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Are newly self-employed overly optimistic about their future well-being?

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ABSTRACT

The formation of expectations is considered a fundamental aspect of the decision process when people reason about entering self-employment. We evaluate the accuracy of newly self-employed individuals' predictions of their overall future well-being. Based on individual panel data for Germany, we find that they, on average, are overly optimistic when we compare their predictions right after the status change with their actual life satisfaction five years later. This finding is robust to controlling for any time invariant personality traits like individual optimism. And it also holds for those self-employed individuals who successfully remain in business for at least five years. A possible reason for the biased prediction might be that they underestimate the heavy workload reflected in higher working hours than desired, as well as the decline in leisure satisfaction after the status change.

1. Introduction

Launching and running one's own business is a dream of many employed people. Self-employment and entrepreneurial ventures come with many promises from increased autonomy to high financial returns. Yet these promises also often come with a high degree of uncertainty regarding the earnings prospects and long and stressful working hours for the people running the businesses (e.g., Åstebro, Herz, Nanda, & Weber, 2014; Hamilton, 2000; Levine & Rubinstein, 2017; Moskowitz & Vissing-Jorgensen, 2002). One possible explanation for why many people perceive self-employment to be so appealing might be that they have biased perceptions about the costs and benefits of becoming self-employed. This gives rise to several important empirical questions. For example, are the self-employed as satisfied with their life as they thought they would be? If not, what drives potentially inflated expectations about the benefits of self-employment? And are the expectations subsequently met in job related life domains but also in life domains related to health, family, and social relationships? These are difficult questions that have scarcely been addressed before in the literature on self-employment and entrepreneurship. However, it is important to study them in order to better understand the labor market decision about entering self-employment.

There is a substantial body of research indicating that self-employed people are overoptimistic and overconfident about their entrepreneurial success (see Parker, 2009, for a review). For example, Cassar (2010) finds evidence that the newly self-employed tend to overestimate future sales and employment and generally the probability that their business idea will result in an operating venture. Similarly, Lowe and Ziedonis (2006) show that self-employed individuals are likely to continue unsuccessful development efforts for longer periods of time than do established firms, which is a behavior consistent with entrepreneurial overoptimism. However, we still know comparatively little about whether the self-employed's overoptimism also holds more generally outside the domain of business success. A reasonable assumption would be that people who decide about whether or not to enter self-employment form expectations that go beyond (risk adjusted) earnings prospects and involve trade-offs between different outcomes and domains of their life that may include, but not be limited to, the status in society, health, or the quality of social relationships. Hence, the formation of expectations about overall future well-being, and not just business success, seems fundamentally important for the decision to enter self-employment. Due to the difficulty to empirically capture these expectations, we so far have no direct evidence on whether people are generally able to accurately predict how satisfied they would be in the future when self-employed.

The current analysis contributes to the study of entrepreneurial overoptimism by introducing reported life satisfaction as a new, broad measure of entrepreneurial success. We believe that life satisfaction can

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capture the successes (and failures) in both business and non-business domains of a person's life in a rather encompassing way. This empirical measure offers an information-based appraisal of a person's life. People report their judgment about the extent to which their current life fits their ideas of the good life (see, e.g., Pavot & Diener, 2009). From a general perspective, we test whether the overoptimism regarding earnings prospects documented in the literature generalizes to people's perception about the net welfare consequences of their decision to become self-employed. Specifically, we investigate the extent to which newly self-employed people's expectations about their future are met in terms of their overall life satisfaction. We draw on unique panel data from a representative sample of the German population, i.e., the Socio-Economic Panel. In the corresponding survey, both participants' current and predicted life satisfaction five years into the future are elicited. Based on this information we are able to test the accuracy of people's predictions regarding the long-term impact of life changes that follow their decision to become self-employed.

