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Entrepreneurial success and subjective well-being: Worries about the business explain one's well-being loss from self-employment

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Abstract

Despite lower incomes the self-employed often report higher job satisfaction. But this increased job satisfaction only sometimes translates into higher life satisfaction, likely due to the heterogeneous nature of self-employment. By distinguishing different types of self-employment, this paper sheds light onto why some self-employeds even report lower life satisfaction, focussing specifically on poor performance enterprises, a prevalent but disregarded type of entrepreneurship. Using German panel data (1984-2015), I find that self-employment (compared to employment) typically negatively impacts on life satisfaction, especially so if one enters self-employment from unemployment, earns low incomes from self-employment or has no employees. Worries about one's financial situation and job security appear to be the driving forces behind this negative effect. Only very few self-employeds report higher life satisfaction, a boost that seems to relate to the pursuit of entrepreneurial opportunities. In sum, looking at the average self-employed obscures the heterogeneity of well-being impacts resulting from different types of self-employment one might find themselves in, and being on the lower end of the success distribution carries a well-being cost instead of bringing joy.

Key words: subjective well-being, self-employment, entrepreneurial success, SOEP, life satisfaction

JEL-classification: I31, L26, J28

1. Introduction

When thinking of entrepreneurship, we tend to think of superstar entrepreneurs like Steve Jobs or Oprah Winfrey and the multibillion dollar enterprises they have built. Add to this the idea of being your own boss and of creating innovations that deeply transform society and it is no surprise that individuals dream of becoming self-employed (Blanchflower, 2004) and that governments try to foster an entrepreneurial society (Storey, 1994; European Commission, 2013). But the reality of self-employment can be much more mundane, if not bleak: On an individual level, the self-employed report longer working hours (Hyytinen and Ruuskanen, 2007), more dissatisfaction about job insecurity (Millán et al., 2013) and lower incomes (Hamilton, 2000) than their employed counterparts. On an aggregate level, most (small) business ventures quite quickly fail instead of becoming big enterprises (Coad, 2009; Nightingale and Coad, 2013).[1]

As opposed to "hero entrepreneurs" (Davidsson and Wiklund, 2001), it is on the well-being of the poor performance entrepreneurs that the present paper focuses. While there is robust evidence that being self-employed positively impacts on one's satisfaction with work (e.g., Blanchflower, 2004; Benz and Frey, 2008a; Clark et al., 2008), the evidence for an impact on a broader measure of satisfaction with life is considerably more mixed (Dolan et al., 2008, p. 101) and few articles find a consistently positive impact of self-employment on overall life satisfaction (Andersson, 2008; Binder and Coad, 2013, 2016). The working hypothesis of this article is that this is due to most entrepreneurial ventures being of the poor performance type, offering -perhaps- a satisfying job but coming with a lot of counterbalancing drawbacks that make an overall positive effect on life satisfaction unlikely.

The paper contributes to the literature by exploring the effects of self-employment on life satisfaction in Germany, focussing on over 30 years of panel data (1984-2015) and un-

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[1]There is also doubt about whether one can learn to be a good entrepreneur and whether entrepreneurs learn from their failures (Frankish et al., 2013). Even if so, an entrepreneur's characteristics seem to have only limited influence on business success (Coad et al., 2013).

packing self-employment into different types. Since any job (self- or regular employment) can be thought of as a collection of different monetary and non-monetary job characteristics (Hackman and Oldham, 1976) that are likely to influence well-being in various ways, such an unpacking will further our understanding about what it is about self-employment that might make individuals happy or not. In order to operationalize the idea of the poor performance enterprise, I distinguish between opportunity-based and necessity-based self-employment, as well as whether one's entrepreneurial venture has employees or constitutes solo self-employment. Apart from these distinctions, returns from self-employment as well as working hours are taken into account. Moreover, I analyze the role that "worries" (concerns) about one's financial situation and job security play in mediating the impact of self-employment on subjective well-being. These worries are usually seen as relating to anxiety (Boehnke et al., 1998; Schwartz et al., 2000) but can also be seen as reflections of individuals' lack of "psychological capital" (Baron et al., 2016). By focussing on worries, I take into account that not only the objective situation impacts on well-being, but rather the subjective framing and evaluation that individuals give to this situation (see relatedly Binder and Blankenberg, 2016, 2017, on the big role of environmental concerns for well-being).

The paper is structured as follows: Section 2 provides a short literature background on what we know about self-employment and subjective well-being. I then proceed with the empirical analysis in Section 3, giving a description of the data set and variables used (Section 3.1), providing a descriptive analysis (Section 3.2) and then presenting the multivariate regression analysis (Section 3.3). The final part of the analysis provides a number of robustness tests (Section 4). Section 5 concludes.

2. Literature background

Self-employment in Europe comprises a non-negligible amount of individuals, with around 10% of the working populace being self-employed (own account) and an additional ca. 4% being self-employed with employees (Eurostat, 2015), but numbers vary a lot between countries

(solo self-employment in Greece is around 25% for instance).[2] For Germany, self-employment percentages are lower (10%, measured relative to all employed) with a more even relation between solo self-employment and having employees. These numbers differ somewhat between data sources and measurement methodology: Distinguishing opportunity and necessity self-employment not via number of employees but specifically asking for one's motivation to start a business, the Global Entrepreneurship Report 2014 on Germany notes that 76% of all entrepreneurs are opportunity entrepreneurs (Sternberg et al., 2014, p. 14), but other studies find rates as low as 55% (see Block and Sandner, 2009, p. 131). Overall, Germany's rate of opportunity- over necessity-entrepreneurship is considered at the lower end of the distribution for innovation-based countries (Sternberg et al., 2014, p. 14).

Policy-makers favor self-employment because of its many (alleged) benefits, such as its innovative potential, its impact on economic growth and on job creation (on the latter see, e.g., de Wit and de Kok, 2014). Quite recently, the well-being gains for the self-employed have also been added to the list of "success" or "performance indicators" of self-employment (e.g. Baron et al., 2016, p. 746). None of these effects are, however, uniformly true of the average firm (e.g., Nightingale and Coad, 2013) but rather pertain to specific types of firms and types of entrepreneurship or self-employment. While some small high-growth firms, "gazelles", are an important driver for employment growth (Henrekson and Johansson, 2010), there are other (maybe most!) entrepreneurial ventures that do not have significant impact in terms of job creation or innovativeness (Acs et al., 2016) but rather increase churn. Most small and young enterprises do not survive in the market for long, as survival seems primarily a game of chance (Coad et al., 2013; Nightingale and Coad, 2013, p. 131). For these, Nightingale and Coad (2013) have coined the notion of the "economically marginal, undersized, poor-performance enterprise" (p. 130), or "muppet" for short, but to which I will in the following refer to as the lower end of the entrepreneurial success distribution or "poor performance

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[2]The literature often uses the terms of entrepreneurship and self-employment interchangeably (Carter, 2011) but I will stick here mostly to the term self-employment and include own account workers and freelancers into this.

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enterprises".

The heterogeneity of firms also extends to the level of the business owner: Most of the self-employed earn less money than their employed comparable counterparts (Hamilton, 2000; Acs et al., 2016, Sec. 4), but some few massively out-earn their peers. Fringe benefits are lower (Storey, 1994, Ch. 6) and variability of earnings is higher (Praag and Versloot, 2007). Some self-employeds report low levels of stress (Stephan and Roesler, 2010; Baron et al., 2016; Hessels et al., 2017), maybe due to high job control, but others report high levels of stress and conflict between work and private life (Andersson, 2008; Schieman et al., 2006; Parasuraman and Simmers, 2001). The full-time self-employed also report longer working hours than their employed peers (Ajayi-Obe and Parker, 2005; Hyytinen and Ruuskanen, 2007), but a sizable portion of self-employment is of part-time or precarious nature and hence working hours are less compared to full-time employed (see data below). While job security seems to be higher for the self-employed (Hundley, 2001), they are more dissatisfied with their (perceived) amount of job security (Millán et al., 2013). Yet despite all of this, large numbers of individuals find becoming their own bosses highly attractive (Blanchflower, 2004) and policy initiatives to foster entrepreneurship (more likely focussed on gazelles than poor performance enterprises) abound (e.g., European Commission, 2013).[3]

The only common factor that most self-employeds seem to rather robustly share is their higher level of job satisfaction compared to their employed counterparts (but even here, this seems to be inapplicable to some types of self-employment, see below). Multiple studies report "rather robust finding[s] across the nations on which data are available" that self-employment is related to higher overall *job satisfaction* (Blanchflower, 2004, p. 52): This is found for the US (Blanchflower and Oswald, 1998; Kawaguchi, 2008; Bradley and Roberts, 2004), and other OECD countries (Blanchflower, 2000; Blanchflower et al., 2001; Clark et al., 2008; Fuchs-Schündeln, 2009; Hytti et al., 2013). While this effect seems well-corroborated, recent

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[3]One could question why one should actually implement pro-entrepreneurial policies at all, if most self-employed ventures do not innovate, create jobs nor generate much income/growth (Acs et al., 2016).

analyses suggest, however, the effect might not be of permanent nature and decrease over time as individuals adapt to their new mode of work (Georgellis and Yusuf, 2016; Hanglberger and Merz, 2015).

As soon as we extend our focus from job satisfaction to the more global life satisfaction measure, evidence is much more mixed (Dolan et al., 2008, p. 101).[4] Few studies find a positive relationship, for example, Blanchflower and Oswald (1998) report for cross-sectional data from the US that young self-employed are happier, and in a similar vein, Craig et al. (2007) provide some evidence for this relationship from Australian small businesses. Alesina et al. (2004) find positive associations between self-employment for the US (1981-1996) and for Europe (1975-1992), but in subgroup analyses these effects pertain to rich individuals and those of right-wing (US) or left-wing (Europe) political persuasion only; Schjoedt and Shaver (2007) find no evidence for high life satisfaction of nascent entrepreneurs in their US sample, however. Looking at European countries, Blanchflower (2004) fails to find overly strong effects of self-employment on life satisfaction (self-employment is significantly related to life satisfaction only for subgroups, and strongly depending on the data set used). For the German SOEP data set, Binder and Coad (2016) find a negative coefficient for the full sample and a positive impact only for opportunity self-employeds. Hetschko (2016) further finds that losing self-employment has a more negative impact on life satisfaction than losing one's normal job and any positive effect of self-employment on life satisfaction is moderated by one's subjectively assessed probability of losing one's job.[5] Overall, the empirical evidence about this relationship is still rather scant and unsystematic (Harbi and Grolleau, 2012;

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[4]This similarly holds when looking at other more specific (domain) satisfaction variables, such as satisfaction with income or psychological burden, or leisure time (Carree and Verheul, 2012; Binder and Coad, 2016).

