assessments in our sample; the correlation between the two scores among the countries in our sample is 0.821 (see Table A1 in the Appendix).<sup>21</sup> The average scores of both indicators are highest for the liberal market economies and for the Nordic countries and show the lowest

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<sup>20</sup> The GEI, as well as the DoB, have several sub-indices for different areas of the institutional framework that are disregarded in our analyses.

<sup>21</sup> It should be mentioned that the GEI uses some data drawn from the Index of Economic Freedom, as prepared by the Heritage Foundation (<https://www.heritage.org/index/>) that is partly based on the DoB index. This information overlap makes, however, only a very minor part of the GEI and can not explain the pronounced correlation between the two metrics.

scores for the Eastern European-I (Bulgaria, Romania, and Serbia) and the Mediterranean countries (see Table 1). There is, however, considerable variation of these values within the country groups (see Table A3 in the Appendix).

#### **4. Results of the empirical analysis**

##### **4.1 Descriptive evidence on job- and life satisfaction by occupational status**

We find considerable variation of the levels of job and life satisfaction depending on the institutional context. People living in the countries belonging to Anglo-Saxon, Nordic, and both Continental institutional contexts tend to experience, on average, higher levels of job and life satisfaction than residents of Mediterranean and many Eastern European states (see Figures A1 to A4 in the Appendix). Interestingly, residents of the Baltic States and of the countries constituting the Eastern European-I group more often report very high levels of job satisfaction as compared to Mediterranean countries and countries in the Eastern European-II group. In contrast, residents of the latter group are more likely to show higher levels of overall life satisfaction.

Table 2 reports the differences in the levels of job and life satisfaction between the self-employed and paid employees. Previous studies often provided evidence of self-employed people being on average more satisfied with their jobs as compared to their paid employed counterparts (McGrath and MacMillan 1992; Benz and Frey 2008a, b; Croson and Minniti 2012; Shir 2016). Our data do, however, suggest that these differences in the level of job satisfaction vary strongly with the institutional context. In particular, self-employed people are on average more likely to be satisfied with their jobs than paid employees in Anglo-Saxon, Nordic, and both groups of Continental European countries. The level of job satisfaction is also slightly higher for the self-employed than for paid employees in the Baltic States (however, only statistically significant at a 10 percent level). Self-employed people report, on average, significantly lower

**Table 2: Descriptive statistics for satisfaction with job-and life by employment status and institutional context**

	Self-employed		Paid employees		p-value	Number of observations
	Mean	Standard deviation	Mean	Standard deviation		
<i>Varieties of institutional contexts:</i>						
	<i>Job satisfaction</i>					
Anglo-Saxon	7.565	2.185	7.303	2.126	0.000	10,371
Nordic	8.262	1.428	7.936	1.614	0.000	14,705
Continental-I: Austria, Germany, Netherlands, Switzerland	8.113	1.719	7.505	1.886	0.000	26,452
Continental-II: Belgium, France, Luxembourg	7.623	1.723	7.359	1.734	0.000	13,912
Mediterranean	6.453	2.356	7.071	2.039	0.000	35,853
Baltic States	7.417	1.913	7.314	1.899	0.094	12,673
Eastern European-I: Bulgaria, Romania, Serbia	5.618	2.584	6.721	2.241	0.000	13,152
Eastern European-II: Hungary, Poland, Czech Republic, Slovakia, Slovenia, Croatia	7.26	2.184	7.224	2.045	0.276	34,009
	<i>Life satisfaction</i>					
Anglo-Saxon	7.641	1.783	7.643	1.731	0.968	10,371
Nordic	8.139	1.309	8.169	1.337	0.377	14,701
Continental-I: Austria, Germany, Netherlands, Switzerland	7.968	1.555	7.849	1.522	0.000	26,441
Continental-II: Belgium, France, Luxembourg	7.560	1.502	7.547	1.473	0.777	13,906
Mediterranean	6.652	2.078	6.992	1.938	0.000	35,585
Baltic States	6.917	1.804	6.855	1.813	0.293	12,671
Eastern European-I: Bulgaria, Romania, Serbia	5.993	2.340	6.410	2.212	0.000	13,152
Eastern European-II: Hungary, Poland, Czech Republic, Slovakia, Slovenia, Croatia	7.267	1.957	7.162	1.907	0.001	33,022

*Note:* The last column contains p-values of t-tests of equal means between self-employed persons and paid employees.

levels of job satisfaction than paid employees in Mediterranean countries and in countries constituting the Eastern European-I group. No statistically significant difference can be found for the Eastern European-II group of countries.<sup>22</sup> The distribution of the values for both, job and life satisfaction is skewed with more respondents stating relatively high levels of well-being (see Figures A1 and A2 in the Appendix).

<sup>22</sup> Cross-country differences observed within various institutional contexts are reported in Figure A3 in the Appendix. For instance, within the Baltic States, Estonian the self-employed are on average more satisfied with their jobs than paid employees, while the self-employed living in Latvia and Lithuania report slightly lower levels.

The differences in the levels of the overall life satisfaction between the self-employed and paid employees also vary between institutional contexts, although to a lesser degree than the levels of job satisfaction (Table 2). For instance, we do not find any statistically significant differences for Anglo-Saxon, Nordic, and the Continental-II group of countries, as well as for the Baltic States. Self-employed individuals in the Continental-I and the Eastern European-II group of countries are, on average, slightly more satisfied with their lives than paid employees. In contrast, those who are self-employed in Mediterranean countries and in countries of the Eastern European-I group are, on average, significantly less satisfied with their lives as compared to paid employees. Interestingly, both institutional contexts showcase the lowest average levels of life satisfaction, as compared to countries with other institutional contexts.<sup>23</sup>

All in all, the descriptive evidence suggests that the differences in job satisfaction between self-employed individuals and paid employees are more pronounced than for the overall level of life satisfaction. Moreover, there are clear differences according to the institutional contexts. It is particularly remarkable that being self-employed in Mediterranean countries and in the Eastern European-I group of countries (Bulgaria, Romania, and Serbia) show, on average, significantly lower levels of job satisfaction as compared to paid employees. This becomes particularly obvious at the country level (Figures A3 and A4 in the Appendix). The ratio of job satisfaction of the self-employed over job satisfaction of paid employees is less than 1 for Croatia, Cyprus, Greece, Portugal, Romania, and Serbia, while the ratio has the highest values for Estonia, Germany, Luxembourg, Sweden, and Switzerland. Almost the same pattern can be seen for the ratio of overall life satisfaction of self-employed persons over overall life satisfaction of paid employees.

The cross-country variation of the ratio of job and life satisfaction of the self-employed over paid employees makes it clear that the finding in several

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<sup>23</sup> Country-specific differences between self-employed individuals and paid employees in the levels of life satisfaction are shown in Figure A4 in the Appendix.



studies of a higher level of well-being of the self-employed cannot be regarded as a stylized fact (McGrath and MacMillan 1992; Benz and Frey 2008a, b; Croson and Minniti 2012; Shir 2016). Our evidence clearly suggests that country-specific conditions play an important role in this respect.

Figures A3 and A4 in the Appendix show the overall GEI and DoB scores of the countries in our sample. The correlation coefficients between GEI (DoB) scores and individual job and life satisfaction are 0.17 and 0.28 (0.15 and 0.22), correspondingly, thus, indicating a positive relationship between an entrepreneurship-friendly institutional environment and an individual's well-being (Table A1 in the Appendix).<sup>24</sup>

#### **4.2 Institutions and the well-being of self-employed and paid employees: multivariate analyses**

For a more in-depth investigation we examine the relationship between institutional context and well-being by performing multivariate analyses at the individual level, accounting for factors such as age, gender, marital status, level of education, working hours per week, job change in the previous year, and a person's income level. Due to the ordinal nature of the dependent variable, ordered logit regressions are estimated and the results are reported in Table 3.<sup>25</sup>

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<sup>24</sup> The corresponding correlation coefficients for GEI scores and well-being are 0.31 and 0.32 for the self-employed, and 0.14 and 0.27 for paid employees.

<sup>25</sup> The results for control variables indicate that older people and males report lower levels of well-being, while being married has a positive effect. The number of working hours per week is negatively related to overall life satisfaction, but this relationship is not statistically significant for job satisfaction. A change of occupation in the previous year is related to significantly higher job satisfaction, but with significantly lower levels of overall satisfaction with life. Both, job satisfaction and overall life satisfaction increase with a person's position in the income distribution. People with higher education levels tend to report higher levels of life satisfaction, while the relationship between educational level and job satisfaction comes out to be negative, which is in line with previous studies (e.g., Clark and Oswald 1996; Millán et al. 2013). In an attempt to explain this latter result, Clark and Oswald (1996) speculate that higher education induces higher aspirations for characterizing one's situation as "good" or "excellent" that are then not fulfilled in reality. Millán et al. (2013, 665) suggest "that employees with university studies have more demanding jobs and have to meet higher expectations, and thus keeping one's job is more challenging."

**Table 3: Determinants of job- and life satisfaction**

	Job satisfaction			Life satisfaction		
	I	II	III	IV	V	VI
Paid employee (reference)						
Self-employed	0.122*** (0.0167)	0.473*** (0.0653)	-1.322*** (0.0522)	0.0555*** (0.0162)	0.183*** (0.0607)	-0.451*** (0.0517)
<i>Varieties of institutional contexts:</i>						
Anglo-Saxon (reference)						
Nordic	0.530*** (0.0238)	0.520*** (0.0252)		0.766*** (0.0230)	0.761*** (0.0244)	
Continental-I: Austria, Germany, Netherlands, Switzerland	0.161*** (0.0225)	0.145*** (0.0237)		0.408*** (0.0215)	0.409*** (0.0227)	
Continental-II: Belgium, France, Luxembourg	-0.0675*** (0.0235)	-0.0522** (0.0248)		0.0311 (0.0228)	0.0459* (0.0241)	
Mediterranean	-0.405*** (0.0222)	-0.277*** (0.0235)		-0.599*** (0.0218)	-0.537*** (0.0233)	
Baltic States	-0.0204 (0.0250)	0.0106 (0.0262)		-0.357*** (0.0249)	-0.344*** (0.0262)	
Eastern European-I: Bulgaria, Serbia and Romania	-0.619*** (0.0264)	-0.480*** (0.0281)		-1.094*** (0.0267)	-1.055*** (0.0286)	
Eastern European-II: Hungary, Poland, Czech Republic, Slovakia, Slovenia, Croatia	-0.0695*** (0.0224)	-0.0496** (0.0236)		-0.194*** (0.0222)	-0.206*** (0.0235)	
GEI 2013			0.0162*** (0.000362)			0.0341*** (0.000369)
<i>Interaction terms:</i>						
Self-employed x Nordic		0.0639 (0.0756)			0.0306 (0.0709)	
Self-employed x Continental-I		0.267*** (0.0754)			0.0294 (0.0704)	
Self-employed x Continental-II		-0.0740 (0.0812)			-0.123 (0.0763)	
Self-employed x Mediterranean		-0.832*** (0.0701)			-0.374*** (0.0658)	
Self-employed x Baltic States		-0.236*** (0.0880)			-0.0972 (0.0824)	
Self-employed x Eastern European-I		-0.961*** (0.0812)			-0.264*** (0.0786)	
Self-employed x Eastern European-II		-0.194*** (0.0733)			0.0862 (0.0695)	
Self-employed x GEI			0.0292*** (0.000990)			0.0105*** (0.000975)
Number of observations	161,127	161,127	158,463	159,849	159,849	157,185
Pseudo R-squared	0.0190	0.0207	0.0197	0.0554	0.0557	0.0558
Log Likelihood	-316027	-315509	-310827	-290055	-289957	-285124

*Notes:* Results of ordered logit regression. Dependent variable: 11-points scale measuring job- and life satisfaction, respectively. Robust standard errors in parentheses. \*\*\*: statistically significant at the 1% level; \*\* statistically significant at the 5% level; \* statistically significant at the 10% level. The number of observations in columns III and VI is lower than in other models, because GEI scores were not available for Malta, which is part of the Mediterranean group of countries. Control variables are included. Effects of control variables are reported in Table A4 in the Appendix.

