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IZA DP No. 12336

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ABSTRACT

Types of Institutions and Well-Being of Self-Employed and Paid Employees in Europe

This paper analyzes the role of different types of institutions, such as entrepreneurship-facilitating entry conditions, labor market regulations, quality of government, and perception of corruption for individual well-being among self-employed and paid employed individuals. Well-being is operationalized by job and life satisfaction of individuals in 32 European countries measured by data from EU Statistics on Income and Living Conditions (EU-SILC). We find that institutions never affected both occupational groups in opposite ways. Our findings indicate that labor market institutions do not play an important role well-being. The results suggest that fostering an entrepreneurial society in Europe is a welfare enhancing strategy that benefits both, the self-employed and paid employees.

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

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

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1. Institutions, entrepreneurship, and well-being

Institutions play a critical role in determining individual behavior and economic performance (North 1994; Acemoglu, Johnson, and Robinson 2005; Boettke and Coyne 2009; Dixit 2009). This is also true in the emergence of new businesses and the role they play in economic development. In many countries, including the European Union, creating institutional framework conditions that are more conducive to self-employment are well-established on the policy agenda (e.g., European Commission 2010; 2013; 2016). Apart from manifold growth-oriented motivations for such policy initiatives trumpeting in favor of a more entrepreneurial society, the ultimate goal of such policies should focus on the well-being of individuals.

This paper investigates the relationship between different types of institutions and the well-being of self-employed and dependently employed people. The primary purpose of this analysis is to identify those institutions that are particularly important for self-employment, and to explore the differences in these relationships based on employment status, i.e., between self-employed and paid employees. The paper offers the following contributions to the extant body of literature. First, while there are a number of studies that focus on the role of institutions for new business formation,[1] there is hardly any evidence about the well-being of the self-employed and paid employees in different institutional environments.[2] Second, we cull out discrete aspects of a country's institutional framework and relate these to an individual's subjective well-being. The results may be regarded as an indication of the importance of the different types of institutions for the welfare of society.

Third, by comparing the effect of different types of institutions on the well-being of self-employed and paid employees, we are able to make statements about whether or not certain institutions affect these two groups differently. This is important, because if an institutional reform would favor people

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[1] See for example Djankov et al. (2002), Fonseca, Lopez-Garcia, and Pissarides (2001), Fonseca, Michaud, and Sopraseuth (2007), Klapper, Laeven, and Rajan (2006), Braunerhjelm and Eklund (2014).

[2] Studies of the well-being of entrepreneurs largely ignore institutions (Benz and Frey 2008; Shir 2016). An exemption is Fritsch, Sorgner, and Wyrwich (2018).

in self-employment, but has negative effects for the well-being of paid employees one cannot be sure that this reform enhances the welfare of society as a whole. If, however, a certain reform is beneficial for both self-employed and paid employees, there will be considerably less resistance as compared to a scenario where the 'losers' of a regulatory modification can be clearly identified. Moreover, differences in the effects of institutions on well-being between self-employed and paid employees may create important incentives or disincentives of being self-employed.

Our empirical analysis uses EU Statistics on Income and Living Conditions (EU-SILC) that provides representative data for households in 32 European countries. We find considerable, and somewhat surprising, differences regarding the impact of diverse institutions on individual well-being. There is, however, no indication that any specific set of institutions affects the well-being of self-employed individuals and paid employees in opposite directions. This implies that any attempt to make the institutional framework more conducive to entrepreneurship will probably not reduce the well-being of paid employees. Our findings do, however, indicate that an attempt to regulate the market in favor of paid employees, for instance, by introducing stricter regulations of employment contracts, is likely to substantially decrease the well-being of the self-employed without having a notable effect on paid employed individuals.

The remainder of the paper is organized as follows. Section 2 discusses the link between specific institutions and well-being of those involved in entrepreneurship in 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.

2. Which institutions affect the well-being of individuals in self-employment and paid employment?

2.1 Conceptual framework

The institutional framework of a country and its entrepreneurship-facilitating or entrepreneurship-inhibiting character can have strong effects on the incentives to become and to remain self-employed (e.g., Baumol 1990, 1993; Elert, Henrekson, and Stenkula 2017). Since entrepreneurship can be an important driver of economic growth (Fritsch 2013), more entrepreneurship-facilitating institutions may lead to higher levels of economic welfare and the general well-being of a society's members.

There seems to be a wide consensus that high degrees of economic freedom (e.g., low barriers to entry and exit, open markets, low taxes on profits), the opportunity of gaining private property on the means of production, reliable legal framework conditions (e.g., enforceability of contracts, low levels of corruption), availability of necessary resources (e.g., finance, qualified labor), and a good quality of government are conducive for entrepreneurship (see for example Boettke and Coyne 2009; Elert, Henrekson, and Stenkula 2017; Parker 2018). The most prominent institutional frameworks that have been investigated empirically with regard to their importance for entrepreneurship are the regulation of entry and exit,[3] the quality of legal institutions (e.g., protection of property rights), the regulation of employment protection, and the institutional framework of credit markets.

While there are a number of studies focusing on the role of institutions on entry and welfare at the country level, almost nothing is known about the role of institutions for the well-being of entrepreneurs as compared to paid employees. It is also unclear whether institutional reform in favor of entrepreneurship comes at the expense of the well-being of paid employees. Conflicts between the self-employed and paid employees may, for example, arise if la-

[3] See for example Djankov et al. (2002); Fonseca, Lopez-Garcia, and Pissarides (2001); Fonseca, Michaud, and Sopraseuth (2007); Klapper, Laeven, and Rajan (2006); Braunerhjelm and Eklund (2014).

bor market regulations offer a lower level of employment protection increasing the well-being of the self-employed, at the expense of paid employees who face a greater risk of being laid off.

Our attempt to overcome these shortcomings is twofold. First, we use an individual's subjective well-being that we operationalize by his or her level of job and life satisfaction as an outcome for the effect of institutions. In addition, we distinguish between self-employed and paid employed individuals to assess whether institutions affect persons in these two types of occupation states differently. Second, we distinguish between several categories of institutions to compare their impact on individual well-being and to identify those types of institutions that have the most impact on the two occupational groups.

Many studies find that self-employed people enjoy higher levels of job and life satisfaction than paid employees.[4] A main reason for this result discussed in the literature is higher procedural utility that self-employed people draw from the actual work process itself (Frey, Benz, and Stutzer 2004). This includes higher levels of autonomy and flexibility, as well as a stronger feeling of pursuing one's own goals through self-employment that stimulates a feeling of self-determination and self-efficacy (for a detailed exposition, see Shir 2016). Higher levels of well-being could explain why people opt for self-employment despite less economic security and often lower incomes than available in paid employment (Benz and Frey 2008).

Fritsch, Sorgner, and Wyrwich (2018), in an analysis based on the EU-SILC (which is also used for the present study) discover that self-employed individuals tend to enjoy higher levels of job and life satisfaction only in those countries where the entrepreneurship-facilitating quality of the institutional environment has a certain minimum level. In countries where the quality of institutional conditions for entrepreneurship is below this critical level, paid employees reported, on average, higher levels of well-being. This result clearly

[4] For example Benz and Frey (2008), Binder and Coad (2013), Blanchflower (2000, 2004), Block and Koellinger (2009), Millán et al (2013), van Praag, Frijters, and Ferrer-i-Carbonell (2003).

indicates the important role of institutions for the attractiveness of entrepreneurship. The study by Fritsch, Sorgner, and Wyrwich (2018) did not, however, investigate which types of institutions are most important in this respect.

2.2 Expectations

The ‘Varieties of Capitalism’ (VoC) approach (Hall and Soskice 1981) is a good starting point for discussing how institutions might affect the well-being of self-employed and paid employees. This approach accounts for complementarities between different categories of institutions and distinguishes several types of institutional frameworks such as the ‘liberal market economy’ and the ‘managed market economy’. Dilli, Elert, and Herrmann (2018) classify countries according to the VoC approach taking into account variations in financial institutions, labor market institutions, institutions related to education, and institutions governing inter-firm relations. They then explore how entrepreneurship-related outcomes vary across these groups of countries. This approach does not, however, allow for the identification of the relative strength of the relationships between certain types of institutions and entrepreneurship. In addition, it does not take into account that the quality of institutions may considerably vary within the country groups. Nevertheless, these authors conclude that labor market regulation (especially employment protection) and regulation of financial markets are particularly important for entrepreneurship outcomes.

Labor market regulations are of key importance for entrepreneurship. These regulations determine the availability of personnel and employment conditions, such as rules for hiring and dismissing employees, as well as employee benefits such as maternity leave, etc. (Herrmann 2019). An obvious expectation in this respect is that the more freedom an entrepreneur has in his employment decisions, the greater his or her well-being will be. At the same time, greater flexibility comes at the expense of paid employees who might face a higher risk of being laid off, or lower levels of compensation. Therefore, while one can expect that more flexible labor market agreements will have a positive effect on the well-being of self-employed, they may have a detrimental effect for paid employees.

Besides labor market institutions, institutions designed to facilitate business activities should have a positive influence on the well-being of the self-employed. When bureaucracies are streamlined and administrative burdens are lightened, business decision-making can be carried out with less effort and frustration. Ease of engaging in business activities comprises not only the effort that is necessary for starting and maintaining a business, but also basic infrastructure factors such as a reliable electrical supply. Inefficient regulations, bureaucracies and infrastructures can cause delays in venture creation and frustration for an entrepreneur. Similarly, high costs of contract enforcements and a high level of corporate taxes reduce start-up opportunities, and make business management less enjoyable, ultimately reducing well-being.

The same can be assumed for the level of corruption in a country and the general quality of the government (Dixit 2009). In terms of business performance, favorable regulations regarding trade across borders and ease of getting credit should be conducive to business growth and, therefore, they can be expected to feedback into the satisfaction and well-being of entrepreneurs. Moderate insolvency regulations should also have a positive effect on the well-being of self-employed people, since it reduces fear of failure.