[5]A negative association between self-employment and life satisfaction could also mean that there is a "push" of dissatisfied individuals into self-employment. Noorderhaven et al. (2004) find a positive association of the levels of "dissatisfaction with life" with self-employment observed in a society with high self-employment rates (but see the negative evidence for this in Schjoedt and Shaver, 2007). If poor societies have high rates of necessity self-employment, such negative correlation would be plausible (Bianchi, 2012; Harbi and Grolleau, 2012). In this line of inquiry, Naudé et al. (2014) find an inverted u-shape between entrepreneurship and national happiness, where the effect pertains especially to opportunity-driven entrepreneurship.

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Andersson, 2008, p. 231), likely due to the heterogeneous nature of different types of self-employment (Santarelli and Vivarelli, 2007).

From a theoretical point of view, the by and large positive association between different types of self-employment and overall job satisfaction is explained with reference to "procedural utility" that different aspects of the job bring, such as being your own boss and enjoying a high degree of autonomy (Benz and Frey, 2008a,b; Lange, 2012; Coad and Binder, 2014). Apart from this, Hundley (2001) also finds that the self-employed are more satisfied with their jobs because of more flexibility, skill utilization and, to some extent, higher (perceived) job security (see also Hytti et al., 2013; Carter et al., 2003; Feldman and Bolino, 2000; Parasuraman and Simmers, 2001). Especially the autonomy aspect finds good theoretical corroboration in self-determination theory (e.g., Deci and Ryan, 2000), where the fulfillment of the psychological need for autonomy is robustly related to improved mental well-being and psychological functioning. Controlling for autonomy in employment should allow to disentangle this (and Binder and Coad, 2016, find for the SOEP sample that the level of autonomy also positively affects those working in normal companies or otherwise). This would also be consistent with findings that employees have a lower job satisfaction in large firms compared to small firms, presumably because of higher rigidity of work processes and less discretionary power in day-to-day work tasks (Idson, 1990; Benz and Frey, 2008a).

The heterogeneous impact on life satisfaction is theoretically less well-understood and while it can be conjectured that the day-to-day (non-monetary and monetary) job characteristics (Hackman and Oldham, 1976) of self-employment will also play a role in explaining life satisfaction differences, any impact on life satisfaction is likely to be also driven by how self-employment impacts on other domains of life, such as health, income, family life, leisure etc. Such an explanation in terms of a bottom-up view of life satisfaction, i.e. life satisfaction being a summary measure of how satisfied individuals are with different domains of their lives, has been suggested by Binder and Coad (2013, 2016) in the present context, and finds corroboration in the varying impact that different types of self-employment have on different

domain satisfactions (e.g. the self-employed being much less satisfied with their amount of leisure time).

But such an explanation is incomplete without also taking into account that individuals can evaluate objective conditions in different ways, for instance placing much higher importance on having a satisfying job vs. having a large amount of leisure time. The above-mentioned findings about job security being objectively higher for the self-employed but being assessed as worse by them (via their satisfaction with job security ratings) can be explained by this divergence between objective characteristics and subjective assessment thereof (e.g., due to preferences, personality traits, personal identity, see Hackman and Oldham, 1976).[6] It is therefore of interest to analyze the mediating role that such subjective assessments would play, for example by taking into account entrepreneurial identity or other subjective perceptions.[7] Someone being pushed into (necessity) self-employment to avoid unemployment will likely see things through a different lens than someone leaving a paid job in order to pursue entrepreneurial opportunities (Reynolds et al., 2005; Block and Koellinger, 2009) and indeed satisfaction with being an entrepreneur has been shown to be lower for necessity entrepreneurs (Block and Koellinger, 2009; Kautonen and Palmroos, 2010; Binder and Coad, 2016).[8] Baron et al. (2016) explore how "psychological capital" (such as resilience, optimism, hope) can mediate the negative impact of stress on life satisfaction for their sample of US entrepreneurs and show that such individual characteristics have a stronger impact on life satisfaction than for instance the financial performance of the business venture. A related frame through which individuals can see their self-employment is the extent of worries they have about different aspects of it, something that hasn't been explored in the literature yet

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[6]Of course, the paradox can also be explained by a difference in outcome, so that if job loss probability is equal but the self-employed suffer worse (monetary) consequences from losing their ventures, the probability-weighted outcome would be worse for the self-employed (Hetschko, 2016).

[7]Hackman and Oldham (1976) call these the "attributes of individuals" that determine how people respond to different job characteristics, e.g. also the differences in needs between different individuals.

[8]Satisfaction might also depend on initial expectations for the business venture (Cooper and Artz, 1995) and hence potentially also on personality traits such as optimism. Wether there are certain personality traits that facilitate self-employment and the related satisfaction derived from it is still a matter of active research (e.g. Caliendo and Kritikos, 2011).

to my best knowledge. Worries (at least about one's own situation) have been conceptualized in the psychological literature as (pathological) subjective expression of anxiety, but studies find them to be distinct from anxiety (see more extensively Boehnke et al., 1998; Schwartz et al., 2000). While also related to stress and the loss or lack of personal resources (cf. Hobfoll, 2001), worries constitute a distinct mental construct.[9] Worrying was shown negatively related to mental health and subjective well-being in those studies mentioned, and while worries would certainly be a very imperfect measure of entrepreneurial identity, concerns about one's business do readily measure individuals' subjective attitudes towards their job.[10]

Based on the literature background developed so far, the present paper wants to shed more light on the subjective and objective differences that different types of self-employment have on individuals' satisfaction with life (and the job) and seeks to test whether a superstar vs. under-performer distinction in self-employment also exists for subjective well-being as performance measure of entrepreneurial success. I conjecture that those lower end enterprises (in different operationalizations) will not only underperform with their business ventures financially but their owners derive less life satisfaction from it than those self-employed whose businesses might be considered gazelles. Based on the robustness of findings regarding job satisfaction, I conjecture further that job satisfaction will be less susceptible (if at all) to this distinction. Thirdly, I hypothesize that one's subjective frame of mind (as measured by worries about different aspects of the venture such as economic situation and job security) can explain differences in terms of satisfaction gained.

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[9]Worries seem more closely related to 'affective rumination', however (e.g., Querstret and Cropley, 2012).

[10]Concerns and their impact on well-being have been analyzed in related literature, where self-interested concerns about own income and job security are negatively related to well-being, whereas altruistic concerns about peace and the environment have been found to positively influence subjective well-being (Ferrer-i Carbonell and Gowdy, 2007; Binder and Blankenberg, 2016). This is in line with the distinction of micro- and macro-worries made in Boehnke et al. (1998).

3. Analysis and discussion

3.1. Data

I use the well-known German Socio-Economic Panel (SOEP) data set, which is the longest-running survey of private households in Germany. The data collection started in 1984 with the West-German population but an East-German sample was added in 1990, aiming at the collection of a representative micro-data set (since 1992 there is only one questionnaire for both parts of Germany). The first wave included interviews with 6,000 households, selected via multistage random sampling to reflect a representative selection of the German populace. In 2007 the number had increased up to approximately 12,000 households, encompassing more than 20,000 individuals (for more information see Haisken-DeNew and Frick, 2005; Wagner et al., 2007).

Table 1 summarizes the main variables of interest used in the subsequent analysis (column 1) and then splits the sample by different employment types (unemployed, employed, self-employed, as well as self-employed minus farmers and family business help). The data set (SOEPv32) covers the years 1984-2015. In total, I have up to 517,494 observations after cleaning the panel but focussing on the working populace and on full-time employees/self-employed (and different types of self-employment) reduces this number considerably.

The main dependent variables are life satisfaction and work satisfaction. Both satisfaction questions were included since 1984 and ask how satisfied, all in all, the respondents are with their life (and work respectively) at the moment ("today"). The answer is given on an ordinal Likert scale and is in the range from 0 (lowest satisfaction) up to 10 (highest satisfaction). Subjective well-being measures are valid and reliable, with test-retest reliability between 0.5 and 0.7 (over two weeks, see Krueger and Schkade, 2008; Frey and Stutzer, 2005). This validity has been established using many different objective correlates of happiness, e.g. there is a strong correlation between answers to satisfaction questions and emotional expressions like smiling (Fernandez-Dols and Ruiz-Belda, 1995). Measures correlate well with objective bio-markers such as hypertension (Blanchflower and Oswald, 2008) and observed

