

Independent by necessity? The 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. A review of the psychological literature on the determinants of well-being further supports the view that more dynamic and impactful entrepreneurship should lead to higher SWB. Analysis of Global Entrepreneurship Monitor data from 70 countries ($N = 111,589$) confirm this proposition. We show that entrepreneurs, all else equal, 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


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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. 2018).

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, b; Hessels et al. 2017). It seems that core ingredients of entrepreneurship—the ability to be one's own boss and strong internal locus of control—are fundamental in individuals' well-being. For instance, Hessels et al. (2017) 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 SWB of entrepreneurs is in part determined by their wider choice of available actions, compared to a person who is employed in a hierarchy (e.g. Benz and Frey 2008a). It follows from this empirical observation that entrepreneurs with a wider set of opportunities to choose from should exhibit higher SWB compared to entrepreneurs with more narrow choice sets, and that entrepreneurs with skills and resources to take full advantage of the market should rate their SWB particularly high. Hence, 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 realise opportunities, i.e. their preference for independence is likely heterogeneous.

Diener (1984) and Diener et al. (1999) suggest several categorizations of advances in psychologists’ theorising around SWB. Theories may be based on *goals* (SWB stems from setting, striving towards and reaching goals), *activity* (SWB results from performing desirable actions), *personality* (some have a temperament predisposed to happiness), or *discrepancy* (benchmarking against some standard produces SWB). An entrepreneur as a theoretical concept is a change agent that moves things forward, moulds and solves problems in a goal-oriented fashion. Such an agent has intriguing applications to these theoretical dimensions, but at the same time warrants qualification: all entrepreneurs certainly do not mould the world in their image.

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. But one of the most enduring findings in the entrepreneurship literature thus far is that ‘the entrepreneur’ is a heterogeneous agent (Davidsson 2014; Shane 2008). Knowledge of how this heterogeneity impacts SWB is still scant (e.g. Hessels et al. 2017; Shir 2015).

We argue that the procedural utility hypothesis and the considerable theoretical apparatus from psychology may be further elucidated by comparing the SWB of these two groups. This issue has been previously 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 standardised, 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, all else equal, 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 theorising 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 empirical contributions are first, to analyse the well-being of necessity and opportunity entrepreneurs using a large and harmonised cross-sectional individual dataset for 70 nations, which substantially expands the geographical scope of previous research, including to less developed countries. 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 distinguish necessity from opportunity entrepreneurs.

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-collared and low-skilled workers (e.g. Hessels et al. 2018). Our results do not contradict this proposition, but our study does caution that self-employment is a poor replacement for labour market opportunities as far as well-being is concerned. The net effect on a country’s SWB from a secular expansion in the share of self-employed depends on the country’s fraction of opportunity entrepreneurs, which in our sample ranges from a high of 96% in Luxemburg to a low of 41% in Macedonia.

2 Theoretical background and hypotheses

There are several relevant theoretical approaches for understanding entrepreneurs' SWB. Before we develop these connections below, we delve deeper into the SWB concept.

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

Well-being includes, but is broader than, 'happiness', which is generally treated as more short-term (Raibley 2012), as the affective element in a person's experiences. SWB is typically a global assessment of all aspects of a person's life (Diener 1984), and hence 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 carefully conducted surveys of SWB (Stutzer and Frey 2004). Reported SWB measures correlate with experiences of pride, joy and other pleasant affects (Shir 2015), and responses to questions of SWB tend to converge with other assessments of well-being, including experts' and family members' assessments (Diener et al. 2001). Different measures of well-being and happiness are hence highly correlated (Stutzer and Frey 2004), and even though distinct questions correspond to distinct conceptions, people do tend to answer similarly to the questions. 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).

The variables correlate between 0.4–0.8. Our principal component (1) is most intimately associated with

survey questions 3 and 4 that deal with the general life satisfaction conditions of the present situation.

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. (2018) and Binder and Coad (2013), we opt to focus on the 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.