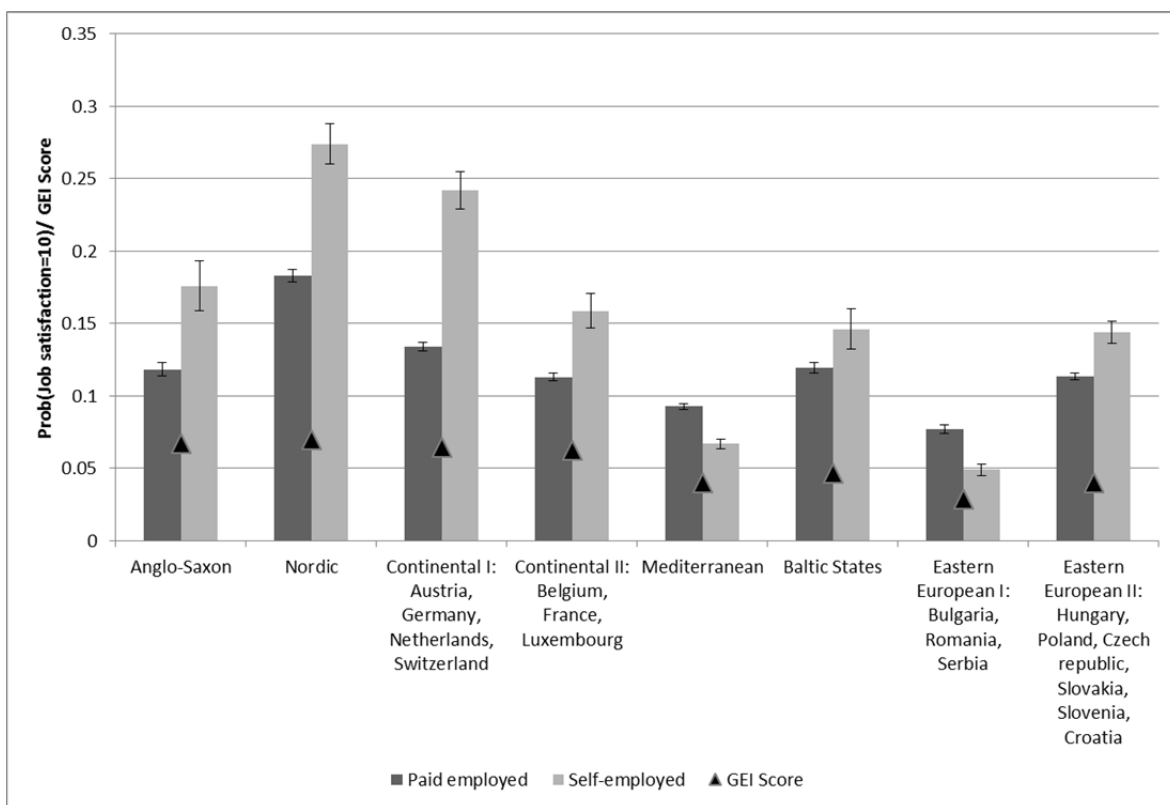
The results of the empirical models (Columns I and IV in Table 3) suggest that self-employed people are generally more likely to report significantly higher levels of job satisfaction and overall life satisfaction than paid employees. When compared to Anglo-Saxon countries, the levels of job satisfaction are significantly higher in Nordic and Continental-I institutional contexts, and they are significantly lower in Continental-II, Mediterranean and Eastern European countries. Furthermore, residents in Nordic and Continental-I countries are more likely to be satisfied with their lives in general than people in Anglo-Saxon countries. Residents of Mediterranean, Baltic and Eastern European-I countries show significantly lower scores of life satisfaction.

To examine whether self-employment is differently associated with individual well-being depending on institutional context, we include interaction terms between employment status and type of institutional context into the models. Column II of Table 3 reports the results of this approach for job satisfaction, and Column V presents the results for the overall level of life satisfaction.<sup>26</sup> Models III and VI in Table 3 show the estimates for the relationship between a country's GEI score and individual job and life satisfaction. The results for the interaction term between self-employment and the GEI score clearly indicate that more entrepreneurial institutions are positively associated with the individual well-being of self-employed individuals. The highly significant positive coefficients for the GEI score suggest that more entrepreneurship-facilitating institutions have not only a positive effect on self-employed persons, but also on paid employees.

To further investigate this rather remarkable result we calculate the predicted probability of someone reporting the highest level of satisfaction (score = 10) with one's job and life by employment status and groups of

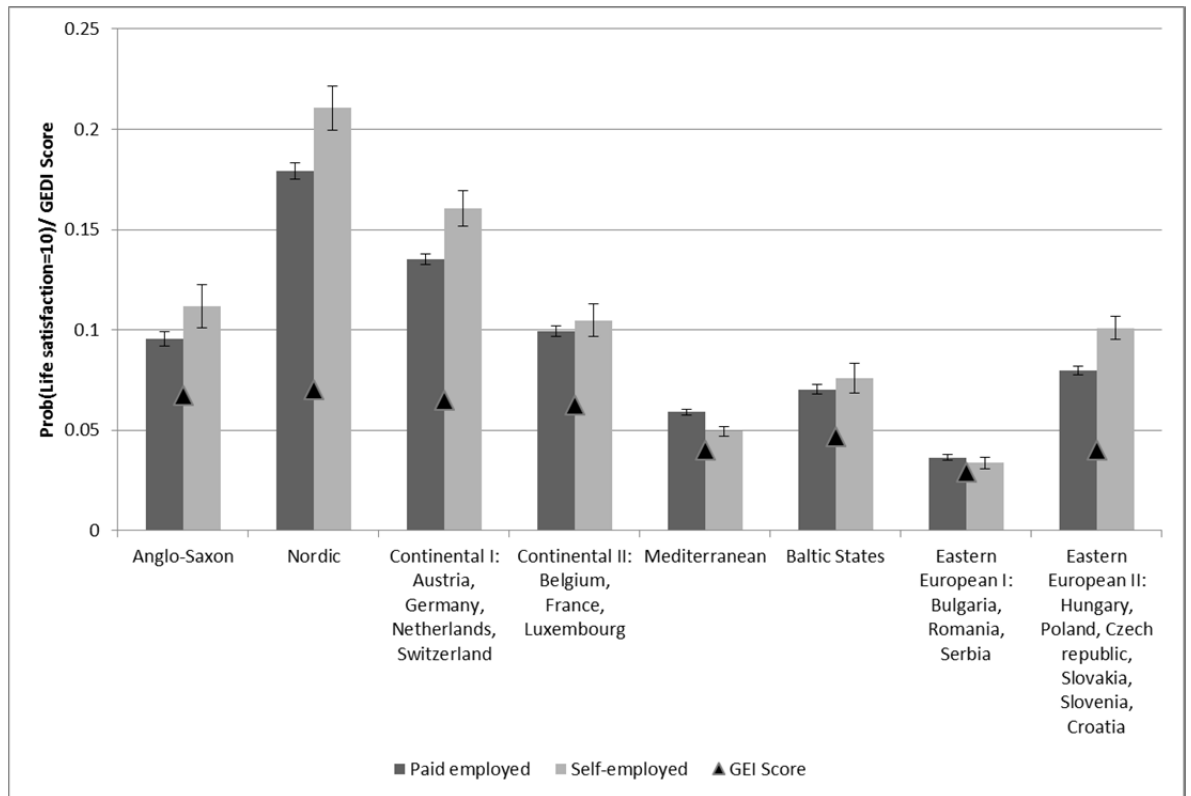
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<sup>26</sup> Note that the constitutive terms of the interactions indicate the effect in case that the other interacting variable has the value of zero (for details regarding the interpretation of interaction effects see Brambor et al. 2006). Hence, the coefficients for the constitutive term can hardly be interpreted in isolation in a meaningful way.

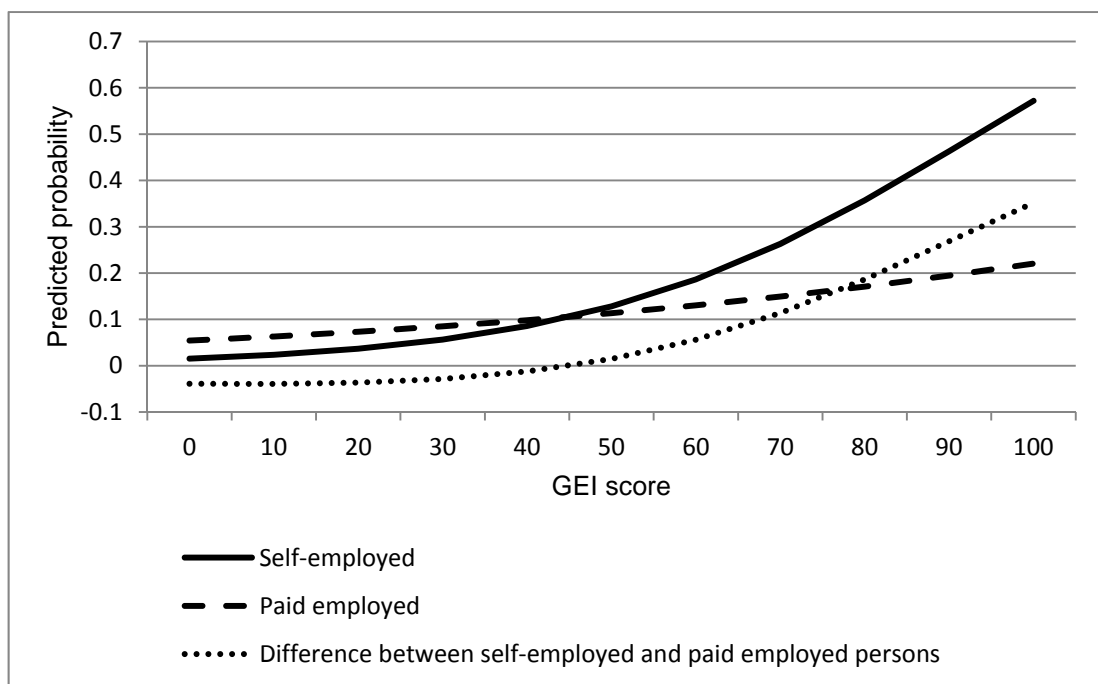


**Figure 1: Predicted probabilities of being completely satisfied with one’s job by employment status and institutional context. The 95% confidence intervals are reported**

countries. The results are visualised in Figures 1 and 2. We find a strong variation of the levels of individual well-being across institutional contexts. Since our measure for the institutional context focuses on the conditions in different types of occupation, it is not surprising that the variation between self-employed individuals and paid employees is much stronger for the levels of job satisfaction than for overall life satisfaction. Figures 1 and 2 also display the overall GEI scores of the country groups. The figures clearly show that job and life satisfaction of self-employed people tend to be higher in countries with a higher GEI score. Quite remarkably, also the job and life satisfaction of the paid employees tends to be more pronounced in countries with a higher GEI score.



**Figure 2: Predicted probabilities of being completely satisfied with one's life by employment status and institutional context. The 95% confidence intervals are reported**



**Figure 3: Difference between self-employed and paid employed persons in the predicted probability of being completely satisfied with one's job**



**Figure 4: Difference between self-employed and paid employed persons in predicted probability of being completely satisfied with one's life**

Figures 3 and 4 visualize differences between the self-employed and paid employees regarding the predicted probability of being completely satisfied with one's job and life based on a country's GEI score. We find that the self-employed are significantly less likely than paid employees to be completely satisfied with their jobs in countries where the GEI score is relatively low and does not exceed 45 points. The probability of being completely satisfied with one's job is, however, higher for the self-employed in countries with a GEI score of more than 45 points. A finding that more entrepreneurship-facilitating institutional environment is conducive to job satisfaction of people in both types of occupation is consistent with our expectation that many kinds of entrepreneurship-facilitating institutions can be beneficial to self-employed individuals as well as paid employees (Section 2). However, an entrepreneurship-facilitating institutional environment seems to affect the sense of well-being among the self-employed to a greater extent than that of paid employees. Accordingly, we find a more pronounced difference in job satisfaction between self-employed individuals and paid employees in countries with high GEI scores.

The difference between the degree of life satisfaction for the self-employed and paid employees is negligibly small, although negative, for countries with GEI scores below 40. It increases, however, and becomes positive for higher GEI scores. Again, the probability of being completely satisfied with one's life increases for both occupational categories as the GEI scores increase.<sup>27</sup> As in the respective figure for job satisfaction, this increase is more pronounced for the self-employed than for paid employees.

### **4.3 Well-being of paid employed persons by firm size**

Jobs in small firms are often less secure and have lower wages compared to jobs in larger firms. As has been shown by Benz and Frey (2008b), however, jobs in smaller firms may yield higher levels of autonomy and a richer variety of tasks that can lead to higher levels of procedural utility and the well-being of the employees (see Section 2). Hence, if high quality entrepreneurial institutions have a positive effect on job and life satisfaction of paid employees, then one might expect that this positive effect should be more pronounced for small firm employees than for employees in larger companies. We test this hypothesis by analysing the relationship between job satisfaction and employment in firms of different size.