Paid employees may also be affected by high levels of corruption, low quality of government, and weak contract enforcement. However, it can be assumed that they are less directly affected by institutions designed to facilitate business activities than self-employed individuals. Hence, the relationship between these types of institutions and well-being of paid employees should be less pronounced. This can be especially expected for those institutions that are related to starting a business, dealing with construction permits, registering property, getting credit, protecting minority investors, trading across borders, and resolving insolvency.

We expect that the relationship between the level of taxation and well-being is more pronounced for individuals with higher income who pay higher taxes, than for low income groups. Although studies show that self-employed individuals do not generally earn more than paid employees (Sorgner,

Fritsch, and Kritikos 2017), the effect of taxation on these two occupational groups is undetermined.

3. Data and empirical strategy

3.1 Measuring individual well-being and self-employment

Our data source for job and life satisfaction is the EU Statistics on Income and Living Conditions (EU-SILC). These data are the EU reference source for comparative statistics on income distribution and social exclusion at the European level.[5] The EU-SILC provides comparable and high quality cross-sectional data for 32 European countries including Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, The Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, and the UK. 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 institutional households (e.g., hospitals, nursing homes, religious institutions) are generally excluded from the target population. Each year EU-SILC includes an ad-hoc module in its survey program that provides additional information in a selected realm. For this study, we use the 2013 data that includes an ad-hoc module on individual well-being.

We use two indicators of individual well-being that are available in the EU-SILC, namely, the assessment of current overall job satisfaction and the respondent's satisfaction with his or her life as a whole. Life satisfaction is intended to represent a broad, reflective appraisal a person makes of his or her life. It is the by far most frequently used concept of measuring well-being, and has a high level of validation (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 time period. Although the measure of life satisfaction is related to happiness, it differs in the sense

[5] For further information, see https://ec.europa.eu/eurostat/statistics-explained/index.php/EU_statistics_on_income_and_living_conditions_(EU_SILC)_methodology.

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).

The precise formulation of the question about life satisfaction in the questionnaire is as follows: "Overall, how satisfied are you with life as a whole these days?" (OECD 2013). The level of life satisfaction is measured on an 11-point Likert scale, with the lowest value of 0 being "not at all satisfied" and the highest value of 10 being "completely satisfied". 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). 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-point Likert scale. The question is: "How satisfied are you with your job?" (OECD 2013), and 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 respondent has several jobs, the answer about the level of job satisfaction refers to the primary job.[6]

While life satisfaction is a rather broad concept, job satisfaction pertains only to issues that are related to a person's work. Since satisfaction with work is a key element of someone's life satisfaction, there should be a positive correlation between the two types of assessment. This could be the case if a poor work environment that offers little satisfaction leads an individual to report lower levels of life satisfaction. There may, however, also be a negative effect of job satisfaction on life satisfaction. For example, a 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

[6] The non-response rate in the EU-SILC is rather low. For example, the share of missing values for the variable measuring job (life) satisfaction is 0.6% (0.4%). An analysis of non-responses showed that older individuals, individuals with lower levels of formal education, and those with lower income were more likely not to report their satisfaction with job and life. To test for the presence of a non-response bias, we run the analysis with imputed responses based on the information about the characteristics of the respondent. The results of this analysis were robust. Given a very low share of missing values, we decided to report the results of analyses based on the original real values.

relationships and good health. For this reason, the correlation between the two concepts may be quite low or even negative.

Self-employed individuals are identified in the EU-SILC based on their self-reported current labor market status. An individual is considered self-employed if he or she works full-time or part-time in self-employment to earn a profit. Paid employees are defined as persons who work for an employer and who receive compensation, for instance, in the form of wages or salaries. We construct a binary variable that equals 1 if a person is self-employed, and 0 if a respondent is a paid employee. While we are well aware that self-employment and entrepreneurship are different but overlapping concepts (Henrekson and Sanandaji 2014), we choose to focus on the broader concept of self-employment because we are interested in the effect of institutions on the well-being of individuals that have made a certain occupational choice, i.e., being self-employed or a paid employee. This operationalization of entrepreneurship is in line with previous literature on entrepreneurship and well-being. In addition, we investigate different categories of self-employed individuals, such as income levels, to account for heterogeneity within this group.

It has been shown that the levels of job and life satisfaction someone experiences in self-employment or paid employment varies based on her or his individual characteristics, as well as job-specific characteristics. Education and income levels, personality, motivation and preferences, and the tasks performed at one's job all come into the equation (see Shir 2016, for an overview). To account for these characteristics, our analysis uses the set of socio-demographic variables included in the EU-SILC as control variables, such as age, gender, and marital status. We also use the information about education levels (defined according to the ISCED classification),[7] occupation (defined at a 2-digits level of ISCO-08),[8] industry sector (according to the

[7] 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.

[8] 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.

NACE rev.2),[9] the number of hours usually worked per week in the main occupation, and information on change of job in the previous year.

We also 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 of self-employed persons during a previous 12-month period (such as the previous calendar or tax year) in national currency.[10] We construct country-specific income quartiles to make the income measure comparable between countries.[11] 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 provided by the EU-SILC that is measured on a 5-points ordinal scale ranging from 1 (very bad) to 5 (very good).

The final sample contains 161,127 observations. It does not include unemployed or otherwise economically inactive persons, respondents currently in full-time education, those in compulsory military community or service. We also do not consider home workers in our analysis.

3.2 Variables representing the entrepreneurship-facilitating quality of institutions

We use several data sources for measuring the quality of different types of institutions in a country. One of these data sources is the Doing of Business Index provided by the World Bank for the year 2013. The Doing of Business score assesses the regulatory performance of more than 180 countries in terms of general business-friendliness. It covers various areas that are relevant for self-employment such as the ease of starting a business, dealing

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[9] 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.

[10] In Ireland, the survey is continuous, and indication of income refers to the last twelve months.

[11] The only available information concerning 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.

with construction permits, getting electricity, registering property, getting credit, protecting minority investors, paying taxes, trading across borders, enforcing contracts, and resolving insolvency (see Table 1). One may expect that some of the above-mentioned facets of institutions like getting electricity should not be an issue for entrepreneurship in well-developed, high-income countries. However, they may be relevant in low-income European countries.

Table 1: Pillars of the Doing of Business Index

Ease of starting a business	Measures the paid-in minimum capital requirement, number of procedures, time and cost for a small- to medium-sized limited liability company to start up and formally operate in economy's largest business city.
Dealing with construction permits	All procedures required for a business in the construction industry to build a warehouse along with the time and cost to complete each procedure. In addition, it measures the building quality control index, evaluating the quality of building regulations, the strength of quality control and safety mechanisms, liability and insurance regimes, and professional certification requirements.
Getting electricity	All procedures required for a business to obtain a permanent electricity connection and supply for a standardized warehouse. These procedures include applications and contracts with electricity utilities, all necessary inspections and clearances from the distribution utility and other agencies, and the external and final connection works.
Registering property	Procedures necessary for a business to purchase a property from another business so that the buyer can use the property for expanding its business, use the property as collateral in taking new loans or, if necessary, sell the property to another business. It also measures the time and cost to complete each of these procedures.
Getting credit	Indicates the legal rights of borrowers and lenders with respect to secured transactions through one set of indicators and the reporting of credit information through another. The first set of indicators measures whether certain features that facilitate lending exist within the applicable collateral and bankruptcy laws. The second set measures the coverage, scope and accessibility of credit information available through credit reporting service providers such as credit bureaus or credit registries.
Protecting minority investors	Protection of minority investors from conflicts of interest and shareholders' rights in corporate governance.
Paying taxes	Measures taxes and mandatory contributions that a medium-size company must pay in a given year as well as the administrative burden of paying taxes and contributions and complying with postfiling procedures. Taxes and contributions include the profit or corporate income tax, social contributions and labor taxes paid by the employer, property taxes, property transfer taxes, dividend tax, capital gains tax, financial transactions tax, waste collection taxes, vehicle and road taxes, and any other small taxes or fees.
Trading across borders	The time and cost associated with the logistical process of exporting and importing goods. It measures the time and cost (excluding tariffs) associated with three sets of procedures—documentary compliance, border compliance and domestic transport—within the overall process of exporting or importing a shipment of goods.
Enforcing contracts	Time and cost for resolving a commercial dispute through a local first-instance court and the quality of judicial processes index, evaluating whether each economy has adopted a series of good practices that promote quality and efficiency in the court system.
Resolving insolvency	Time, cost and outcome of insolvency proceedings involving domestic entities as well as the strength of the legal framework applicable to judicial liquidation and reorganization proceedings.
Source: World Bank (2013).	

We use the overall Doing of Business score as a general measure of the entrepreneurship-facilitating quality of a country's institutions, and we analyze the sub-indices of the Doing of Business Index as separate indicators of the quality of different types of institutions.

The Doing of Business Index and its separate pillars measure the distance each country is from the 'frontier'. The frontier is a value that represents the highest level of performance observed across all countries in the sample in the respective year. 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 country score of 75 means that the country was 25 percentage points away from the frontier.[1]

We employ two OECD indicators of employment protection as measures of a country's labor market regulation. For each country, employment protection legislation is described by: (i) employment protection of regular workers against dismissal, and (ii) regulation of temporary forms of employment. The indicator for protection of workers against individual and collective dismissals measures costs and procedures involved in dismissing workers with regular contracts. The indicator for temporary contracts refers to restrictions on the use of fixed-term contracts, such as the number of renewals and maximum cumulated duration of successive fixed-term contracts, among others.[2] Thus, higher values of these indicators reflect stricter levels of employment protection.