	(1) full sample			(2) unemployed			(3) employed			(4) self-employed			(5) SE normal		
	mean	sd	count	mean	sd	count	mean	sd	count	mean	sd	count	mean	sd	count
Life satisfaction	7.09	1.79	517494	6.72	2.08	80515	7.17	1.69	322684	7.21	1.74	32010	7.22	1.73	30629
Job satisfaction	7.16	1.97	307041	6.12	2.56	7813	7.17	1.95	287027	7.38	1.96	28780	7.40	1.96	27654
Log(income), equiv.	9.93	0.52	517494	9.70	0.56	80515	10.04	0.48	322684	10.28	0.60	32010	10.28	0.61	30629
Log(income), SE	9.97	1.26	30934	8.92	1.42	1028	10.01	1.24	30014	10.11	1.19	26496	10.13	1.18	25879
Log(income), job	9.87	0.95	292350	9.10	1.07	21182	9.91	0.92	281529	9.52	1.12	4796	9.59	1.13	4260
Hours worked/week	38.17	13.13	294076	25.91	18.04	1175	38.45	13.03	280454	42.90	19.02	26400	43.43	18.75	25240
JB: full time	0.42	0.49	517490	0.01	0.08	80511	0.66	0.47	322683	0.70	0.46	32006	0.72	0.45	30625
JB: part time	0.11	0.31	517490	0.00	0.06	80511	0.17	0.37	322683	0.11	0.31	32006	0.10	0.30	30625
JB: apprentice	0.03	0.16	517490	0.00	0.05	80511	0.02	0.14	322683	0.01	0.07	32006	0.01	0.08	30625
JB: precarious	0.04	0.20	517490	0.01	0.09	80511	0.06	0.23	322683	0.13	0.33	32006	0.12	0.32	30625
JB: non-working	0.41	0.49	517490	0.98	0.14	80511	0.10	0.30	322683	0.05	0.23	32006	0.06	0.23	30625
JB: sheltered empl.	0.00	0.03	517490	0.00	0.01	80511	0.00	0.03	322683	0.00	0.01	32006	0.01	0.01	30625
Worry: Economy	2.17	0.64	514880	2.21	0.64	79942	2.18	0.63	321441	2.18	0.65	31843	2.18	0.65	30472
Worry: Finances	1.89	0.70	514671	2.12	0.73	79946	1.92	0.69	321377	1.91	0.69	31861	1.91	0.69	30489
Worry: Job Security	1.63	0.71	302772	1.73	0.79	6240	1.63	0.71	284702	1.53	0.67	26793	1.54	0.67	25693
D_disabled	0.10	0.30	517494	0.07	0.26	80515	0.05	0.22	322684	0.05	0.21	32010	0.05	0.21	30629
Log(hospital days)	0.27	0.80	517494	0.39	0.91	80515	0.20	0.67	322684	0.17	0.61	32010	0.16	0.60	30629
Log(doctor visits)	1.71	1.29	517494	1.79	1.34	80515	1.54	1.28	322684	1.34	1.27	32010	1.33	1.26	30629
Educ: 0 in school	0.02	0.15	517494	0.01	0.07	80515	0.01	0.07	322684	0.01	0.09	32010	0.01	0.09	30629
Educ: 1a inadeq. compl.	0.03	0.17	517494	0.07	0.25	80515	0.02	0.15	322684	0.01	0.11	32010	0.01	0.10	30629
Educ: 1b elementary	0.12	0.33	517494	0.19	0.39	80515	0.08	0.28	322684	0.05	0.21	32010	0.04	0.20	30629
Educ: 1c basic voc.	0.28	0.45	517494	0.27	0.45	80515	0.25	0.44	322684	0.21	0.41	32010	0.21	0.41	30629
Educ: 2b middle gen.	0.04	0.20	517494	0.05	0.22	80515	0.03	0.18	322684	0.02	0.15	32010	0.02	0.15	30629
Educ: 2a middle voc.	0.23	0.42	517494	0.24	0.42	80515	0.28	0.45	322684	0.24	0.43	32010	0.24	0.43	30629
Educ: 2c_gen: hi gen.	0.03	0.18	517494	0.02	0.15	80515	0.03	0.16	322684	0.04	0.19	32010	0.04	0.19	30629
Educ: 2c_voc: hi voc.	0.06	0.24	517494	0.05	0.22	80515	0.07	0.26	322684	0.08	0.27	32010	0.08	0.27	30629
Educ: 3a low tert.	0.05	0.22	517494	0.03	0.17	80515	0.06	0.24	322684	0.09	0.29	32010	0.09	0.29	30629
Educ: 3b high tert.	0.13	0.33	517494	0.08	0.27	80515	0.16	0.36	322684	0.25	0.44	32010	0.26	0.44	30629
Fam: married	0.62	0.48	517494	0.72	0.45	80515	0.64	0.48	322684	0.69	0.46	32010	0.68	0.47	30629
Fam: separated	0.02	0.14	517494	0.02	0.15	80515	0.02	0.15	322684	0.03	0.16	32010	0.03	0.16	30629
Fam: single	0.23	0.42	517494	0.17	0.38	80515	0.24	0.43	322684	0.18	0.38	32010	0.18	0.39	30629
Fam: divorced	0.07	0.25	517494	0.07	0.25	80515	0.08	0.27	322684	0.09	0.28	32010	0.09	0.29	30629
Fam: widowed	0.06	0.24	517494	0.01	0.12	80515	0.02	0.13	322684	0.02	0.15	32010	0.02	0.14	30629
Fam: spouse away	0.00	0.02	517494	0.00	0.01	80515	0.00	0.02	322684	0.00	0.02	32010	0.00	0.02	30629
HH: single	0.12	0.33	517494	0.06	0.24	80515	0.10	0.30	322684	0.12	0.32	32010	0.12	0.32	30629
HH: married couple	0.30	0.46	517494	0.22	0.42	80515	0.25	0.43	322684	0.28	0.45	32010	0.28	0.45	30629
HH: single w/kid	0.06	0.24	517494	0.08	0.26	80515	0.06	0.25	322684	0.05	0.23	32010	0.06	0.23	30629
HH: couple w/kid 16-	0.23	0.42	517494	0.36	0.48	80515	0.29	0.46	322684	0.29	0.45	32010	0.29	0.45	30629
HH: couple w/kid 16+	0.16	0.37	517494	0.15	0.35	80515	0.17	0.38	322684	0.15	0.36	32010	0.15	0.36	30629
HH: coupld w/kid both	0.08	0.28	517494	0.09	0.29	80515	0.09	0.29	322684	0.09	0.28	32010	0.08	0.28	30629
HH: multiple generations	0.02	0.14	517494	0.03	0.17	80515	0.02	0.13	322684	0.01	0.12	32010	0.01	0.11	30629
HH: other	0.01	0.12	517494	0.01	0.11	80515	0.01	0.11	322684	0.01	0.12	32010	0.01	0.12	30629
East Germany	0.21	0.41	517494	0.19	0.39	80515	0.20	0.40	322684	0.20	0.40	32010	0.20	0.40	30629
Gender	1.52	0.50	517494	1.76	0.43	80515	1.47	0.50	322684	1.39	0.49	32010	1.37	0.48	30629
Age	46.41	17.19	517494	42.53	13.64	80515	41.69	12.00	322684	46.54	12.49	32010	46.51	12.44	30629

Table 1: Summary statistics. Pooled over sample horizon and grouped in subsamples by employment status. Source: SOEP, waves 2-32 (1984-2015).

behavior (unpleasant behaviors are discontinued; suicide rates covary negatively with these happiness ratings, see Kahneman et al., 1993; Shiv and Huber, 2000; Helliwell, 2007) and individuals are generally quite well able to rate and predict satisfaction levels of others (e.g. family and friends, Sandvik et al., 1993; Diener et al., 1999). In experiments, the above-mentioned test-retest reliability from 0.5 to 0.7 was found for global measurements but domain satisfactions and multiple-item-questions rate higher. While this reliability is lower than e.g. for socioeconomic variables such as education or income, meaningful analysis is possible nevertheless.

My main independent variables of interest are self-employment and other labor-force statuses, especially being employed, as control or baseline category. For most of the analysis, I focus on individuals in full-time employment and compare their well-being against the well-being of those in full-time self-employment. I also exclude a number of categories of self-employment, such as helping in a family business or being a farmer (on the difficulty compar-

ing these categories, see also Hundley, 2001, p. 299) and focus on "normal self-employment" which includes freelancers and other types of self-employment. The data set contains 6,900 individuals (30,188 obs.) being self-employed, 22,136 individuals (77,162 obs.) in unemployment, 44,351 individuals (258,935 obs.) in employment and 44,440 individuals (225,018 obs.) in other categories (mostly pensioners and apprentices). Comparing this to the data from Eurostat (2015) for the German labor market, the (unweighted) SOEP sample in the present paper exhibits a somewhat higher proportion of self-employed (13% vs. 10%).

Of the (working) individuals, overall 36,787 (215,171 obs., 42%) work full-time, 15,207 (54,802 obs., 11%) work part-time and 9678 (21,362 obs., 4%) work in irregular, precarious employment (this would be so-called "Mini-Jobs" or "geringfuegige Beschaeftigung", i.e. "negligible employment", in the latter of which income does not exceed a monthly amount of 450 Euros). Of the (regular) employees in the sample, ca. 69% are full-time employed, 25% part-time and 6% in irregular employment, whereas the percentages for normal self-employment are 79%, 10% and 11% respectively.

Focussing more directly on self-employed individuals, different types are distinguished either by self-report or by construction based on characteristics of their business venture from information such as the numbers of employees or the income drawn from self-employment, or based on transitions from different job types into self-employment. Of all self-employed persons (6,900 individuals, 30,188 obs.), 27,276 observations fall into regular self-employment (6,270 individuals), 1,531 obs. into the farmer category (381 persons) and 1,381 obs. are help in the family business (725 persons). Distinguishing opportunity ('OE') and necessity ('NE') self-employment via the transition from employment to self-employment versus the transition from unemployment to self-employment, there are 5,452 individuals characterized by opportunity self-employment at some point in time (7,058 obs.) and 880 (987 obs.) by necessity self-employment (compare this rate of 79% opportunity self-employed to the rate of 76% mentioned in the GEM report, Sternberg et al., 2014). 4,589 individuals (17,407 obs.) in self-employment have employees in their business at some point in time ('BIG', ca.

67% of individuals), whereas 3,253 individuals (9,869 obs.) do work alone without employees ('SOLO', ca. 47% of individuals).[11] Both solo self-employment and necessity self-employment (not mutually exclusive) will be understood by me as operationalizations of poor performance self-employment (as opposed to gazelles), along other definitions related to income from self-employment and part-time work in self-employment. This is only an ad hoc start towards understanding this elusive and under-researched category of non-heroic entrepreneurs.

Given that types of job and self-employment differ according to a number of important characteristics, I further make use of information about company size, level of autonomy and industry classification attached to the jobs individuals hold. The SOEP data set provides information on the autonomy of an individual's type of work via a variable that distinguishes autonomy levels *inter alia* based on task descriptions, vocational training, responsibilities and company size for civil servants, workers and employees and the self-employed. It distinguishes five regular autonomy levels plus the lowest level of apprenticeship (encompassing also interns and trainees). Low autonomy levels are related to manual workers, whereas managers and freelance academics are in the highest autonomy level group. Self-employed individuals are categorized into autonomy levels 3 to 5 (mainly) depending on the number of employees they have.[12] Company size for employed and self-employed individuals is available in the SOEP data set and offers a coarse division into the size categories of less than 20 core employees (control category), 20 to 200, 200 to 2000 and more than 2000 employees. There is also the category of being self-employed with no other employees. The SOEP further contains 1 digit industry codes for individuals that are working, ranging from Agriculture to the Service industry (the latter of which I use as base category). Table 2 lists the number of observations for different company sizes (left part of the table) and autonomy levels (right part of the

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[11]Percentages do not add up to 100% as an individual can work solo and have employees at different points in time. Percentages over observations are 64% and 36% respectively. Note further that the OE/NE characterization only allows to classify a subset of self-employeds, as it cannot be applied for many observations: this happens for instance when individuals are classified as self-employed for the duration of their panel existence, i.e. when no information of their switching into self-employment is available.

[12]There are self-employed individuals in higher autonomy categories even despite being solo self-employed, but the correlation coefficient between both variables is $r = .40$ for the normal self-employed.

table) for the working populace.