The results in Table 4, Column I, suggest that job satisfaction of paid employees decreases with the size of the firm. The highest levels of job satisfaction are observed among the self-employed and paid employees working in firms with less than 10 employees. Column II of Table 4 investigates the differences in this relationship depending on the quality of entrepreneurial institutions. To facilitate the interpretation of the interaction terms, the results for the case of reporting the highest value on the job satisfaction scale are visualized in Figure 5. The estimations clearly suggest that the quality of entrepreneurial institutions increases the

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<sup>27</sup> Figures A5 and A6 in the Appendix show similar results for the probability to report 7 and more points on an 11-points job- and life satisfaction scale. We note that the relationship becomes concave if we relax the condition of reporting the highest satisfaction levels. This means that promoting entrepreneurship-friendly institutions in countries that have relatively low GEI scores can lead to a greater increase in well-being as compared to similar measures in countries that already have high scores on this index.

**Table 4: Individual well-being and firm size**

	Job satisfaction		Life satisfaction	
	I	II	III	IV
Self-employed (reference)				
Paid employee, less than 10 employees	-0.0149 (0.0208)	0.882*** (0.0704)	-0.0253 (0.0205)	0.200*** (0.0707)
Paid employee, 11-19 employees	-0.0542*** (0.0188)	1.041*** (0.0619)	-0.0357* (0.0185)	0.325*** (0.0619)
Paid employee, 20-49 employees	-0.107*** (0.0198)	1.385*** (0.0660)	-0.0349* (0.0197)	0.479*** (0.0666)
Paid employee, 50 and more employees	-0.208*** (0.0182)	1.565*** (0.0576)	-0.101*** (0.0178)	0.630*** (0.0574)
GEI 2013	0.0202*** (0.000352)	0.0455*** (0.000937)	0.0354*** (0.000357)	0.0447*** (0.000921)
<i>Interaction terms:</i>				
Paid employee, less than 10 employees x GEI		-0.0187*** (0.00134)		-0.00480*** (0.00133)
Paid employee, 11-19 employees x GEI		-0.0225*** (0.00120)		-0.00740*** (0.00118)
Paid employee, 20-49 employees x GEI		-0.0302*** (0.00124)		-0.0104*** (0.00123)
Paid employee, 50 and more employees x GEI		-0.0353*** (0.00107)		-0.0144*** (0.00106)
Number of observations	153,337	153,337	152,080	152,080
Pseudo R-squared	0.0181	0.0201	0.0553	0.0557
Log Likelihood	-300836	-300211	-275276	-275161

*Notes:* Results of ordered logit regression. Dependent variable: 11-points scale measuring job satisfaction (models I and II) and life satisfaction (models III and IV). Robust standard errors in parentheses. \*\*\*: statistically significant at the 1% level; \*\* statistically significant at the 5% level; \* statistically significant at the 10% level. All control variables are included. Effects of control variables are reported in Table A5 in the Appendix.

probability of being completely satisfied with one's job for employees of all firm sizes. The magnitude of this effect is most pronounced for employees in firms with less than 10 employees, and it becomes smaller with increasing firm size. The lowest levels of job satisfaction, as well as the smallest increase of this level with more entrepreneurship-facilitating institutional framework conditions, are observed for people working in firms with 50 and more employees.



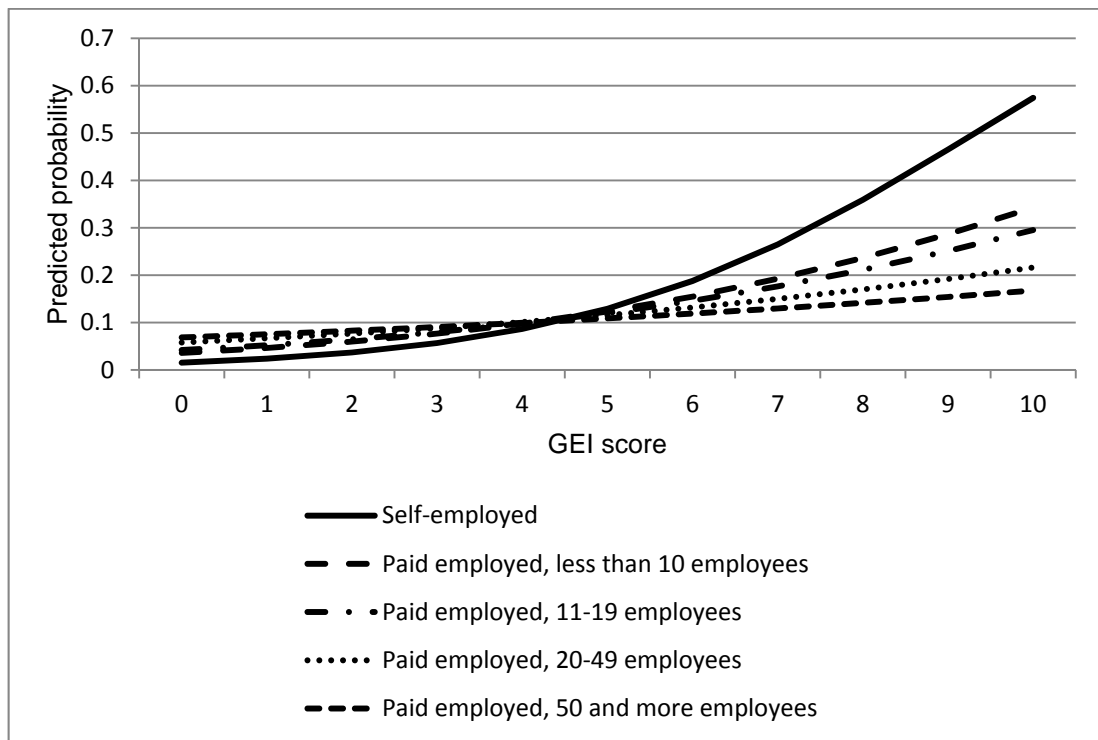


Figure 5: Predicted probability of being completely satisfied with one's job

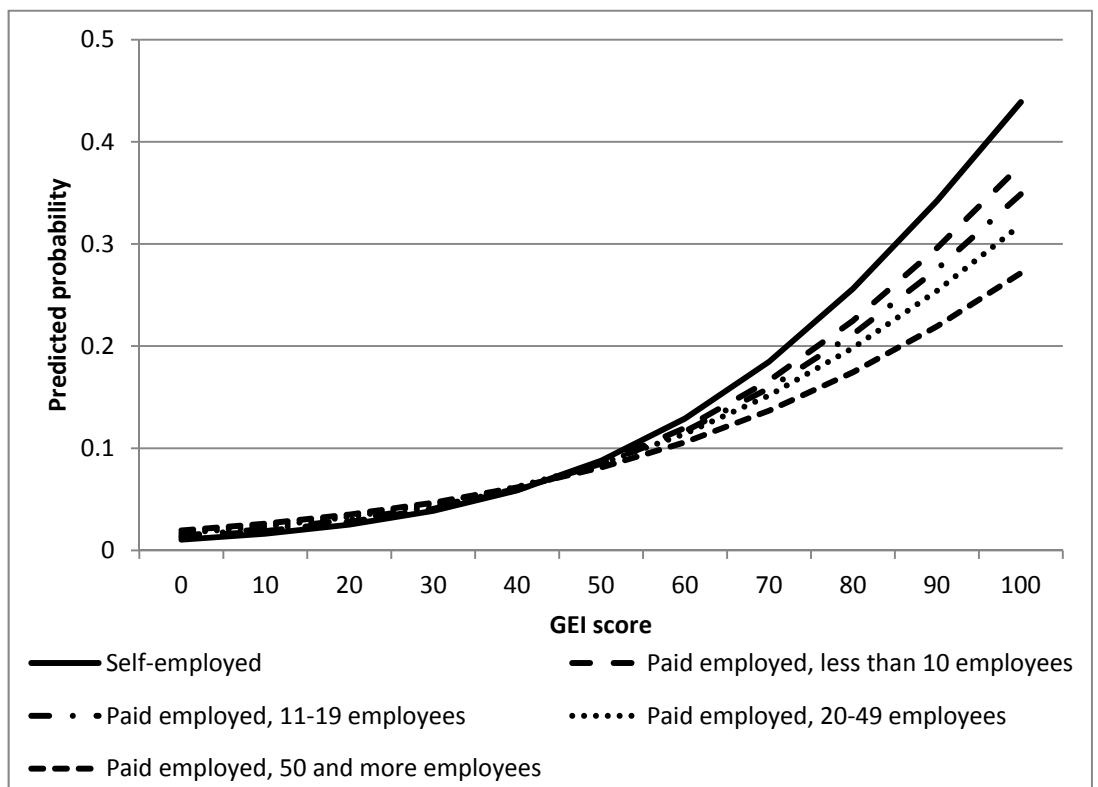


Figure 6: Predicted probability of being completely satisfied with one's life

The results for life satisfaction presented in Table 4 (Columns III and IV) and graphically illustrated in Figure 6 are similar to the results for job satisfaction. The differences between the self-employed and paid employees in firms of different size are still statistically significant, but the magnitude of the effects is substantially lower. This is completely in line with the proposition that the procedural utility that people draw from their working activities should have a more pronounced effect on job satisfaction rather than on life satisfaction in general.

#### **4.4 Personal income and well-being**

To account for possible variations in the effects of the entrepreneurship-relevant properties of the regional environment for persons with different income levels, we perform our baseline regressions (as in Column I and IV of Table 3) for four quartiles of the country-specific income distribution. The results are reported in Table A6 (for job satisfaction) and Table A7 (for life satisfaction) in the Appendix. Regarding job satisfaction (Table A6), we find that the self-employed are more likely to be satisfied with their jobs than paid employees across all but the first income quartile where the coefficient for occupational status remains insignificant. This means that self-employed persons that are not economically successful do not experience higher levels of job satisfaction than paid employees in the same income group. We also find that the negative interaction effect between self-employment status and the groups of Mediterranean and Eastern European-I countries holds across all income quartiles. Thus, a lower sense of well-being among the self-employed in these countries is likely to be due to institutional factors and less/not affected by individual characteristics, such as a person's financial situation.

The positive effect of self-employment status is only statistically significant for life satisfaction (Table A7) in the lower income quartiles (Columns I-IV). Thus, a high level of income is likely to contribute to greater life satisfaction independent of one's employment status. Moreover, being self-employed in Mediterranean countries decreases the probability of reporting high levels of life satisfaction (with an exception of the fourth income quartile, for which we do not find any statistically significant effect).

For Eastern European countries, the results are quite ambiguous. In these countries only those respondents in the lowest income quartile associate self-employment with a higher level of life satisfaction as compared to low income paid employees, while this relationship is negative or not statistically significant for the higher income quartiles (columns V to VIII). It should be noted that this specific East European pattern is not observed for job satisfaction. A possible explanation is the relatively high levels of necessity entrepreneurship in those countries (GEM 2017). It could be that many self-employed people with low incomes in East European countries feel higher life satisfaction because they have hardly any alternatives of earning incomes in paid employment, and they value the autonomy and flexibility of being their own boss.

#### **4.5 Robustness checks: Using the Doing of Business (DoB) score**

Using the DoB score as an alternative measure of the entrepreneurship-facilitating quality of a country's institutional framework leads to rather similar results. Models I and II in Table 5 show a highly significant effect of the DoB scores on job and life satisfaction. A main difference with the analyses that use the GEI indicator is that the relationship between the DoB scores and well-being is less pronounced for both occupational categories (see Table A8 and Figures A8, and A9 in the Appendix). The weaker relationship between well-being and the DoB scores may be an indication that the GEI is better suited as measure of the quality of a country's institutional framework in promoting entrepreneurial activities.

It might be argued that our result of a positive effect of the entrepreneurship-facilitating character of a country's institutional framework and well-being may be confounded by a relationship between the institutional framework and the welfare level. In particular, one may assume that countries that have high-quality entrepreneurial institutions may also enjoy higher levels of economic welfare, and that this effect may drive our results. Indeed, we find considerable correlation between GDP per capita and a country's GEI score (the correlation coefficient is 0.74), as well as with the DoB score (the coefficient is 0.51).

**Table 5: Well-being and GDP per capita**

	I	II	III	IV	V
<i>Job satisfaction</i>					
Self-employed (yes=1; no=0)	0.110*** (0.017)	0.108*** (0.017)	0.0582*** (0.0169)	0.111*** (0.0168)	0.0955*** (0.0167)
GEI score	0.020*** (0.000)			0.0204*** (0.0006)	
DoB score		0.039*** (0.001)			0.0287*** (0.0009)
GDP per capita (ln)			0.334*** (0.0072)	-0.0144 (0.0119)	0.178*** (0.0086)
Log pseudolikelihood	-311291.03	-316690.82	-316992.87	-311290.32	-316470.91
Pseudo R <sup>2</sup>	0.0182	0.0170	0.0161	0.0182	0.0177
Number of observations	158,463	161,127	161,127	158,463	161,127
<i>Life satisfaction</i>					
	I	II	III	IV	V
Self-employed (yes=1; no=0)	0.062*** (0.016)	0.054*** (0.016)	-0.0218 (0.0164)	0.0578*** (0.0163)	0.0298* (0.0163)
GEI score	0.035*** (0.000)			0.0337*** (0.0006)	
DoB score		0.063*** (0.001)			0.0398*** (0.0009)
GDP per capita (ln)			0.618*** (0.0073)	0.0453*** (0.0122)	0.403*** (0.0087)
Log pseudolikelihood	-285,182.85	-291,963.55	-291,861.67	-285,176	-290,878.6
Pseudo R <sup>2</sup>	0.0556	0.0491	0.0495	0.0556	0.0527
Number of observations	157,185	159,849	159,849	157,185	159,849

*Notes:* Standard errors in parentheses. \*\*\*: statistically significant at the 1% level; \*\* statistically significant at the 5% level; \* statistically significant at the 10% level. All control variables are included; results for these variables are omitted for brevity.

