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# Life satisfaction of necessity and opportunity entrepreneurs in 70 countries

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## Abstract

The relationship between self-employment and subjective well-being (SWB) is contingent on the heterogeneity observed among entrepreneurs. We argue that independence and job-control, two commonly suggested sources of entrepreneurs' higher SWB, are likely to disproportionately benefit opportunity entrepreneurs who were pulled into their occupation choice. We make use of Global Entrepreneurship Monitor data from 70 countries (N=111,589) to investigate this proposition. The results show that entrepreneurs, all else equal, indeed do rate their life-satisfaction substantially higher than employees and, further, that this effect is entirely driven by opportunity entrepreneurs.

**Keywords:** Entrepreneurship; Subjective well-being; Opportunity entrepreneurship; Quality of life; Happiness research; Satisfaction

**JEL Classifications:** A13, I31, J17, L26

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## 1. Introduction

The relationship between employment status and subjective well-being (SWB) is, to some extent, well-researched. The unemployed are less satisfied than the employed (Stutzer and Frey 2004), who in turn are less satisfied with life and work than entrepreneurs, even keeping constant income (Benz and Frey 2008a), occupation and skills (Hessels et al. 2017a).

Entrepreneurs appreciate independence and job control, and derive procedural utility—well-being derived from means and not simply ends—from their jobs (Benz and Frey 2008a, 2008b; Hessels et al. 2017b). It seems that core ingredients of entrepreneurship—the ability to be one’s own boss, and having a high degree of control of the own situation—are fundamental in individuals’ well-being. For instance, Hessels et al. (2017b) show that job demand (work load and time constraints) impacts work-related stress, but also that for the self-employed, this effect is mediated by job control (the power to decide what to do, and when to do it).

The procedural utility case assumes that an entrepreneur, acting on the market, has a wider choice of actions and tasks, compared to a person who is employed in a hierarchy (e.g. Benz and Frey 2008a). It follows that entrepreneurs with a wider set of opportunities to choose from should exhibit higher SWB compared to entrepreneurs with more narrow choice sets, all else equal. Equivalently, those entrepreneurs with skills and resources to take full advantage of a certain set of choices should rate their SWB as higher than those who do not. However, the literature on entrepreneurship and SWB has with few exceptions (e.g. Binder and Coad 2013, 2016) compared the self-employed to the wage-employed, and often neglected differences within the group of entrepreneurs. One of the most enduring findings in the entrepreneurship literature thus far is that ‘the entrepreneur’ is a very heterogeneous figure (Davidsson 2014; Shane 2008). Knowledge of how this heterogeneity impacts SWB is still scant (e.g. Hessels et al. 2017b; Shir 2015).

Entrepreneurs are more independent than wage-earners, but there are strong reasons to believe that necessity entrepreneurs who are ‘pushed’ into their occupation choices are likely to differ in important respects from opportunity entrepreneurs who are ‘pulled’ into theirs (Binder and Coad 2013, 2016). These groups differ in the choices available to them, as well as in their observed and unobserved abilities to realize opportunities, i.e. their preference for independence is likely heterogeneous.

We argue that the procedural utility hypothesis may be further elucidated by comparing the SWB of these two groups. This issue has previously been analysed within countries in studies that exploit labour market conditions to differentiate necessity from opportunity entrepreneurs (e.g. Binder and Coad 2013, 2016). To the best of our knowledge, this issue has not been investigated in a wider cross-country setting using standardized, high-quality data with self-reported ‘opportunity’ and ‘necessity’ categories.

We examine differences in SWB between opportunity and necessity entrepreneurs, as defined by the Global Entrepreneurship Monitor (GEM). Specifically, we draw on 111,589 individuals observed in 70 countries in GEM 2013. We show that, keeping income and education constant, opportunity entrepreneurs exhibit significantly higher SWB than the population average, while the opposite is true for necessity entrepreneurs.

Empirically, our results are consistent with previous theorizing that independence and procedural utility positively affect the SWB of entrepreneurs, but with one qualifying statement (cf. Binder and Coad 2013, 2016): the differences are largely produced by opportunity entrepreneurs. Our main conclusion, that ‘pushed independence’ does not necessarily add to, and indeed may subtract from, average well-being, may prove important moving forward.

Our main contributions are first, to analyse the well-being of necessity and opportunity entrepreneurs using a large and harmonized cross-sectional individual dataset for 70 nations, which substantially expands the geographical scope of previous research. While previous

studies have analysed similar questions (Binder and Coad 2013, 2016; Block and Koellinger 2009; Kautonen and Palmroos 2010), those studies have been based on single, highly developed countries. Although within-country panel analyses allow for more causal research designs, highly developed countries have few necessity entrepreneurs to begin with, and well-developed support systems that cushion the financial impact of failure.

Second, we use GEM's definitions of 'necessity' and 'opportunity' entrepreneurs. These correspond directly to the distinction at hand as compared to measures used in previous studies, which tend to use observed labour market background in terms of previous unemployment to identify necessity entrepreneurs (e.g. Binder and Coad 2013, 2016).

Policy implications of entrepreneurs' higher SWB have been discussed at length in previous research. For instance, it has been proposed that self-employment may be exploited as a vehicle to improve the life-conditions of blue-collar and low-skilled workers (e.g. Hessels et al. 2017a). Our results do not contradict this proposition, but our study does caution that self-employment is a poor replacement for labour market opportunities in this context. The net effect on a country's SWB from a secular expansion in the share of self-employed will crucially depend on the country's fraction of opportunity entrepreneurs, which in our sample ranges from a high 96 percent in Luxemburg to a low of 41 percent in Macedonia.

## **2. Theoretical background and hypotheses**

The connection between economic dynamism and well-being is old. Easterlin's (1974) seminal contribution analysed the relationship between well-being as self-reported by citizens (as a proxy for welfare), and GNP per capita at the country level. Economists at the time largely viewed income as an acceptable, but coarse, proxy for welfare (Nordhaus and Tobin 1972). Easterlin showed that growth of output was largely unassociated<sup>3</sup> with growth in welfare,

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<sup>3</sup> Subsequent contributions in this ongoing debate have claimed that there is indeed a robust and positive log-linear relationship between income and happiness and that there is no apparent point of satiation (Hagerty and Veenhoven 2003; Stevenson and Wolfers 2013).

refuting this view. This debate established happiness and income as entities that could be analysed separately, and that could indeed even be independent in theory.

Following such propositions, the well-being of entrepreneurs has been investigated more directly, generally by comparing the SWB of the self-employed with that of the wage employed. It has been convincingly shown across countries that the self-employed exhibit higher SWB than employees (Blanchflower 2000; Blanchflower and Oswald 1998). The *why* is substantially more complex. After all, entrepreneurs are part of a highly select group and *happiness* is an elusive concept. The vast within-group heterogeneity of entrepreneurs has not been sufficiently scrutinized in previous research on this topic (Hessels et al. 2017b).

### *2.1. What is subjective well-being (and how should it be measured)?*

A person who exhibits high SWB is a person who likes his or her life. A voluminous literature indicates that someone's utility is indeed sufficiently captured by SWB measures (Stutzer and Frey 2004). People with high SWB are 'happy', i.e. they frequently experience pleasant emotions, low levels of negative moods, and other states that makes life rewarding—that the individual likes her own life is simply essential to her well-being, and responses to questions of SWB do tend to converge with other assessments of well-being, including experts' and family members' assessments (Diener et al. 2001). Reported SWB measures also typically correlate with experiences of pride, joy and so on (Shir 2015).