2.2 The well-being of entrepreneurs

Entrepreneurs, when equated with the self-employed, exhibit higher SWB scores than non-entrepreneurs (Benz and Frey 2008a, b, Blanchflower 2000, Blanchflower and Oswald 1998). But *why* are entrepreneurs more likely to give affirmative answers to the type of questions posed in rows 2–6 of Table 1? Benz and Frey (2008a, p. 362) contend that: 'Individuals derive procedural utility from being self-employed because it gives them a higher measure of self-determination and freedom'. The exact theoretical mechanisms underlying this assumption are interesting to explore. What makes entrepreneurs value self-determination and freedom? Below, we proceed with an analysis based on the classes of theories from psychology outlined in the introduction.

Goal theories, sometimes referred to as telic theories, suggest that the setting, pursuit and fulfilment of goals, particularly when they are autonomously chosen, contribute to well-being (Diener et al. 1999). Diener and Fujita (1995) show that resources are more important for SWB when the resources are more relevant to a person's goals.

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

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. Variables (2) to (6) are measured on a five-point Likert scale; 1 strongly disagree to 5 strongly agree

That is, any goals are not good enough—rather, the goals must harmonise with a person's motives and needs (Diener et al. 1999). Particularly, it seems that goal-striving is important for *negative* affect, where people who are ambivalent to, or experience difficulties reaching, their goals report lower SWB (DeNeve and Cooper 1998). Entrepreneurship as an activity entails the mobilisation of resources to attain goals, which underlines the relevance of this category of theories. Effectuation theory (Sarasvathy 2001) of entrepreneurship holds that successful entrepreneurs take account of their skills and resources and adapt goals after that. As observed by Benz and Frey (2008a) and others that an entrepreneur acts on a market, rather than in a hierarchy, means that he or she is free to set suitable goals to begin with.

Activity-based theories posit that the carrying out of meaningful tasks boosts SWB. That happiness is a function of our actions and behaviours is an idea at least as old as Aristotle, who contended that 'the good is happiness, and that happiness consists in successful activity' (Russell 1945, p. 176). Diener (1984) here draws on Csikszentmihalyi's (1975) theory of *flow*, one component of which is the autotelic nature of an action. Meaningfulness and an intense feeling of personal control result from the matching of skills to challenges. If the task is too easy, boredom ensues; if it is too difficult, it produces anxiety. Entrepreneurship matches well with this bundle of theories, as successful entrepreneurs apply broad skill sets to complex problems; e.g. Lazear (2004) argues that successful entrepreneurs are multi-skilled *jacks of all trades*.

Personality theories result from the observation that personality is a powerful predictor of SWB. Extraversion, optimism and self-esteem are positively related to happiness, and neurotic personality types are less happy (Diener et al. 1999). In a meta-analysis, DeNeve and Cooper (1998) report that, while demographics are largely unproductive of SWB, personality is important. Whether the personality types that are more prone to happiness are created by nature or nurture, this category of theories may elucidate the process of selection into entrepreneurship, as well as propensity to stay in entrepreneurship. Personality types that exhibit high SWB may be more prone to start their own firm, e.g. since optimism influences both SWB and the extent to which a person is willing to assume risk. Further, neurotic personalities are both less happy (Diener et al. 1999) and less likely to be entrepreneurs (Zhao and Seibert 2006).

Discrepancy theories hold that people compare themselves to standards or benchmarks, which may be constituted by other people, previous states or aspirations (Diener et al. 1999). Inconsistencies between present conditions and the benchmark contribute to well-being. An open issue here is to whom you compare yourself as an entrepreneur (Shir 2015). To yourself in the past? To your peer group today? To celebrities? Consistent with these theories, entrepreneurship has a noted tendency to diffuse via social interaction, e.g. via role models (Bosma et al. 2012), local culture (Fritsch and Wyrwich 2014), neighbourhood effects (Andersson and Larsson 2016) and social capital (Westlund et al. 2014). Several observations in this growing literature support entrepreneurs as a group that is acutely aware of their social surroundings, whether in their local communities or on a national or global scale.

Following several previous studies and as predicted through study of the abovementioned theories, our first hypothesis is simply:

H1: Entrepreneurs report higher SWB than non-entrepreneurs.