Including GDP per capita instead of the indicators for the institutional framework conditions in models for job and work satisfaction (Model III in Table 4), results in a highly significant coefficient. However, including GDP per capita *and* a measure for the institutional framework into one model leads to considerably lower coefficients for GDP per capita, or even insignificance (Models IV and V in Table 4). In these models the coefficients for the GEI remain largely unaffected while those for the DoB score become smaller, but remain statistically significant. In addition, the models including GEI scores have higher pseudo R<sup>2</sup> values than models including DoB scores or GDP per capita. We conclude from these regressions that a country's level of GDP per capita may be an important source of the sense of well-being en-

joyed by its citizens, but that our main results about the role of entrepreneurship-facilitating institutions remain robust if we control for this relationship.

## **5. Discussion and conclusions**

### **5.1 Research contributions**

The most important result of our empirical analysis is that there is considerable variation in the job and life satisfaction of self-employed people as compared to paid employees across countries and institutional contexts. While in most countries self-employed individuals experience higher levels of well-being as compared to paid employees, there are some countries where the opposite holds true. Lower levels of well-being among the self-employed as compared to paid employees are particularly found in Mediterranean countries and in some of the formerly socialist countries of Eastern Europe, especially in Bulgaria, Romania, and Serbia. This clearly shows that the higher levels of well-being of self-employed as compared to paid employees found in previous research cannot be regarded as a stylized fact. Our results suggest that differences of well-being between people in the two types of occupations are related to country-specific factors, particularly the entrepreneurship-facilitating properties of the respective entrepreneurship ecosystem. Institutional support for entrepreneurship matters for the level of well-being reported by the self-employed.

Another important finding is that not only the self-employed, but also paid employees, report higher levels of well-being in countries with entrepreneurship-facilitating institutions as compared to countries where the institutions are less favourable. This indicates that promoting an entrepreneurship-friendly framework and the resulting well-being of self-employed persons do not come at the cost of well-being among paid employees. On the contrary, the well-being of people in both occupational categories seems to be positively related. This result clearly suggests that policies aiming at promoting a more entrepreneurial society are not necessarily contrary to the interest of paid employees, but can be regarded as being a Pareto-improvement. The extent to which such policies are also beneficial for paid employees may, however, depend on the type of institution. Further research

should, therefore, seek to identify those types of entrepreneurial institutions that improve well-being of both groups, the self-employed and paid employees.

## **5.2 Implications for theory development and for policy**

A main implication of our results for theory is that the literature on well-being in different types of labour market statuses and the literature focusing on the effect of institutions on self-employment need to be integrated into a coherent framework. Such a framework could facilitate a better understanding of the ways in which different institutions affect job and life satisfaction of both the self-employed and of paid employees. Another important question that could be analysed using such a more integrated approach is how institutions and an individual's sense of well-being influence personal behaviour, particularly the propensity to become and to stay self-employed. Another benefit of a coherent framework is that it could provide an appropriate basis for deriving policy implications for developing appropriate designs of institutions.

The main policy lesson that can be drawn from our study is that promoting entrepreneurial institutions may increase the levels of well-being in a society. The results of our analysis indicate that this is not to the detriment of employees, as paid workers in countries with entrepreneurship-facilitating institutions tend to also enjoy higher levels of well-being.

## **5.3 Limitations**

A limitation of our study is that the EU-SILC data does not provide us with much information about the composition of self-employment. For instance, subjective well-being may differ for the self-employed who have or do not have employees (Sevä et al. 2016). There may also be a difference between necessity and opportunity entrepreneurs (Block and Koellinger 2009). Although our data do not provide us with a direct measure of motives for self-employment, we were able to at least partly capture the differences between necessity- and opportunity motivated entrepreneurs by comparing well-being of the self-employed and paid-employees along the income distribution. The respective analyses (Section 4.4) clearly indicate

that main results appear not to be driven by cross-country differences in the quality of self-employment. Another shortcoming is that we do not know how long self-employed people have been in business. This may be important because institutions could be designed in a way that protects the incumbent self-employed, while they alienating de novo entrants, or the other way around.

Although we have shown the relevance of institutional framework conditions for the well-being of self-employed individuals as well as of dependently employed persons, there are a number of issues that need to be tackled by future research. One of these issues is measuring entrepreneurial institutions. Assessing institutional environments by classifying countries into several groups (Dilli, Ewert, and Herrmann 2018) is obviously a rather rough approximation. Differences between the groups of countries may reveal some of the heterogeneity across the groups, but do not tell us much about what types of institutions are most important for well-being of the self-employed and of paid employees. The DoB, and particularly the GEI scores, provide a considerably better description of the entrepreneurship ecosystem of a country, but could, of course, be improved. Better availability of data on various aspects of entrepreneurship-fostering institutions may lead to more reliable results. Finally, in the current study, we include a country's average GDP per capita to partly control for the possibility that common omitted variables drive the relationship between the GEI and DoB scores and our measures of satisfaction. Future research might tackle this contextual challenge by considering a wider range of potential omitted variables.

#### **5.4 Avenues for future research**

Generally, the relationship between the institutional framework of a society and the well-being of people is not well understood. Given our current state of knowledge, we can only speculate about the nature of the relevant links. This pertains particularly to the positive relationship that we have found between the entrepreneurship-facilitating character of a country's institutions and the well-being of paid employees. To amplify our understanding, research may have to investigate these issues at the micro-level of individuals.

One important avenue for research of this type is to examine the effect of single elements of the institutional framework on the well-being of self-employed persons, as well as of paid employees. Such investigations could be of great help in identifying those parts of the framework that are most critical for well-being. Moreover, it is important to know more about the effect of single institutions on different employment categories. This applies to not only necessity driven self-employment and ambitious opportunity self-employment, but also to the wide variety of paid employees.

A related and no less important field for future research concerns the effects of institutions and well-being on individual behaviour. Our result that in some countries the self-employed may realize lower levels of job and life satisfaction than paid employees raises the question why the respective persons remain in self-employment. The most plausible explanation for this phenomenon is that a large part of the self-employed in these countries engage in entrepreneurial activities because they do not have a better employment opportunity (necessity entrepreneurship). Another explanation could be a feeling of “over-confidence” among the self-employed (Koellinger, Minniti, and Schade, 2007), who hope that their sense of well-being as a self-employed individual will increase over time. Clearly, further research on the effect of institutions on individual behaviour is necessary and desirable to throw more light on such phenomena.

## **6. Final remark**

This study finds a positive link between the entrepreneurship-facilitating character of a country’s institutions and the job and life satisfaction of both the self-employed and paid employees. This implies that shifting to a more entrepreneurial society with more entrepreneurship-friendly institutions is a Pareto-improvement that is beneficial for both occupational categories, self-employment and paid employment.



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Appendix: Tables and Figures

Table A1: Correlation matrix

	1	2	3	4	5	6	7	8	9	10	11	12
1 Job satisfaction	1											
2 Life satisfaction	0.4846	1										
3 Self-employed	-0.04	-0.0394	1									
4 Age	-0.0014	-0.0832	0.0998	1								
5 Male	-0.018	0.0018	0.1112	0.0032	1							
6 Married	0.0261	0.0738	0.0577	0.2994	0.0368	1						
7 Primary degree	-0.0541	-0.094	0.0705	0.0983	0.0191	0.0457	1					
8 Secondary degree	-0.0775	-0.1155	0.0207	0.0023	0.063	-0.0138	-0.2472	1				
9 Tertiary degree	0.1007	0.1553	-0.0491	-0.0414	-0.072	-0.004	-0.1447	-0.923	1			
10 Working hours per week	0.004	-0.0226	0.2071	-0.0052	0.2861	0.0108	-0.0003	-0.0012	0.0014	1		
11 Job change since last year	-0.0211	-0.0235	-0.0334	-0.1293	0.002	-0.064	-0.0025	0.0074	-0.0066	-0.0282	1	
12 1st income quartile	-0.118	-0.1112	0.1671	-0.0988	-0.1607	-0.0639	0.0941	0.14	-0.1804	-0.2672	0.1423	1
13 2nd income quartile	-0.048	-0.0466	-0.0443	-0.0472	-0.0946	-0.0408	0.0246	0.1378	-0.1505	-0.0125	-0.0115	-0.3179
14 3rd income quartile	0.0341	0.0286	-0.0848	0.0157	0.0585	0.011	-0.0315	0.0039	0.0086	0.0774	-0.0562	-0.3233
15 4th income quartile	0.1269	0.1246	-0.0325	0.126	0.1898	0.0909	-0.0834	-0.2747	0.3137	0.1924	-0.0696	-0.326
16 Anglo-Saxon	0.0101	0.05	-0.0105	-0.018	-0.0183	-0.0215	-0.0347	-0.0552	0.0701	-0.0522	-0.0002	-0.0108
17 Nordic	0.1132	0.1499	-0.0099	0.0318	0.0123	-0.0335	-0.058	-0.0459	0.0699	-0.0083	-0.0581	-0.0095
18 Continental-I	0.0668	0.1366	-0.0539	0.0224	0.0085	-0.0296	-0.067	-0.0147	0.0416	-0.1006	0.0435	0.0006
19 Continental-II	0.0192	0.0428	-0.0401	-0.0306	-0.0214	-0.0435	0.053	-0.0665	0.0469	-0.049	-0.0081	0.0055
20 Mainly Mediterranean	-0.0875	-0.1113	0.0979	0.0041	0.0354	0.0471	0.1972	-0.041	-0.0365	0.0186	-0.0028	-0.0002
21 Baltic States	0.0095	-0.0679	-0.0428	0.0193	-0.0363	-0.0308	-0.0534	0.0117	0.0093	0.001	0.0091	0.0076
22 Eastern European-I	-0.1076	-0.1534	0.0378	-0.0002	0.0327	0.0407	-0.0339	0.0785	-0.0667	0.0777	-0.0511	-0.0161
23 Eastern European-II	-0.0072	-0.0314	-0.0043	-0.0275	-0.0237	0.0398	-0.0512	0.105	-0.0869	0.0911	0.0384	0.0148
24 GEI	0.1718	0.2809	-0.0922	0.0095	-0.022	-0.0824	-0.063	-0.1151	0.1425	-0.1351	0.0154	-0.0053
25 DoB score	0.1489	0.2202	-0.092	0.0193	-0.0292	-0.0674	-0.0753	-0.0949	0.1269	-0.1044	0.0055	-0.0055

	13	14	15	16	17	18	19	20	21	22	23	24
13 2nd income quartile	1											
14 3rd income quartile	-0.3402	1										
15 4th income quartile	-0.3431	-0.3489	1									
16 Anglo-Saxon	-0.0018	0.0067	0.0055	1								
17 Nordic	0.0046	0.0014	0.0033	-0.0846	1							
18 Continental-I	0.0016	0.0016	-0.0039	-0.1185	-0.1432	1						
19 Continental-II	0.0017	-0.0001	-0.0069	-0.0821	-0.0992	-0.1389	1					
20 Mainly Mediterranean	-0.0055	0.0006	0.005	-0.1362	-0.1646	-0.2304	-0.1597	1				
21 Baltic States	0.0032	-0.0037	-0.0067	-0.078	-0.0943	-0.132	-0.0915	-0.1518	1			
22 Eastern European-I	0.0065	0.0055	0.0036	-0.0796	-0.0962	-0.1347	-0.0933	-0.1549	-0.0887	1		
23 Eastern European-II	-0.0059	-0.0082	-0.0003	-0.1383	-0.1672	-0.234	-0.1622	-0.2691	-0.1541	-0.1573	1	
24 GEI	0.003	0.0037	-0.0015	0.3163	0.3912	0.494	0.2336	-0.3881	-0.0495	-0.4896	-0.3304	1
25 DoB score	0.0029	0.0015	0.001	0.4626	0.5068	0.3098	-0.1203	-0.3697	0.1244	-0.4113	-0.2747	0.8209