Comp.size	(SE all)	(SE n.)	(Empl.)	(OE)	(NE)	(BIG)	(SOLO)	Autonomy	(SE all)	(SE n.)	(Empl.)	(OE)	(NE)	(BIG)	(SOLO)
LT 20	15641	13998	58680	3478	236	13998	0	Low (1)	7	7	47435	3	0	7	0
20-200	1418	1364	72863	411	24	1364	0	(2)	1541	11	73606	4	0	11	0
200-2000	415	406	56121	135	17	406	0	(3)	14600	13365	77209	3420	739	3936	9429
GT 2000	530	519	62223	177	24	519	0	(4)	11953	11953	49555	3102	235	11543	410
Solo	10783	9868	286	2378	495	0	9868	High (5)	1912	1912	10478	521	13	1885	27

Table 2: Descriptive statistics: Autonomy and company size by different self-employment and employment status categories. Pooled over sample horizon. Source: SOEP, waves 2-32 (1984-2015).

Apart from distinguishing between full-time, part-time and irregular employment, the actual number of hours worked has also been found to play a role for job and life satisfaction of the employed and will hence be an important control variable (alongside its squared term as there is an inverse u-shape in the relationship between well-being and hours worked). Table 3 breaks down hours worked by different self-employment categories.

Hours worked by the self-employed

	SE (all)	SE (normal)	Employed	OE	NE	BIG	SOLO
Full-time	51.36	50.87	43.14	51.85	47.25	52.50	47.33
Part-time	23.39	23.06	24.55	23.49	21.07	23.41	22.72
Irregular	15.24	14.99	12.29	14.31	14.92	14.17	15.59

Table 3: Hours worked by different self-employment categories (plus base category: in employment). Pooled over sample horizon. Source: SOEP, waves 2-32 (1984-2015).

An important further type of independent variable are different types of concerns (or "worries" as they are also called in the SOEP's variable description). To capture different concerns, respondents are asked to answer the question, "How concerned are you about the following issues?"[13] followed by different subject categories such as the economy in general, one's own economic situation, environmental protection, maintaining peace and (if employed) job security. The variable for these different concerns is measured on a three point Likert scale ("Very concerned", "Somewhat concerned", "Not concerned at all") and is asked continuously since 1984 (I have recoded the variable for the sample to have higher values represent higher levels of concerns).

Finally, I use a number of control variables that could act as potential confounders when not included in the analysis. These are the level of education (CASMIN scale) ranging from

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[13]The phrasing of the question varies minimally across the sample horizon, e.g. the use of "worries" and "concerns" is not uniform in the SOEP data set and I treat them as identical.

	Life sat.	Job sat.	Inc.	Hrs	FT	SE	Inc: SE	Inc: job	W: Econ.	W: Fin.	W: Job	Gender
Life satisfaction	1.00											
Job satisfaction	0.45***	1.00										
	(0.000)											
Log(income), equiv.	0.18***	0.10***	1.00									
	(0.000)	(0.000)										
Hours worked/week	-0.02***	0.01**	0.16***	1.00								
	(0.000)	(0.001)	(0.000)									
d_fulltime	0.06***	0.07***	0.25***	0.68***	1.00							
	(0.000)	(0.000)	(0.000)	(0.000)								
SE: normal	0.02***	0.04***	0.18***	0.14***	0.18***	1.00						
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)							
Log(income), SE	0.11***	0.13***	0.60***	0.44***	0.52***	0.30***	1.00					
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)						
Log(income), job	0.09***	0.05***	0.45***	0.52***	0.60***	-0.03***	0.12***	1.00				
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)					
Worry: Economy	-0.15***	-0.11***	-0.02***	0.03***	0.01***	0.01***	0.02***	0.00	1.00			
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.061)				
Worry: Finances	-0.35***	-0.26***	-0.25***	-0.01***	-0.00***	0.01***	-0.11***	-0.19***	0.39***	1.00		
	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)			
Worry: Job Security	-0.23***	-0.23***	-0.18***	0.06***	0.05***	-0.04***	-0.07***	-0.08***	0.26***	0.50***	1.00	
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)		
Gender	0.00	-0.01***	-0.07***	-0.41***	-0.35***	-0.08***	-0.33***	-0.33***	0.01***	0.02***	-0.03***	1.00
	(0.914)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	
Observations	517494											

P-values in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 4: Bivariate correlations (Pearson). Pooled over sample horizon. Source: SOEP, waves 2-32 (1984-2015).

zero ("in School") to nine ("higher tertiary education"), (log) income (equivalized using the International Experts' scale and deflated post-government household income, i.e. income after taxes and government transfers; see similarly Headey et al., 2004; D'Ambrosio and Frick, 2007), age, $age^2/100$, gender, different health measures (being disabled, number of doctoral visits, (log) hospital days+1), working hours (and its squared term), family status and household type. I also include controls for year effects and region (East vs. West-Germany) but do not report this to conserve space.

3.2. Descriptive analysis

Table 4 shows bivariate (Pearson) correlation coefficients between the core variables of interest. Life and job satisfaction are linearly correlated ($r = 0.45, p < 0.001$), and both correlate positively with (normal) self-employment ($r = 0.02/0.04, p < 0.001$). Working full-time is positively related to life satisfaction ($r = 0.06, p < 0.001$), whereas working hours are negatively related ($r = -0.02, p < 0.001$, the unconditional relationship is actually quadratic with the maximum life satisfaction reached for around 42 hours of work). The relationship between hours worked and job satisfaction is positive on the other hand ($r = 0.01, p < 0.01$). All three worries relate negatively with life satisfaction although the two worries about one's own financial situation ($r = -0.35, p < 0.001$) and job security ($r = -0.23, p < 0.001$)

do so more strongly than the general concern about the economy ($r = -0.15, p < 0.001$). Equivalized household income ($r = 0.18, p < 0.001$), wage income ($r = 0.09, p < 0.001$) and income from self-employment ($r = 0.11, p < 0.001$) all positively correlate with life satisfaction. All correlations go in directions one would expect from the discussion of the background literature (compare Section 2) and none of them suggest severe multicollinearity.

Life satisfaction and worries

	Worry: Economy	Worry: Finances	Worry: Job
No worries	7.69	7.91	7.58
Some worries	7.29	7.15	7.03
Big worries	6.85	6.25	6.45
Total	7.21	7.21	7.21

Table 5: Life satisfaction for different types and degrees of worries (restricted to working populace). Pooled over sample horizon. Source: SOEP, waves 2-32 (1984-2015).

Looking at work and life satisfaction of the (normal) self-employed compared to the rest of the working populace (see Table 6), we see that life satisfaction is lower when self-employed than when employed (7.18 vs. 7.21) but the gender disaggregation shows the effect to be driven by the male subsample. Self-employment for women comes with a boost in life satisfaction (7.26 vs. 7.14). Work satisfaction is higher for the self-employed irrespective of gender (7.41 vs. 7.13) but the boost for women is bigger here than for men. Figure 1 displays the cumulative density functions for life satisfaction (left) and logarithmized equivalized household income (right), depending on different employment statuses, with life satisfaction distribution of the unemployed visibly different from being employed or self-employed (and the differences between the latter being much less pronounced). This is different regarding the income variable (see also below). In line with the hypotheses presented above, Figure 2 shows the life satisfaction distribution disaggregated by opportunity and solo self-employment, with opportunity self-employed having more individuals in the highest life satisfaction brackets and solo self-employed having less individuals in these brackets than the control group (all full-time employed). Life satisfaction also decreases by roughly one point when worrying about economy or job security and by nearly two points when worrying about one's financial situation (see Table 5).

Life satisfaction/job satisfaction

SE (normal)	Male	Female	Total
no (LS)	7.25	7.14	7.21
(JS)	7.14	7.09	7.13
	130,272	62,848	193,120
yes (LS)	7.15	7.26	7.18
(JS)	7.35	7.58	7.41
	15,853	5,722	21,575
Total (LS)	7.24	7.15	7.21
(JS)	7.17	7.13	7.15
	146,125	68,570	214,695

Table 6: Life satisfaction (LS) and job satisfaction (JS) for normal self-employed by gender (restricted to working populace, number of observations for life satisfaction given as well in table). Pooled over sample horizon. Source: SOEP, waves 2-32 (1984-2015).
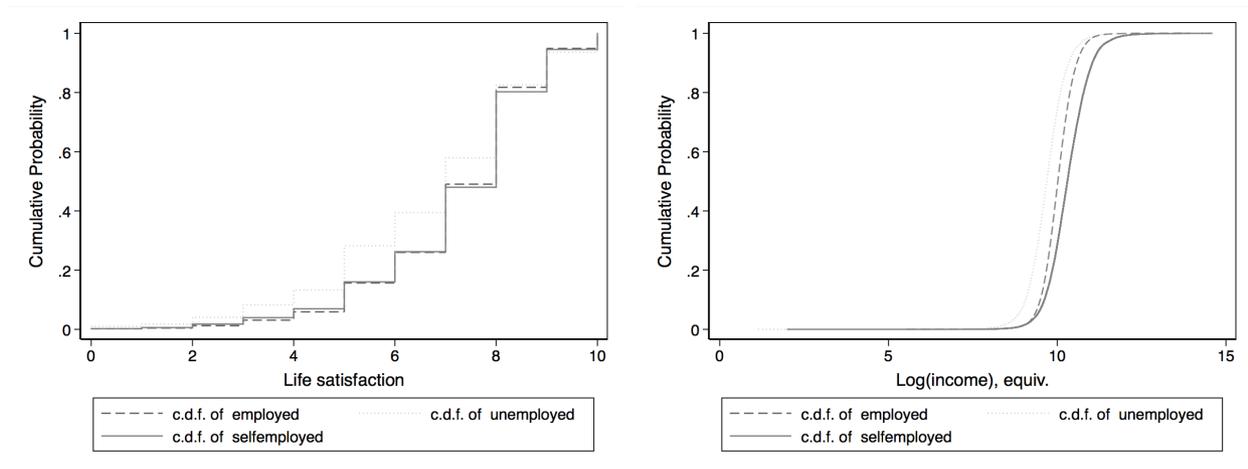

Figure 1: CDF of life satisfaction (left) and log(income), equivl. and deflated, by employment type (unemployed, employed, self-employed).