We use two indicators to assess the general quality of government in a country. First, the Corruption Perception Index provided by Transparency International ranks countries based on a score indicating the perception of how corrupt a country's public sector is. The Corruption Perception Index is a

[1] The Doing of Business Report for the year 2013 covers 185 countries. None of the European countries in our sample represents the frontier for the overall DoB Index. While the UK is among the countries that represent the frontier for the pillar "getting credit", none of the European countries in our sample reaches a score of 100 with regard to the other pillars of the DoB Index (see Figure A1 in the Appendix).

[2] For further details see http://www.oecd.org/employment/emp/oecdindicatorsofemploymentprotection.htm.

widely used indicator that draws on data sources from independent institutions specialized in governance and business climate analysis. A higher score of the Corruption Perception Index indicates a lower level of perceived corruption in a country's public sector.[3] The second indicator, the European Quality of Government Index, focuses on both perceptions and experiences with public sector corruption, along with the extent to which citizens believe various public sector services are impartially allocated and of good quality.[4] Table A1 in the Appendix provides descriptive statistics of all variables used in the empirical analysis.

3.3 Method

In order to estimate the impact of the different measures of the quality of entrepreneurship-facilitating institutions on individual job and life satisfaction, we apply ordered logit analysis. This method is appropriate, because it accounts for the ordinal nature of our dependent variables. Differences in the effects of institutions on well-being of self-employed and paid employed individuals are captured by means of interactions between each institutional measure and the dummy variable that indicates an individual's current employment status: paid employment (base category) or self-employment.

Furthermore, we include the following control variables introduced in Section 3.1: gender, age, marital status, highest achieved level of formal education (three categories), job-specific variables (number of working hours, job change since previous year), financial situation (country-specific gross income quartiles), health condition (for life satisfaction models), industry (13 industries according to the NACE rev.2), and occupation (50 occupations defined at a 2-digit level of ISCO-08). Since the dependent variables are defined at the level of individuals across countries, observations within countries might be correlated. Hence, we report standard errors clustered at the country level in all regressions. In order to facilitate the interpretation of the

[3] Data are for the year 2013. For details see https://www.transparency.org/cpi2013/in_detail.

[4] Data are for the year 2013. For details see https://qog.pol.gu.se/data/datadownloads/qog-eqi-data.

results of ordered logit regressions, we use the estimated coefficients to calculate predicted probabilities of being completely satisfied with one's job and life for both employment states at the different levels of the institutional quality measures and the mean values of the control variables.

4. The empirical relationship between types of institutions and well-being of self-employed and paid employees

4.1 Descriptive statistics

Table 2 shows the distribution of scores on both satisfaction scales by employment status. We observe that a higher percentage of self-employed individuals (13.58%) are completely satisfied with their jobs, as compared to paid employed individuals (11.82%). At the same time, in our sample there are more self-employed persons (1.82%) who are completely unsatisfied with their jobs than paid employed persons (0.75%). Our analysis shows that when compared to self-employed individuals, a slightly higher percentage of paid employees are strongly satisfied with their lives in general. On average, the self-employed report a significantly lower satisfaction score on both scales compared to paid employees, and there is a stronger variation in the satisfaction scores among the self-employed than among paid employed individuals.

Table 3 shows the correlations between the well-being variables and institutional indicators. Individual life satisfaction has the strongest positive correlation with the Doing of Business index (r = 0.213) and specifically with three of its pillars "resolving insolvency" (r = 0.201), "trading across borders" (r = 0.192), and "paying taxes" (r = 0.178). We also observe a strong positive correlation between individual life satisfaction and both of our indicators of the quality of governance, the Corruption Perception Index (r = 0.253) and the Quality of Government Index (r = 0.217). Similar results are observed for individual job satisfaction, although the correlation coefficients are slightly lower in comparison to the results for life satisfaction. Moreover, both the Corruption Perception Index and the Quality of Government Index show rather strong correlations with the Doing of Business Index. Indeed, the Corruption Perception Index and the Quality of Government Index are statistically

Table 2: Well-being by employment status

	Job satisfaction				Life satisfaction			
	Paid employed		Self-employed		Paid employed		Self-employed	
Score on the satisfaction scale	Number of observations	Share of responses (%)	Number of observations	Share of responses (%)	Number of observations	Share of responses (%)	Number of observations	Share of responses (%)
0	1,053	0.75	381	1.82	914	0.66	256	1.23
1	923	0.66	236	1.13	580	0.42	143	0.69
2	1,950	1.39	441	2.1	1,245	0.9	263	1.26
3	3,298	2.35	667	3.18	2,678	1.93	530	2.55
4	4,516	3.22	882	4.21	3,843	2.76	712	3.42
5	12,754	9.1	2,302	10.98	13,763	9.9	2,275	10.93
6	14,178	10.12	2,082	9.93	12,719	9.15	2,214	10.64
7	25,930	18.5	3,333	15.9	27,066	19.47	3,954	19
8	37,711	26.9	4,782	22.81	42,428	30.51	5,687	27.33
9	21,282	15.18	3,007	14.35	20,564	14.79	2,804	13.48
10	16,572	11.82	2,847	13.58	13,243	9.52	1,968	9.46
Total	140,167	100	20,960	100	139,043	100	20,806	100
Mean	7.292		7.050***		7.321		7.106***	
Standard deviation	1.985		2.296		1.842		2.022	

Notes: Satisfaction scales are 11-point Likert scales ranging from 0 “not satisfied at all” to 10 “completely satisfied”. *t*-test of equal means, as compared to the sample of paid employed persons; ***: statistically significant at the 1% level.

Table 3: Correlations between individual well-being and the indicators of institutional quality

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1 Job satisfaction	1																
2 Life satisfaction	0.483	1															
3 Self-employed	-0.04	-0.039	1														
Doing of Business Index and its pillars																	
4 Doing of Business Index	0.142	0.213	-0.088	1													
5 Starting a business	0.069	0.021	-0.066	0.312	1												
6 Dealing with construction permits	0.109	0.168	-0.076	*0.702*	0.224	1											
7 Getting electricity	0.071	0.107	-0.057	0.55	0.129	0.448	1										
8 Registering property	0.099	0.068	-0.038	0.349	0.116	0.102	0.167	1									
9 Getting credit	-0.006	0.021	-0.005	0.404	-0.024	0.042	-0.008	0.335	1								
10 Protecting minority investors	0[a]	0.011	-0.01	0.36	0.287	0.135	-0.168	-0.111	0.157	1							
11 Paying Taxes	0.111	0.178	-0.071	0.643	0.033	0.501	0.329	0.033	0.027	0.172	1						
12 Trading across borders	0.119	0.192	-0.065	*0.742*	0.231	0.68	0.472	0.028	0.012	0.239	0.564	1					
13 Enforcing contracts	0.118	0.165	-0.12	0.553	0.23	0.403	0.234	0.115	0.201	-0.065	0.411	0.42	1				
14 Resolving insolvency	0.111	0.201	-0.03	*0.732*	0.107	0.432	0.308	-0.025	0.04	0.397	0.517	0.626	0.27	1			
Labor market regulation																	
15 Individual and collective dismissals (regular contracts)	-0.015	-0.03	0.015	-0.168	-0.097	-0.221	0.193	-0.052	-0.422	-0.078	-0.275	0.037	-0.096	0.077	1		
16 Temporary contracts	-0.062	-0.097	0.042	-0.598	-0.178	-0.315	-0.333	-0.313	-0.603	-0.181	-0.386	-0.18	-0.166	-0.36	0.246	1	
Quality of government																	
17 Corruption Perception Index	0.167	0.253	-0.095	*0.798*	0.327	0.65	0.549	0.09	0.093	0.051	0.678	*0.769*	0.655	0.629	-0.151	-0.355	1
18 Quality of Government Index	0.136	0.217	-0.076	*0.807*	0.215	0.57	0.562	0.002[a]	0.036	0.239	0.69	*0.78*	0.534	*0.837*	-0.033	-0.529	*0.943*

Notes: All correlation coefficients except those marked with an "[a]" are statistically significant at 10% level of significance. Correlation coefficients above 0.7 are in italic.

Table 4: Correlation coefficients between individual well-being and institutional quality indicators by employment status

	Self-employed		Paid employed	
	Job satis-faction	Life satis-faction	Job satis-faction	Life satis-faction
Ease of Doing Business				
- Doing of Business Index	0.265	0.234	0.098	0.179
- Starting a Business	0.176	0.087	0.062	0.003[a]
- Dealing with construction permits	0.126	0.09	0.042	0.071
- Getting electricity	0.126	0.078	0.037	0.087
- Registering property	0.211	0.133	0.079	0.010
- Getting credit	0.125	0.148	0.017	0.062
- Protecting minority investors	0.094	0.103	0.034	0.084
- Paying taxes	0.059	0.101	0.045	0.126
- Trading across borders	0.205	0.171	0.071	0.157
- Enforcing contracts	0.241	0.209	0.082	0.118
- Resolving insolvency	0.201	0.206	0.088	0.219
Labor market regulation				
- Individual and collective dismissals (regular contracts)	-0.011[a]	-0.033	0.013	0.007
- Temporary contracts	-0.169	-0.156	-0.051	-0.095
Quality of government				
- Corruption Perception Index	0.276	0.256	0.109	0.219
- Quality of Government Index	0.268	0.252	0.116	0.233
Number of observations	20,960	20,806	140,167	139,043

Notes: All correlation coefficients except those marked with an "[a]" are statistically significant at 10% level of significance.

closely related (r = 0.943), and there are relatively high correlations between the Quality of Government Index and the following pillars of the Doing of Business Index: "dealing with construction permits", "getting electricity", "paying taxes", "trading across borders", "enforcing contracts", and "resolving insolvency".