But this hypothesis leaves an elephant in the room. The theories presume powerful agency to the entrepreneur, and our framework thus far conceptualises *the entrepreneur* as somewhat monolithic. Many entrepreneurs, however, are 'forced' into their occupation choice, i.e. some are made independent by necessity. Who is most likely to experience flow, fulfil goals and favourably compare themselves to others? 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 deconstruction of this 'black box' to further untangle specific forces that drive SWB among the self-employed (e.g. Hessels et al. 2017).

When analysing the self-employed as one group, we may be neglecting what people in general mean by entrepreneurship: a disruptive and innovative force that produces new equilibria. Arguably, the group of opportunity entrepreneurs come much closer to this theoretical ideal. Entrepreneurship in this Schumpeterian sense is at best imperfectly captured and may even be inversely correlated with self-employment in a cross-country setting (cf. Henrekson and Sanandaji 2014).

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

In principle, the issue of SWB and the opportunity-necessity divide may not appear straightforward. It may 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 on the labour market. Several predictions derived from the theoretical apparatus outlined above do however maintain that opportunity entrepreneurs should exhibit higher SWB than necessity entrepreneurs.

Goal theories predict that autonomously set goals that are in line with a person's inner strivings contribute to SWB. The goals of opportunity entrepreneurs, by definition, go beyond mere necessity, and encompass values more meaningful to the individual. Further, as resources and other conditions put fewer constraints on opportunity entrepreneurs, they are simply more likely to set their goals autonomously.

Activity theories advocate that people ought to have the 'right' match between their skills and their activity. Activity theories, even from their inception (Aristotle ranked 'contemplative' over practical activity, see Russell 1945) seem to have advocated some hierarchy to activities and that activities perceived of as more meaningful, and indeed more impactful, would imply more significant welfare gains.

A further argument derived from personality theories is based on 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).

Discrepancy theories, finally, predict that entrepreneurs gain SWB by comparing themselves to different standards. Whether it is status of others, or one's own progression, impactful entrepreneurship seems more likely to bring about gainful comparisons.

Our second hypothesis is hence:

H2: Entrepreneurs who take advantage of opportunities report higher SWB than entrepreneurs who are self-employed by necessity.

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). We extend this test to 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 contain 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 realise an excellent opportunity for entrepreneurship.

3 Data, variables and model

We estimate the relationship between entrepreneurial status and SWB using data from two sources. First, all individual-level data are gathered from the GEM survey conducted in 2013. This dataset contains almost 245,000 respondents from 70 countries, representing approximately 75% of the world population and 90% of world GDP. We have trimmed this dataset somewhat to be able to perform a cleaner analysis. 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% 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 in 70 countries.

The second data source is The Worldwide Governance Indicators (WGI), provided by the World Bank. 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). Institutions are a known source of procedural utility (Benz and Frey 2008a), and may affect both SWB, entrepreneurship in general, as well as the share of opportunity to necessity entrepreneurs. Better governance may for instance support individual autonomy and self-realisation. 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, 2002; 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.

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.¹ Table A1 in the Online Appendix summarises the average SWB variable for opportunity and necessity entrepreneurs in all 70 countries covered in the study.

3.2 Independent variables

The independent variable we use for testing our hypotheses is entrepreneurship (TEA), which GEM defines as an individual who manages and owns a firm younger than 42 months. Individuals who give an affirmative answer to this question are asked a follow-up question regarding the motive behind starting the new firm: ‘Are you involved in this start-up to take advantage of a business opportunity or because you have no better choices for work?’ The first option defines our opportunity-motivated entrepreneur and the second our necessity-motivated entrepreneur.

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. In addition, we make a crude attempt to control for work time by including a part-time dummy (part-time), which assumes the value one if the individual only works part-time and zero otherwise. Ideally, we would like to include number of hours worked instead of a part-time dummy, but such a variable is unfortunately not available in the GEM-dataset. How much you work may affect SWB in several ways. First, it directly affects the time available for spare time, suggesting a positive impact of our part-time dummy on SWB. On the other hand, it is also conceivable that the relationship may go the other way if you are forced into only working part-time. Hence, it remains an empirical question to determine which effect that dominates and we have therefore no prior expectations about the sign of this variable.

¹ This is common practice in the literature, see e.g. Hessels et al. (2017) in their study of work-related stress.