Individuals' SWB is generally assessed through surveys of reported subjective happiness and well-being. Different measures of happiness are highly correlated (Stutzer and Frey 2004), meaning that even though distinct questions correspond to distinct conceptions of happiness and well-being, people do tend to give similar answers to them. Table 1 illustrates this point by presenting bivariate correlations at the individual level between the different SWB measures included in our data source, GEM 2013 (described in detail in section 3).

**Table 1.** Correlation matrix detailing individual-level bivariate correlations between the subjective well-being measures used in GEM 2013

	(1)	(2)	(3)	(4)	(5)	(6)
(1) Subjective well-being (factor analysis of 2–6)	1.00					
(2) In most ways my life is close to my ideal	0.77	1.00				
(3) The conditions of my life are excellent	0.82	0.59	1.00			
(4) I am satisfied with my life	0.81	0.51	0.60	1.00		
(5) So far I have obtained the important things I want in life	0.75	0.44	0.49	0.52	1.00	
(6) If I could live my life again, I would not change anything	0.63	0.35	0.37	0.39	0.41	1.00

*Note:* Data from 70 countries. N=111,589 Variable (1) is the main principal component of variables 2–6, and is the dependent variable used in the empirical section. Variable (2) to (6) are measured on a five-point Likert scale; 1 Strongly disagree to 5 Strongly agree. The theoretical background to the measures is outlined in Shir (2015).

The variables correlate generally between 0.4–0.8. Our principal component (1) is most intimately associated with SWB variables 3 and 4 that deal with the general life satisfaction conditions of the present situation.

We are chiefly interested in general life-satisfaction in this paper. Some of the previous literature is primarily about the work-place realm, such as work-related stress, job satisfaction and so on. Following e.g. Hessels et al. (2017a) and Binder and Coad (2013) we opt to focus on the wider, life-satisfaction component of SWB. As argued in those studies, it is perfectly possible to be content with one's work situation without appreciating what is going on in one's life from a larger perspective. Indeed, *job satisfaction* could even parasite on *life satisfaction* if entrepreneurs love their jobs so much that they end up neglecting family, friends, or health.

The relationship between satisfaction with life and occupation choice has also rendered slightly less clear results in previous research, compared to the relationship between job satisfaction and occupation choice (Andersson 2008), which underlines the need for more empirical research.

## 2.2. *The well-being of entrepreneurs*

Entrepreneurs, when simply equated with the self-employed, exhibit substantially higher SWB scores than non-entrepreneurs (Benz and Frey 2008a, 2008b). But *why*, then, are entrepreneurs more likely to give affirmative answers to the type of questions posed in row 2–6 of Table 1, even keeping income constant? It has been suggested, and certainly fits the facts, that quite a few people enter entrepreneurship because they are more satisfied in that career trajectory (Millán et al. 2013). A common characterization is found in Benz and Frey (2008a, p. 362) who contend that: ‘Individuals derive procedural utility from being self-employed because it gives them a higher measure of self-determination and freedom’. A similar argument has been made to explain how democracy can raise happiness by making citizens feel involved and part of their own self-determination in relation to the state (Frey and Stutzer 2002b), entrepreneurs derive procedural utility from the realization of business opportunities. Following these studies, our first hypothesis is simply:

**H1:** Entrepreneurs report higher SWB than non-entrepreneurs, conditioned on education and income.

But *who* is the entrepreneur and *how* does he or she derive utility from their occupation choices? Can we compare a local scavenger to the owner of a multinational firm? Most studies of the relationship between entrepreneurship and well-being have been conducted with self-employment as entrepreneurship status variable and have hence failed to account for the enormous heterogeneity of entrepreneurship (Shir 2015). Several studies have recommended further deconstruction of this ‘black box’ to further untangle specific forces that drive SWB among the self-employed (e.g. Hessels et al. 2017b).

When analysing the self-employed as one group we may be neglecting what people in general mean by entrepreneurship, namely a disruptive and innovative force that produces new



equilibria. Entrepreneurship in this latter Schumpeterian sense is at best imperfectly captured, and may even be inversely correlated with self-employment in a cross-country setting (Henrekson and Sanandaji 2014). Arguably, the group of opportunity entrepreneurs come much closer to this theoretical ideal.

Further, what if entrepreneurs are rendered happier by the realization of discovered opportunities (e.g. Shir 2015)? If part of the well-being derived from entrepreneurship comes from a sense of realizing one's aspirations and opportunities, this state will be difficult to achieve if the entrepreneurial effort is not undertaken to take advantage of an opportunity. If true, locations not abundant in opportunities may realize that increasing the number of entrepreneurs may be a poor strategy for achieving higher average SWB.

In the upcoming section, we deal with the opportunity-necessity distinction in detail and motivate further its relevance in our theoretical and empirical context.

### *2.3. The well-being of pushed and pulled entrepreneurs*

The entrepreneurship literature often differentiates between necessity entrepreneurs, who are pushed into their occupation choice, with opportunity entrepreneurs, who are pulled into theirs. In GEM, opportunity entrepreneurs are conceived of as those taking advantage of business opportunities and necessity entrepreneurs as those who lack other choices for work (Reynolds et al. 2005).

In principle, the issue of SWB and the opportunity-necessity divide is not straightforward. It may indeed seem that necessity entrepreneurs should gain as much in terms of independence, literally interpreted, as opportunity entrepreneurs. There may even be a case to be made that the relative preference for self-employment should be stronger among pushed entrepreneurs, as they may have less fulfilling jobs to choose from if they opt to work as employees.

One argument why opportunity entrepreneurs would have higher SWB scores is simply selection. If there are certain traits that will make you more successful or happy as an

entrepreneur, then people who possess those traits are likely to be overrepresented in the pool that is being pulled into entrepreneurship (Kautonen and Palmroos 2010). People that have the ‘right’ match between their skills and their occupation choice are in turn more likely to be happy with life in general.

Further, self-employed people, and presumably opportunity entrepreneurs, with employees are subject to higher levels of job demand, but it is less clear what being an employer implies for job control: having employees means that delegation is a possibility but not performing tasks oneself implies less control. In their study, Hessels et al. (2017b) show that job control partially mediates the higher levels of job demand for self-employed with employees. The authors further conclude that the high stress levels of the self-employed with employees may be cause for some policy concern and that future research may want to delve deeper into differences between necessity and opportunity entrepreneurship (Hessels et al. 2017b). Opportunity entrepreneurs may be happier because they possess resources, e.g. employees, which mitigate high job demand. Following the reasons outlined above, our second hypothesis is as follows:

**H2:** Entrepreneurs who take advantage of opportunities report higher SWB than entrepreneurs who are self-employed by necessity, keeping observable characteristics constant.