Remarkably, the correlations between our measures of individual well-being and the indicators of employment protection legislation are rather low. The strongest relationship that we find in this category of institutions is between individual life satisfaction and regulation of temporary contracts (r = -0.097). It is also noticeable that regulations and practices that directly affect starting a business as measured by the Doing of Business pillar "starting a business" are most strongly and positively correlated with the general quality

of government. The statistical relationships between the pillar “starting a business” and job and life satisfaction are, however, rather low (r = 0.069 and r = 0.021, respectively).

Table 4 shows correlation coefficients between individual job and life satisfaction and the indicators for institutional quality for self-employed and paid employed individuals separately. Confirming to our expectations (see Section 2.2), we observe a stronger positive relationship between the separate pillars of the Doing of Business Index and the job satisfaction of the self-employed in comparison to that of paid employees. The Corruption Perception Index and the Quality of Government Index are both positively associated with the life satisfaction of individuals regardless of their employment status. However, the relationship between these indices and job satisfaction is stronger for the self-employed than for paid employees.

To summarize, the correlations indicate a moderate relationship between the measures for the different types of institutions used in our analysis and individual well-being. These relationships are stronger for job satisfaction than for life satisfaction and for the self-employed than for paid employees.

4.2 Results of multivariate analysis

This section presents the results of our multivariate analysis. As a first step, we identify the effects of the quality of entrepreneurship-facilitating institutions on an individual’s job and life satisfaction for each institutional measure separately (Section 4.2.1). We then identify the relative importance of institutional factors by estimating our model and including all measures of institutions simultaneously (Section 4.2.2). Section 4.3 performs a robustness check by estimating the model for different income quartiles to account for heterogeneity among self-employed individuals.

4.2.1 Individual well-being and the institutional environment

We begin our analysis by estimating the model including the Doing of Business Index and its interaction with an individual’s employment status (Table 5). The estimated coefficient for the Doing of Business score represents the

Table 5: Job satisfaction, life satisfaction and the Doing of Business score

	I	II
	Job satisfaction	Life satisfaction
Self-employed (yes=1; no=0)	-4.079***	-1.782***
	(0.5936)	(0.4333)
Doing of Business Index	0.0314***	0.0597***
	(0.0107)	(0.0150)
Self-employed (yes=1; no=0) X Doing of Business index	0.0583***	0.0255***
	(0.0084)	(0.0059)
Age	-0.00634***	-0.0104***
	(0.0019)	(0.0024)
Male	-0.0849***	-0.0369
	(0.0225)	(0.0280)
Married	0.115***	0.461***
	(0.0166)	(0.0467)
Secondary degree	0.1018	0.220
	(0.0284)	(0.1578)
Tertiary degree	-0.156	0.239
	(0.0998)	(0.1614)
Working hours per week	-0.000202	-0.00749***
	(0.0019)	(0.0019)
Job change since last year	0.0403	-0.0979
	(0.0487)	(0.0638)
Total gross yearly income from employment: 2nd quartile	0.169***	0.150***
	(0.0388)	(0.0338)
Total gross yearly income from employment: 3rd quartile	0.375***	0.295***
	(0.0532)	(0.0441)
Total gross yearly income from employment: 4th quartile	0.626***	0.475***
	(0.0736)	(0.0557)
Health status	-	0.689***
		(0.0535)
Industry fixed effects	Yes***	Yes***
Occupation fixed effects	Yes***	Yes***
Log pseudo likelihood	-316,282.43	-291,884.86
Pseudo R^2	0.0183	0.0494
Number of observations	161,127	159,849

Notes: Results of ordered logit regression. Dependent variable: 11-point scale measuring job and life satisfaction. Standard errors clustered on the country level in parentheses. ***: statistically significant at the 1% level; ** statistically significant at the 5% level; * statistically significant at the 10% level.

relationship between this institutional variable and the level of job satisfaction (Model I) and life satisfaction (Model II) for paid employees. The coefficient for the interaction term indicates the extent to which the relationship between

the institutional variable and the well-being of self-employed individuals differs from the relationship for paid employees.[1] We find that the overall ease of doing business is positively related to job and life satisfaction of paid employees, but even more so for self-employed respondents. This can be regarded as an indication of a stronger relevance of entrepreneurship-facilitating institutions for the self-employed than for paid employed individuals. This finding is also in line with our expectations (see Section 2.2).

To facilitate the interpretation of this result, we keep all control variables at their mean values and plot the predicted probabilities of being completely satisfied with one's job and life for both employment states based on the observed scores of the Doing of Business Index (Figures 1 and 2).[2]The probability that an average self-employed person living in a country with a low Doing of Business score (60 out of 100, corresponds to Serbia) to report the highest value on the job satisfaction scale is only 4.7%, while it is 8.1% for a comparable paid employed person. This difference, however, is not statistically significant.

Moreover, there is an almost 41% probability that a self-employed person living in a country with a high Doing of Business score (90 out of 100) will be completely satisfied with his or her own job, while this probability is only about 18.3% for a comparable paid employed person (Figure 1). Similar results are observed for the relationship between the Doing of Business score and the probability of being completely satisfied with one's life in general. However, the predicted probabilities are lower in this case, and there are no significant differences between employment states (Figure 2).

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[1] The coefficients for the dummy variable that represents the occupational status can hardly be interpreted in a meaningful way. It measures the relationship for the self-employed in the unrealistic case that the institutional variable has the value of zero. Hence, in further analyses we only report the effect of the institutional variable and its interaction with the employment status. Also, see Brambor, Clark, and Golder (2006) for more details on the interpretation of models with interaction terms.

[2] The lowest value of the Doing of Business Index in the sample is observed for Serbia (Doing of Business score = 60.46), and the highest is observed for Denmark (Doing of Business score = 85.63).

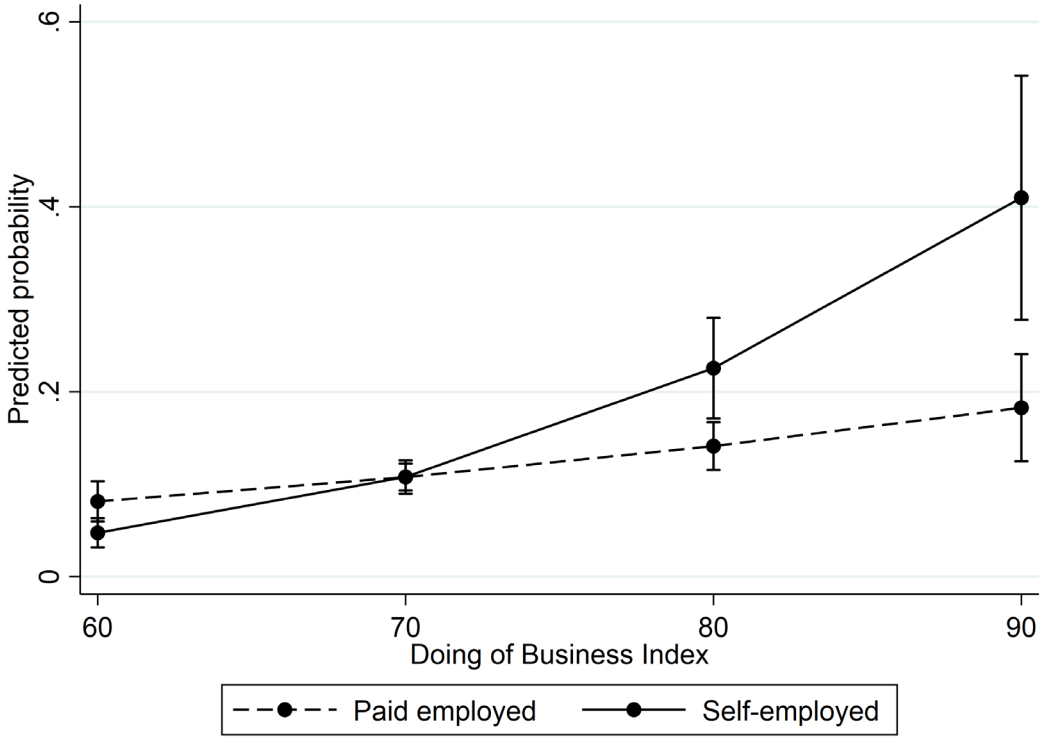

Figure 1: Predicted probabilities of being completely satisfied with one's job by employment status and different levels of Doing of Business score. 95% confidence intervals are reported

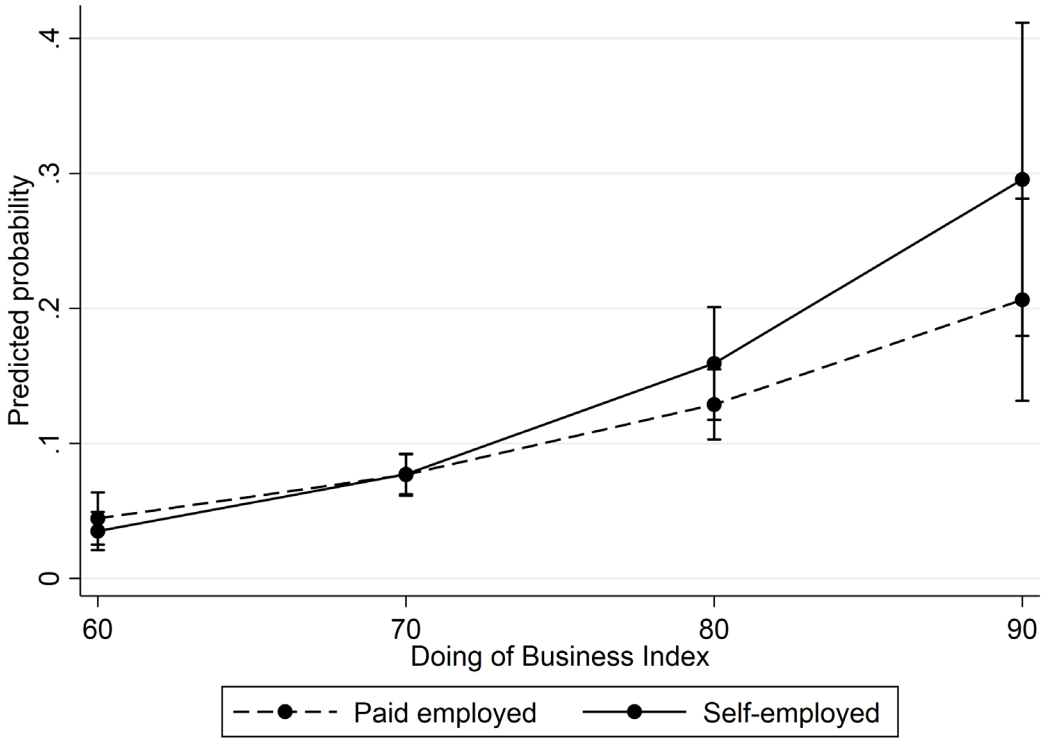

Figure 2: Predicted probabilities of being completely satisfied with one's life by employment status and different levels of Doing of Business score. 95% confidence intervals are reported

In sum, these results suggest that the quality of entrepreneurship-facilitating institutions, as measured by the Doing of Business score, is more strongly and positively related to individual job satisfaction than to individual life satisfaction. This is not surprising if we consider the general business environment as having less of an impact on an individual's overall life than the specific daily experiences of his or her job. The results also indicate that the general ease of doing business is more important for the well-being of the self-employed than of paid employees.