**Table A2: Descriptive statistics**

	Mean	Median	Minimum	Maximum	Standard deviation
Job satisfaction	7.260	8	0	10	2.030
Life satisfaction	7.291	8	0	10	1.868
Self-employed	0.130	0	0	1	0.336
Age	44.008	45	18	65	10.912
Male	0.499	0	0	1	0.500
Married	0.606	1	0	1	0.489
Primary degree	0.037	0	0	1	0.190
Secondary degree	0.613	1	0	1	0.487
Tertiary degree	0.349	0	0	1	0.477
Working hours per week	39.042	40	1	99	10.028
Job change since last year	0.058	0	0	1	0.234
1st income quartile	0.232	0	0	1	0.422
2nd income quartile	0.250	0	0	1	0.433
3rd income quartile	0.257	0	0	1	0.437
4th income quartile	0.261	0	0	1	0.439
Anglo-Saxon	0.064	0	0	1	0.245
Nordic	0.091	0	0	1	0.288
Continental-I	0.164	0	0	1	0.370
Continental-II	0.086	0	0	1	0.281
Mainly Mediterranean	0.223	0	0	1	0.416
Baltic States	0.079	0	0	1	0.269
Eastern European-I	0.082	0	0	1	0.274
Eastern European-II	0.211	0	0	1	0.408
GEI	50.677	44.978	22.694	77.128	14.289
DoB score	72.602	71.61	60.46	85.63	6.466



**Table A3: Country-specific scores for Global Entrepreneurship Index (GEI) and Doing of Business (DoB)**

Country groups	GEI	DoB
<i>Anglo-Saxon:</i>		
Ireland	66.6	82.48
Iceland	70.3	82.04
United Kingdom	67.5	85.03
<i>Nordic:</i>		
Denmark	77.1	85.63
Finland	66.2	82.09
Norway	61.0	83.13
Sweden	72.6	81.81
<i>Continental-I:</i>		
Austria	64.4	77.58
Switzerland	72.1	75.58
Germany	63.7	78.79
Netherlands	66.2	75.89
<i>Continental-II:</i>		
Belgium	61.9	72.69
France	62.6	70.14
Luxembourg	58.2	66.96
<i>Mediterranean:</i>		
Cyprus	38.5	69.11
Greece	35.2	61.89
Spain	44.9	69.87
Italy	36.0	66.65
Malta	-	62.59
Portugal	45.7	74.69
<i>Baltic States:</i>		
Estonia	54.9	75.58
Lithuania	45.0	73.88
Latvia	43.8	76.64
<i>Eastern European-I:</i>		
Bulgaria	22.7	68.1
Romania	33.2	63.86
Serbia	23.1	60.46
<i>Eastern European-II:</i>		
Czech Republic	43.4	70.04
Croatia	31.9	62.72
Hungary	38.1	66.86
Poland	42.3	71.61
Slovenia	51.6	69.03
Slovakia	40.1	70.84

Notes: Data for 2013.

**Table A4: Determinants of job- and life satisfaction**

	Job satisfaction			Life satisfaction		
	I	II	III	IV	V	VI
Paid employee (reference)						
Self-employed	0.122*** (0.0167)	0.473*** (0.0653)	-1.322*** (0.0522)	0.0555*** (0.0162)	0.183*** (0.0607)	-0.451*** (0.0517)
<i>Varieties of institutional contexts:</i>						
Anglo-Saxon (reference)	0.530*** (0.0238)	0.520*** (0.0252)		0.766*** (0.0230)	0.761*** (0.0244)	
Nordic						
Continental-I: Austria, Germany, Netherlands, Switzerland	0.161*** (0.0225)	0.145*** (0.0237)		0.408*** (0.0215)	0.409*** (0.0227)	
Continental-II: Belgium, France, Luxembourg	-0.0675*** (0.0235)	-0.0522** (0.0248)		0.0311 (0.0228)	0.0459* (0.0241)	
Mediterranean	-0.405*** (0.0222)	-0.277*** (0.0235)		-0.599*** (0.0218)	-0.537*** (0.0233)	
Baltic States	-0.0204 (0.0250)	0.0106 (0.0262)		-0.357*** (0.0249)	-0.344*** (0.0262)	
Eastern European-I: Bulgaria, Serbia and Romania	-0.619*** (0.0264)	-0.480*** (0.0281)		-1.094*** (0.0267)	-1.055*** (0.0286)	
Eastern European-II: Hungary, Poland, Czech Republic, Slovakia, Slovenia, Croatia	-0.0695*** (0.0224)	-0.0496** (0.0236)		-0.194*** (0.0222)	-0.206*** (0.0235)	
GEI 2013			0.0162*** (0.000362)			0.0341*** (0.000369)
<i>Interaction terms:</i>						
Self-employed x Nordic		0.0639 (0.0756)			0.0306 (0.0709)	
Self-employed x Continental- I		0.267*** (0.0754)			0.0294 (0.0704)	
Self-employed x Continental-II		-0.0740 (0.0812)			-0.123 (0.0763)	
Self-employed x Mediterranean		-0.832*** (0.0701)			-0.374*** (0.0658)	
Self-employed x Baltic States		-0.236*** (0.0880)			-0.0972 (0.0824)	
Self-employed x Eastern European-I		-0.961*** (0.0812)			-0.264*** (0.0786)	
Self-employed x Eastern European-II		-0.194*** (0.0733)			0.0862 (0.0695)	
Self-employed x GEI			0.0292*** (0.000990)			0.0105*** (0.000975)
Age	-0.0069*** (0.000456)	-0.0070*** (0.000456)	-0.0066*** (0.000459)	-0.0115*** (0.000475)	-0.0115*** (0.000475)	-0.0116*** (0.000478)
Male	-0.0929*** (0.0109)	-0.0892*** (0.0109)	-0.107*** (0.0109)	-0.0808*** (0.0110)	-0.0802*** (0.0110)	-0.0872*** (0.0110)
Married	0.128*** (0.00959)	0.126*** (0.00959)	0.132*** (0.00963)	0.487*** (0.00959)	0.485*** (0.00959)	0.500*** (0.00965)
Secondary degree	-0.0534* (0.0289)	-0.0841*** (0.0287)	0.0486* (0.0285)	0.160*** (0.0281)	0.147*** (0.0282)	0.275*** (0.0279)
Tertiary degree	-0.205*** (0.0309)	-0.245*** (0.0307)	-0.137*** (0.0306)	0.207*** (0.0301)	0.191*** (0.0302)	0.278*** (0.0300)
Working hours per week	-0.000521 (0.000578)	-0.000725 (0.000578)	0.000599 (0.000575)	-0.0069*** (0.000543)	-0.0069*** (0.000545)	-0.0055*** (0.000547)

Job change since last year	0.0457** (0.0209)	0.0432** (0.0210)	0.0242 (0.0211)	-0.109*** (0.0202)	-0.111*** (0.0202)	-0.123*** (0.0203)
Total gross yearly working income: 2nd quartile	0.188*** (0.0144)	0.179*** (0.0144)	0.165*** (0.0145)	0.171*** (0.0142)	0.169*** (0.0143)	0.148*** (0.0143)
Total gross yearly working income: 3rd quartile	0.406*** (0.0152)	0.394*** (0.0152)	0.379*** (0.0153)	0.338*** (0.0151)	0.333*** (0.0152)	0.304*** (0.0152)
Total gross yearly working income: 4th quartile	0.668*** (0.0167)	0.654*** (0.0167)	0.644*** (0.0168)	0.543*** (0.0166)	0.536*** (0.0166)	0.516*** (0.0167)
Health status				0.682*** (0.00706)	0.683*** (0.00706)	0.661*** (0.00698)
Number of observations	161,127	161,127	158,463	159,849	159,849	157,185
Pseudo R-squared	0.0190	0.0207	0.0197	0.0554	0.0557	0.0558
Log Likelihood	-316027	-315509	-310827	-290055	-289957	-285124

Notes: Results of ordered logit regression. Dependent variable: 11-points scale measuring job and life satisfaction. Robust standard errors in parentheses. \*\*\*: statistically significant at the 1% level; \*\*: statistically significant at the 5% level; \* statistically significant at the 10% level. The number of observations in columns III and VI is lower than in other models, because GEI scores were not available for Malta, which is part of the Mediterranean group of countries.

**Table A5: Individual well-being and firm size**

	Job satisfaction		Life satisfaction	
	I	II	III	IV
Self-employed (reference)				
Paid employee, less than 10 employees	-0.0149 (0.0208)	0.882*** (0.0704)	-0.0253 (0.0205)	0.200*** (0.0707)
Paid employee, 11-19 employees	-0.0542*** (0.0188)	1.041*** (0.0619)	-0.0357* (0.0185)	0.325*** (0.0619)
Paid employee, 20-49 employees	-0.107*** (0.0198)	1.385*** (0.0660)	-0.0349* (0.0197)	0.479*** (0.0666)
Paid employee, 50 and more employees	-0.208*** (0.0182)	1.565*** (0.0576)	-0.101*** (0.0178)	0.630*** (0.0574)
GEI 2013	0.0202*** (0.000352)	0.0455*** (0.000937)	0.0354*** (0.000357)	0.0447*** (0.000921)
<i>Interaction terms:</i>				
Paid employees, less than 10 employees x GEI		-0.0187*** (0.00134)		-0.0048*** (0.00133)
Paid employees, 11-19 employees x GEI		-0.0225*** (0.00120)		-0.0070*** (0.00118)
Paid employees, 20-49 employees x GEI		-0.0302*** (0.00124)		-0.0104*** (0.00123)
Paid employees, 50 and more employees x GEI		-0.0353*** (0.00107)		-0.0144*** (0.00106)
Age	-0.0062*** (0.000467)	-0.0067*** (0.000467)	-0.0113*** (0.000487)	-0.0115*** (0.000487)
Male	-0.116*** (0.0111)	-0.104*** (0.0111)	-0.0910*** (0.0112)	-0.0855*** (0.0112)
Married	0.132*** (0.00980)	0.132*** (0.00979)	0.503*** (0.00982)	0.503*** (0.00981)
Secondary degree	0.0897*** (0.0293)	0.0547* (0.0291)	0.282*** (0.0286)	0.267*** (0.0286)
Tertiary degree	-0.0837*** (0.0314)	-0.124*** (0.0312)	0.287*** (0.0307)	0.271*** (0.0307)
Working hours per week	0.00100* (0.000585)	0.000915 (0.000582)	-0.0053*** (0.000554)	-0.0053*** (0.000554)
Job change since last year	0.0238 (0.0215)	0.0226 (0.0216)	-0.132*** (0.0207)	-0.133*** (0.0208)
Total gross yearly working income: 2nd quartile	0.177*** (0.0148)	0.173*** (0.0148)	0.146*** (0.0146)	0.144*** (0.0147)
Total gross yearly working income: 3rd quartile	0.401*** (0.0156)	0.395*** (0.0156)	0.306*** (0.0156)	0.303*** (0.0156)
Total gross yearly working income: 4th quartile	0.678*** (0.0172)	0.667*** (0.0173)	0.523*** (0.0172)	0.517*** (0.0172)
Health status			0.663*** (0.00711)	0.665*** (0.00711)
Number of observations	153,337	153,337	152,080	152,080
Pseudo R-squared	0.0181	0.0201	0.0553	0.0557
Log Likelihood	-300836	-300211	-275276	-275161

*Notes:* Results of ordered logit regression. Dependent variable: 11-points scale measuring job satisfaction (models I and II) and life satisfaction (models III and IV). Robust standard errors in parentheses. \*\*\*: statistically significant at the 1% level; \*\* statistically significant at the 5% level; \* statistically significant at the 10% level.