Previous studies from Germany (Block and Koellinger 2009), and Finland (Kautonen and Palmroos 2010) have concluded that necessity entrepreneurs are less satisfied with their work situation. We add to this literature by instead analysing life satisfaction by exploiting a large, individual-level cross-country dataset. We are aware of two previous analyses of the relationship between opportunity and necessity entrepreneurship and well-being in the life satisfaction sense, namely Binder and Coad (2013, 2016) who employ longitudinal data and

matching estimators to compare the SWB of entrepreneurs who were previously unemployed with entrepreneurs that left employment to pursue their businesses. They conclude that opportunity entrepreneurs derive higher SWB from their occupation choice, whereas necessity entrepreneurs do not, relative to the control groups (those who remain in (un)employment). Our study tests this proposition in a cross-country framework, incorporating a much wider set of countries. While our data lack a time dimension we qualify previous research that has exclusively employed data from one highly developed country, which have few necessity entrepreneurs, and more developed safety-nets for entrepreneurs that go out of business. Our data also come with the benefit of containing self-reported indicators of who is an opportunity and who is a necessity entrepreneur. This feature means that we will not have to rely on proxies of this distinction. For instance, it is entirely possible that someone who is laid off (or is not working for other reasons) decides that it is time to finally realize an excellent opportunity for entrepreneurship.

### **3. Data, variables and model**

We estimate the relationship between entrepreneurial status and SWB using data from two main sources. First, all individual-level data are gathered from the Global Entrepreneurship Monitor (GEM) survey conducted in 2013. This dataset contains almost 245,000 respondents from 70 countries, representing approximately 75 percent of the world population and 90 percent of world GDP. We have trimmed this dataset somewhat to be able to perform a cleaner analysis of the association between SWB of opportunity and necessity motivated entrepreneurs vs. non-entrepreneurs. First, we have excluded individuals who are not working, i.e. those who are retired, homemakers, students, etc. Second, we focus on individuals between 18 and 64 years of age since these individuals are likely to depend on the income they receive from work as opposed to those younger or older who are more likely to have other means to support themselves. Third, we exclude entrepreneurs who are neither opportunity nor necessity

motivated—a rather small group of entrepreneurs constituting only 0.4 percent of the overall sample. Finally, we only include individuals with a complete set of data on all relevant variables to avoid having the result being affected by a changing number of observations in different regression specifications. This leaves us with a final dataset comprising 111,589 individuals distributed on 70 countries to perform the empirical analysis on.

The second data source is The Worldwide Governance Indicators (WGI), provided by the World Bank. According to the World Bank, *‘Governance consists of the traditions and institutions by which authority in a country is exercised. This includes the process by which governments are selected, monitored and replaced; the capacity of the government to effectively formulate and implement sound policies; and the respect of citizens and the state for the institutions that govern economic and social interactions among them’*. Governance is measured along six dimensions—Voice and Accountability (VA); Political Stability and Absence of Violence (PV); Government Effectiveness (GE); Regulatory Quality (RQ); Rule of Law (RL); Control of Corruption (CC). There are several reasons why these dimensions of governance might be related to SWB. First, institutions are a known source of procedural utility (Benz and Frey 2008a). Better governance may for instance support individual autonomy and self-realization. Second, good governance uses tax money more efficiently and produces higher-quality services. Previous studies also show a positive relationship between governance and well-being (see e.g. Frey and Stutzer 2000, 2002a; Helliwell 2003; Helliwell and Huang 2006). Even though the six dimensions measure somewhat different aspects of governance, they are highly correlated as can be seen in Table 2 and, hence, we use factor analysis to reduce the number of variables to one (Governance) to be included as a country-level covariate in the regression analysis.

**Table 2.** Correlation between dimensions of governance

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
(1) Governance	1.00						
(2) CC	0.96	1.00					
(3) GE	0.97	0.94	1.00				
(4) PV	0.85	0.78	0.76	1.00			
(5) RQ	0.94	0.87	0.93	0.72	1.00		
(6) RL	0.98	0.95	0.96	0.79	0.92	1.00	
(7) VA	0.91	0.82	0.83	0.76	0.84	0.87	1.00

*Note:* Control of Corruption (CC); Government Effectiveness (GE); Political Stability and Absence of Violence (PV); Regulatory Quality (RQ); Rule of Law (RL); Voice and Accountability (VA).

### 3.1. *Dependent variable*

Following a common convention in the literature (Diener et al. 1985; Amorós and Bosma 2013), we employ a principal component (variable 1 in Table 1) of the responses to the five questions related to well-being as our dependent variable in the empirical section. Even though the individual components of the SWB variable are measured on a five-point Likert scale, we treat our summary measure of SWB as continuous in the empirical analysis. Having a continuous response variable will enable us to estimate the relationship between entrepreneurial status and well-being using linear models instead of an ordered logit model, which will greatly facilitate the interpretation of the results.<sup>4</sup> Online Resource 1 summarizes the average SWB variable for opportunity and necessity entrepreneurs in all 70 countries covered in the study.

### 3.2. *Control variables*

Consistent estimation of the relationship between opportunity and necessity motivated entrepreneurship and SWB requires us to control for several variables at both the individual and country level.

<sup>4</sup> This is common practice in the literature, see e.g. Hessels et al. (2017b) in their study of work related stress.

### *3.2.1. Individual level variables*

First, we include age and age squared as control variables to allow SWB to vary in a non-linear fashion with respect to age. This is important since previous studies have found evidence of a U-shaped relationship between age and SWB (Blanchflower and Oswald 2008). We also include a gender dummy to distinguish the average SWB of men and women. Studies have also found a positive relationship between education and SWB (see e.g. Block and Koellinger 2009)—a better educated individual is more informed and has more options in life, which in turn is likely to affect SWB. We employ five dummy variables to control for the level of education in the analysis—None; Some secondary; Secondary degree; Post-secondary and Graduate experience. The final control variable at the individual level is income. The relationship between income and subjective well-being has been the topic of many studies and the general pattern found is that higher income goes hand-in-hand with higher SWB (Deaton 2008; Sacks et al. 2010; Stevenson and Wolfers 2008, 2013). GEM only report income data at the household level, not at the individual level. We therefore control for income by implementing dummy variables indicating to which third of the income distribution a household belongs.

### *3.2.2. Country level variables*

SWB differs greatly across countries, as shown in Appendix 1. In addition to the governance variable described above, we also include regional dummies to control for location-specific factors that operate on a larger scale than nations. Looking at Figure 1, it is clear that individuals living in Africa on average experience a much lower degree of SWB as compared to the other regions, followed by Asia. Europe holds a middle position, while reported well-being is highest in North and South America.

**Fig. 1** Average subjective well-being distributed on geographical regions

Descriptive statistics for all variables along with a full correlation matrix are presented in Table 3 and in Appendix 2, respectively. On average, 18 percent of the individuals in our sample are entrepreneurs—5 percent out of necessity and the remaining 13 percent to exploit perceived business opportunities; around 58 percent are men and the average age is 39 years. The most common level of education is a secondary degree or post-secondary education, with approximately equal shares of the sample. Turning to the geographical distribution of the sample, 47 percent come from Europe, followed by 20 percent from South America and 18 percent from Asia. The lowest number of respondents come from Africa (11 percent) and North America (5 percent).