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

CC Control of Corruption, GE Government Effectiveness, PV Political Stability and Absence of Violence, RQ Regulatory Quality, RL Rule of Law, VA Voice and Accountability

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 reports income data at the household level and we 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 Table A1 in the Online Appendix. 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 Fig. 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.

Descriptive statistics for all variables along with a full correlation matrix are presented in Table 3 and in Table A2 in the Online Appendix, respectively. On average, 18% of the individuals in our sample are

entrepreneurs—5% out of necessity and the remaining 13% to exploit perceived business opportunities; around 58% 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% come from Europe, followed by 20% from South America and 18% from Asia. The lowest number of respondents come from Africa (11%) and North America (5%).

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,

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

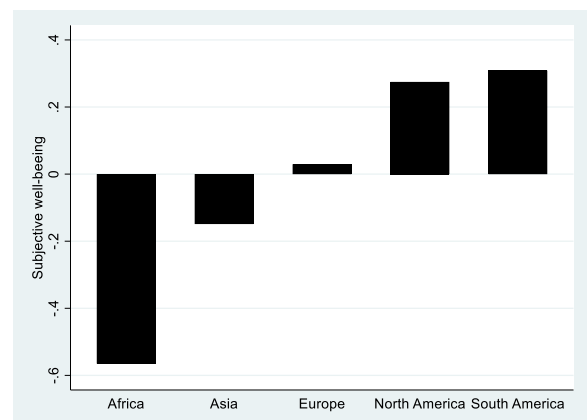


Fig. 1 Average subjective well-being distributed on geographical regions

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
Part-time (part-time: 1)	111,589	0.1162	0.3204	0	1
Age	111,589	39.26	11.53	18	64
Education					
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
Household income					
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
Region					
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

where subscript i and j denote individual and country, respectively, and vector \mathbf{X} contains 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 γ_{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 eq. (2) in (1) provides us with the regression equation that forms the basis for our empirical investigation:

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

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.

Data availability statement All datasets and computer code used in the current study are available from the corresponding author on reasonable request. Raw data has been downloaded from two public sources:

- Global Entrepreneurship Monitor, <http://www.gemconsortium.org/data/sets#baps>
- World Bank, <http://info.worldbank.org/governance/wgi/#home>

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 eq. (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 regressions (2) and (3) highlights how the motive behind entrepreneurship affects the relationship with SWB. Specifications (4) to (6) add our control

Table 4 Cross-sectional regressions with fixed country effects. Dependent variable: subjective well-being

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
<i>Individual level</i>							
TEA	0.0772** (2.28)			0.0483* (1.81)			
TEA, opportunity		0.152*** (4.17)			0.104*** (3.63)		0.0976*** (3.23)
TEA, necessity			-0.134*** (-3.16)			-0.105*** (-2.99)	-0.0862** (-2.30)
Age				-0.00994*** (-2.68)	-0.00989*** (-2.65)	-0.0101*** (-2.70)	-0.00993*** (-2.67)
Age squared				0.000128*** (3.21)	0.000129*** (3.22)	0.000128*** (3.23)	0.000129*** (3.22)
Gender (male: 1)				-0.0534*** (-3.96)	-0.0547*** (-4.05)	-0.0544*** (-4.12)	-0.0555*** (-4.16)
Part-time (part-time: 1)				-0.0936*** (-4.90)	-0.0910*** (-4.80)	-0.103*** (-5.50)	-0.0947*** (-4.94)
Education, base none							
Some second.				0.0247 (0.99)	0.0230 (0.93)	0.0244 (1.00)	0.0224 (0.91)
Second degree				0.0641** (2.24)	0.0616** (2.15)	0.0631** (2.26)	0.0605** (2.13)
Post-second.				0.120*** (3.30)	0.116*** (3.17)	0.118*** (3.36)	0.114*** (3.17)
Graduate exp.				0.221*** (4.57)	0.216*** (4.43)	0.218*** (4.64)	0.213*** (4.45)
Income, base low 33%							
Inc., middle 33%				0.195*** (6.87)	0.193*** (6.88)	0.193*** (6.69)	0.192*** (6.78)
Inc., upper 33%				0.379*** (8.08)	0.375*** (8.11)	0.378*** (7.81)	0.374*** (8.00)
Constant	-0.00891 (-1.44)	-0.0151*** (-3.11)	0.0117*** (5.65)	-0.0694 (-0.82)	-0.0725 (-0.83)	-0.0470 (-0.54)	-0.0628 (-0.74)
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***	41.4***	39.6***	43.2***	39.6***
R-squared							
Within	0.0009	0.0029	0.0009	0.0362	0.0372	0.0364	0.0376
Between	0.0861	0.0281	0.214	0.0180	0.0202	0.0334	0.0287
Overall	0.0000	0.0015	0.0032	0.0351	0.0363	0.0369	0.0375