**Table A6: Determinants of job satisfaction by income level**

<i>Variables</i>	I	II	III	IV	V	VI	VII	VIII
	1st income quartile	2nd income quartile	3rd income quartile	4th income quartile	1st income quartile	2nd income quartile	3rd income quartile	4th income quartile
Self-employed (yes=1; no=0)	0.0324 (0.0290)	0.139*** (0.0352)	0.105*** (0.0392)	0.185*** (0.0337)	0.123 (0.102)	0.560*** (0.129)	0.483*** (0.164)	0.347** (0.140)
<i>Varieties of institutional contexts:</i>								
Nordic	0.410*** (0.0521)	0.555*** (0.0495)	0.537*** (0.0468)	0.521*** (0.0440)	0.374*** (0.0597)	0.573*** (0.0526)	0.524*** (0.0485)	0.498*** (0.0461)
Continental-I: Austria, Germany, Netherlands, Switzerland	0.144*** (0.0488)	0.184*** (0.0472)	0.100** (0.0440)	0.137*** (0.0416)	0.124** (0.0549)	0.176*** (0.0501)	0.0840* (0.0454)	0.0923** (0.0432)
Continental-II: Belgium, France, Luxembourg	-0.160*** (0.0515)	-0.0641 (0.0484)	-0.0859* (0.0461)	-0.0613 (0.0445)	-0.152*** (0.0579)	-0.0228 (0.0512)	-0.0816* (0.0476)	-0.0738 (0.0462)
Mediterranean	-0.804*** (0.0487)	-0.446*** (0.0469)	-0.306*** (0.0440)	-0.185*** (0.0414)	-0.631*** (0.0555)	-0.301*** (0.0500)	-0.208*** (0.0456)	-0.122*** (0.0433)
Baltic States	-0.462*** (0.0538)	-0.134** (0.0523)	0.0729 (0.0497)	0.328*** (0.0472)	-0.482*** (0.0601)	-0.0916* (0.0552)	0.0915* (0.0512)	0.352*** (0.0489)
Eastern European-I: Bulgaria, Serbia and Romania	-1.493*** (0.0592)	-0.805*** (0.0540)	-0.489*** (0.0518)	0.0913* (0.0503)	-1.483*** (0.0747)	-0.754*** (0.0570)	-0.436*** (0.0531)	0.165*** (0.0519)
Eastern European-II: Hungary, Poland, Czech Republic, Slovakia, Slovenia, Croatia	-0.582*** (0.0495)	-0.212*** (0.0474)	-0.0210 (0.0441)	0.420*** (0.0418)	-0.633*** (0.0560)	-0.182*** (0.0503)	-0.000337 (0.0456)	0.427*** (0.0434)
<i>Interaction terms:</i>								
Self-employed x Nordic					0.168 (0.119)	-0.0685 (0.156)	0.135 (0.185)	0.118 (0.159)
Self-employed x Continental-I					0.207* (0.120)	0.221 (0.149)	0.329* (0.186)	0.444*** (0.159)
Self-employed x Continental-II					-0.0310 (0.127)	-0.318* (0.167)	0.0793 (0.195)	0.0993 (0.173)
Self-employed x Mediterranean					-0.616*** (0.111)	-0.951*** (0.138)	-0.932*** (0.175)	-0.490*** (0.150)

Table A6 (cont.)

Self-employed x Baltic States					0.172 (0.136)	-0.296 (0.184)	-0.179 (0.221)	-0.332* (0.187)
Self-employed x Eastern European-I					-0.0601 (0.127)	-0.471*** (0.175)	-0.917*** (0.236)	-0.983*** (0.196)
Self-employed x Eastern European-II					0.199* (0.114)	-0.209 (0.148)	-0.287 (0.185)	-0.116 (0.156)
Age	-0.0055*** (0.000858)	-0.0067*** (0.000892)	-0.0056*** (0.000940)	-0.004*** (0.000995)	-0.0055*** (0.000860)	-0.0068*** (0.000893)	-0.0056*** (0.000940)	-0.0040*** (0.000994)
Male	-0.0896*** (0.0236)	-0.134*** (0.0227)	-0.103*** (0.0216)	-0.0235 (0.0213)	-0.0959*** (0.0236)	-0.133*** (0.0227)	-0.104*** (0.0216)	-0.0199 (0.0213)
Married	0.142*** (0.0206)	0.138*** (0.0190)	0.116*** (0.0186)	0.107*** (0.0194)	0.139*** (0.0206)	0.138*** (0.0190)	0.117*** (0.0186)	0.106*** (0.0194)
Secondary degree	0.0675 (0.0414)	-0.188*** (0.0494)	-0.150** (0.0686)	0.112 (0.111)	0.0361 (0.0412)	-0.205*** (0.0489)	-0.178*** (0.0679)	0.0809 (0.110)
Tertiary degree	-0.0786 (0.0480)	-0.373*** (0.0543)	-0.311*** (0.0716)	0.0357 (0.113)	-0.123** (0.0480)	-0.404*** (0.0538)	-0.349*** (0.0709)	-0.00141 (0.111)
Working hours per week	0.00717*** (0.000860)	0.00115 (0.00127)	-0.0039*** (0.00147)	0.000103 (0.00133)	0.00750*** (0.000868)	0.000800 (0.00127)	-0.0042*** (0.00147)	4.04e-05 (0.00133)
Job change since last year	0.0625** (0.0302)	-0.0112 (0.0418)	0.0752 (0.0496)	0.0845 (0.0528)	0.0624** (0.0303)	-0.0163 (0.0420)	0.0751 (0.0497)	0.0805 (0.0530)
Number of observations	37,348	40,360	41,422	41,997	37,348	40,360	41,422	41,997
Pseudo R-squared	0.0282	0.0178	0.0114	0.00927	0.0296	0.0191	0.0128	0.0104
Log Likelihood	-77,632	-80,517	-79,268	-76,581	-77,522	-80,408	-79,157	-76,495

Notes: Results of ordered logit regression. Dependent variable: 11-points scale measuring job satisfaction. Robust standard errors in parentheses. \*\*\*: statistically significant at the 1% level; \*\* statistically significant at the 5% level; \* statistically significant at the 10% level. Source: EU-SILC 2013.

**Table A7: Determinants of overall life satisfaction by income level**

	I	II	III	IV	V	VI	VII	VIII
	1st income quartile	2nd income quartile	3rd income quartile	4th income quartile	1st income quartile	2nd income quartile	3rd income quartile	4th income quartile
Self-employed (yes=1; no=0)	0.0764*** (0.0289)	0.0801** (0.0343)	0.0132 (0.0365)	0.0401 (0.0335)	-0.00626 (0.0972)	0.360*** (0.128)	0.124 (0.155)	0.0141 (0.118)
<i>Varieties of capitalism:</i>								
Nordic	0.663*** (0.0510)	0.867*** (0.0472)	0.793*** (0.0442)	0.716*** (0.0428)	0.633*** (0.0588)	0.886*** (0.0500)	0.786*** (0.0457)	0.688*** (0.0450)
Continental-I: Austria, Germany, Netherlands, Switzerland	0.290*** (0.0475)	0.385*** (0.0445)	0.399*** (0.0416)	0.508*** (0.0400)	0.272*** (0.0542)	0.395*** (0.0469)	0.392*** (0.0428)	0.490*** (0.0419)
Continental-II: Belgium, France, Luxembourg	-0.0873* (0.0502)	0.0423 (0.0470)	0.0476 (0.0442)	0.0879** (0.0429)	-0.0847 (0.0572)	0.0654 (0.0494)	0.0515 (0.0455)	0.0851* (0.0448)
Mediterranean	-0.801*** (0.0480)	-0.597*** (0.0453)	-0.584*** (0.0429)	-0.468*** (0.0409)	-0.725*** (0.0558)	-0.526*** (0.0482)	-0.545*** (0.0445)	-0.438*** (0.0432)
Baltic States	-0.580*** (0.0536)	-0.404*** (0.0512)	-0.354*** (0.0494)	-0.112** (0.0485)	-0.625*** (0.0604)	-0.371*** (0.0535)	-0.347*** (0.0508)	-0.112** (0.0505)
Eastern European-I: Bulgaria, Serbia and Romania	-1.650*** (0.0596)	-1.139*** (0.0546)	-1.077*** (0.0518)	-0.666*** (0.0514)	-1.992*** (0.0763)	-1.104*** (0.0574)	-1.054*** (0.0532)	-0.625*** (0.0534)
Eastern European-II: Hungary, Poland, Czech Republic, Slovakia, Slovenia, Croatia	-0.398*** (0.0491)	-0.243*** (0.0463)	-0.256*** (0.0432)	0.0881** (0.0415)	-0.494*** (0.0564)	-0.212*** (0.0487)	-0.258*** (0.0445)	0.0639 (0.0436)
<i>Interaction terms:</i>								
Self-employed x Nordic					0.110 (0.117)	-0.137 (0.147)	0.0864 (0.173)	0.249* (0.141)
Self-employed x Continental-I					0.0362 (0.115)	-0.0290 (0.148)	0.140 (0.175)	0.192 (0.137)
Self-employed x Continental-II					-0.0929 (0.121)	-0.146 (0.163)	-0.0143 (0.189)	0.0374 (0.153)
Self-employed x Mediterranean					-0.254** (0.107)	-0.491*** (0.137)	-0.340** (0.166)	-0.172 (0.131)

Self-employed x Baltic States					0.168	-0.284	-0.0690	0.0162
					(0.131)	(0.177)	(0.205)	(0.168)
Self-employed x Eastern European-I					0.721***	-0.311*	-0.384*	-0.536***
					(0.126)	(0.179)	(0.221)	(0.189)
Self-employed x Eastern European-II					0.393***	-0.260*	0.0183	0.231*
					(0.111)	(0.148)	(0.175)	(0.139)
Age	-0.0117***	-0.0122***	-0.0110***	-0.00888***	-0.0113***	-0.0123***	-0.0109***	-0.00888***
	(0.000896)	(0.000933)	(0.000972)	(0.00105)	(0.000899)	(0.000934)	(0.000972)	(0.00105)
Male	-0.121***	-0.0832***	-0.0948***	-0.00333	-0.130***	-0.0818***	-0.0951***	-0.00206
	(0.0240)	(0.0229)	(0.0218)	(0.0215)	(0.0240)	(0.0229)	(0.0218)	(0.0215)
Married	0.509***	0.494***	0.488***	0.443***	0.509***	0.494***	0.489***	0.442***
	(0.0205)	(0.0192)	(0.0186)	(0.0195)	(0.0205)	(0.0192)	(0.0186)	(0.0195)
Secondary degree	0.221***	0.0214	0.196***	0.292***	0.204***	0.0134	0.184***	0.268**
	(0.0417)	(0.0502)	(0.0650)	(0.107)	(0.0416)	(0.0503)	(0.0651)	(0.106)
Tertiary degree	0.297***	0.0245	0.231***	0.373***	0.281***	0.0105	0.215***	0.347***
	(0.0480)	(0.0550)	(0.0681)	(0.108)	(0.0480)	(0.0551)	(0.0682)	(0.107)
Working hours per week	-0.00419***	-0.00897***	-0.00644***	-0.00334***	-0.00313***	-0.00923***	-0.00648***	-0.00326***
	(0.000823)	(0.00121)	(0.00139)	(0.00126)	(0.000830)	(0.00122)	(0.00140)	(0.00126)
Job change since last year	-0.104***	-0.131***	-0.0846*	-0.0182	-0.108***	-0.132***	-0.0853*	-0.0206
	(0.0299)	(0.0397)	(0.0494)	(0.0514)	(0.0300)	(0.0397)	(0.0494)	(0.0515)
Health status	0.667***	0.676***	0.676***	0.714***	0.667***	0.677***	0.677***	0.715***
	(0.0136)	(0.0139)	(0.0142)	(0.0150)	(0.0136)	(0.0139)	(0.0142)	(0.0150)
Number of observations	37,051	40,028	41,129	41,641	37,051	40,028	41,129	41,641
Pseudo R-squared	0.0602	0.0523	0.0476	0.0445	0.0613	0.0525	0.0478	0.0449
Log Likelihood	-71,212	-74,162	-73,497	-70,218	-71,127	-74,143	-73,478	-70,189

Notes: Results of ordered logit regression. Dependent variable: 11-points scale measuring overall life satisfaction. Robust standard errors in parentheses. \*\*\*: statistically significant at the 1% level; \*\* statistically significant at the 5% level; \* statistically significant at the 10% level. Source: EU-SILC 2013.



**Table A8: Job and life satisfaction and the DoB score**

	(1)	(2)
	Job satisfaction	Life satisfaction
Self-employed (yes=1; no=0=1)	-4.079 <sup>***</sup> (0.1568)	-1.782 <sup>***</sup> (0.1522)
DoB score	0.0314 <sup>***</sup> (0.0008)	0.0597 <sup>***</sup> (0.0008)
Self-employed (yes=1; no=0=1) * DoB score	0.0583 <sup>***</sup> (0.0022)	0.0255 <sup>***</sup> (0.0021)
Age	-0.00634 <sup>***</sup> (0.0005)	-0.0104 <sup>***</sup> (0.0005)
Male	-0.0849 <sup>***</sup> (0.0108)	-0.0369 <sup>***</sup> (0.0109)
Married	0.115 <sup>***</sup> (0.0095)	0.461 <sup>***</sup> (0.0096)
Secondary degree	0.0161 (0.0284)	0.220 <sup>***</sup> (0.0279)
Tertiary degree	-0.156 <sup>***</sup> (0.0304)	0.239 <sup>***</sup> (0.0300)
Working hours per week	-0.000202 (0.0006)	-0.00749 <sup>***</sup> (0.0005)
Job change since last year	0.0403 <sup>*</sup> (0.0209)	-0.0979 <sup>***</sup> (0.0200)
Total gross yearly income from employment: 2nd quartile	0.169 <sup>***</sup> (0.0144)	0.150 <sup>***</sup> (0.0143)
Total gross yearly income from employment: 3rd quartile	0.375 <sup>***</sup> (0.0152)	0.295 <sup>***</sup> (0.0151)
Total gross yearly income from employment: 4th quartile	0.626 <sup>***</sup> (0.0167)	0.475 <sup>***</sup> (0.0166)
Health status		0.689 <sup>***</sup> (0.0069)
Log pseudo likelihood	-316282.43	-291884.86
Pseudo R <sup>2</sup>	0.0183	0.0494
Number of observations	161,127	159,849

*Notes:* Results of ordered logit regression. Dependent variable: 11-points scale measuring job and life satisfaction. Robust standard errors in parentheses. \*\*\*: statistically significant at the 1% level; \*\* statistically significant at the 5% level; \* statistically significant at the 10% level.