**Table 3.** Descriptive statistics for all variables used in the empirical analysis.

Variable	No. of obs.	Mean	Std. dev.	Min	Max
<i>Individual level</i>					
Subjective well-being	111,589	0.0051	1.0000	-2.671	1.657
TEA	111,589	0.1821	0.3859	0	1
TEA, opportunity	111,589	0.1330	0.3395	0	1
TEA, necessity	111,589	0.0491	0.2161	0	1
Gender (male: 1)	111,589	0.5804	0.4935	0	1
Age	111,589	39.26	11.53	18	64
<u>Education</u>					
None	111,589	0.1067	0.3088	0	1
Some secondary	111,589	0.1493	0.3563	0	1
Secondary degree	111,589	0.3484	0.4765	0	1
Post-secondary	111,589	0.3386	0.4732	0	1
Graduate experience	111,589	0.0570	0.2319	0	1
<u>Household income</u>					
Lower 33% tile	111,589	0.3029	0.4595	0	1
Middle 33% tile	111,589	0.3265	0.4689	0	1
Upper 33% tile	111,589	0.3706	0.4830	0	1
<i>Country level</i>					
Governance	111,589	-0.0017	0.9418	-2.276	1.722
<u>Region</u>					
Europe	111,589	0.4698	0.4991	0	1
Africa	111,589	0.1075	0.3097	0	1
Asia	111,589	0.1812	0.3852	0	1
North America	111,589	0.0465	0.2106	0	1
South America	111,589	0.1950	0.3962	0	1

### 3.3. Method

We model the relationship between SWB and entrepreneurial status (*TEA*) in a two-stage fashion with the level-1 model given by,

$$SWB_{ij} = \beta_{0j} + \beta_1 TEA_{ij} + \mathbf{X}'_{ij} \boldsymbol{\beta} + r_{ij}, \quad (1)$$

where subscript  $i$  and  $j$  denote individual and country, respectively, and vector  $\mathbf{X}$  contain individual-level control variables. The level-2 model gives the intercepts as determined by country-specific covariates contained in vector  $\mathbf{Z}$  and a random component  $u_{0j}$ :

$$\beta_{0j} = \gamma_{00} + \mathbf{Z}'_j \boldsymbol{\gamma} + u_{0j}. \quad (2)$$



The overall mean value of SWB is given by coefficient  $\gamma_{00}$ , while  $\mathbf{Z}'_j\boldsymbol{\gamma} + u_{0j}$  provides an estimate of the country-specific deviation from the overall mean, conditional on the covariates contained in vector  $\mathbf{Z}$  and the size of the random component  $u_{0j}$ . Inserting equation (2) in (1) provides us with the regression equation that forms the basis for our empirical investigation:

$$SWB_{ij} = \gamma_{00} + \beta_1 TEA_{ij} + \underbrace{\mathbf{X}'_{ij}\boldsymbol{\beta}}_{\text{Fixed}} + \underbrace{\mathbf{Z}'_j\boldsymbol{\gamma} + u_{0j}}_{\text{Random}} + r_{ij}. \quad (3)$$

SWB is, hence, determined by a fixed part, comprising all covariates at both the individual level and at the country level along with a random part comprising level-1 and level-2 disturbances.

#### 4. Empirical results

We start by presenting the result from a country-fixed effects regression in Table 4. This model is based on the assumption that the variance of the random country component in equation (3) is equal to zero, an assumption we will relax later on in this section. Several different regression specifications are estimated in order to compare the effects that the entrepreneurial variables have on SWB. Regression (1) shows how entrepreneurial status, regardless of type, is related to the dependent variable, while regression (2) and (3) highlights how the motive behind entrepreneurship affects the relationship with SWB. Specification (4) to (6) add our control variables and, finally, specification (7) includes both types of entrepreneurship simultaneously.

**Table 4.** Cross-sectional regressions with fixed country effects.

Dependent variable: Subjective well-being

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
TEA	0.0772** (2.28)			0.0557** (2.18)			
TEA, opportunity		0.152*** (4.17)			0.111*** (3.96)		0.105*** (3.60)
TEA, necessity			-0.134*** (-3.16)			-0.0969*** (-2.83)	-0.0776** (-2.13)
Age				-0.00844** (-2.24)	-0.00843** (-2.24)	-0.00841** (-2.24)	-0.00841** (-2.23)
Age squared				0.000112*** (2.79)	0.000113*** (2.81)	0.000110*** (2.77)	0.000112*** (2.79)
Gender (male: 1)				-0.0463*** (-3.61)	-0.0477*** (-3.73)	-0.0464*** (-3.71)	-0.0482*** (-3.81)
<u>Education, base None</u>							
Some second.				0.0240 (0.97)	0.0224 (0.90)	0.0239 (0.98)	0.0218 (0.89)
Second. degree				0.0633** (2.21)	0.0607** (2.12)	0.0625** (2.23)	0.0597** (2.10)
Post-second.				0.120*** (3.30)	0.116*** (3.18)	0.119*** (3.37)	0.114*** (3.18)
Grad exp.				0.223*** (4.57)	0.218*** (4.44)	0.221*** (4.64)	0.216*** (4.45)
<u>Income, base Low 33%</u>							
Inc., middle 33%				0.199*** (7.13)	0.197*** (7.13)	0.198*** (6.97)	0.196*** (7.04)
Inc., upper 33%				0.385*** (8.34)	0.381*** (8.35)	0.386*** (8.08)	0.380*** (8.27)
Constant	-0.00891 (-1.44)	-0.0151*** (-3.11)	0.0117*** (5.65)	-0.121 (-1.40)	-0.122 (-1.39)	-0.103 (-1.18)	-0.115 (-1.34)
No. of observations	111,589	111,589	111,589	111,589	111,589	111,589	111,589
No. of countries	70	70	70	70	70	70	70
F-test	5.2**	17.4***	10.0***	43.2***	40.4***	44.5***	40.8***
<u>R-squared</u>							
Within	0.001	0.003	0.001	0.035	0.036	0.035	0.037
Between	0.086	0.028	0.214	0.025	0.029	0.043	0.038
Overall	0.000	0.002	0.003	0.035	0.037	0.037	0.038

Note: *t* statistics based on robust standard errors in parentheses. \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ . The F-test shows the significance of the overall model.

Starting with specification (1), we find that those who become entrepreneurs on average report higher well-being than those who remain employed—an effect that is statistically significant at the 5-percent level. Separating between the motives behind entering an entrepreneurial career in specification (2) and (3), it is obvious that the reason for becoming an entrepreneur matter for SWB. While opportunity motivated entrepreneurs report significantly higher well-being than the rest of the sample, the opposite is true for those who enter entrepreneurship out of necessity. Including control variables (specification (4) to (6)) and estimating the two types of entrepreneurship simultaneously (specification (7)) does not alter

this conclusion. The relationship between entrepreneurial status and self-reported well-being remains stable and highly significant throughout the different specifications in Table 4. All in all, the table provides strong support for our hypotheses H1 and H2.

SWB is also shown to increase with education and income as expected. Highest well-being is found for individuals with graduate experience and those living in households belonging to the upper 33 percent income class. Males report lower well-being on average and, in accordance with Blanchflower and Oswald (2008), the estimates show a statistically significant U-shaped relationship between age and SWB.

Unfortunately, it is not possible to include variables that don't vary within countries in fixed effects panel regressions since all these variables are implicitly captured by the country-specific intercepts. Hence, we need to change the way we estimate the relationship between entrepreneurship and SWB if we want to include country level variables in the analysis. One way of doing this is to ignore the country-specific intercepts and use pooled OLS. As shown in Table 5, this does not change our conclusions regarding the relationship between entrepreneurial status and SWB. The estimated effects remain highly significant even though the magnitude changes somewhat. Governance has an expected positive and highly significant relationship with SWB, highlighting the role institutions have for promoting well-being. Finally, as hinted at in Figure 1, self-reported well-being is lowest in Africa and Asia and highest in countries located in North and South America.