Additional results of the two models for job and life satisfaction in Table 5 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 and a change of occupation in the previous year are negatively related to overall life satisfaction, but this relationship is not statistically significant for job satisfaction. Both job satisfaction and overall life satisfaction seem to be higher for individuals with higher incomes. Lastly, individuals with a higher level of formal education tend to report higher levels of life satisfaction, while the relationship between educational level and job satisfaction is negative. This finding is in line with previous studies (e.g., Clark and Oswald 1996; Millán et al. 2013).[3]

In our next step, we repeat this analysis and estimate our model including each measure of a country's institutional environment separately. Table 6 reports only the estimated coefficients of the respective institutional variable and the coefficients of the interaction of this institutional variable with the dummy variable that indicates if an individual is self-employed. Thus, each row in this table corresponds to one model for job satisfaction and one model for life satisfaction. The first row in Table 6 shows the relationship between the Doing of Business Index with job satisfaction and life satisfaction, as explained in detail above (see Table 5).

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[3] 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 6: The relationship between institutions, job satisfaction, and life satisfaction

Independent variable	Institutional variable	Self-employed (yes=1) X institutional variable	Pseudo R^2/ log likelihood	Institutional variable	Self-employed (yes=1) X institutional variable	Pseudo R^2/ log likelihood
	Job satisfaction			*Life satisfaction*		
Ease of Doing Business						
Doing of Business Index	0.031**	0.058***	0.018	0.060***	0.026***	0.049
	(0.011)	(0.008)	-316,282.4	(0.015)	(0.006)	-291,884.9
Starting a business	0.018	0.023	0.015	0.004	0.014	0.037
	(0.012)	(0.019)	-317,206.8	(0.017)	(0.017)	-295,583.4
Dealing with construction permits	0.010**	0.023***	0.014	0.022***	0.009*	0.044
	(0.004)	(0.005)	-317,713.6	(0.006)	(0.004)	-293,492.8
Getting electricity	0.005	0.018***	0.016	0.013*	0.001	0.040
	(0.005)	(0.005)	-317,155.8	(0.007)	(0.005)	-294732.8
Registering property	0.013**	0.015*	0.013	0.014	0.011**	0.040
	(0.005)	(0.006)	-318,052.9	(0.007)	(0.004)	-294,653.6
Getting credit	0.001	0.008	0.013	0.003	0.008*	0.038
	(0.003)	(0.005)	-318,133.2	(0.004)	(0.004)	-295,497.1
Protecting minority investors	-0.001	0.004	0.015	-0.001	0.008	0.037
	(0.005)	(0.013)	-317,307.1	(0.008)	(0.009)	-295,602.3
Paying taxes	0.016**	0.020*	0.016	0.030**	0.007	0.043
	(0.006)	(0.008)	-317,141.7	(0.010)	(0.006)	-293,705.6
Trading across borders	0.026*	0.062***	0.016	0.059**	0.027*	0.046
	(0.011)	(0.016)	-316,930.2	(0.019)	(0.012)	-293,064.2
Enforcing contracts	0.015**	0.028**	0.014	0.030***	0.010*	0.045
	(0.005)	(0.009)	-317,810.6	(0.009)	(0.004)	-293,186.8
Resolving Insolvency	0.007*	0.012**	0.015	0.015**	0.005	0.046
	(0.003)	(0.004)	-317,254.9	(0.005)	(0.003)	-293,004.8
Strictness of labor market regulation						
Restrictions for individual and collective dismissals	-0.046	-0.259	0.010	0.054	-0.197	0.041
	(0.100)	(0.175)	-264,660.4	(0.176)	(0.136)	-240,556.0
Restrictions for the use of temporary contracts	-0.094	-0.390**	0.011	-0.149	-0.262*	0.043
	(0.074)	(0.149)	-244,224.9	(0.094)	(0.107)	-223,031.3
Quality of government						
Corruption Perception Index	0.015***	0.023***	0.0191	0.028***	0.008**	0.052
	(0.004)	(0.004)	-316,000.7	(0.005)	(0.003)	-290,933.8
Quality of Government Index	0.011*	0.017***	0.017	0.022***	0.005	0.047
	(0.005)	(0.004)	-272,595.4	(0.006)	(0.003)	-252,787.7

Notes: Results of ordered logit regression. Dependent variable: 11-point scale measuring job and life satisfaction. Standard errors clustered on the country level in parentheses. ***: statistically significant at the 1% level; ** statistically significant at the 5% level; * statistically significant at the 10% level. All models include a dummy variable for self-employment status (yes=1: no=0), variables for individual characteristics, industry fixed effects, and occupation fixed effects.

We find statistically significant positive coefficients for many of the sub-indices of the Doing of Business score. Pillars measuring the ease of "dealing with construction permits", "getting electricity", "trading across borders", "enforcing contracts", and "resolving insolvency" are significantly positively related to job satisfaction of the self-employed, while the relationship is not statistically significant for the paid employees. A high value for the sub-index "paying taxes", which measures the level of tax contributions and the administrative burden of paying taxes, is positively related to job satisfaction for both groups, but the effect is significantly stronger for self-employed respondents. Quite remarkably, no statistically significant relationship is found for the "starting a business", "getting credit", and "protecting minority investors" sub-indices. The reason for this somewhat surprising result may be that these regulations matter more for nascent entrepreneurs than for paid employees or self-employed persons. We find again similar but weaker relationship between the pillars of the Doing of Business Index and individual overall life satisfaction.[4]

Turning to the strictness of labor market regulation, we find (and this is quite surprising) that none of the indicators for labor market regulation affects the job and life satisfaction of paid employees. There is, however, the expected significantly negative relationship between restrictions on the use of temporary contracts with the job and life satisfaction of self-employed individuals. To demonstrate this result, Figure 3 shows the predicted probabilities of being completely satisfied with one's job depending on the level of regulation of temporary contracts. An average self-employed individual facing a weak regulation of temporary contracts has a 21.6% probability of being completely satisfied with his or her job, compared to just a 2.4% likelihood if a very strict regulation of temporary contracts applies. For paid employed persons, the probability of being completely satisfied with a job also decreases with the increasing strictness of this regulation, but this decrease is not statistically significant.

[4] We do not plot predicted probabilities of being completely satisfied with job and life for each sub-index of the Doing of Business Index, because the results are similar to our result for the overall Doing of Business score.

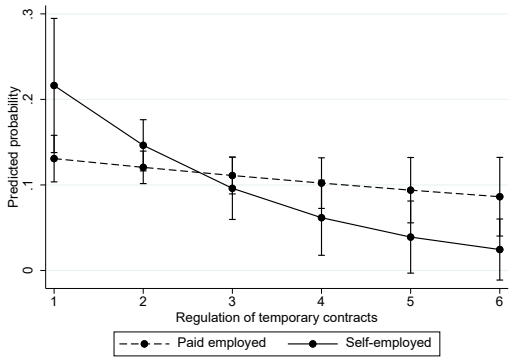

Figure 3: Predicted probabilities of being completely satisfied with one's job by employment status and different levels of strictness of regulation of temporary contracts. 95% confidence intervals are reported

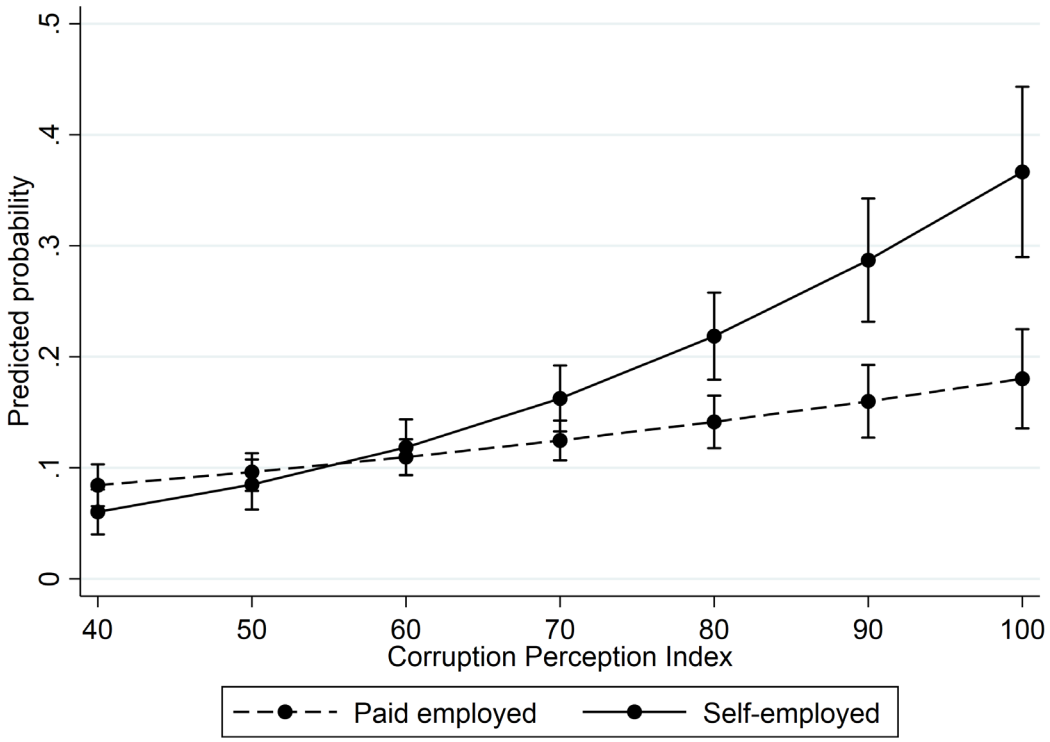

Figure 4: Predicted probabilities of being completely satisfied with one's job by employment status and different levels of Corruption Perception Index. High levels of this index indicate low perceived corruption. 95% confidence intervals are reported