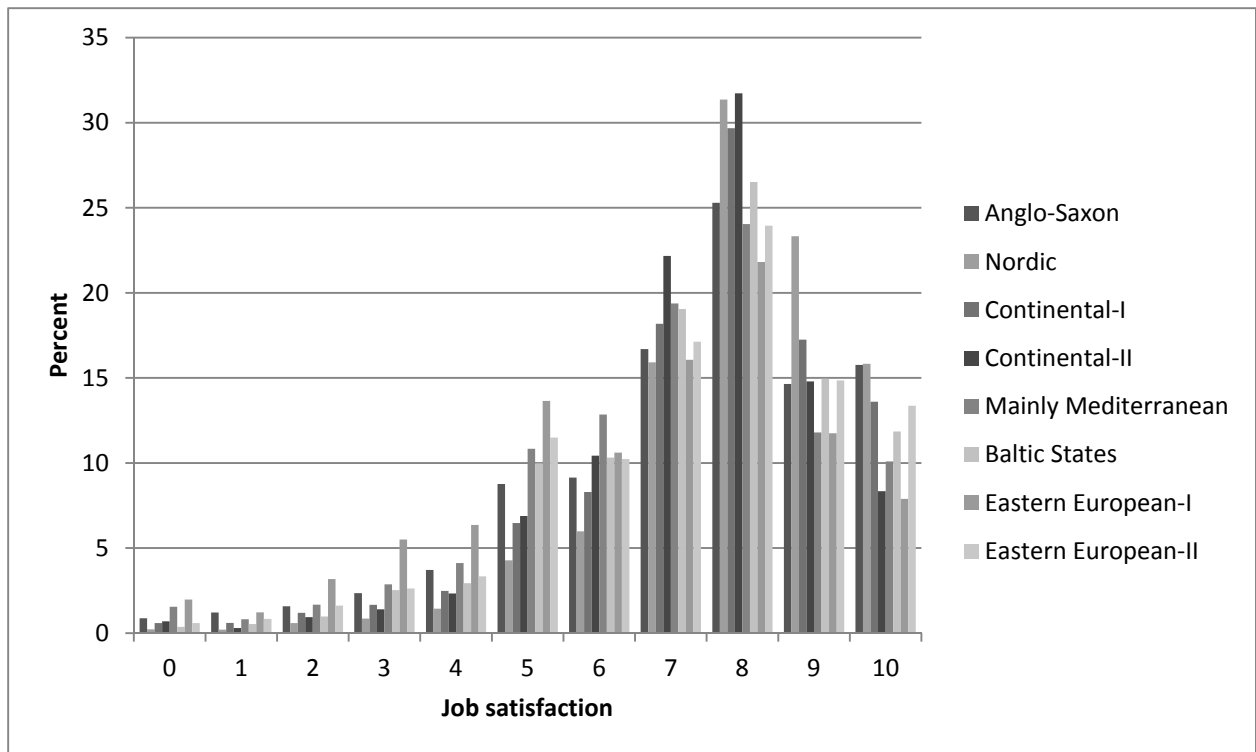


Figure A 1: Distribution of job satisfaction values

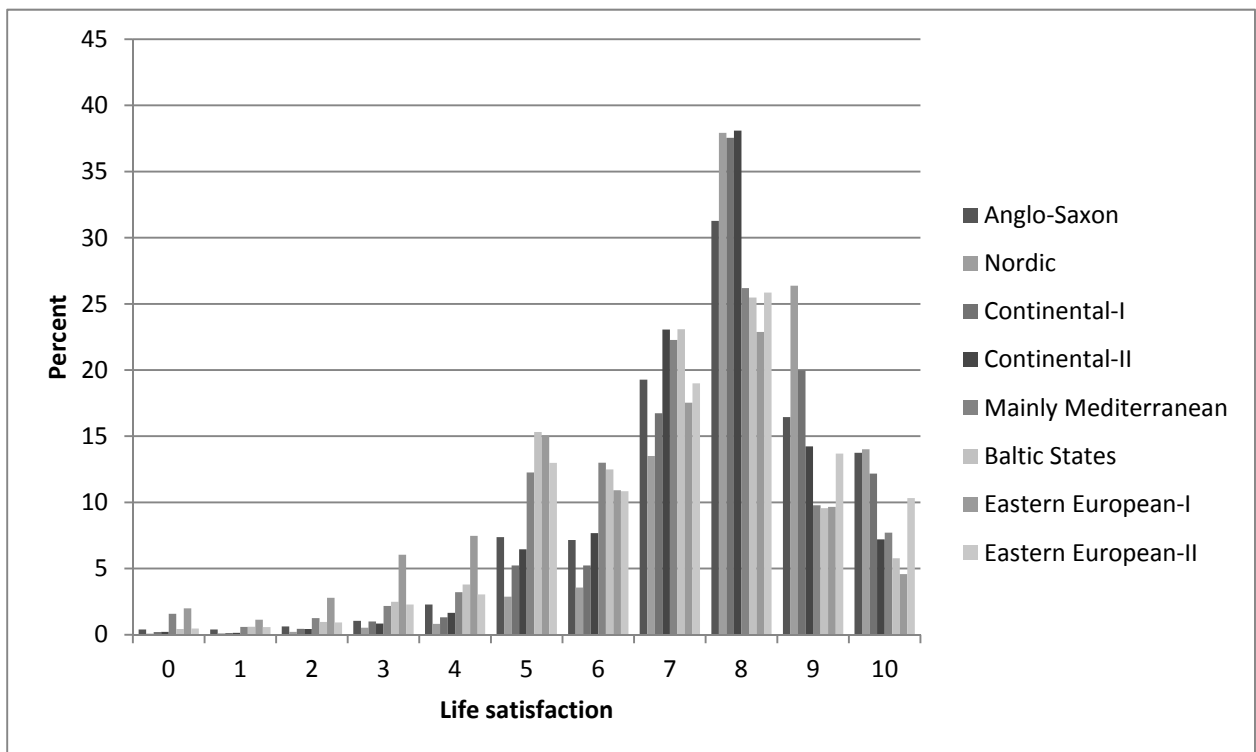
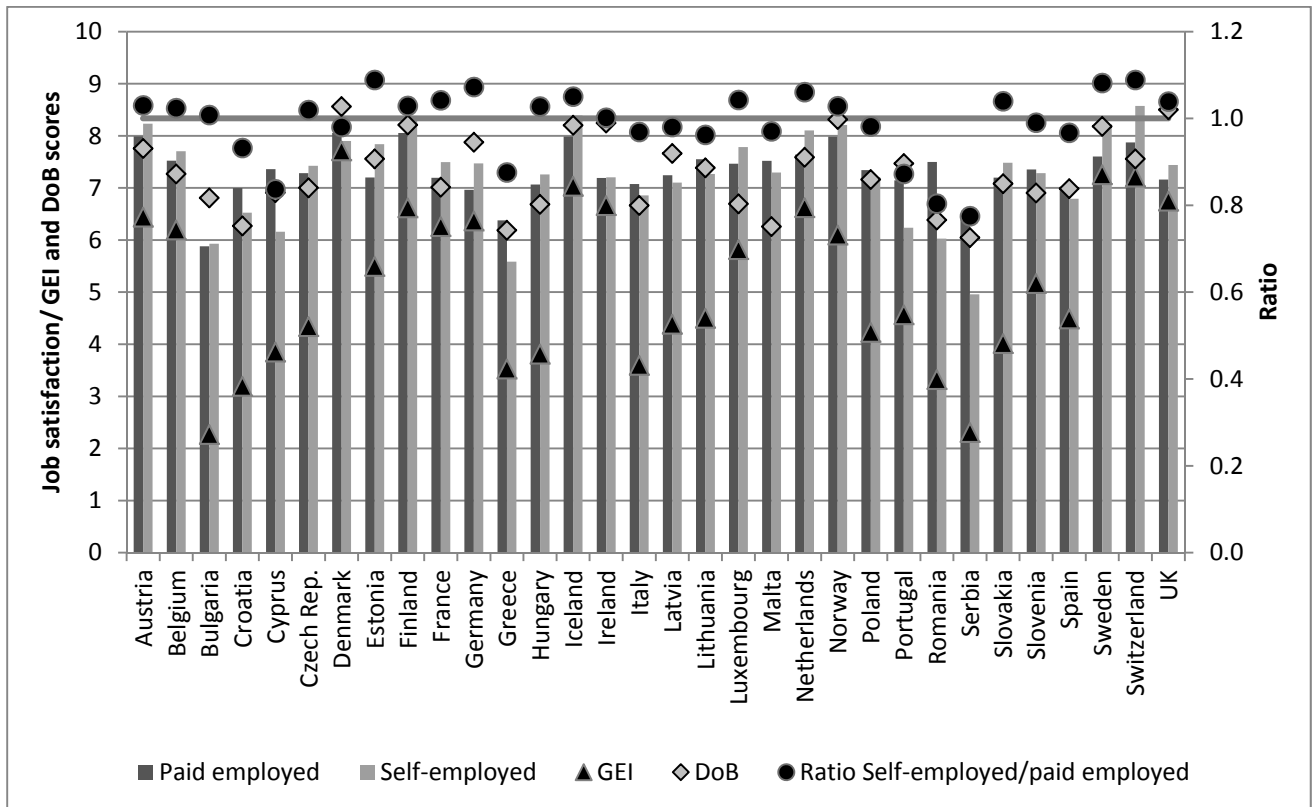
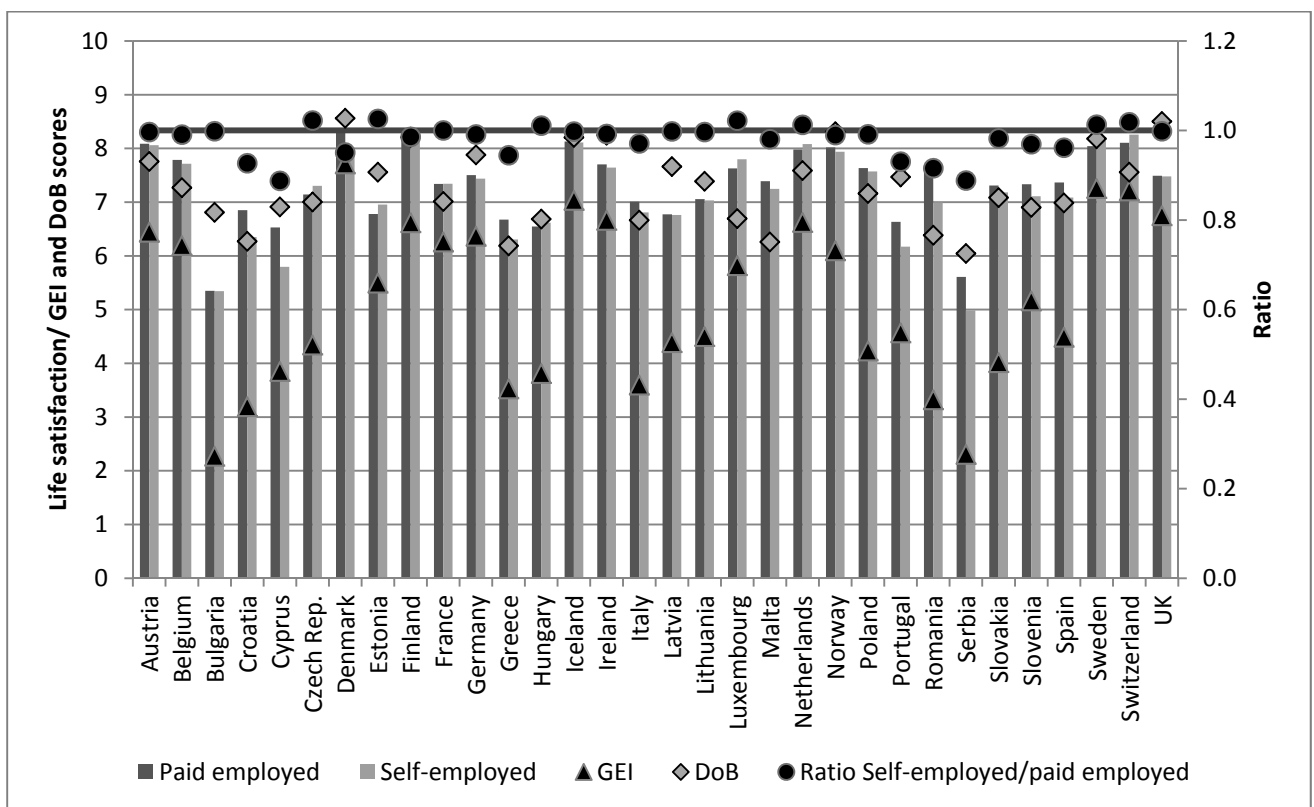