**Table 5.** Pooled OLS regressions with country level variables.

Dependent variable: Subjective well-being

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
<i>Individual level</i>							
TEA	0.0700** (2.44)			0.0527** (2.27)			
TEA, opportunity		0.158*** (5.35)			0.123*** (5.21)		0.114*** (4.68)
TEA, necessity			-0.172*** (-3.97)			-0.137*** (-3.70)	-0.117*** (-3.04)
Age				-0.0119** (-2.27)	-0.0119** (-2.26)	-0.0119** (-2.28)	-0.0119** (-2.26)
Age squared				0.000152** (2.63)	0.000153** (2.64)	0.000150** (2.63)	0.000153** (2.63)
Gender (male: 1)				-0.0264 (-1.56)	-0.0284* (-1.69)	-0.0265 (-1.60)	-0.0290* (-1.75)
<u>Education, base None</u>							
Some second.				0.0620 (1.56)	0.0600 (1.52)	0.0593 (1.52)	0.0580 (1.49)
Second. degree				0.106** (2.22)	0.103** (2.17)	0.103** (2.19)	0.100** (2.14)
Post-second.				0.149** (2.65)	0.144** (2.56)	0.144** (2.61)	0.140** (2.53)
Grad exp.				0.210*** (3.44)	0.204*** (3.34)	0.206*** (3.43)	0.200*** (3.32)
<u>Income, base Low 33%</u>							
Inc., middle 33%				0.158*** (5.26)	0.157*** (5.23)	0.157*** (5.21)	0.156*** (5.20)
Inc., upper 33%				0.335*** (6.88)	0.332*** (6.85)	0.336*** (6.78)	0.331*** (6.81)
<i>Country level</i>							
Governance	0.123*** (3.60)	0.124*** (3.64)	0.118*** (3.40)	0.111*** (3.05)	0.111*** (3.08)	0.107*** (2.92)	0.109*** (3.02)
<u>Region, base Europe</u>							
Africa	-0.438*** (-3.47)	-0.446*** (-3.54)	-0.416*** (-3.31)	-0.384*** (-2.97)	-0.392*** (-3.03)	-0.369*** (-2.85)	-0.386*** (-3.01)
Asia	-0.0761 (-1.13)	-0.0793 (-1.19)	-0.0706 (-1.04)	-0.0661 (-0.89)	-0.0688 (-0.93)	-0.0618 (-0.82)	-0.0673 (-0.91)
North America	0.196*** (3.45)	0.192*** (3.39)	0.200*** (3.58)	0.161** (2.39)	0.158** (2.36)	0.164** (2.46)	0.159** (2.40)
South America	0.355*** (4.98)	0.347*** (4.89)	0.367*** (5.03)	0.377*** (5.28)	0.370*** (5.20)	0.385*** (5.31)	0.372*** (5.22)
Constant	-0.0324 (-0.95)	-0.0375 (-1.10)	-0.0170 (-0.49)	-0.0917 (-0.68)	-0.0919 (-0.67)	-0.0722 (-0.53)	-0.0814 (-0.60)
No. of observations	111,589	111,589	111,589	111,589	111,589	111,589	111,589
F-test	18.1***	22.6***	21.4***	39.2***	36.8***	33.5***	36.4***
R-squared	0.071	0.073	0.071	0.096	0.097	0.096	0.098

Note: *t* statistics based on standard errors clustered at the country-level in parentheses. \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ . The F-test shows the significance of the overall model.

Even though pooled OLS enables us to include country level variables in the analysis, it does not take into account the possibility of country-specific intercepts. In Table 6 we make full use of the hierarchical structure of data where individuals are nested within countries and estimate model (3) allowing for a strictly positive variance of the intercepts.

**Table 6.** Linear mixed effects regressions with random intercepts and country level variables.  
Dependent variable: Subjective well-being

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
<u>FIXED PART</u>							
<i>Individual level</i>							
TEA	0.0622** (2.34)			0.0404** (2.10)			
TEA, opportunity		0.140*** (4.77)			0.0984*** (4.44)		0.0909*** (4.03)
TEA, necessity			-0.153*** (-3.76)			-0.116*** (-3.51)	-0.0993*** (-2.92)
Age				-0.0128*** (-2.72)	-0.0128*** (-2.71)	-0.0127*** (-2.72)	-0.0127*** (-2.70)
Age squared				0.000162*** (3.15)	0.000163*** (3.16)	0.000159*** (3.14)	0.000162*** (3.14)
Gender (male: 1)				-0.0353** (-2.40)	-0.0369** (-2.53)	-0.0354** (-2.47)	-0.0374*** (-2.60)
<u>Education, base None</u>							
Some second.				0.0368 (1.28)	0.0353 (1.23)	0.0364 (1.30)	0.0347 (1.23)
Second. degree				0.0752** (2.50)	0.0728** (2.43)	0.0739** (2.55)	0.0714** (2.44)
Post-second.				0.137*** (3.94)	0.133*** (3.82)	0.135*** (4.03)	0.131*** (3.84)
Grad exp.				0.235*** (4.53)	0.230*** (4.41)	0.232*** (4.58)	0.227*** (4.41)
<u>Income, base Low 33%</u>							
Inc., middle 33%				0.189*** (7.60)	0.187*** (7.57)	0.188*** (7.50)	0.186*** (7.51)
Inc., upper 33%				0.367*** (8.87)	0.363*** (8.87)	0.367*** (8.66)	0.362*** (8.77)
<i>Country level</i>							
Governance	0.107** (2.18)	0.107** (2.19)	0.103** (2.09)	0.102** (2.02)	0.102** (2.03)	0.0991** (1.96)	0.100** (2.00)
<u>Region, base Europe</u>							
Africa	-0.428*** (-2.66)	-0.436*** (-2.72)	-0.407** (-2.55)	-0.354** (-2.16)	-0.361** (-2.22)	-0.340** (-2.10)	-0.355** (-2.19)
Asia	-0.0724 (-0.77)	-0.0749 (-0.80)	-0.0672 (-0.71)	-0.0479 (-0.48)	-0.0499 (-0.51)	-0.0444 (-0.45)	-0.0484 (-0.49)
North America	0.265*** (3.76)	0.260*** (3.72)	0.267*** (3.84)	0.246*** (2.86)	0.243*** (2.84)	0.247*** (2.91)	0.243*** (2.87)
South America	0.383*** (3.67)	0.376*** (3.62)	0.392*** (3.73)	0.418*** (3.87)	0.412*** (3.83)	0.424*** (3.90)	0.414*** (3.84)
Constant	-0.0577 (-0.97)	-0.0617 (-1.04)	-0.0451 (-0.76)	-0.117 (-0.94)	-0.117 (-0.93)	-0.106 (-0.86)	-0.110 (-0.89)
<u>RANDOM PART</u>							
Variance intercept	0.0803	0.0797	0.0799	0.0845	0.0840	0.0842	0.0836
Variance residual	0.8770	0.8754	0.8765	0.8489	0.8481	0.8486	0.8477
No. of observations	111,589	111,589	111,589	111,589	111,589	111,589	111,589
No. of countries	70	70	70	70	70	70	70
$\chi^2$ test	74.9***	91.8***	99.3***	532.2***	518.9***	512.0***	526.4***
Log likelihood	-151,086	-150,983	-151,053	-149,272	-149,218	-149,248	-149,189
LR test of $\psi=0$	***	***	***	***	***	***	***

Note:  $z$  statistics based on robust standard errors in parentheses. \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ . The LR test shows that the zero hypothesis of no variance in the intercept is rejected for all regression specifications. The  $\chi^2$  test shows the significance of the overall model.