Focussing on average differences for the two types of self-employment now, Table 7 provides average life satisfaction, work satisfaction, income from self-employment, wage income (in that order) for the self-employed who either have employees (BIG) or not (SOLO) as compared to working employees (left part of the table; all differences restricted to full-time SE/E in this and the following analyses, unless specified otherwise). The same is then also repeated distinguishing opportunity (OE) from necessity (NE) self-employment (right part of the table). For those self-employed who have employees, both life (7.26 vs 7.21) and work satisfaction (7.48 vs. 7.13) are higher than for the control group, whereas the solo self-employed only have higher work satisfaction (7.24 vs. 7.13) and life satisfaction takes a hit (7.02 vs. 7.21). Income for those with employees is higher than for the control group

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(ca. EUR 54,400 vs. ca. EUR 33,600), whereas income differences are rather small for the solo self-employed (who make ca. EUR 35,000). An even more drastic picture emerges when characterizing poor performance self-employment via necessity self-employment. Here both job satisfaction (7.07 vs. 7.14) and life satisfaction are decreased, life satisfaction even quite strongly so (6.65 vs. 7.21). Similarly, the annual incomes of those pursuing necessity self-employment are much lower (ca. EUR 10,500; even though they are working full-time) than for the opportunity self-employed (ca. EUR 41,500) and the control group of employees (ca. EUR 31,200). Gender disaggregation (not presented in table) sheds additional light on these descriptive findings and shows life satisfaction of the solo self-employed is minimally positive for females (7.16 vs. 7.15), but much lower for males (6.95 vs. 7.25), and having employees is strongly positive for for females (7.32 vs. 7.14) but more neutral for males (7.24 vs. 7.24) in terms of life satisfaction.

Life satisfaction/work satisfaction/income from SE/income from JOB

	SE (SOLO)				SE (NE)		
SE (BIG)	no	yes	Total	SE (OE)	no	yes	Total
no	7.21	7.02	7.20	no	7.21	6.65	7.20
	7.13	7.24	7.13		7.14	7.07	7.14
	369.42	34927.79	1541.92		4239.75	10484.97	4253.53
	33644.64	1832.13	32565.31		31158.97	3174.44	31097.24
yes	7.26		7.26	yes	7.34		7.34
	7.48		7.48		7.61		7.61
	54353.39		54353.39		41415.12		41415.12
	1965.95		1965.95		5379.87		5379.87
Total	7.21	7.02	7.21	Total	7.21	6.65	7.21
	7.15	7.24	7.15		7.15	7.07	7.15
	4197.52	34927.79	5168.53		5157.07	10484.97	5168.53
	31398.25	1832.13	30464.02		30522.87	3174.44	30464.02

Table 7: Life satisfaction, work satisfaction, income from SE and income from job for different types of self-employment with left table part distinguishing solo self-employment/employees and right table part opportunity and necessity self-employment (control group restricted to working populace in both cases). Pooled over sample horizon. Source: SOEP, waves 2-32 (1984-2015).

Before turning to the multivariate analysis, I also split worries about economy, financial situation and job security (in that order) by type of self-employment (see Table 8) and overall, worries about the economic situation show no big differences between different types of (self-) employment (first number in each set of three). Worries about the financial situation are less pronounced for employees than the self-employed (second number), and poor performance self-employeds (both measured by necessity self-employment or lack of employees) worry
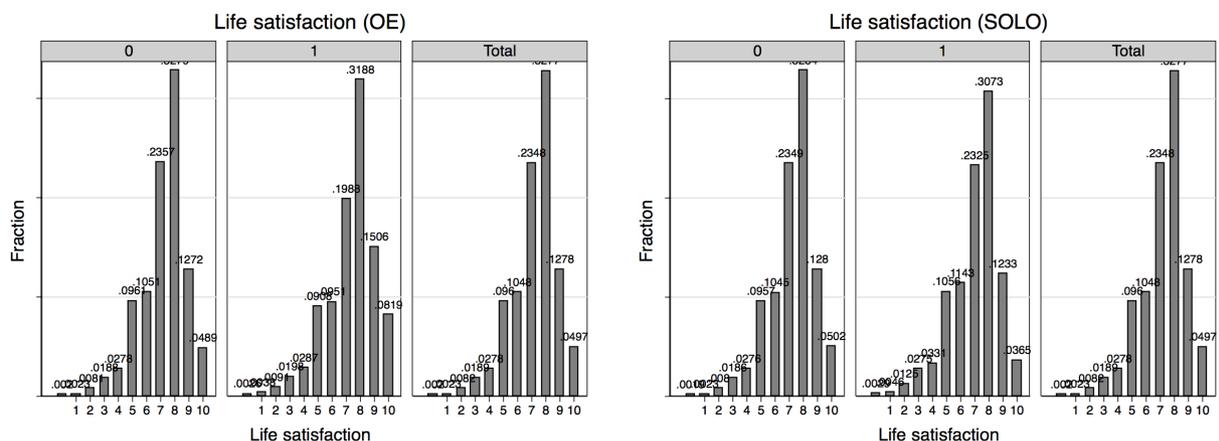
Figure 2: Distribution of life satisfaction scores by opportunity self-employment (vs. control; left) and solo self-employment (vs. control; right). Control group are all working individuals. Pooled over sample horizon. Source: SOEP, waves 2-32 (1984-2015).

much more than the control group of employees or the higher performance self-employed. Being self-employed comes with less worrying about job security (third number) unless one is necessity self-employed. Here, having switched from unemployment to self-employment seems to have left a scar on the formerly unemployed (compare Clark et al., 2001; Knabe and Raetzel, 2011).

Life satisfaction and worries for different forms of SE

Employee		SE (normal)			SE (BIG)	SE (SOLO)			SE (OE)	SE (NE)		
		no	yes	All			no	yes	All			no	yes	All
no		2.18	2.21	2.19	no		2.18	2.17	2.18	no		2.18	2.24	2.18
		1.95	1.95	1.95			1.88	1.99	1.89			1.89	2.19	1.89
		1.73	1.57	1.70			1.67	1.61	1.67			1.66	1.80	1.66
yes		2.17		2.17	yes		2.23		2.23	yes		2.17		2.17
		1.82		1.82			1.93		1.93			1.93		1.93
		1.61		1.61			1.55		1.55			1.56		1.56
All		2.18	2.21	2.18	All		2.18	2.17	2.18	All		2.18	2.24	2.18
		1.88	1.95	1.89			1.89	1.99	1.89			1.89	2.19	1.89
		1.67	1.57	1.66			1.66	1.61	1.66			1.66	1.80	1.66

Table 8: Average degree of worry (1=no worries, 3=big worries) for different types of employment or self-employment (restricted to working populace) Order of worries (top to bottom): Economy, Finances, Job Security. Pooled over sample horizon. Source: SOEP, waves 2-32 (1984-2015).

3.3. Multivariate analysis

Multivariate results are based on fixed-effect (FE) ordinary least-squares regression analyses, the workhorse in observational panel data analysis.[14] I group the results into three parts: an overall analysis of life satisfaction of the self-employed (Table 9), a further analysis in terms of job characteristics (Table 10) and then the analysis of the role that worries play in mediating this relationship (Table 11). Further robustness tests are presented in the next section.

For the full sample, with $514,141$ observations (Table 9, column 1), we can see that self-employment, compared to the baseline of being employed, entails a negative ceteris paribus coefficient of $b = -.07, t = -3.66, p < 0.001$. Subjective well-being and self-employment are thus negatively related in the German sample, being self-employed comes with a well-being loss. Other German studies with the SOEP find comparable results (e.g., Binder and Coad, 2016), with the study mentioned finding a negative association in FE regressions and a positive impact by accounting for different types of self-employment (more on this below) and using matching estimators. Other coefficients go in the usual directions (income and marriage positive, health problems negative, unemployment negative at $b = -.32, t = -26.18, p < 0.001$) and I will not further comment on these. Further disaggregating self-employment (column 2) by splitting it into regular (normal) self-employment, being a farmer ($b = -.14, t = -1.76, p = 0.079$), and helping in the family business ($b = -.25, t = -5.01, p < 0.001$) yields a similar coefficient for normal self-employment ($b = -.06, t = -2.81, p < 0.01$). Being the help in a family business is robustly more strongly negatively associated with subjective well-being in all analyses, something interesting and worthy of further research. Zooming in now into the sample and comparing normal

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[14]Given the panel data and the 11 point Likert-type scale of life satisfaction as the dependent variable, any concerns about the ordinal nature of the dependent variable seem small compared to concerns of mis-specification bias resulting from not taking into account the repeated nature of observations from identical individuals over time, a point made by Ferrer-i-Carbonell and Frijters (2004) and seen as consensus in the field. Standard-errors in all analyses are heteroscedasticity-robust and account for intra-cluster correlation on the level of the individual. All models include year dummies which I do not list in the tables.