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

variables and, finally, specification (7) includes both types of entrepreneurship simultaneously.

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% level. Separating between the motives behind entering an entrepreneurial career in specifications (2) and (3), it is obvious that the reason for becoming an entrepreneur matters 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 (specifications (4) to (6)) and estimating the two types of entrepreneurship simultaneously (specification (7)) does not alter this conclusion. Overall, the relationship between entrepreneurial status and self-reported well-being remains stable and highly significant throughout the different specifications in Table 4 and 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% 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. Finally, working only part-time is negatively related to reported SWB as indicated by the negative and statistically significant coefficient for the part-time dummy.

It is not possible to include variables that do not 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. We do this by making 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. The results from this analysis are shown in Table 5.

We observe only minor changes in the results as compared to those accounted for in Table 4. 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. Finally, we note that 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.

As a robustness test, Table 5 is reproduced in Table A3 in the Online Appendix, using each component behind our measure of SWB separately as response variables. Again, our main result regarding entrepreneurship and SWB holds, 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—asks respondents outright 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 analysis informs that opportunity entrepreneurs' high SWB scores do 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. Table A1 in the Online Appendix reveals that the share of opportunity to necessity entrepreneurs is highly variable between places, and particularly that

Table 5 Linear mixed effects regressions with random intercepts and country level variables. Dependent variable: subjective well-being

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Fixed Part							
<i>Individual level</i>							
TEA	0.0622** (2.34)			0.0319 (1.57)			
TEA, opportunity		0.140*** (4.77)			0.0914*** (3.95)		0.0828*** (3.50)
TEA, necessity			-0.153*** (-3.76)			-0.125*** (-3.76)	-0.109*** (-3.19)
Age				-0.0146*** (-3.18)	-0.0146*** (-3.15)	-0.0146*** (-3.19)	-0.0146*** (-3.16)
Age squared				0.000182*** (3.60)	0.000183*** (3.60)	0.000181*** (3.62)	0.000182*** (3.60)
Gender (male: 1)				-0.0435*** (-2.86)	-0.0449*** (-2.97)	-0.0444*** (-2.98)	-0.0458*** (-3.07)
Part-time (part-time: 1)				-0.113*** (-5.42)	-0.110*** (-5.29)	-0.121*** (-5.86)	-0.114*** (-5.46)
Education, base none							
Some second.				0.0378 (1.30)	0.0364 (1.26)	0.0373 (1.32)	0.0357 (1.26)
Second degree				0.0761** (2.52)	0.0738** (2.45)	0.0747** (2.57)	0.0723** (2.46)
Post-second.				0.136*** (3.92)	0.133*** (3.80)	0.134*** (4.00)	0.130*** (3.82)
Graduate exp.				0.232*** (4.53)	0.227*** (4.42)	0.229*** (4.59)	0.224*** (4.42)
Income, base low 33%							
Inc., middle 33%				0.184*** (7.32)	0.183*** (7.31)	0.182*** (7.20)	0.182*** (7.23)
Inc., upper 33%				0.360*** (8.56)	0.356*** (8.58)	0.358*** (8.33)	0.355*** (8.46)
<i>Country level</i>							
Governance	0.107** (2.18)	0.107** (2.19)	0.103** (2.09)	0.104** (2.05)	0.104** (2.06)	0.101** (2.00)	0.102** (2.03)
Region, base Europe							
Africa	-0.428*** (-2.66)	-0.436*** (-2.72)	-0.407** (-2.55)	-0.350** (-2.15)	-0.358** (-2.20)	-0.338** (-2.09)	-0.352** (-2.17)
Asia	-0.0724 (-0.77)	-0.0749 (-0.80)	-0.0672 (-0.71)	-0.0473 (-0.48)	-0.0495 (-0.50)	-0.0442 (-0.45)	-0.0479 (-0.49)
North America	0.265*** (3.76)	0.260*** (3.72)	0.267*** (3.84)	0.249*** (2.85)	0.245*** (2.83)	0.249*** (2.90)	0.245*** (2.86)
South America	0.383*** (3.67)	0.376*** (3.62)	0.392*** (3.73)	0.423*** (3.88)	0.417*** (3.84)	0.428*** (3.91)	0.419*** (3.85)
Constant	-0.0577 (-0.97)	-0.0617 (-1.04)	-0.0451 (-0.76)	-0.0562 (-0.47)	-0.0578 (-0.47)	-0.0410 (-0.34)	-0.0482 (-0.40)
Random Part							
Variance intercept	0.0803	0.0797	0.0799	0.0851	0.0846	0.0848	0.0842
Variance residual	0.877	0.875	0.877	0.848	0.847	0.847	0.846
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
χ^2 test	74.9***	91.8***	99.3***	552***	544***	541***	545***
Log likelihood	-151,086	-150,983	-151,053	-149,193	-149,143	-149,156	-149,108
LR test of $\psi = 0$	***	***	***	***	***	***	***