The likelihood test shown at the bottom of the table rejects the null hypotheses of no variance in the intercepts throughout the different specifications, supporting the use of mixed effects regression technique.

We observe only minor changes in the results as compared to those accounted for in Table 4 and 5. In fact, the size and significance of the estimated coefficients for almost all covariates remain remarkably stable over the different estimation techniques and regression specifications. Entrepreneurship in general is positively related to SWB and when we separate between the motives behind entrepreneurship, we find that the positive effect is entirely driven by entrepreneurs who are being pulled into entrepreneurship by an observed business opportunity. Individuals who are pushed into entrepreneurship report lower SWB than those who hold a regular employment.

As a robustness test, Table 6 is reproduced in Appendix 3, using each component behind our measure of SWB separately as response variables. Again, our main result regarding entrepreneurship and SWB hold, even though the magnitude of the estimated coefficients differs somewhat for the different response variables.

#### *4.1. Discussion, limitations and suggestions for future research*

To our knowledge, this paper represents the first attempt among well-being studies to discriminate between necessity and opportunity entrepreneurship in a large cross-country sample. Further, and contrary to previous studies that have generally relied on inferring the necessity-opportunity distinction from previous labour market conditions, our data source—the Global Entrepreneurship Monitor—outright asks respondents whether they pursue their business to take advantage of opportunity or by necessity.

Previous studies (e.g. Binder and Coad 2013, 2016) have posed similar questions with within-country data that have a longitudinal dimension, which allows for more causal interpretations. One benefit of our (cross-sectional) analysis is that it incorporates a much wider

set of countries and institutional contexts. Our conclusion is that the general results from country-level studies on highly developed nations (Binder and Coad 2013, 2016) appear to apply also to a wider set of countries and contexts. That opportunity entrepreneurs are driving entrepreneurs' SWB scores does indeed appear to be a general observation across nations, and not necessarily a 'first world phenomenon'.

A main reason to extend this analysis to less developed countries, and to deprived regions within developed countries, is that the effects of similar policy measures can be much different in less developed places, since their share of necessity entrepreneurs are substantially higher. Appendix 1 reveals that the share of opportunity to necessity entrepreneurs varies between places, and particularly that more developed places tend to have relatively more opportunity entrepreneurs. See for instance the extreme case of Luxembourg, where virtually all entrepreneurs (96 percent) consider themselves opportunity-driven.

The results presented above are remarkably robust across specifications, but we emphasize that a plethora of unobserved factors render this question difficult to analyse causally in our empirical context. Most notably, our data lack a time dimension and cannot take account of individual fixed effects. To mention one possibility, personality could confine our results, e.g. since neuroticism is a significant negative predictor of entrepreneurial intention and success (Brandstätter 2011) while also being a strongly negative influence on SWB (González Gutiérrez et al. 2005), i.e. people high in neuroticism are likely to be underrepresented among entrepreneurs, which pushes the group average up through sorting. A main challenge for future research is to keep tackling this issue of selection into entrepreneurship, as well as into different groups of entrepreneurs. If selection is a main source of entrepreneurs' high SWB scores, some policy implications are less straightforward. Take the issue of personal traits. Imagine that there is a trait that is required to make a person happy as an entrepreneur, but perhaps not (to the same extent) as an employee. If people have some notion that they possess this trait, they may

actively look for opportunities. A policy that proportionately attracts new self-employed from all trait groups may only have the desired effect on one group. If powerful selection is at hand, good policy should take advantage of the selection mechanism. In this case, for instance, opportunities could be made easier to observe through suitable infrastructure. Also, if selection is important, then incentive schemes and other policies to push unemployed people into self-employment may not be an effective way of raising their happiness other than through income.

The convention of analysing changes over time is not an obvious solution in our empirical context, since we would need to observe exogenously caused switches between necessity and opportunity entrepreneurship. Our main contribution is to use a large and representative, high-quality sample to test the prediction that opportunity entrepreneurs drive the self-reported well-being of entrepreneurs across GEM countries. This exercise informs about the overall trends across nations, and supplies interesting results that other researchers may want to analyse in more confined settings. For instance, interactions between local institutions and types of entrepreneurship may seem like a reasonable path forward. What are the exact country-specific forces that mediate how necessity and opportunity entrepreneurship interacts with well-being? This question should be central, particularly when analysing developing nations. To this end, our results supply some interesting starting points, e.g. with continent effects, and positive effects of the quality of governance.

Binder and Coad (2013, 2016) represent excellent advances in the field by applying matching techniques to construct proper control groups. In light of our results, it seems particularly fruitful to extend such modelling techniques to less developed, as well as transition, nations.

The question remains, however, which groups are fully comparable. It is possible that ‘truly’ causal research designs will need to involve some experimental component. One example of such designs is the study of entrepreneurial activity following windfall monetary



gains, such as people winning the lottery (Lindh and Ohlsson 1996). An alternative to an externally caused relaxation of the individual's need for income could be constituted by an external shock that greatly expands (the observations of) suitable business opportunities, such as an expansion of local infrastructure, or improved technology.

## 5. Conclusion

In this paper, we have investigated the happiness, or SWB, of entrepreneurs, relative to the employed population. The paper represents an attempt to bring clarity into how the heterogeneity of entrepreneurship affects the relationship, by separately analysing opportunity (pulled) and necessity (pushed) entrepreneurs, as defined in the Global Entrepreneurship Monitor. We conclude that opportunity entrepreneurs drive the entire difference and that necessity entrepreneurs are in fact *less* satisfied than the general population. In conclusion, our empirical framework illustrates that this phenomenon, which has previously been observed within single highly developed countries (Binder and Coad 2013, 2016), indeed seems to be a general state. However, since developing nations have relatively fewer opportunity entrepreneurs, the implications differ. For instance, measures that proportionately increases entrepreneurship in all groups will have different impacts on aggregate well-being, depending on the local proportion of opportunity to necessity entrepreneurs.

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**Appendix 1. Average subjective well-being (SWB) and number of observations distributed on countries and type of occupation**