	(1) SE		(2) SE normal		(3) Working sample		(4) OE/NE		(5) BIG/SOLO	
SE: normal			-0.06**	(-2.81)	-0.12***	(-3.76)				
SE: farmer			-0.14	(-1.76)	-0.05	(-0.47)	0.02	(0.22)	-0.05	(-0.46)
SE: help in business			-0.25***	(-5.01)	-0.21*	(-2.40)	-0.14	(-1.68)	-0.21*	(-2.36)
SE: opportunity							0.07**	(2.98)		
SE: necessity							-0.13	(-1.70)		
SE: employees									-0.09**	(-2.84)
SE: solo									-0.17***	(-4.32)
Log(income), equiv.	0.22***	(22.44)	0.22***	(22.43)	0.25***	(15.15)	0.24***	(14.74)	0.25***	(15.12)
d_selfemployed	-0.07***	(-3.66)								
JB: unemployed	-0.32***	(-26.18)	-0.32***	(-26.26)						
JB: pensioner	0.10***	(5.96)	0.10***	(5.83)						
JB: in education	0.07***	(3.37)	0.07***	(3.35)						
JB: civil service	-0.08**	(-2.69)	-0.08**	(-2.72)						
JB: apprentice	0.13***	(6.36)	0.13***	(6.33)						
JB: civ./mil. service	-0.07	(-1.66)	-0.07	(-1.67)						
Log(hospital days)	-0.08***	(-23.05)	-0.08***	(-23.03)	-0.07***	(-11.41)	-0.07***	(-11.41)	-0.07***	(-11.42)
Log(doctor visits)	-0.09***	(-38.59)	-0.09***	(-38.57)	-0.07***	(-23.95)	-0.07***	(-23.80)	-0.07***	(-23.95)
D_disabled	-0.28***	(-15.21)	-0.28***	(-15.19)	-0.24***	(-7.15)	-0.24***	(-7.14)	-0.24***	(-7.15)
Fam: married	0.12***	(5.89)	0.12***	(5.91)	0.08**	(3.21)	0.08**	(3.20)	0.08**	(3.22)
Fam: married, liv.sep.	-0.16***	(-4.39)	-0.16***	(-4.38)	-0.19***	(-4.15)	-0.19***	(-4.13)	-0.19***	(-4.14)
Fam: divorced	0.11***	(3.38)	0.11***	(3.38)	0.15***	(3.73)	0.15***	(3.75)	0.15***	(3.74)
Fam: widowed	-0.03	(-0.73)	-0.03	(-0.74)	0.12	(1.24)	0.12	(1.24)	0.12	(1.24)
Fam: spouse away	-0.42*	(-2.07)	-0.42*	(-2.07)	-0.47	(-1.92)	-0.47	(-1.94)	-0.47	(-1.92)
HH: married couple	0.17***	(8.61)	0.17***	(8.62)	0.19***	(7.67)	0.19***	(7.76)	0.19***	(7.67)
HH: single w/kid	-0.15***	(-5.85)	-0.15***	(-5.86)	-0.07	(-1.82)	-0.07	(-1.82)	-0.07	(-1.83)
HH: couple w/kid 16-	0.14***	(6.52)	0.14***	(6.54)	0.18***	(6.83)	0.18***	(6.82)	0.18***	(6.83)
HH: couple w/kid 16+	-0.00	(-0.10)	-0.00	(-0.09)	0.08**	(2.99)	0.08**	(3.06)	0.08**	(3.00)
HH: coupld w/kid both	0.04*	(2.00)	0.05*	(2.01)	0.12***	(4.33)	0.12***	(4.35)	0.12***	(4.32)
HH: multiple generations	-0.04	(-1.19)	-0.04	(-1.18)	-0.02	(-0.42)	-0.02	(-0.40)	-0.02	(-0.42)
HH: other	-0.06	(-1.66)	-0.06	(-1.66)	0.02	(0.44)	0.02	(0.44)	0.02	(0.45)
Educ: 0 in school	0.20***	(4.72)	0.20***	(4.73)	0.64	(1.29)	0.64	(1.29)	0.64	(1.29)
Educ: 1a inadeq. compl.	-0.01	(-0.17)	-0.01	(-0.18)	0.07	(0.65)	0.07	(0.65)	0.07	(0.66)
Educ: 1b elementary	0.02	(0.79)	0.02	(0.78)	0.04	(0.72)	0.04	(0.70)	0.04	(0.73)
Educ: 2b middle gen.	-0.00	(-0.11)	-0.00	(-0.10)	-0.02	(-0.26)	-0.02	(-0.29)	-0.02	(-0.25)
Educ: 2a middle voc.	0.01	(0.43)	0.01	(0.43)	0.05	(1.19)	0.05	(1.15)	0.05	(1.20)
Educ: 2c_gen: hi gen.	-0.01	(-0.24)	-0.01	(-0.23)	-0.06	(-0.69)	-0.07	(-0.74)	-0.06	(-0.71)
Educ: 2c_voc: hi voc.	0.02	(0.52)	0.02	(0.54)	-0.06	(-0.75)	-0.06	(-0.81)	-0.06	(-0.76)
Educ: 3a low tert.	0.16**	(3.17)	0.16**	(3.16)	0.07	(0.88)	0.07	(0.84)	0.07	(0.88)
Educ: 3b high tert.	0.06	(1.23)	0.06	(1.22)	0.04	(0.43)	0.03	(0.40)	0.03	(0.42)
Age	-0.02***	(-7.49)	-0.02***	(-7.52)	-0.05***	(-8.76)	-0.05***	(-8.94)	-0.05***	(-8.77)
Age^2	-0.01***	(-4.14)	-0.01***	(-4.12)	0.02**	(3.22)	0.02***	(3.41)	0.02**	(3.24)
East Germany	-0.28***	(-6.62)	-0.28***	(-6.63)	-0.26***	(-4.26)	-0.27***	(-4.30)	-0.26***	(-4.25)
Constant	6.43***	(56.22)	6.43***	(56.25)	6.48***	(34.61)	6.56***	(35.18)	6.49***	(34.65)
Observations	514141		514141		214695		214695		214695	
F	133.97		130.06		50.28		49.29		49.49	
df_r	70068.00		70068.00		36708.00		36708.00		36708.00	
r2	0.04		0.04		0.03		0.03		0.03	

t statistics in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 9: Fixed effects OLS regressions, with life satisfaction as dependent variable. Full sample for the first two models, then sample is restricted to full-time working populace. Model (1) focusses on different employment statuses, among them self-employment, model (2) distinguishes regular SE from self-employed farmers and help in the family business. Model (3) focusses on the working populace and models (4) and (5) present different operationalizations of poor performance self-employment, with model (4) distinguishing opportunity and necessity self-employment and model (5) differentiating solo-self-employment from businesses with employees. Time dummies present but not reported. Robust standard errors clustered on the individual level. Source: SOEP, waves 2-32 (1984-2015).

self-employment to normal employment for only those individuals who are full-time employed (column 3, reducing sample size to 214, 695 observations), we can see an increase in the negative coefficient of self-employment to $b = -.12, t = -3.76, p < 0.001$, which is more than one third of the impact of unemployment.

Columns (4) and (5) now disaggregate poor performance and regular self-employment in

	(1) LS: SE normal		(2) LS: OE/NE		(3) LS: BIG/SOLO		(4) JS: SE normal		(5) JS: OE/NE		(6) JS: BIG/SOLO	
SE: normal	-0.07*	(-1.97)					0.20***	(4.28)				
SE: farmer	0.00	(0.00)	0.04	(0.35)	-0.00	(-0.00)	0.37*	(2.19)	0.28	(1.71)	0.37*	(2.19)
SE: help in business	-0.27*	(-2.44)	-0.23*	(-2.07)	-0.27*	(-2.44)	-0.07	(-0.52)	-0.15	(-1.13)	-0.07	(-0.52)
SE: opportunity			0.07**	(2.74)					0.25***	(7.75)		
SE: necessity			-0.12	(-1.38)					0.17	(1.33)		
SE: employees					-0.05	(-1.37)					0.19***	(4.00)
SE: solo					-0.11*	(-2.53)					0.22***	(3.71)
Log(income), equiv.	0.24***	(14.01)	0.24***	(13.82)	0.24***	(14.00)	0.13***	(5.79)	0.14***	(6.24)	0.13***	(5.80)
A: apprentice	0.26***	(3.42)	0.25***	(3.36)	0.26***	(3.41)	0.60***	(5.47)	0.61***	(5.53)	0.60***	(5.47)
A: middle	0.05**	(2.79)	0.05**	(2.74)	0.05**	(2.79)	0.18***	(6.57)	0.18***	(6.62)	0.18***	(6.57)
A: middle	0.16***	(6.88)	0.15***	(6.56)	0.16***	(6.94)	0.37***	(11.64)	0.38***	(12.01)	0.37***	(11.62)
A: middle	0.19***	(7.38)	0.18***	(7.03)	0.19***	(7.17)	0.50***	(13.80)	0.51***	(14.12)	0.50***	(13.79)
A: high	0.25***	(7.11)	0.25***	(7.00)	0.25***	(6.98)	0.67***	(13.81)	0.67***	(13.97)	0.67***	(13.83)
C size: 20-200	0.04*	(2.44)	0.05**	(3.05)	0.04*	(2.33)	0.06*	(2.29)	0.04	(1.72)	0.06*	(2.32)
C size: 200-2000	0.07***	(3.55)	0.08***	(4.18)	0.07***	(3.43)	0.14***	(4.64)	0.12***	(4.09)	0.14***	(4.66)
C size: 2000+	0.09***	(3.94)	0.10***	(4.53)	0.08***	(3.81)	0.17***	(5.26)	0.15***	(4.74)	0.17***	(5.29)
I: Agriculture	-0.18**	(-3.18)	-0.18**	(-3.18)	-0.19**	(-3.19)	-0.18*	(-2.07)	-0.17*	(-2.06)	-0.17*	(-2.07)
I: Energy	-0.08	(-1.45)	-0.08	(-1.42)	-0.08	(-1.45)	-0.02	(-0.20)	-0.02	(-0.20)	-0.02	(-0.20)
I: Mining	0.11	(1.04)	0.11	(1.04)	0.11	(1.05)	-0.08	(-0.55)	-0.08	(-0.53)	-0.08	(-0.55)
I: Manufacturing	-0.00	(-0.04)	0.00	(0.03)	-0.00	(-0.04)	-0.16***	(-4.67)	-0.16***	(-4.75)	-0.16***	(-4.67)
I: Construction	0.00	(0.01)	0.00	(0.08)	0.00	(0.00)	-0.16***	(-4.55)	-0.16***	(-4.62)	-0.16***	(-4.54)
I: Trade	-0.05	(-1.87)	-0.05	(-1.86)	-0.05	(-1.88)	-0.20***	(-5.24)	-0.20***	(-5.24)	-0.20***	(-5.23)
I: Transport	-0.08*	(-2.40)	-0.08*	(-2.38)	-0.08*	(-2.39)	-0.09	(-1.71)	-0.09	(-1.70)	-0.09	(-1.71)
I: Bank/Insurance	0.05	(0.99)	0.05	(0.91)	0.05	(1.00)	-0.04	(-0.63)	-0.04	(-0.56)	-0.04	(-0.64)
Hours worked/week	0.01*	(2.57)	0.01**	(2.80)	0.01**	(2.58)	0.01*	(2.46)	0.01*	(2.32)	0.01*	(2.46)
Hrs worked^2	-0.01***	(-4.04)	-0.01***	(-4.36)	-0.01***	(-4.06)	-0.01***	(-3.35)	-0.01**	(-3.17)	-0.01***	(-3.34)
Constant	6.52***	(32.35)	6.55***	(32.54)	6.52***	(32.36)	7.56***	(28.41)	7.47***	(28.12)	7.56***	(28.41)
Observations	198152		198152		198152		196410		196410		196410	
F	37.99		37.52		37.54		26.58		27.05		26.24	
df_r	35201.00		35201.00		35201.00		35026.00		35026.00		35026.00	
r2_a	0.03		0.03		0.03		0.03		0.03		0.03	

t statistics in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 10: Further regressions adding job characteristics. Fixed effects OLS regressions, with life satisfaction as dependent variable for models (1)-(3) and job satisfaction for models (4)-(6). Sample is restricted to full-time working populace. Models (1) and (4) distinguish regular SE from self-employed farmers and help in the family business. Models (2), (3) and (5), (6) present different operationalizations of poor performance self-employment, with models (2) and (5) distinguishing opportunity and necessity self-employment and models (3) and (6) differentiating solo-self-employment from businesses with employees. Time dummies and all control variables from the main analysis present but not reported. Robust standard errors clustered on the individual level. Source: SOEP, waves 2-32 (1984-2015).