Consistent with findings in the entrepreneurial literature on overoptimism, we uncover evidence of a significant overestimation of future life satisfaction among the newly self-employed. People surveyed in the first year after becoming self-employed expect that their life satisfaction will further increase in the years after the transition. However, we observe that these people actually experience a marked decline in life satisfaction four years after making the transition to self-employment. Overall, this provides evidence for significant overestimation of future life satisfaction. This even holds for the selection of "successful" self-employed individuals who continue to remain in self-employment five years after the transition. In our attempt to explain this evidence of overoptimism among successful self-employed, we examine how different domains of people's live change after the transition to self-employment. On the one hand, we find that the self-employed tend to report higher job satisfaction, particularly in the initial years after the transition to self-employment, and they also report a persistent increase in the perceived autonomy at work. However, on the other hand, they report a significant decline in leisure satisfaction and a significant increase in working hours beyond the desired level. A strong focus on the positive work engagement and an underestimation of the increase in the workload might therefore provide some of the key reasons for the systematic overoptimism observed even among the successfully self-employed individuals. We further compare the identified prediction error around the transition to self-employment with the one of people who switch their employer. We find the pronounced overoptimism to be limited to self-employment. Overoptimism thus seems not a general feature of transitions on the labor market.

The longitudinal nature of our data also enables us to provide new insights into the nature of the self-employed's overoptimism. By differencing out any unobserved, time-invariant individual characteristics from influencing people's ability to accurately forecast their future life satisfaction, we are able to correct for any selection effect that arises from people who are born with personality traits that not only make them more optimistic than others, but also make them more likely to select themselves into self-employment. In other words, we do not investigate whether people with a personality tending to overoptimism are more likely to mispredict how satisfied they will be with their lives as a self-employed person. Rather, our results show that self-employment fills people with an unrealistic sense of optimism that is independent of their stable predisposition regarding optimism, thereby leading them to mispredict how satisfied they will be with their life in the future.[1]

The remainder of the paper is organized as follows. In Section 2, we refer to some background literature focusing on insights about the link between self-employment and subjective well-being as well as on the forecasting of individual well-being in general. Section 3 presents the data and the empirical strategy. The main results are discussed in Section 4 and results for potential mechanisms in Section 5. Section 6 offers some concluding remarks.

2. Background literature and hypotheses

2.1. The subjective well-being of self-employed people

Many employed people in industrial countries report that they would prefer to be self-employed (Blanchflower, Oswald, & Stutzer, 2001). This seems consistent with the evidence that the self-employed are significantly more satisfied with their jobs than those in full-time employment (Benz & Frey, 2008; Blanchflower, 2000; Blanchflower & Oswald, 1998; Hundley, 2001).[2] Yet the picture is less clear when it comes to overall life satisfaction. While cross-sectional studies such as Alesina, Di Tella, and MacCulloch (2004), Blanchflower and Oswald (1998), and Hessels, Arampatzi, van der Zwan, and Burger (2018) have documented evidence that the self-employed people are more satisfied with life than employees, longitudinal studies such as Andersson (2008) and Powdthavee (2008) have reported a statistically insignificant association between self-employment and life satisfaction when individual fixed-effects are taken into account. More recently, Binder and Coad (2013) applied matching estimators on a sample of individuals from the British Household Panel Surveys and find a significant increase in life satisfaction in the year of making the transition from regular employment to self-employment. Despite these notable studies, empirical evidence on the dynamics of life satisfaction in the years that precede and follow the switch to self-employment remains currently scarce.

The literature also documents different trade-offs regarding the impact of becoming self-employed in different life domains, which might explain the weak statistical association between self-employment and life satisfaction. Binder and Coad (2016) show that the increase in job satisfaction from becoming self-employed "crowds out" pleasurable experiences in other important life domains. Using the German Socio-Economic Panel, they report that while a transition from regular employment into self-employment is accompanied by a significant increase in job and health satisfaction, the same transition is also accompanied by a significant drop in satisfaction with leisure time. This latter finding is confirmed in another study for Germany by van der Zwan, Hessels, and Rietveld (2018). However, despite the negative effect of self-employment on leisure satisfaction, Binder and Coad (2016) report that the net effect of self-employment on overall life satisfaction is positive, suggesting that the positive effects on job and health satisfaction tend to dominate the negative relationship between becoming self-employed and satisfaction with leisure time. Hanglberger and Merz (2015) further observe complete adaptation to the positive effect on job satisfaction within three years after becoming self-employed. Based on the same German data, Binder (2017) finds that self-employment is related to an increase in personal worries about the financial situation and job security, which provides a further explanation for the empirically weak association between self-employment and life satisfaction. Overall, these previous findings seem to suggest that the self-employed might have underestimated the extent to which other areas of their life would be negatively affected as a consequence of self-employment. We aim to shed more light on this issue and analyze reported satisfaction in various domains as additional outcome measures in the section on potential mechanisms.