Country	All		No TEA		TEA		TEA, opportunity		TEA, necessity	
	SWB	Obs.	SWB	Obs.	SWB	Obs.	SWB	Obs.	SWB	Obs.
Algeria	-0.51	265	-0.55	200	-0.39	65	-0.40	53	-0.36	12
Angola	0.01	573	0.01	350	0.02	223	0.18	169	-0.49	54
Argentina	0.40	666	0.41	510	0.37	156	0.41	111	0.27	45
Barbados	0.05	908	0.05	712	0.02	196	0.05	169	-0.15	27
Belgium	0.18	1,067	0.19	1,012	0.09	55	0.20	36	-0.12	19
Bosnia and Herzegovina	-0.09	884	-0.14	733	0.11	151	0.35	71	-0.10	80
Botswana	-1.08	833	-1.13	552	-0.99	281	-0.94	204	-1.10	77
Brazil	0.15	6,095	0.18	4,667	0.06	1,428	0.22	975	-0.30	453
Canada	0.34	1,760	0.35	1,508	0.27	252	0.37	214	-0.26	38
Chile	0.56	3,649	0.55	2,578	0.59	1,071	0.69	865	0.16	206
China	-0.36	2,588	-0.37	2,094	-0.33	494	-0.29	328	-0.39	166
Colombia	0.13	2,463	0.08	1,735	0.25	728	0.30	598	-0.02	130
Croatia	-0.26	1,017	-0.29	903	0.01	114	0.18	75	-0.28	39
Czech Republic	-0.06	1,422	-0.07	1,297	0.02	125	0.03	101	-0.04	24
Ecuador	0.53	1,167	0.49	669	0.59	498	0.66	337	0.46	161
Estonia	-0.17	1,100	-0.22	955	0.13	145	0.16	125	-0.04	20
Finland	0.43	1,345	0.43	1,275	0.41	70	0.44	55	0.30	15
France	-0.08	776	-0.08	740	-0.06	36	0.12	29	-0.79	7
Germany	0.13	3,733	0.14	3,497	0.10	236	0.20	196	-0.38	40
Ghana	-0.68	1,277	-0.67	869	-0.70	408	-0.54	277	-1.01	131
Greece	-0.56	856	-0.58	775	-0.39	81	-0.33	60	-0.56	21
Guatemala	0.33	868	0.33	705	0.36	163	0.38	111	0.31	52
Hungary	-0.34	1,175	-0.35	1,041	-0.26	134	-0.03	90	-0.80	44
India	0.20	1,144	0.23	940	0.10	204	0.04	131	0.22	73
Indonesia	-0.09	3,408	-0.09	2,317	-0.09	1,091	-0.07	844	-0.14	247
Iran	-0.17	1,433	-0.19	1,027	-0.11	406	0.02	243	-0.32	163
Ireland	0.29	872	0.29	781	0.27	91	0.33	72	0.01	19
Israel	0.05	1,424	0.04	1,256	0.15	168	0.18	140	-0.02	28
Italy	0.09	766	0.09	728	0.08	38	0.35	29	-0.85	9
Jamaica	-0.40	523	-0.38	423	-0.46	100	-0.47	52	-0.44	48
Japan	-0.30	938	-0.30	888	-0.27	50	-0.22	37	-0.39	13
Korea, Rep.	-0.55	996	-0.55	886	-0.50	110	-0.32	70	-0.80	40
Latvia	-0.21	1,218	-0.24	1,041	-0.05	177	0.08	137	-0.48	40
Libya	-0.51	1,128	-0.54	941	-0.36	187	-0.33	172	-0.65	15
Lithuania	-0.09	1,317	-0.11	1,109	0.02	208	0.07	158	-0.13	50
Luxembourg	0.33	1,059	0.36	964	0.11	95	0.12	92	-0.07	3
Macedonia	-0.11	686	-0.14	608	0.07	78	0.24	32	-0.05	46
Malawi	-0.62	1,441	-0.62	976	-0.64	465	-0.50	259	-0.81	206
Malaysia	-0.02	1,226	-0.02	1,122	-0.05	104	0.07	93	-0.80	11
Mexico	0.27	1,013	0.27	848	0.26	165	0.28	147	0.10	18
Namibia	-0.39	966	-0.51	544	-0.22	422	-0.03	268	-0.56	154
Netherlands	0.31	1,875	0.29	1,677	0.45	198	0.47	180	0.19	18
Nigeria	-0.18	1,598	-0.17	822	-0.18	776	-0.18	585	-0.19	191
Norway	0.64	1,328	0.65	1,231	0.53	97	0.53	92	0.40	5

Panama	0.74	1,397	0.76	1,062	0.69	335	0.69	270	0.68	65
Peru	0.52	939	0.44	626	0.68	313	0.74	241	0.47	72
Philippines	-0.22	1,260	-0.28	851	-0.09	409	-0.01	235	-0.19	174
Poland	-0.22	1,167	-0.25	1,046	0.00	121	0.11	67	-0.12	54
Portugal	-0.05	882	-0.08	791	0.20	91	0.21	73	0.15	18
Puerto Rico	0.55	573	0.52	497	0.71	76	0.73	62	0.65	14
Romania	-0.09	1,090	-0.12	936	0.12	154	0.19	109	-0.04	45
Russian Federation	-0.87	990	-0.89	925	-0.65	65	-0.52	41	-0.86	24
Singapore	0.11	1,318	0.10	1,145	0.19	173	0.19	162	0.22	11
Slovakia	-0.20	1,208	-0.21	1,068	-0.08	140	0.14	83	-0.39	57
Slovenia	0.11	1,002	0.11	936	0.13	66	0.22	51	-0.21	15
South Africa	-0.26	1,273	-0.29	1,075	-0.13	198	-0.02	149	-0.39	49
Spain	0.09	8,354	0.09	7,801	0.04	553	0.12	415	-0.21	138
Suriname	0.10	623	0.07	567	0.36	56	0.50	48	-0.45	8
Sweden	0.27	1,287	0.27	1,177	0.25	110	0.31	102	-0.57	8
Switzerland	0.66	1,099	0.65	1,009	0.76	90	0.84	81	0.00	9
Taiwan	-0.21	1,388	-0.21	1,240	-0.14	148	-0.04	105	-0.41	43
Thailand	-0.07	1,637	-0.09	1,289	0.01	348	0.04	283	-0.10	65
Trinidad and Tobago	0.37	979	0.36	724	0.37	255	0.37	226	0.38	29
Turkey	-0.06	12,043	-0.11	9,713	0.13	2,330	0.25	1,540	-0.14	790
Uganda	-0.65	1,707	-0.66	1,115	-0.64	592	-0.79	432	-0.21	160
United Kingdom	0.30	810	0.30	746	0.19	64	0.27	55	-0.38	9
United States	0.23	2,417	0.26	2,077	0.06	340	0.18	277	-0.49	63
Uruguay	0.22	910	0.21	749	0.27	161	0.30	143	0.05	18
Vietnam	-0.33	1,459	-0.32	1,180	-0.35	279	-0.31	211	-0.48	68
Zambia	-1.37	931	-1.39	421	-1.34	510	-1.37	294	-1.31	216
Total	-	111,589	-	91,272	-	20,317	-	14,837	-	5,480

*Note:* The measure of subjective well-being is obtained by a factor analysis based on five questions related to well-being. A higher value indicates higher subjective well-being.