Furthermore, the relationship between the measures of the quality of government and individual job and life satisfaction is statistically significant and positive. This relationship is slightly more pronounced for the Corruption Perception Index than for the Quality of Government Index. Figure 4 plots predicted probabilities of being completely satisfied with one's job based on the different values of the Corruption Perception Index. The values range from 40 (corresponds to Bulgaria and Greece) to 91 (observed for Denmark). The probability of being completely satisfied with one's job is highest for self-employed individuals (the maximum value is 36.6%) if the Corruption Perception Index is very high (corresponding to low a perceived level of corruption). The probability of being completely satisfied with one's job also increases for paid employees, but at a considerably lower rate. Lower levels of perceived corruption seem to enhance the job satisfaction of self-employed individuals more strongly than paid employees.

All in all, the results clearly suggest that those types of institutions that prove to be statistically significant for job or life satisfaction work in the same direction for both the self-employed and paid employees. None of the institutional variables has an opposite effect on the two groups. There is no indication that a positive effect for self-employed respondents comes at the expense of a negative impact on the well-being of paid employees, or vice versa. In general, the effect is significantly stronger for the self-employed than for paid employed persons. There is no type of institution for which the effect is significantly weaker for self-employed than for paid employed individuals. This suggests that shaping institutions to be more entrepreneurship-facilitating does not necessarily imply a lower level of well-being for paid employees.

4.2.2 What types of institutions are particularly important for individual well-being?

Due to the considerable correlation between some of the measures of the different categories of institutions (see Section 4.1), there is a concern that the results of models including each measure separately may result in overestimating their relationship with individual well-being. To account for this

Table 7: Relative importance of different types of institutions for individual well-being by employment status

Independent variable	Institutional variable	Self-employed (yes=1) X institutional variable	Institutional variable	Self-employed (yes=1) X institutional variable
	Job satisfaction		*Life satisfaction*	
Ease of Doing Business				
Starting a business	0.011	0.011	0.009	0.01
	(0.014)	(0.011)	(0.019)	(0.009)
Dealing with construction permits	-0.002	-0.002	-0.001	0.006
	(0.008)	(0.010)	(0.012)	(0.007)
Getting electricity	0.005	0.006	0.004	-0.005
	(0.006)	(0.007)	(0.011)	(0.005)
Registering property	0.016***	0.000	0.008	0.003
	(0.004)	(0.005)	(0.005)	(0.004)
Getting credit	-0.001	0.007	0.009	0.010*
	(0.006)	(0.006)	(0.010)	(0.005)
Protecting minority investors	-0.006	-0.016**	-0.020*	-0.009*
	(0.007)	(0.006)	(0.010)	(0.004)
Paying taxes	-0.005	-0.021**	-0.004	-0.01
	(0.007)	(0.007)	(0.009)	(0.005)
Trading across borders	-0.011	0.014	0.011	-0.009
	(0.010)	(0.015)	(0.018)	(0.010)
Enforcing contracts	0.015**	0.017***	0.015*	0.007
	(0.005)	(0.005)	(0.006)	(0.004)
Resolving Insolvency	0.009**	0.003	0.019**	0
	(0.003)	(0.003)	(0.006)	(0.002)
Strictness of labor market regulation				
Restrictions for individual and collective dismissals	-0.168	-0.248	-0.055	0.039
	(0.120)	(0.148)	(0.181)	(0.110)
Restrictions for the use of temporary contracts	0.069	-0.077	0.144	-0.036
	(0.064)	(0.089)	(0.094)	(0.062)
Number of observations	125,148		124,859	
Pseudo R^2	0.020		0.057	
Log likelihood	-242,145.2		-219,844.8	

Notes: Results of ordered logit regression. Dependent variable: 11-point scale measuring job and life satisfaction. Standard errors clustered on the country level in parentheses. ***: statistically significant at the 1% level; ** statistically significant at the 5% level; * statistically significant at the 10% level. All models include a dummy variable for self-employment status (yes=1: no=0), variables for individual characteristics, industry fixed effects, and occupation fixed effects.

concern and to shed more light on the *relative* importance of institutional regulations for individual well-being, we estimate models that include all sub-categories of institutions simultaneously. Specifically, we include the pillars of the Doing of Business Index in the model and we exclude the Corruption Perception Index and the Quality of Government Index, since they do not reflect certain types of regulation. [5]

Table 7 reports the results of the model estimations. The effects of institutions become less significant in this model specification. In particular, we find the differences between self-employed and paid employed individuals are less significant, as reflected in the effects of the corresponding interaction terms. There is robust evidence for a strong positive association with individual job satisfaction and entrepreneurship-fostering institutions, particularly the sub-indices of the Doing of Business Index, such as “registering property”, “enforcing contracts”, and “resolving insolvency”. The latter two indices are also positively associated with life satisfaction, while there is a significantly negative relationship between the sub-index “protecting minority investors” and individual life satisfaction. In line with the previous analysis, the different types of institutions are more strongly associated with job satisfaction than with life satisfaction for both the self-employed and paid employees.

In contrast with the previous results, the effect of restrictions on the use of temporary contracts, which was significantly and negatively related to the individual well-being of self-employed persons, is no longer statistically significant. Moreover, the effect of paying taxes, which was found to be significantly positive in the previous analysis, is now not statistically significant for paid employees, and its interaction term with self-employment status is significantly negative. This means that the burden of tax regulation decreases the job satisfaction of self-employed but not of paid employees. Figure 5 presents the predicted probabilities of being completely satisfied

[5] A potential drawback of this analysis is that it might raise a multicollinearity issue. Nevertheless, we consider this additional analysis to be helpful in assessing the relative importance of institutional factors for individual well-being.

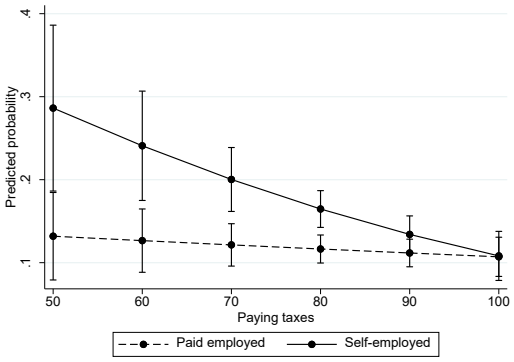

Figure 5: Predicted probabilities of being completely satisfied with one's job by employment status and different levels of tax regulation. 95% confidence intervals are reported

with one's job calculated for different levels of tax regulation keeping other institutional variables and control variables at their mean values. It shows that strong tax regulation, including high administrative burden of paying taxes, decreases this probability substantially for self-employed persons, while there is no significant effect for paid employed persons.

4.3 Robustness check: the role of the income level

As a final step of our analysis, we investigate whether our main results differ depending on the individual income level. Relative income level can be regarded as an indication of entrepreneurial success and more productive entrepreneurship (Sorgner, Fritsch, and Kritikos 2017). Fostering successful, productive entrepreneurship is therefore crucial for economic growth (Shane 2009). Thus, we investigate whether the quality of entrepreneurship-facilitating institutions is more relevant for more successful entrepreneurs by

Table 8: The relationship between institutions and job satisfaction by income level