[1] Moreover, due to our research design, we are not relying on the interpersonal comparability of self-reports in levels but only have to assume that people's internal response or evaluation function is stable over time (an assumption studied empirically in Odermatt and Stutzer, 2019).

[2] An increase in the satisfaction with the main activity is also observed for three groups of previously inactive people who became self-employed, i.e., students, retirees and homemakers. Students seem to experience even a larger increase in satisfaction when taking up self-employment rather than paid employment (Justo et al., 2021).

2.2. Predicting the consequences of self-employment

There is a substantial body of research discussing self-employed people's optimism and overconfidence regarding the probability of business success (see, e.g., Arabsheibani, de Meza, Maloney, & Pearson, 2000, Forbes, 2005; Cooper, Woo, & Dunkelberg, 1988; Dawson, de Meza, Henley, & Arabsheibani, 2014; De Meza & Southey, 1996; Dosi & Lovallo, 1997; Fraser & Greene, 2006; Koellinger, Minniti, & Schade, 2007; Lowe & Ziedonis, 2006; Simon & Shrader, 2012). These studies suggest that self-employed individuals tend to overestimate their ability, particularly relative to others, and tend to be overly optimistic with regards to their earnings prospects. They are also generally more optimistic about their business success than employed managers, even though such expectations often do not materialize. This belief is related to a general optimism bias, which is the tendency to overestimate the future likelihood of positive events (see, e.g., Sharot, 2011, for a review).

However, focusing primarily on the probability of business success, which for many self-employed individuals seems to be a most salient feature associated with self-employment, might prevent people from taking other less prominent consequences of self-employment into account in their forecasts. This would be consistent with research on affective forecasting in psychology that has found that individuals are generally not very good at predicting their future emotional reactions to changes in life, for which various reasons have been put forward (for reviews, see Wilson & Gilbert, 2003 and more recently Wilson & Gilbert, 2013). As entering self-employment can be considered a major decision that goes along with many life changes, this literature may be informative regarding mechanisms for potentially systematic errors in people's predictions of their future life satisfaction after the transition to self-employment. One of the main reasons is focalism, i.e., people's tendency to assign too much weight to aspects that are salient at the time when making the prediction (see, e.g., Wilson, Wheatley, Meyers, Gilbert, & Axsom, 2000). For example, Kahneman, Krueger, Schkade, Schwarz, and Stone (2006) show that when people are prompted to think about whether or not they would be happier if they were richer, they tend to put more of their attention on what money can buy them – for example, nice vacation, big screen television – and much less on the need to spend more of their time working and commuting. Hence, it might be the case that people who are making predictions about their future life satisfaction as self-employed are focusing too much on the entrepreneurial activities and successes that they aspire and too little on how much their daily life will have to change when working as a self-employed. One might further conjecture that self-employed individuals are more heavily affected by the focusing effect than an average wageworker when predicting their future life satisfaction. We think that self-employment and general wage work differ in employment-specific features that lend themselves to capture particular attention. Self-employment is often associated with "high-risk, high--reward". In contrast, while the salary is a prominent feature of any wage work, there is generally less focus on the prospective returns. Accordingly, other work and life domains get comparatively more attention when people predict the consequences of a job change on their future well-being.

Another reason for errors in people's predictions is the tendency to overestimate the initial impact and/or duration of an emotional event (e.g., Gilbert, Driver-Linn, & Wilson, 2002). The general notion of this so-called "impact bias" is that people have biased expectations about the intensity and duration of their emotional responses because people adapt to the new circumstances more easily than anticipated. The intensity and duration neglect can also be described in terms of a projection bias according to which people often falsely project current emotional reactions onto the future (Loewenstein, O'Donoghue, & Rabin, 2003). In that sense, it is possible that the recently self-employed may have biased expectations about the intensity and duration of well-being responses to self-employment in the future, especially when they experience a significant increase in job satisfaction in the year of making the transition from regular employment to self-employment. However, the direction of a potential bias is *a priori* not clear. For example, Di Tella, Haisken-DeNew, and MacCulloch (2010) find that evidence on adaptation is significantly more pronounced for changes in income than for changes in a job's prestige score, which reflects to a large extent of whether or not a job is intrinsically interesting and worthwhile. Given the autonomy involved in self-employment, people entering it may not have overestimated but underestimated their future life satisfaction if they have not yet had the possibility to cherish the procedural utility that it provides (Benz & Frey, 2008). Hypotheses about the direction of errors in forecasts of future subjective well-being of newly self-employed are therefore difficult to formulate. Still, we will discuss in our empirical analysis whether unanticipated adaptation or focalism might reflect relevant sources of mispredicted consequences of self-employment above and beyond misperceptions of the probability of success. In addition to this, we will also directly address the objection that any evidence of misprediction among the self-employed can be explained entirely by individual differences in stable personality traits, for example, related to optimism.