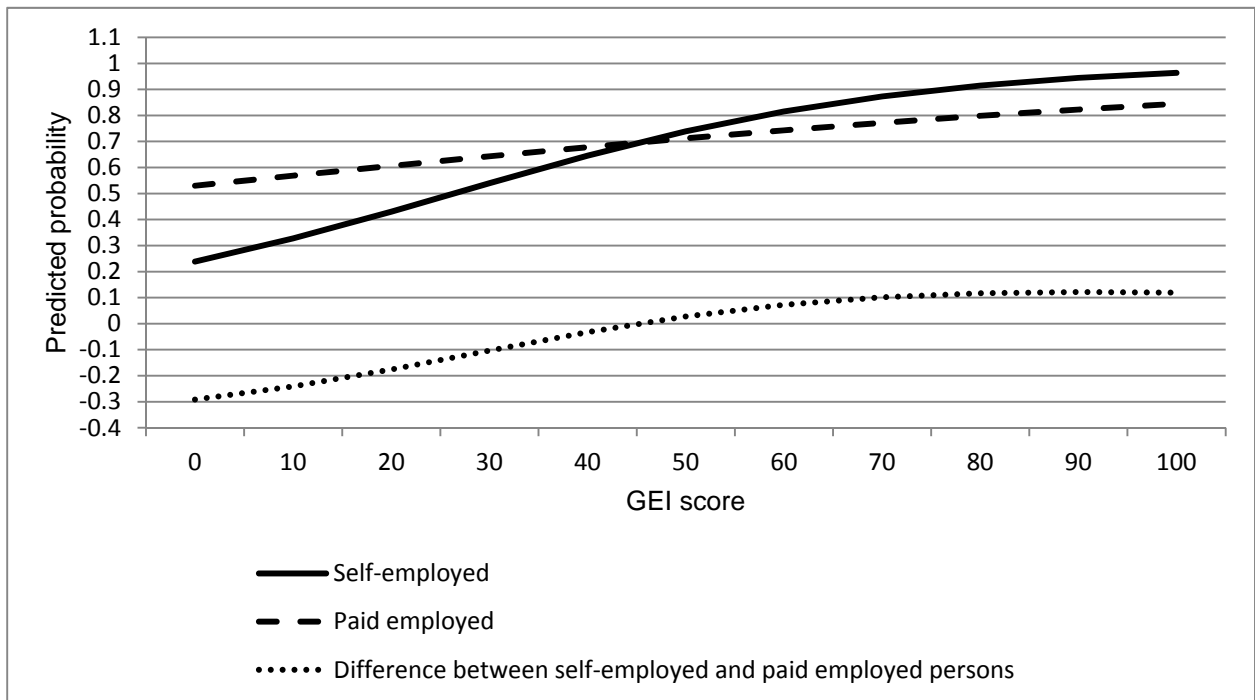
Figure A 2: Distribution of life satisfaction values



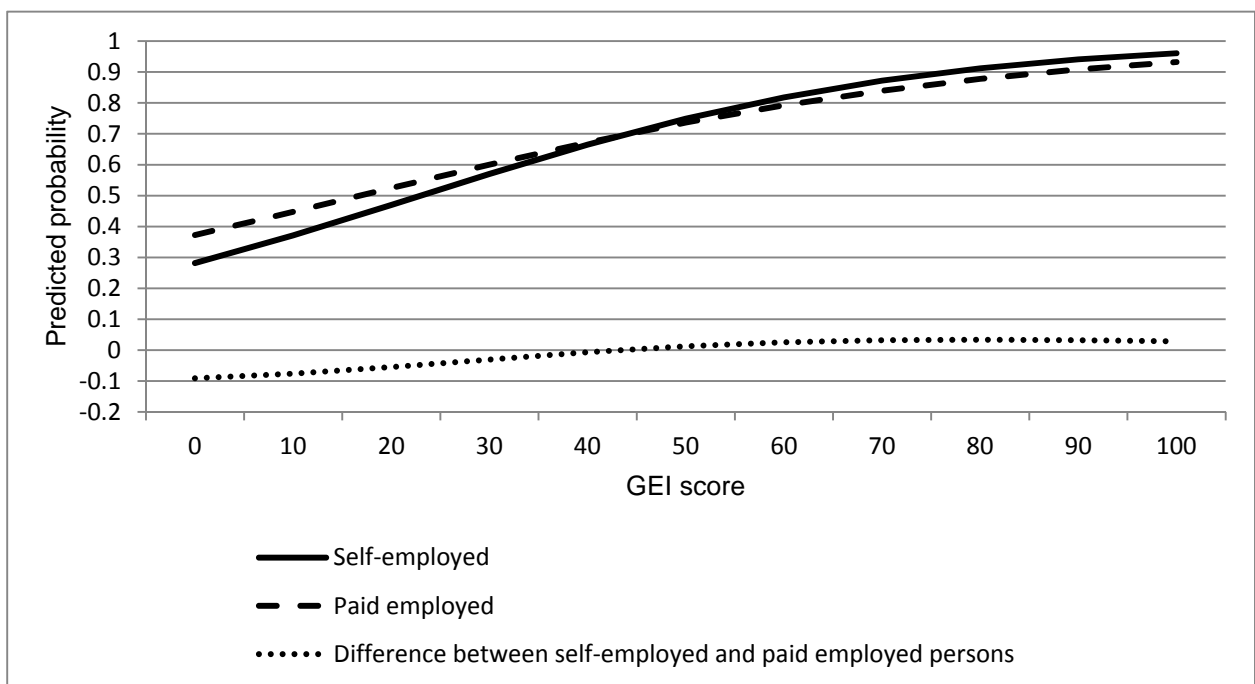
**Figure A3: Country-specific distribution of mean values for job satisfaction (GEI and DoB scores are divided by 10 for a convenient graphical illustration)**



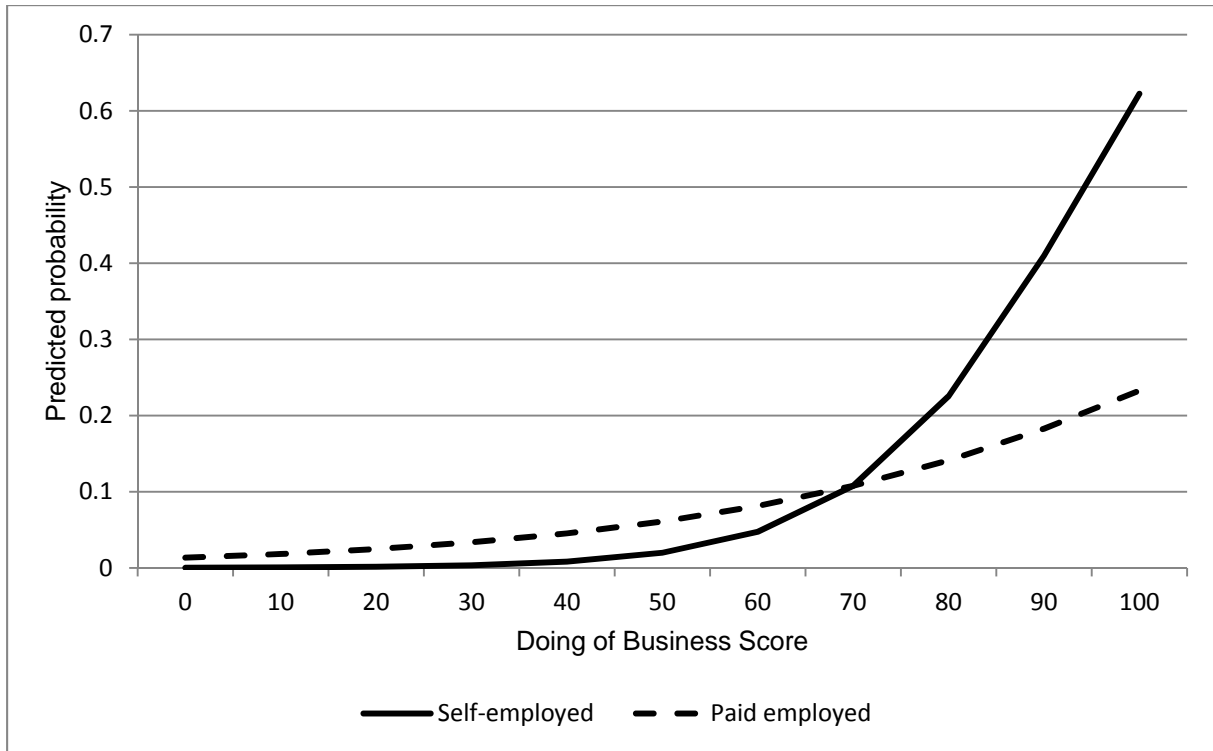
**Figure A4: Country-specific distribution of mean values for life satisfaction (GEI score is divided by 10 for a convenient graphical illustration)**



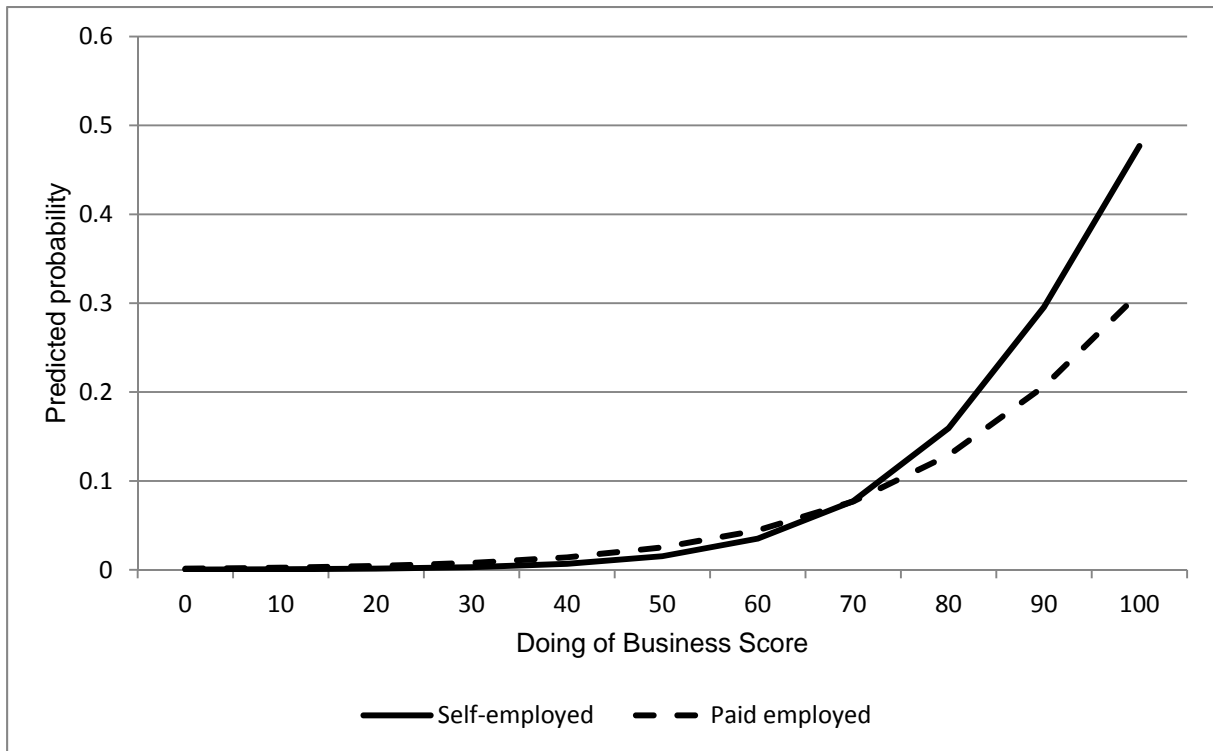
**Figure A 5: Difference between self-employed and paid employed people in the predicted probability of reporting 7 and more points on an 11-points scale measuring satisfaction with one’s job.**



**Figure A 6: Difference between self-employed and paid employed people in the predicted probability of reporting 7 and more points on an 11-points scale measuring satisfaction with life**



**Figure A 7: Predicted probability of being completely satisfied with one's job. Marginal effects based on estimations from Table A8, column 1.**



**Figure A 8: Predicted probability of being completely satisfied with one's life. Marginal effects based on estimations from Table A8, column 2.**