Independent variable	Institutional variable	Self-employed (yes=1) X institutional variable	Pseudo R²/ log likelihood	Institutional variable	Self-employed (yes=1) X institutional variable	Pseudo R²/ log likelihood
	1st income quartile			*4th income quartile*		
Ease of Doing Business						
Doing of Business Index	0.057***	0.037***	0.0250	0.005	0.055***	0.0058
	(0.011)	(0.008)	-77,884.06	(0.010)	(0.010)	-76,847.81
Starting a business	0.026	0.006	0.0148	0.009	0.015	0.0047
	(0.014)	(0.022)	-78,697.92	(0.013)	(0.019)	-76,932.78
Dealing with construction permits	0.019***	0.014**	0.0194	-0.001	0.022***	0.0050
	(0.004)	(0.005)	-78,336.42	(0.004)	(0.004)	-76,908.85
Getting electricity	0.014*	0.004	0.0162	-0.002	0.016*	0.0047
	(0.006)	(0.006)	-78,588.81	(0.005)	(0.007)	-76,931.45
Registering property	0.01	0.012	0.0155	0.014***	0.009	0.0076
	(0.007)	(0.006)	-78,644.42	(0.004)	(0.007)	-76,713.03
Getting credit	0.000	0.007	0.0136	0.004	0.008	0.0052
	(0.004)	(0.005)	-78,800.78	(0.003)	(0.004)	-76,898.28
Protecting minority investors	0.000	0.014	0.0136	-0.004	0.002	0.0046
	(0.009)	(0.011)	-78,793.83	(0.003)	(0.013)	-76,944.99
Paying taxes	0.032***	0.008	0.0201	-0.001	0.024***	0.0049
	(0.006)	(0.008)	-78,280.78	(0.006)	(0.007)	-76,918.17
Trading across borders	0.060***	0.035*	0.0220	-0.013	0.059***	0.0053
	(0.014)	(0.015)	-78,127.04	(0.010)	(0.016)	-76,891.4
Enforcing contracts	0.025***	0.020*	0.0202	0.004	0.026**	0.0057
	(0.007)	(0.008)	-78,269.24	(0.006)	(0.009)	-76,854.8
Resolving Insolvency	0.014**	0.008*	0.0204	-0.002	0.012**	0.0049
	(0.004)	(0.004)	-78,250.77	(0.003)	(0.004)	-76,919.86
Strictness of labor market regulation						
Restrictions for individual and collective dismissals	-0.078	-0.22	0.0109	-0.089	-0.169	0.0046
	(0.150)	(0.165)	-66,074.83	(0.132)	(0.193)	-63,958.11
Restrictions for the use of temporary contracts	-0.132	-0.319*	0.0130	-0.066	-0.273*	0.0053
	(0.089)	(0.130)	-60,795.87	(0.076)	(0.122)	-58,927.71
Quality of government						
Corruption Perception Index	0.029***	0.012***	0.0288	0.002	0.022***	0.0059
	(0.004)	(0.004)	-77,586.76	(0.004)	(0.004)	-76,841.67
Quality of Government Index	0.025***	0.005	0.0244	0.000	0.018***	0.0055
	(0.004)	(0.003)	-67,097.42	(0.005)	(0.004)	-66,270.15

Notes: Results of ordered logit regression. Dependent variable: 11-point scale measuring job satisfaction. Standard errors clustered on the country level in parentheses. ***: statistically significant at the 1% level; ** statistically significant at the 5% level; * statistically significant at the 10% level. All models include a dummy variable for self-employment status (yes=1: no=0), variables for individual characteristics, industry fixed effects, and occupation fixed effects.

estimating our baseline model (as in Table 5) separately for individuals in the lowest (1st) and the highest (4th) quartiles of the country-specific income distribution. The results are shown in Table 8, which only reports the coefficients of models for job satisfaction, since they are more pronounced as compared to the results for life satisfaction.[6]

The results suggest that the ease of doing business is important for the self-employed in both income quartiles, but the effects are stronger for entrepreneurs with high incomes. This indicates that entrepreneurship-fostering institutions might be particularly relevant for successful entrepreneurs. The results are quite different for paid employees, though. We observe that regulations related to the ease of doing business are mainly relevant for the job satisfaction of respondents in the lowest (1st) income quartile while they are almost irrelevant for paid employees in the highest (4th) income quartile. The only exception is the ease of registering property, which is only important for paid employed persons with high incomes.

Figures 6 and 7 demonstrate the differences in the effects of the Doing of Business Index on the predicted probability of being completely satisfied with one's job for individuals in low and high income quartiles. We find that higher values of the Doing of Business Index are related to a significant increase of the probability of being completely satisfied with one's job for self-employed persons in both income quartiles. For paid employees, such a pattern is only observed for those in the 1st income quartile. The probability of being highly satisfied with one's job is rather unaffected by variations of the overall Doing of Business Index for individuals in the 4th income quartile.

When we examine the effects of strictness of employment regulation, the results are robust for both income quartiles. The strictness of temporary contract regulation is significantly and negatively related to the well-being of

[6] The results for life satisfaction can be found in Table A2 in the Appendix. The results are in line with the results for job satisfaction. For instance, the same institutions that are relevant for the life satisfaction of paid employees are also relevant for their job satisfaction. However, we find the differences between both employment types to be less significant in the lowest income quartile. Moreover, institutional variables seem to be more relevant for the life satisfaction of paid employees with high levels of income than for their job satisfaction.

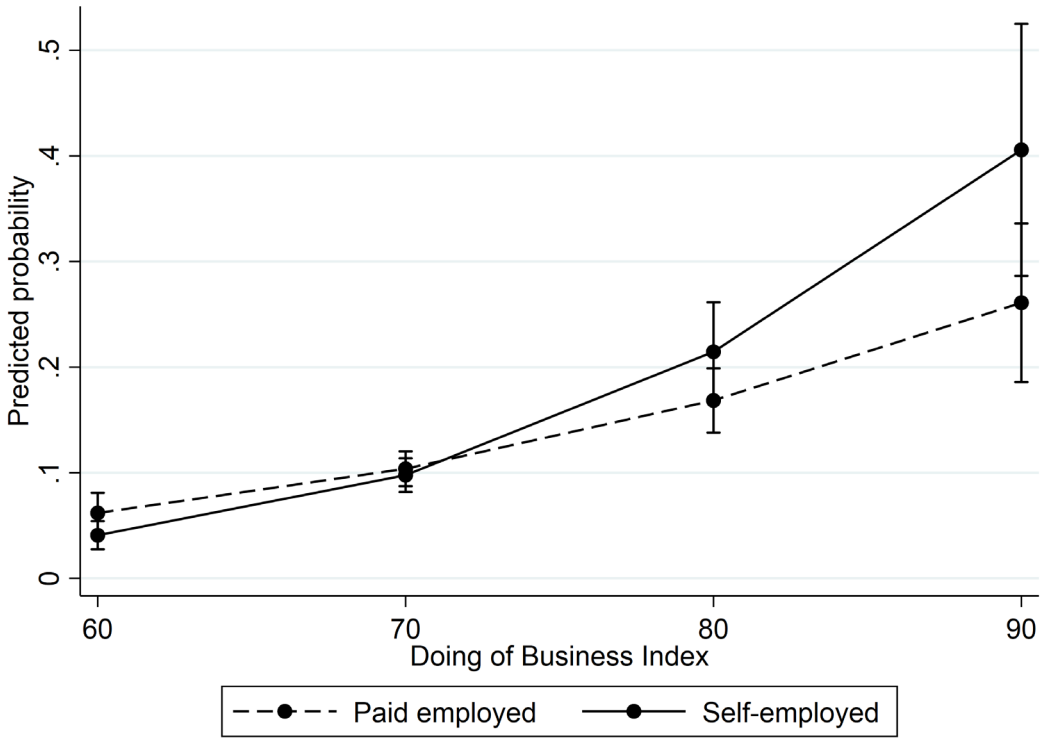

Figure 6: Predicted probabilities of being completely satisfied with one's job by employment status and different levels of Doing of Business Index. Subsample of individuals in the 1st country-specific income quartile. 95% confidence intervals are reported

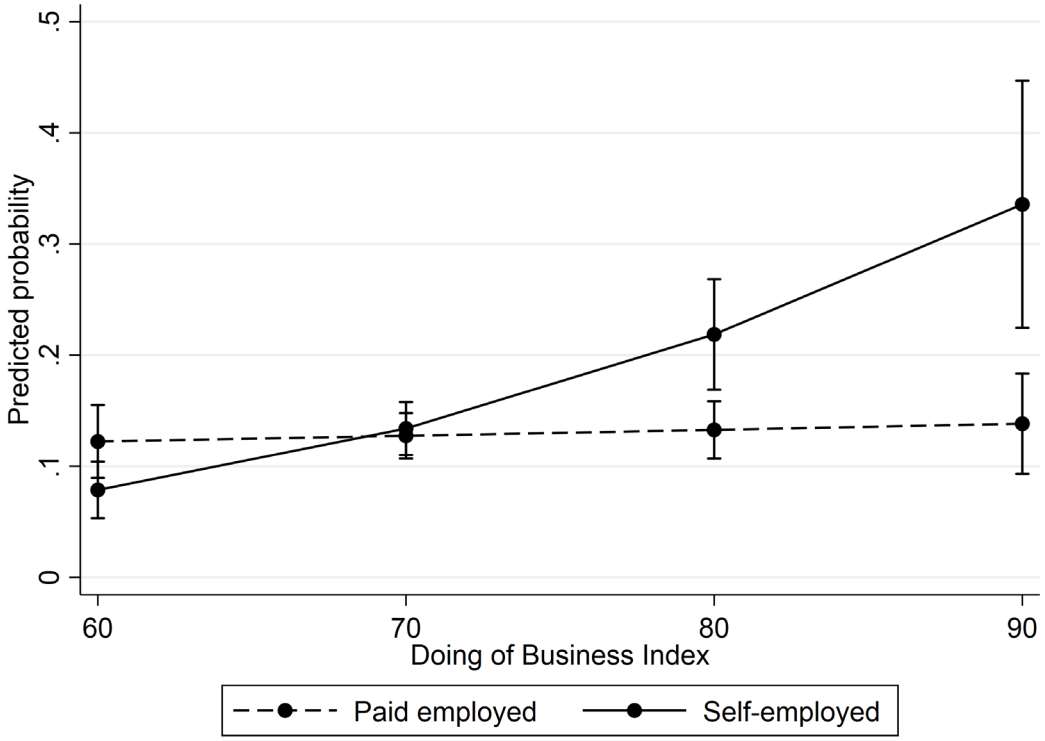

Figure 7: Predicted probabilities of being completely satisfied with one's job by employment status and different levels of Doing of Business Index. Subsample of individuals in the 4th country-specific income quartile. 95% confidence intervals are reported

self-employed individuals. In addition, the quality of government and the level of perceived corruption seem to be largely irrelevant for the job satisfaction of paid employees with high incomes. However, we observe significant effects of both measures for self-employed individuals in both income quartiles.