2.3. Main hypothesis

To formulate our hypothesis regarding the extent of the self-employed's overoptimism regarding their future life satisfaction, we deviate from the rational expectations assumption in which people are modelled to i) optimally incorporate the information that they have available at the time, for example, about the future economic development, and ii) to know their preferences in the future. We instead allow systematic prediction errors in their expected outcomes and regarding their future preferences. This perspective is able to integrate not only considerations about optimism and (financial) returns of self-employment, but also psychological insights about how people forecast consequences of changes in the circumstances for individual well-being. Based on the psychological models of affective forecasting, we formulate our main hypothesis with regards to the self-employed's overoptimism as follows: Newly self-employed individuals, on average, overestimate how satisfied they will be with their life five years into the future, i.e., predicted life satisfaction for year t plus 5 years is higher than actual life satisfaction five years from making the prediction.

3. Data and empirical strategy

In our attempt to address whether self-employed individuals are good at predicting their future well-being, we draw on forecasts that do not ask about expected satisfaction with specific circumstances. Instead, we consider people's general predictions of their life satisfaction before and after becoming self-employed. In a longitudinal study, these assessments around the transition from regular employment to self-employment can then be compared with the "realizations" of current reported life satisfaction later on.[3]

3.1. Data description

In our analysis, we study individual-level panel data from the German Socio-Economic Panel (SOEP), which is an extensive representative survey of the population in Germany (Wagner, Frick, &

[3] The same approach has been applied by Frijters et al. (2009) to study the accuracy of forecasts in East Germany after the fall of the Berlin Wall but before the reunification took place. They find evidence for clear initial overoptimism. This combination of data has also been applied by Lang et al. (2013) and Schwandt (2016) to explain the midlife nadir in life satisfaction. They find young people to be overly optimistic about their future life satisfaction, while older people gradually become overly pessimistic about their future life satisfaction.

Schupp, 2007). Since 1984, the SOEP has surveyed the German population and asked a wide range of questions regarding their socioeconomic status, their demographic characteristics, and their attitudes.

As an indicator for becoming self-employed, we use the year-to-year changes of the occupational position for each individual, i.e., the status change from paid employment (part- or full-time) to self-employment across two surveys (first transition per individual). We consider people as self-employed when they indicate being "free-lance professional" or "other self-employed" with or without co-workers. We do not consider "helping in the family business" as an indication of being self-employed, and we further exclude the self-employed farmers from the sample. We only consider the first time that the respective status change occurs for an individual within the sample period and exclude respondents who switched to self-employment before entering the survey (left-censored spells).[4] We further restrict our sample to those with a full record of the occupational position without any missing years, which ensures that we have observed all status changes within the panel. This strategy allows us to study individuals' actual and predicted life satisfaction in the years leading to and following the transition from employment to self-employment, irrespective of whether the people remain in self-employment thereafter. In supplementary analyses, we split the sample and separate between people leaving self-employment again and people who remain in self-employment for at least five years.

In order to study changes in satisfaction in self-employed's life and how accurate self-employed individuals are in predicting their future life satisfaction, we make use of a battery of additional information in the SOEP. In particular, the survey elicits an individual's subjective well-being using the responses to the following question:

"How satisfied are you with your life, all things considered?"

In some years, people are subsequently asked,

"And how do you think you will feel in five years?"

For both questions, respondents are prompted to respond using a scale that ranges from 0 "completely dissatisfied" to 10 "completely satisfied". The first question was asked every year since the beginning of the SOEP, and both questions together were asked in 19 years in the period between 1991 and 2013. This encompasses the years 1991 until 2004, 2008, 2009, and 2011 until 2013. The item non-response is less than half a percent for current life satisfaction and less than two percent for predicted life satisfaction. Furthermore, we make use of questions about people's satisfaction in certain life domains, i.e., satisfaction with the job, leisure time, health, household income, and family life.