two different ways, first distinguishing opportunity (OE) from necessity (NE) self-employment and then solo-self-employment (SOLO) from being a self-employed employer (BIG). While the association with life satisfaction is negative (but not significant) for necessity self-employment ($b = -0.13, t = -1.70, p = 0.089$), it is positive and significant for opportunity SE ($b = .07, t = 2.98, p < 0.01$), in line with findings from Binder and Coad (2013, 2016). In terms of numbers of employees, those on the lower performance end are less happy ($b = -.17, t = -4.32, p < 0.001$) than those self-employed with employees ($b = -.09, t = -2.84, p < 0.01$). In both cases, equality of regression coefficients can be rejected ($F(1, 36708) = 6.08, p = 0.0137$ and $F(1, 36708) = 5.28, p = 0.0216$ respectively).[15]

In order to find out why self-employment is negatively associated with life satisfaction, I

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[15]These findings are robust to defining self-employment to incorporate also being a farmer and helping in the family business.

now add job characteristics to the models (Table 10, focussing again on the full-time working populace; these models retain all control variables from before but only newly added job characteristics variables are depicted in the table). All models now include a measure of autonomy, company size, 1 digit industry dummies and a variable capturing working hours (and its squared term). It is important to note that the self-employment dummy remains significantly negative even after accounting for these variables (although at somewhat attenuated effect size, $b = -.07, t = -1.97, p < 0.05$, column 1). At the same time, the autonomy dummies are significantly and positively related to life satisfaction with higher levels of autonomy yielding higher coefficients. One interesting exception is the apprentice level (obviously only for employees) which yields as high a well-being gain as the highest autonomy category. These findings are in line with the literature on autonomy and satisfaction, however, the self-employment variable is still significantly related to the dependent variables (pace Lange, 2012; Hytti et al., 2013), suggesting that autonomy does not fully explain work and life satisfaction differentials for the self-employed.[16] For firm size, increasing beyond the base category of less than 20 employees is associated with higher life satisfaction gains, counter to findings that big firms with rigid structures would rather impact negatively on satisfaction (Idson, 1990). Compared to the baseline service industry, agriculture and transport industries are associated with lower life satisfaction. Finally, hours worked exhibits an inverted u-shape, with the conditional maximum being at a bit above 28 hours worked. Disaggregating now along the two dimensions of poor performance confirms the initial analysis, opportunity SE still positively related (column 2, $b = .07, t = 2.74, p < 0.01$) and having no employees negatively related (column 3, $b = -.11, t = -2.53, p < 0.05$).

Note in passing that all types of self-employment except for necessity self-employment come with robust increases in job satisfaction (columns 4-6), a finding that is robust through all different model specifications but not at the heart of interest for the present article (also,

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[16]Hytti et al. (2013) control apart from autonomy further for variety, task identity and task significance and feedback before the self-employment variable loses its explanatory power in the model.

both being a farmer and helping in the business do not yield similarly positive increases in job satisfaction). Similar differences in job satisfaction for the self-employed were also reported for other samples (Block and Koellinger, 2009; Kautonen and Palmroos, 2010).

	(1) (SE normal)	(2) Worries	(3) x	(4) OE/NE	(5) x	(6) BIG/SOLO	(7) x
SE: normal	-0.12***	-0.07*	0.29***				
	(-3.76)	(-2.11)	(4.34)				
SE: farmer	-0.05	0.04	0.03	0.08	0.08	0.04	0.03
	(-0.47)	(0.35)	(0.31)	(0.75)	(0.73)	(0.35)	(0.32)
SE: help in business	-0.21*	-0.13	-0.13	-0.09	-0.09	-0.12	-0.12
	(-2.40)	(-1.35)	(-1.39)	(-0.97)	(-0.98)	(-1.31)	(-1.32)
SE: opportunity				0.06**	0.19*		
				(2.65)	(2.21)		
SE: necessity				-0.04	-0.04		
				(-0.44)	(-0.45)		
SE: employees						-0.04	-0.03
						(-1.14)	(-1.07)
SE: solo						-0.13**	0.34***
						(-3.27)	(3.57)
Log(income), equiv.	0.25***	0.18***	0.18***	0.17***	0.17***	0.18***	0.18***
	(15.15)	(10.91)	(10.81)	(10.69)	(10.69)	(10.87)	(10.84)
Worry: Economy		-0.02*	-0.02*	-0.02*	-0.02*	-0.02*	-0.01*
		(-2.35)	(-2.25)	(-2.33)	(-2.34)	(-2.36)	(-2.17)
Worry: Finances		-0.37***	-0.36***	-0.37***	-0.37***	-0.37***	-0.37***
		(-49.52)	(-46.39)	(-49.53)	(-49.06)	(-49.52)	(-48.65)
Worry: Job Security		-0.16***	-0.16***	-0.16***	-0.16***	-0.16***	-0.16***
		(-23.71)	(-21.77)	(-23.69)	(-23.52)	(-23.70)	(-23.09)
SE: normal x Worry: Economy			-0.00				
			(-0.01)				
SE: normal x Worry: Finances			-0.10***				
			(-4.06)				
SE: normal x Worry: Job Security			-0.09***				
			(-3.61)				
SE: OE x Worry: Economy					0.01		
					(0.28)		
SE: OE x Worry: Finances					-0.07		
					(-1.66)		
SE: OE x Worry: Job Security					-0.01		
					(-0.28)		
SE: SOLO x Worry: Economy							-0.04
							(-1.33)
SE: SOLO x Worry: Finances							-0.10*
							(-2.47)
SE: SOLO x Worry: Job Security							-0.10**
							(-2.70)
Constant	6.48***	8.01***	7.99***	8.06***	8.06***	8.02***	8.01***
	(34.61)	(42.96)	(42.88)	(43.36)	(43.35)	(43.00)	(42.93)
Observations	214695	208801	208801	208801	208801	208801	208801
F	50.28	103.06	98.86	101.61	97.13	101.51	97.28
df_r	36708.00	36399.00	36399.00	36399.00	36399.00	36399.00	36399.00
r2_a	0.03	0.07	0.07	0.07	0.07	0.07	0.07

t statistics in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 11: Regressions adding worries and interaction terms. Fixed effects OLS regressions, with life satisfaction as dependent variable. Sample is restricted to full-time working populace. Model (1) repeats the previous main model for convenience. Model (2) adds worries to previous specification and model (3) interacts self-employment and worries. Models (4)-(7) then present different operationalizations of poor performance enterprises and their interactions with worries, with models (4) and (5) distinguishing opportunity and necessity self-employment and models (6) and (7) differentiating solo-self-employment from businesses with employees. Time dummies and all control variables from the main analysis present but not reported. Robust standard errors clustered on the individual level. Source: SOEP, waves 2-32 (1984-2015).

Self-employment thus has a heterogeneous impact on life satisfaction which is not fully explained by income and job characteristics alone. Focussing now on the individuals' subjective assessment of their situation, I add variables capturing individuals' concerns about their job and finances to the initial base models (see Table 11, where column one repeats the full-time working populace model from the initial analysis for convenience). With wor-

ries added (column 2), we first can note a doubling of the adjusted $R^2 = 0.07$, i.e. an improvement of the explanatory power of the models, and secondly we can note that self-employment is still negatively related to life satisfaction ($b = -.07, t = -2.11, p < 0.05$). Moreover, personal worries about finances ($b = -.37, t = -49.52, p < 0.001$) and job security ($b = -.16, t = -23.71, p < 0.001$) strongly negatively impact on life satisfaction. Worries about the economy in general are negatively related to life satisfaction but with a much smaller coefficient in comparison ($b = -.02, t = -2.35, p < 0.05$). These findings extend to our operationalization of poor performance (columns 4 and 6). Columns (3), (5) and (7) now interact the different specifications of self-employment with the three types of worries. Worries remain at similar effect sizes through all the interaction models, but we can see now that the self-employment dummy turns strongly positive for normal self-employment ($b = .29, t = 4.34, p < 0.001$), opportunity ($b = .19, t = 2.21, p < 0.05$) and even solo self-employment ($b = .34, t = 3.57, p < 0.001$). Interaction terms for financial situation and job security are negative (all around $b = -.10$) for both normal and poor performance self-employment, which supports the explanation that those two worries fully mediate an otherwise positive effect of self-employment on life satisfaction.

When specifying the interaction term as categorical dummy variables (not shown), it is the "big worries" category that comes with strongly and significantly negative interaction effects that drives the negative impact of worrying. Also not shown is that worries in a completely symmetric way interact with self-employment regarding their impact on job satisfaction (results available on request). This explanation in terms of worries mediating life satisfaction of the self-employed corroborates findings that expectation of job loss determines whether self-employment is positively or negatively related to life satisfaction (Hetschko, 2016): With increasing (subjectively assessed) probability of job loss, the self-employed are less satisfied with their lives than employed individuals. This analysis is also compatible with the findings in Millán et al. (2013) and Georgellis and Yusuf (2016), viz. that being self-employed comes with dissatisfaction with job security: worries about job security translate into lower work

and life satisfaction and darken the experience of being self-employed. Except in the case of necessity self-employment, the German self-employed worry less about job security, however, than their employed peers in the control group. Compared to the studies mentioned, the German self-employed seem to have a more realistic picture of their job security, but when they worry about it, it also negatively impacts their satisfaction.

Note finally that adding both job characteristics and worry variables into the model specification yields similar results for job satisfaction, comparable to the above models (with job satisfaction positive and significant at $b = .26, t = 5.88, p < 0.001$) but the self-employment dummy for life satisfaction remains negative and turns insignificant at $b = -.01, t = -.41, p = 0.678$, whereas worry variables and job characteristics retain their significance and effect sizes, apparently fully explaining (hence: mediating) the variable impact that self-employment can have on life satisfaction.