5. Discussion and conclusions

Previous literature emphasizes how institutions impact an individual's subjective well-being (e.g., Fritsch, Sorgner, and Wyrwich 2018). The present paper contributes to this literature by analyzing the importance of different types of institutions on the perceived well-being of self-employed and paid-employed individuals. In particular, we assess the importance of entrepreneurship-facilitating institutions, institutions regulating labor markets, the quality of government, and perceived corruption on job and life satisfaction of the self-employed and paid employees. Our empirical analysis is based on the rich individual-level data from EU-SILC that we merge with country-level institutional measures from a variety of statistical sources.

The findings clearly show that a country's institutions can have a rather significant effect on the well-being of its population. However, they seem to matter more for well-being among self-employed individuals than for paid employees. An important finding of our investigation is that our institutional variables do not have an opposite effect for individuals in either self-employment or paid employment. In other words, there is never a positive relationship between a specific institutional category and the well-being of self-employed persons, but a negative effect on the well-being of paid employees, or vice-versa. This also holds for institutional categories where one could expect to find such opposite effects, like labor market regulations of individual and collective dismissals or regulations of temporary employment. This result suggests that introducing more entrepreneurship-facilitating institutions does not come at the expense of the well-being of paid employees. Hence, promoting an institutional framework for a more entrepreneurial society appears to be a strategy that benefits both the self-employed and paid employees.

The three global indicators for a country's institutional framework that we use in our analyses, the Doing of Business Index, the Corruption Perception Index, and the Quality of Government Index are closely correlated and have a highly significant impact on the self-employed as well as on paid employees. According to the empirical estimates, the most important single types of institutions are "enforcing contracts", "trading across borders", and "dealing with construction permits". While "enforcing contracts" describes the liability of the legal system, "trading across borders" indicates the openness of an economy and exposure to international competition. "Dealing with construction permits" may be regarded as a measure of the general density of regulation and the efficiency of a country's public administration.

An unexpected result of the analysis is that the labor market regulations, particularly restrictions for temporary contracts, do not seem to play a significant role for the job and life satisfaction of paid employees. This result is quite remarkable given that many authors assume that labor market regulation plays a key role for entrepreneurship (see Herrmann 2019). Restrictive labor market regulation shows, however, the expected negative relationship with the well-being of the self-employed. Another surprising finding is that the Doing of Business Index sub-index "ease of starting a business" is not significantly related to the well-being of either the self-employed or paid employees. A possible explanation for this result may be that a large majority of the self-employed respondents own well-established businesses that have been operating for a long period of time. Hence, the effort of starting a business is no longer relevant for their current well-being.

Our analysis is not without limitations. Overcoming these limitations presents promising avenues for further research. First, the analysis is based on a pure cross-section due to data limitation. Hence, we are unable to assess the dynamics of institutional change that could better allow for the identification of causal relationships. Given that institutional change tends to be rather slow and path-dependent, a dynamic analysis of the role of institutional change on individual well-being may require datasets that offer longer time series. Second, our measures for job and life satisfaction represent rather broad evaluations of well-being that may not be very sensitive to variations of

more specific institutions. Hence, future research could use more nuanced measures of well-being in order to better understand the effect of specific institutions. Third, comparable microdata on individual well-being and other personal characteristics was only available for a large, but still limited set of European countries. Including data from a larger numbers of countries with more diverse levels of institutional quality could improve the validity and relevance of the results.

While this paper reveals that our institutional variables have differing effects on the subjective well-being of self-employed and paid employed individuals in terms of importance and direction, future research could shed more light on the specific channels through which institutions influence individual well-being. It is also important to determine how a specific population's general level of well-being, particularly the level of job and life satisfaction of the self-employed, contributes to the type of entrepreneurship found in more entrepreneurial societies. Is a high level of well-being more conducive to the emergence of innovative new businesses, or does it stimulate less innovative forms of entrepreneurship?

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Appendix

Table A1: Descriptive statistics

Variables	Mean	Median	Standard Deviation	Minimum	Maximum	Number of observations
Job satisfaction	7.260	8	2.030	0	10	161,127
Life satisfaction	7.291	8	1.868	0	10	161,127
Self-employed	0.130	0	0.336	0	1	161,127
Age	44.008	45	10.912	18	65	161,127
Sex	0.499	0	0.500	0	1	161,127
Married	0.606	1	0.489	0	1	161,127
No vocational degree	0.037	0	0.190	0	1	161,127
Vocational degree	0.613	1	0.487	0	1	161,127
Tertiary degree	0.349	0	0.477	0	1	161,127
Working hours	39.042	40	10.028	1	99	161,127
Job change	0.058	0	0.234	0	1	161,127
1st income quartile	0.232	0	0.422	0	1	161,127
2nd income quartile	0.250	0	0.433	0	1	161,127
3rd income quartile	0.257	0	0.437	0	1	161,127
4th income quartile	0.261	0	0.439	0	1	161,127
Health condition	4.030	4	0.755	1	5	159,849
Ease of Doing Business indicators:						
- Doing of Business Index	72.602	71.61	6.466	60.46	85.63	161,127
- Starting a Business	86.578	88.56	5.262	75.67	94.38	161,127
- Dealing with construction permits	69.381	70.13	12.791	20.8	91.59	161,127
- Getting electricity	74.596	75.42	14.340	35.16	98.35	161,127
- Registering property	74.873	77.18	12.677	42.27	94.11	161,127
- Getting credit	70.356	68.75	16.782	18.75	100	161,127
- Protecting minority investors	55.520	56.67	10.457	30	86.67	161,127
- Paying Taxes	77.745	79.06	9.388	51.47	95.07	161,127
- Trading across borders	83.774	84.77	5.376	71.24	92.97	161,127
- Enforcing contracts	67.102	67.7	9.969	43.06	85.7	161,127
- Resolving insolvency	66.096	60.63	21.387	31.36	97.7	161,127
Strictness of labor market regulation:						
- Restrictions for individual and collective dismissals (regular contracts)	2.218	2.230	0.492	1.095	3.185	135,205
- Restrictions for the use of individual dismissals (regular contracts)	2.188	2.197	0.477	1.179	3.010	125,148
- Temporary contracts	2.234	2.167	0.822	0.542	3.833	125,148

- Collective dismissals (additional restrictions)	3.214	3.375	0.693	1.625	5.125	125,148
Quality of government indicators:						
- Corruption Perception Index	63.441	60	15.402	40	91	161,127
- Quality of Government Index	48.369	49.329	17.326	16.353	79.935	138,495

Table A2: The relationship between institutions and life satisfaction by income level

Independent variable	Institutional variable	Self-employed (yes=1) X institutional variable	Pseudo R^2/ log likelihood	Institutional variable	Self-employed (yes=1) X institutional variable	Pseudo R^2/ log likelihood
	1st income quartile			*4th income quartile*		
Ease of Doing Business						
Doing of Business Index	0.071***	0.015	0.0534	0.044**	0.032***	0.0383
	(0.013)	(0.011)	-71728.84	(0.014)	(0.007)	-70673.32
Starting a business	0.011	0	0.0393	-0.004	0.017	0.0306
	(0.017)	(0.021)	-72795.29	(0.016)	(0.022)	-71234.77
Dealing with construction permits	0.024***	0.006	0.0464	0.016**	0.011**	0.0347
	(0.006)	(0.005)	-72252.99	(0.006)	(0.004)	-70933.82
Getting electricity	0.019**	-0.011	0.0425	0.01	0.006	0.0325
	(0.007)	(0.006)	-72550.19	(0.006)	(0.008)	-71094.95
Registering property	0.013	0.010*	0.0419	0.015*	0.011*	0.0342
	(0.007)	(0.005)	-72598.11	(0.007)	(0.005)	-70975.54
Getting credit	0.002	0.008	0.0396	0.004	0.010*	0.0313
	(0.005)	(0.005)	-72774.5	(0.004)	(0.004)	-71189.04
Protecting minority investors	-0.001	0.017	0.0395	-0.004	0.006	0.0307
	(0.009)	(0.011)	-72782.93	(0.006)	(0.010)	-71228.84
Paying taxes	0.036***	0.001	0.0464	0.019*	0.012	0.0338
	(0.009)	(0.010)	-72256.19	(0.009)	(0.006)	-71001.64
Trading across borders	0.070***	0.016	0.0489	0.038*	0.030*	0.0347
	(0.020)	(0.018)	-72064.02	(0.017)	(0.014)	-70937.85
Enforcing contracts	0.030***	0.011	0.0471	0.027**	0.009	0.0372
	(0.008)	(0.006)	-72203.3	(0.008)	(0.005)	-70752.95
Resolving Insolvency	0.018***	0.002	0.0495	0.010*	0.007	0.0349
	(0.005)	(0.005)	-72022.71	(0.004)	(0.003)	-70923.28
Strictness of labor market regulation						
Restrictions for individual and collective dismissals	0.022	-0.171	0.0423	0.028	-0.129	0.0349
	(0.197)	(0.142)	-60144.93	(0.153)	(0.178)	-57526.99
Restrictions for the use of temporary contracts	-0.16	-0.224*	0.0447	-0.135	-0.210*	0.0373
	(0.097)	(0.114)	-55711.46	(0.088)	(0.106)	-53186.3
General quality of government						
Corruption Perception Index	0.034***	0.003	0.0571	0.021***	0.010**	0.0404
	(0.005)	(0.005)	-71447.13	(0.005)	(0.003)	-70515.44

Quality of Government Index	0.030***	-0.005	0.0524	0.016*	0.010*	0.0355
	(0.005)	(0.005)	-62020.73	(0.006)	(0.004)	-61375.05

Notes: Results of ordered logit regression. Dependent variable: 11-point scale measuring life satisfaction. Standard errors clustered on the country level in parentheses. ***: statistically significant at the 1% level; ** statistically significant at the 5% level; * statistically significant at the 10% level. All models include a dummy variable for self-employment status (yes=1: no=0), variables for individual characteristics, industry fixed effects, and occupation fixed effects.