For the main analysis, we restrict the sample to the period for which we have the information for people's life satisfaction as well as their evaluation about their predicted satisfaction in five years' time. We further restrict the sample to observations with non-missing information for any of the variables used in the analyses (except the work characteristics and domain satisfaction measures). We only consider people who are within the age range between 17 and 65 years.

In our analysis, we include both people who have experienced the status change to self-employment and those who have not, but who might still experience a transition to it, i.e., people who are currently in paid employment. Including people who have not (yet) experienced the status change allows us to estimate the coefficients of our control variables more precisely. In particular, this strategy allows us to estimate the profile of life satisfaction around life events vis-à-vis a counterfactual situation of general changes in circumstances. This is particularly important for time-specific effects that otherwise might be difficult to separate from the impact of the life events themselves.

Descriptive statistics are presented in Table A.1 in the Appendix, for the sample of 1313 individuals who have experienced the status change to self-employment and 27,350 individuals who have not (providing us with a final sample of 137,727 observations from 28,663 individuals for the analysis). Of 1313 self-employed individuals in the panel, 954 left self-employment within five years of making the initial transition. Five years after the transition, around half of individuals are still part of the sample. Average life satisfaction is higher for individuals in regular employment, although average predicted life satisfaction is higher among the self-employed. There is also descriptive evidence that average labor income is higher for relatively more successful self-employed individuals, i.e., those who did not leave self-employment within the first five years of making the transition, than individuals in regular employment and those who left self-employment within the first five years of making the transition.

3.2. Descriptive evidence

Fig. A.1 in the Appendix provides our first descriptive evidence by plotting the development of the actual average life satisfaction and the average predicted life satisfaction around the status change from regular employment to self-employment. On average, people who become self-employed are highly optimistic about their life prospects, with their level of optimism peaking within the first year after the transition. This is revealed by predicted levels of life satisfaction being higher than current levels of life satisfaction in the years prior to the transition. The high expectations in the first interview after becoming self-employed are clearly not borne out when looking at the slightly falling pattern in actual life satisfaction. Furthermore, we observe that the change of predicted satisfaction around the transition to self-employment is slightly more positive than it is for actual satisfaction, which could have been driven by people's belief that their life satisfaction is positively affected by their status change in the long run.

Fig. A.2 in the Appendix additionally shows the development of satisfaction measures regarding different life domains around the status change to self-employment. The patterns suggest that the notable increase in both actual and predicted life satisfaction at the year of status change can be explained in part by the sharp rise in work satisfaction, which is probably one of the most salient domain changes to becoming self-employed. Consistent with Binder and Coad (2016), there is also a noticeable drop in leisure satisfaction following the decision to become self-employed. This effect seems to have less weight in the overall evaluation than the increase in job satisfaction as there is an overall increase in both actual and predicted life satisfaction. One possible reason for this may be that the newly self-employed believe that the enjoyment of work will persist while they become able to handle and adapt to the increased time pressure in the future.

3.3. Empirical strategy

The panel structure of the data allows analyzing the patterns in current and predicted life satisfaction in a much more rigorous way than following raw means over the course of the status change. In particular, it is possible to take into account many observable and unobservable covariates by combining a flexible structure to estimate the variation in subjective well-being around the event with a control strategy comprising a series of fixed effects. Specifically, we use separate time-dummies for the years around the transition to capture its effect on the well-being measures before and after the individuals' transition (see, e.g., Clark, Diener, Georgellis, & Lucas, 2008, Odermatt & Stutzer, 2019). The corresponding regression model has the following basic form:

$$LS_{it} = \alpha_i \sum_{j=-3}^{6} \theta_j SE_{it}^{j} + \beta' \mathrm{X}_{it} + \varepsilon_{it} \quad (1)$$

where LS_{it} is the realized actual life satisfaction of individual i at time t;

[4] We cannot exclude the possibility that some people experienced self-employment spells prior to entering the sample.

$\boldsymbol{X}_{it}$ is a vector of standard individual controls. The main variables of interest are a series of dummy variables SE^{j}_{it} indicating the number of years, j, before and after the transition to self-employment. The first dummy SE^{-3}_{it} captures observations two to three years before the transition. The last dummy captures the reports of people who experienced the transition six or more years previously. This implies that all the years preceding the three-year period prior to the transition make up the reference level. Importantly, we further include individual fixed-effects, α_i. This controls for any time-invariant characteristics, thus allowing us to factor out stable personality traits such as inborn optimistic predispositions that confound the relationship between life satisfaction and self-employment.