4. Robustness tests

We have seen so far that many varieties of self-employment come with a (ceteris paribus) loss of subjective of well-being (and even job satisfaction is not always positively impacted, as the case of being a helper in a family business shows). In order to further assess the robustness of these results I have conducted a number of additional analyses. First of all, focussing only on full-time working individuals might obscure patterns in self-employment related to part-time or irregular employment. I have thus recomputed the above main model allowing for all types of work including precarious, part-time and full-time and interacted these employment types with self-employment. A self-employment coefficient without these control variables of $b = -.06, t = -2.31, p < 0.05$ becomes $b = -.05, t = -2.08, p < 0.05$ and part-time ($b = -.05, t = -3.17, p < 0.01$) as well as precarious work ($b = -.15, t = -7.78, p < 0.001$) both negatively relate to life satisfaction (not shown in Table). When interacting self-employment and job status (Table 12, column 1), the main effects are negative ($b = -.08, t = -2.80, p < 0.01$ for self-employment; for part-time $b = -.06, t = -3.73, p < 0.001$, and

$b = -.17, t = -7.85, p < 0.001$ for irregular employment) but I find a positive interaction term for part-time and irregular self-employment ($b = .11, t = 2.54, p < 0.05$ for part-time; with the interaction term for irregular employment barely significant at $b = .09, t = 1.90, p = 0.057$) that moderates the relationship. Self-employment seems to buffer some of the negative effects that come from not working full-time.

	(1) FT/PT/IE		(2) INCOME		(3) M: SEinc		(4) M: Size		(5) M: FT/IE	
SE: normal	-0.08**	(-2.80)	-0.86*	(-2.43)						
SE: farmer	-0.00	(-0.03)	-0.05	(-0.47)	0.03	(0.25)	-0.02	(-0.15)	-0.07	(-0.60)
SE: help in business	-0.13*	(-2.48)	-0.21*	(-2.39)	-0.25*	(-2.24)	-0.26*	(-2.39)	-0.24***	(-3.78)
d_star					0.10	(1.87)	-0.12	(-1.10)	-0.03	(-0.93)
d_nor					-0.04	(-1.06)	-0.07*	(-2.00)	-0.01	(-0.24)
d_poor					-0.11	(-1.66)	-0.14***	(-3.45)	-0.10*	(-2.26)
Log(income), equiv.	0.23***	(17.36)	0.23***	(13.15)			0.24***	(13.97)	0.22***	(16.15)
Part-time	-0.06***	(-3.73)								
Apprentice	0.02	(0.67)								
Irregular employment	-0.17***	(-7.85)								
SE: normal x Part-time	0.11*	(2.54)								
SE: normal x Apprentice	0.85*	(2.48)								
SE: normal x Irregular employment	0.09	(1.90)								
SE: normal x log(income)			0.07*	(2.13)						
Constant	6.83***	(45.80)	6.62***	(33.56)	8.69***	(65.42)	6.55***	(32.62)	6.74***	(42.63)
Observations	303483		214695		198152		199280		275570	
F	63.01		49.46		35.02		38.34		49.97	
df_r	50166.00		36708.00		35201.00		35349.00		47771.00	
r2_a	0.03		0.03		0.03		0.03		0.03	

t statistics in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 12: Further regressions to assess model robustness. Fixed effects OLS regressions, with life satisfaction as dependent variable. Sample is restricted to full-time working populace. Model (1) interacts self-employment variables with full-time, part-time and irregular employment dummies, model (2) interacts self-employment variable with income variable and models (3)-(5) present further operationalizations of poor performance enterprises, comparing upper and lower deciles of income from self-employment (3), upper and lower venture size categories (4) and full-time versus irregular self-employed (5). Time dummies and all control variables from the main analysis present but not reported. Robust standard errors clustered on the individual level. Source: SOEP, waves 2-32 (1984-2015).

A second test involves focussing more on the income variables (overall and from self-employment), as the literature shows that some superstar self-employed out-earn their employed peers. Maybe a similar boost in well-being can be shown for those who outperform financially. For this, I estimate models interacting overall income as well as income from self-employment with the self-employment dummy. For the first model (Table 12, column 2), using log. equivalized income, I find indeed significant interactions, with the main effects of SE negative ($b = -.86, t = -2.43, p < 0.05$), of income positive ($b = .23, t = 13.15, p < 0.001$) and the interaction term positive ($b = .07, t = 2.13, p < 0.05$), i.e. some of the negative effect of SE on well-being can be offset by earning higher incomes (this is consistent with having to worry less about the job and financial situation). Recomputing the same model for income quintiles locates the positive effect at the 3rd to 5th quintiles (not shown in table). If focussing

only on self-employed individuals, estimating the impact of income from self-employment on life satisfaction provides evidence consistent with the above explanation and being in the 4th ($b = .10, t = 1.75, p = 0.079$, barely significant) or 5th ($b = .25, t = 4.08, p < 0.001$) income quintile is positively associated with life satisfaction (sample size: 22,556 observations).

Third, the above considerations then could also be used to probe different operationalizations of poor entrepreneurial performance. I alternatively specify the lower end of self-employment hence by recourse to the income from self-employment distribution, where the upper decile characterizes star self-employed ('BIG') and the lowest decile poor performance self-employment ('SOLO'). Similarly, the star self-employed could be characterized as working full-time, whereas as performance lower end self-employment is of an irregular sort. And finally, I propose a stricter operationalization in terms of employees, with performance lower end self-employment again as solo self-employment and star self-employment focussing on self-employed who run a company of more than 2000 employees. I present the self-employment coefficients for these models in Table 12, columns 3 through 5, but omit all other coefficients (model specifications are as above, including job characteristics). These models are consistent with the insight from above that scoring low in a number of performance indicators of self-employment is associated with lower well-being. Only self-employment income (column 3) has a barely significant relationship for poor performers and stars (10% level of significance). On the other hand, when falling into the poor performance category in terms of company size (solo, $b = -.14, t = -3.45, p < 0.001$) or the non-big categories for the business venture ($b = -.07, t = -2.00, p < 0.05$, column 4), more clearly significant negative effects can be found. Measuring poor performance self-employment as irregular normal self-employment, we also find a negative coefficient ($b = -.10, t = -2.26, p < 0.05$, column 5). In all cases, being in the star category, on the other hand, yields no positive life satisfaction boost, an asymmetry worth exploring in further research. Work satisfaction in these three operationalizations is positive and higher for stars when using income as demarcation criterion, with the exception of poor performance work satisfaction measured in terms of irregular employment,

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where the coefficient is negative and barely significant (detailed results available on request).

Fourth, the SOEP data set also provides information on why individuals have changed their jobs, allowing to operationalize opportunity and necessity self-employment by looking into the reason for giving up one's previous job. Following Block and Sandner (2009) and Block and Wagner (2010), I define opportunity self-employment as resigning in the previous two years from paid employment to become self-employed and necessity self-employment as self-employment following being dismissed or one's job change due to closure of previous employers' business.[17] This specification confirms (with somewhat smaller sample size) the above results with opportunity self-employment positively related to life satisfaction ($b = .17, t = 2.63, p < 0.01$) and necessity self-employment negatively related ($b = -.27, t = -2.32, p < 0.05$). Work satisfaction is positively related in patterns similar to the above.

5. Conclusion

Self-employment is a very heterogeneous category lumping together very different types of companies (and their owners). In the same way that companies can be either poorly performing or gazelles (Nightingale and Coad, 2013), the same can be said of the persons running those companies. The present paper has explored the hypothesis that in the same way that the extremes of the entrepreneurial spectrum matter with regard to income and firm performance (i.e. gazelles and their superstar entrepreneurs vs. muppet firms and the struggling self-employed), a similar argument can be made with respect to subjective well-being and that this can explain the mixed evidence regarding the impact of self-employment on life satisfaction. In the same way that there are income and performance superstars in self-employment, we have satisfaction superstars on the one extreme of the distribution of the self-employed (and well-being), whereas even more so on the other extreme, we have those who not only underperform income-wise but, adding insult to injury, also experience

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[17]I also use both operationalizations combined, i.e. change from employment to self-employment plus own resignation vs. change from unemployment to self-employment plus dismissal/plant closure.

well-being losses from choosing or being forced to become self-employed.

More concretely, for the German SOEP data set, I find that being self-employed does not bring happiness in most cases, even though it increases satisfaction with work (unless one helps in the family business). This average analysis holds even after controlling for job characteristics such as hours worked, autonomy and company size, so that one can conclude that German wage workers are ceteris paribus not less happy than their self-employed counterparts. Only under very specific circumstances, i.e. when pursuing entrepreneurial opportunities (as defined by switching from a paid job into self-employment) can self-employment also bring increased happiness. As with the muppet/gazelle distinction regarding financial performance measures of enterprises, there are very few well-being superstars, and those in poor performance enterprises (as measured by solo self-employment, irregular self-employment or necessity self-employment) are less happy than on average. What drives this relationship seem mostly to be worries about job security and one's financial situation.

The study has some obvious limitations. First, no observational research can easily claim causal relationships due to omitted confounds and endogeneity bias. Maybe individuals unhappy with job or life self-select into self-employment so that causality runs in the opposite direction. Or the self-employment categories apply only to specific types of persons, for example immigrants being forced into necessity self-employment and hence results are driven by these omitted variables.[18] Second, classifying individuals as falling into the poor performance category with regards to self-employment along the coarse demarcation criteria employed in this paper might still not due justice to the heterogeneity of self-employment. Third, personality traits or an entrepreneurial identity (not directly measured through the worries variables) might drive self-selection into self-employment and make the findings applicable only to the self-selected sample at hand. Fixed-effects regressions can take into account

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[18]With regard to the hypothesis of immigration or nationality playing such a driving role, relevant variables in the SOEP data set exist and neither self-employment category is substantially different when comparing Germans to non-German self-employeds working in Germany. A nationality dummy interacted with the main variables of interest leads to no significant differences in the results. But of course, other confounds could exist.

unchanging heterogeneity but this might not be enough if such factors are actually variable and hence unaccounted for.

These limitations notwithstanding, I conclude that with the exception of job satisfaction more narrowly, any positive impact of self-employment on subjective well-being seems to depend strongly on the type of business venture one pursues. These findings add to the skepticism put forward by Nightingale and Coad (2013) and reinforce their point that the narrative of the hero entrepreneur might be overly optimistic and a result of methodological bias, maybe overoptimism, maybe due to the important role that entrepreneurship plays for an economy as a whole. Moreover, if the majority of the self-employed do not contribute to innovation, job creation, or income growth (Acs et al., 2016) and get neither income nor satisfaction out of it as well, one should ask why so many people nevertheless want to become self-employed. Further research could explore whether people are simply mistaken in expecting a well-being pay-off for self-employment, or whether they consciously play the lottery with regard to becoming self-employed. If the latter is true, then maybe a more apt narrative would be one more in line with the tournament character of entrepreneurship, where few winners reap the benefits. In this, the self-employed are a good example that focussing on averages is not helpful if distributions are skewed and heterogeneous. All in all, the self-employed are then perhaps more reminiscent of the famous drug-dealers living with their moms (Levitt and Dubner, 2005) than the superheroes they are often made out to be, if one only looks at the most successful part of the distribution.

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