## Appendix 2. Correlation matrix

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
<i>Individual level</i>																				
(1) Subjective well-being	1.0000																			
(2) TEA	0.0024	1.0000																		
(3) TEA, opportunity	0.0388	0.8300	1.0000																	
(4) TEA, necessity	-0.0567	0.4817	-0.0890	1.0000																
(5) Gender (male: 1)	-0.0168	0.0183	0.0285	-0.0121	1.0000															
(6) Age	0.0343	-0.1094	-0.0980	-0.0415	-0.0057	1.0000														
<u>Education</u>																				
(7) None	-0.0904	0.0474	0.0059	0.0754	0.0011	0.0741	1.0000													
(8) Some secondary	-0.0614	0.0047	-0.0116	0.0267	0.0365	0.0041	-0.1448	1.0000												
(9) Secondary degree	0.0111	-0.0047	-0.0080	0.0043	0.0233	-0.0529	-0.2527	-0.3063	1.0000											
(10) Post-secondary	0.0668	-0.0212	0.0128	-0.0581	-0.0409	-0.0177	-0.2473	-0.2997	-0.5232	1.0000										
(11) Graduate experience	0.0557	-0.0174	0.0003	-0.0316	-0.0219	0.0398	-0.0850	-0.1030	-0.1798	-0.1760	1.0000									
<u>Household income</u>																				
(12) Lower 33% tile	-0.1494	-0.0059	-0.0370	0.0476	-0.0382	-0.0171	0.1864	0.1438	0.0226	-0.1998	-0.1077	1.0000								
(13) Middle 33% tile	-0.0107	-0.0315	-0.0272	-0.0135	-0.0107	-0.0045	-0.0532	-0.0081	0.0549	0.0012	-0.0320	-0.4589	1.0000							
(14) Upper 33% tile	0.1525	0.0362	0.0616	-0.0322	0.0467	0.0206	-0.1257	-0.1289	-0.0748	0.1889	0.1335	-0.5058	-0.5343	1.0000						
<i>Country level</i>																				
(15) Governance	0.1630	-0.1696	-0.1197	-0.1147	-0.0612	0.1680	-0.2208	-0.0738	0.0423	0.1022	0.1119	-0.0830	0.0423	0.0379	1.0000					
<u>Region</u>																				
(16) Europe	0.0250	-0.1690	-0.1440	-0.0755	0.0315	0.1305	-0.1786	-0.0389	0.0349	0.0640	0.0952	-0.0502	0.0256	0.0229	0.4179	1.0000				
(17) Africa	-0.1906	0.1457	0.1080	0.0905	-0.0277	-0.1278	0.2143	0.0893	-0.0811	-0.0886	-0.0751	0.0645	-0.0258	-0.0363	-0.3540	-0.3267	1.0000			
(18) Asia	-0.0736	0.0183	0.0133	0.0117	0.0053	-0.0280	-0.0206	-0.0178	-0.0018	0.0488	-0.0413	0.0041	0.0222	-0.0254	-0.2216	-0.4428	-0.1632	1.0000		
(19) North America	0.0589	-0.0207	-0.0065	-0.0268	-0.0131	0.0237	-0.0515	0.0070	-0.0608	0.0505	0.0798	-0.0452	0.0034	0.0397	0.1913	-0.2079	-0.0766	-0.1039	1.0000	
(20) South America	0.1578	0.0923	0.0876	0.0272	-0.0162	-0.0499	0.1049	-0.0072	0.0535	-0.0857	-0.0635	0.0329	-0.0355	0.0031	-0.1360	-0.4633	-0.1708	-0.2315	-0.1087	1.0000

**Appendix 3.** Linear mixed effects regressions with random intercepts and country level variables. Dependent variable: Components of subjective well-being separately

	(1)	(2)	(3)	(4)	(5)	(6)
<u>FIXED PART</u>						
<i>Individual level</i>						
TEA, opportunity	0.0909*** (4.03)	0.128*** (4.38)	0.0895*** (3.55)	0.0724*** (3.71)	0.0719*** (2.85)	0.0469** (2.55)
TEA, necessity	-0.0993*** (-2.92)	-0.0800** (-2.00)	-0.121*** (-3.23)	-0.0869** (-2.31)	-0.0848*** (-2.65)	-0.0827** (-2.18)
Age	-0.0127*** (-2.70)	-0.00731* (-1.86)	-0.0206*** (-3.06)	-0.0166*** (-3.99)	0.00581 (1.22)	-0.0212*** (-4.91)
Age squared	0.000162*** (3.14)	0.0000841* (1.95)	0.000233*** (3.27)	0.000197*** (4.58)	0.00000598 (0.11)	0.000239*** (4.35)
Gender (male: 1)	-0.0374*** (-2.60)	-0.0256* (-1.95)	0.00336 (0.26)	-0.0167 (-1.19)	-0.105** (-6.36)	-0.0378** (-2.01)
<u>Education, base None</u>						
Some second.	0.0347 (1.23)	0.0169 (0.46)	0.0428 (1.61)	0.0541** (2.04)	0.0799** (2.53)	-0.0612 (-1.47)
Second. degree	0.0714** (2.44)	0.0743** (2.09)	0.0760*** (2.64)	0.0805*** (2.88)	0.142*** (5.01)	-0.0865* (-1.66)
Post-second.	0.131*** (3.84)	0.142*** (3.89)	0.137*** (4.45)	0.0991*** (3.01)	0.226*** (7.44)	-0.0462 (-0.70)
Grad. Exp.	0.227*** (4.41)	0.249*** (5.01)	0.248*** (5.04)	0.155*** (3.57)	0.342*** (8.59)	-0.00113 (-0.01)
<u>Income, base Low 33%</u>						
Inc., middle 33%	0.186*** (7.51)	0.160*** (6.51)	0.204*** (7.80)	0.169*** (6.29)	0.196*** (7.03)	0.114*** (5.71)
Inc., upper 33%	0.362*** (8.77)	0.326*** (8.15)	0.438*** (8.97)	0.317*** (8.27)	0.344*** (8.18)	0.203*** (7.59)
<i>Country level</i>						
Governance	0.100** (2.00)	0.115** (2.17)	0.146*** (2.83)	0.0837* (1.67)	0.0846 (1.50)	0.00416 (0.10)
<u>Region, base Europe</u>						
Africa	-0.355** (-2.19)	0.0156 (0.09)	-0.0866 (-0.50)	-0.468** (-2.45)	-0.570*** (-3.07)	-0.652*** (-4.23)
Asia	-0.0484 (-0.49)	0.178 (1.55)	0.142 (1.25)	-0.218** (-2.28)	-0.162 (-1.63)	-0.222*** (-2.67)
North America	0.243*** (2.87)	0.340*** (2.85)	0.358*** (4.56)	0.115* (1.72)	0.148 (1.59)	0.127** (2.39)
South America	0.414*** (3.84)	0.545*** (5.05)	0.448*** (4.06)	0.280*** (2.93)	0.309** (2.47)	0.313*** (2.74)
Constant	-0.110 (-0.89)	3.113*** (27.39)	3.331*** (20.63)	3.872*** (34.64)	2.976*** (23.93)	3.529*** (28.98)
<u>RANDOM PART</u>						
Variance intercept	0.0836	0.1009	0.1101	0.0867	0.0951	0.0830
Variance residual	0.8477	1.2719	1.2394	1.1688	1.2976	1.8145
No. of observations	111,589	111,589	111,589	111,589	111,589	111,589
No. of countries	70	70	70	70	70	70
$\chi^2$ test	526.4***	491.8***	619.2***	270.6***	609.6***	208.5***
Log likelihood	-149,189	-171,807	-170,368	-167,088	-172,917	-191,597
LR test of $\psi=0$	***	***	***	***	***	***

Note: z statistics based on robust standard errors in parentheses. \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ . The LR test shows that the zero hypothesis of no variance in the intercept is rejected for all regression specifications. The  $\chi^2$  test shows the significance of the overall model. The dependent variables are the responses on a five-point Likert scale ranging from 1 “Strongly Disagree” to 5 “Strongly Agree”—WLIDL, “In most ways my life is close to my ideal”; WLEXL, “The conditions of my life are excellent”; WLSLF, “I am satisfied with my life”; WLIMP, “So far I have obtained the important things I want in life”; WLCHN, “If I could live my life again, I would not change anything”. Specification (1) corresponds to specification (7) in Table 6 and is reproduced here to facilitate the comparison.



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