We want to understand the development of the net consequences on individual well-being. Accordingly, we take into account predetermined factors as control variables but no potentially endogenous variables such as income, working hours, or health. The vector of control variables, $\boldsymbol{X}_{it}$, includes marital status, years of schooling, German nationality, number of children in the household, and household size. Year of age-specific fixed effects, i.e. separate dummies, capture changes in our dependent variables that are common for a particular age in the most flexible form. Time-fixed effects are further included to control for systematic changes over time that are common to all the individuals. Region-fixed effects control for regional characteristics that might be correlated with our variables of interest. As explained in Section 3.1, we include both people who have experienced the status change to self-employment and those who have not. While the inclusion of the latter group does not alter the estimates of the effect of the status change, it allows us to estimate the coefficients of our control variables more precisely. Standard errors are clustered at the individual level. This takes into account that idiosyncratic errors, ε_{it}, might be serially correlated and standard errors, in turn, understated (Bertrand, Duflo, & Mullainathan, 2004).

In order to study whether people's expectations about their future life satisfaction in the year of becoming self-employed are too high, we use the model in Eq. (1) and estimate the pattern of the impact of the transition to self-employment on the expected satisfaction in five years by replacing the dependent variable "life satisfaction" by "predicted life satisfaction". The same sample is used across the two key satisfaction measures. This enables us to directly compare the dynamics of predicted life satisfaction, i.e., the expected average change in life satisfaction, with the dynamics of actual life satisfaction before and after the transition from regular employment to self-employment. In other words, the estimates from the two regression equations provide us with a direct measure of the prediction error associated with self-employment, conditional on the average individual-specific errors in the period prior to the three years preceding the transition.

4. Results

4.1. Effects on life satisfaction

We approach the core question in two steps in our main empirical analysis. In Table 1, we first present the dynamics of actual life satisfaction before and after becoming self-employed. In the most parsimonious specification (Specification *I*), in which the main explanatory variable is a dummy variable for being currently self-employed, we can see that a change in the employment status to self-employment is statistically significantly associated with a 0.125 increase in life satisfaction on the 11-point scale, which is roughly one-third of the estimated positive relationship between first year of marriage (rather than being single) and life satisfaction (see Odermatt & Stutzer, 2019). This estimated coefficient captures the average difference in life satisfaction between the years when self-employed rather than employed. This comparison of an individual's spells of employment and self-employment in terms of life satisfaction might involve trajectories with several changes. Accordingly, any possible negative effect of a business failure, for example, on life satisfaction experienced after having left self-employment would not be captured by our indicator for self-employment. Rather, it would be part of the experience when employed again and thus lower the well-being in the reference status. We address this and related obstacles to the interpretation of the association with an event study in Specification *II*.

Table 1
Regression of life satisfaction on becoming self-employed in Germany, 1991–2013.

Dependent variable: Life satisfaction	I	II	III Do not remain self-empl.	IV Remain self-empl.
Self-employed	0.125***			
	(0.04)			
Before becoming self-employed				
3–2 years before		0.043	0.018	0.117
		(0.07)	(0.08)	(0.14)
2–1 years before		0.008	0.019	–0.025
		(0.07)	(0.08)	(0.12)
Within the next year		–0.049	–0.064	–0.012
		(0.07)	(0.08)	(0.12)
After becoming self-employed				
0–1 year		0.129*	0.115	0.166
		(0.07)	(0.08)	(0.13)
1–2 years		0.008	–0.072	0.183
		(0.08)	(0.09)	(0.12)
2–3 years		0.051	–0.039	0.230**
		(0.08)	(0.09)	(0.12)
3–4 years		–0.087	–0.173*	0.066
		(0.08)	(0.10)	(0.12)
4–5 years		–0.163*	–0.278***	0.029
		(0.09)	(0.11)	(0.13)
5–6 years		–0.145	–0.239**	0.011
		(0.09)	(0.12)	(0.13)
6 or more years		–0.109	–0.149	–0.013
		(0.08)	(0.09)	(0.10)
Individual controls	Yes	Yes		Yes
Age fixed effects (FE)	Yes	Yes		Yes
Time and region FE	Yes	Yes		Yes
Individual FE	Yes	Yes		Yes
No. of observations	137,727	137,727		137,727
No. of individuals	28,663	28,663		28,663
R^2	0.02	0.02		0.02