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 χ^2 test shows the significance of the overall model

more developed places tend to have relatively more opportunity entrepreneurs. See for instance the extreme case of Luxembourg, where virtually all entrepreneurs (96%) consider themselves opportunity-driven.

A plethora of unobserved factors render this question difficult to analyse causally in our empirical context. Our data lack a time dimension and cannot take account of individual fixed effects. To mention one possibility, people of different personality are likely to sort themselves non-randomly across our groups. For instance, 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).

A main challenge for future research is to keep tackling the issues of selection into entrepreneurship, into distinct groups of entrepreneurs, and interactions and contingencies within those groups. If selection, interactions and contingencies are a main source of entrepreneurs' high SWB scores, several issues arise. Take again the issue of personality and 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. If successful as entrepreneurs, they may derive further SWB from fulfilling goals, experiencing flow, and drawing gainful comparisons. There are several implications to such a complicated selection process. First, it will often be ambiguous to say whether high SWB is *caused* by entrepreneurship or by sorting. Second, the time that it would take for effects to materialise depends on the underlying mechanism that created them, and most probably there should be both a direct effect of transitioning to entrepreneurship, as well as future growth in SWB if the entrepreneurship is successful, impactful and perceived of as meaningful. To empirically discriminate between theoretical mechanisms puts high demands on the data and probably involves qualitative methods or several rounds of plausibly exogenous variation. Third, a policy or other exogenous shock 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, disproportionately affecting opportunity entrepreneurs. Also, if selection is important, then

incentive schemes and other policies to push unemployed people into self-employment may not be a more effective way of increasing SWB than stimulating the labour market.

The convention of analysing changes over time is not an obvious solution to all these problems, since we would need to observe exogenously caused switches between necessity and opportunity entrepreneurship, as well as in and out of entrepreneurship, even notwithstanding the ambiguous timing of any effects.

Our empirical 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 and contingencies between local institutions and types of entrepreneurship seem like a reasonable path forward. What are the country-specific forces that affect how necessity and opportunity entrepreneurship interacts with well-being? Our results supply some interesting starting points, e.g. with interesting 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, on 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. Finally, qualitative studies would seem like an ideal candidate for teasing out exact micro foundations.

5 Conclusion

In this paper, we have investigated the subjective well-being (SWB) of entrepreneurs, relative to the employed population and the SWB of opportunity entrepreneurs relative to necessity entrepreneurs. Previous literature

identifies higher procedural utility as a likely source of entrepreneurs' high SWB scores. We expand on these predictions by extracting causes of SWB from the psychology literature, namely that SWB may increase because of the setting and fulfilment of *goals*, of *personality*, of meaningful *activity*, or of comparisons of *discrepancies*. We argue that mechanisms identified in previous literature should be disproportionately relevant for entrepreneurs acting on opportunities. We analyse 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 increase 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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