Notes: Standard errors clustered at the individual level in parentheses. Individual controls include the marital status (married; widowed; single; separated; divorced), years of schooling, German nationality, number of children in household, and household size. All specifications are estimated based on the same sample. The coefficients for the third Specification in columns *III* and *IV* indicate interaction terms for the respective groups. Significance levels: * 0.05<p<.1, ** 0.01<p<.05, *** p<.01. *Data source:* SOEP.

Specification *II* allows for the dynamics of life satisfaction to be estimated for the years that precede and follow the individuals' first transition into self-employment. The dummies for the years around the transition capture the respective net effect on life satisfaction, irrespective of whether the individual remains self-employed. We observe that the estimated coefficient for the first year following the transition to self-employment is also positive and of similar size as the coefficient obtained in Specification *I*. Moreover, we see evidence of a marked decline in life satisfaction four years after making the transition to self-employment. As revealed in the Specification presented in columns *III* and *IV*, the estimated drop can be attributed to individuals who leave self-employment within five years after making the first status change. This is in line with a recent finding that losing self-employment is strongly negatively related with life satisfaction (Hetschko, 2016). The decline in life satisfaction in some years after making the transition to

Table 2
Regression of *predicted* life satisfaction on becoming self-employed in Germany, 1991–2013.

Dependent variable: Predicted life satisfaction	I	II	III Do not remain self-empl.	IV Remain self-empl.
Self-employed (0,1)	0.207***			
	(0.04)			
Before becoming self-employed				
3–2 years before		0.072	0.125*	–0.095
		(0.06)	(0.07)	(0.12)
2–1 years before		0.061	0.082	–0.006
		(0.06)	(0.07)	(0.12)
Within the next year		0.130**	0.071	0.285**
		(0.07)	(0.07)	(0.13)
After becoming self-employed				
0–1 year		0.352***	0.360***	0.321***
		(0.07)	(0.08)	(0.11)
1–2 years		0.273***	0.252***	0.308**
		(0.07)	(0.08)	(0.13)
2–3 years		0.249***	0.245***	0.254*
		(0.08)	(0.08)	(0.13)
3–4 years		0.111	0.136	0.066
		(0.08)	(0.09)	(0.12)
4–5 years		0.057	0.037	0.081
		(0.08)	(0.10)	(0.13)
5–6 years		0.015	–0.010	0.042
		(0.09)	(0.11)	(0.12)
6 or more years		0.022	0.013	0.032
		(0.08)	(0.09)	(0.11)
Individual controls	Yes	Yes		Yes
Age fixed effects (FE)	Yes	Yes		Yes
Time and region FE	Yes	Yes		Yes
Individual FE	Yes	Yes		Yes
No. of observations	137,727	137,727		137,727
No. of individuals	28,663	28,663		28,663
R^2	0.03	0.03		0.03

Notes: Standard errors clustered at the individual level in parentheses. Individual controls include the marital status (married; widowed; single; separated; divorced), years of schooling, German nationality, number of children in household, and household size. All specifications are estimated based on the same sample. The Specification in columns *III* and *IV* includes mutually exclusive interactions of the leads/lags with two dummies indicating whether people do not remain self-employed or remain self-employed. The coefficients display the leads and lags for the group indicated at the top of the respective columns. Significance levels: * 0.05<p<.1, ** 0.01<p<.05, *** p<.01. *Data source:* SOEP.

self-employment does not appear for those who remain in self-employment for at least five years.[5]

4.2. Effects on predicted life satisfaction

Table 2 moves on to present the dynamics of predicted life satisfaction five years into the future around the transition to self-employment. Given that this is a within-person regression, the coefficients here either represent the change in predicted life satisfaction compared to the predicted life satisfaction in years not being self-employed (Specification *I*) or compared to four and more years before the transitional year to self-employment (Specifications *II-IV*).

According to Specification *I*, people are, on average, significantly more optimistic about their future life satisfaction in the years they are self-employed than in the years when they are in paid employment. Note that this finding is robust to controlling for individual differences in stable optimistic personality traits (as individual fixed-effects are included). Specification *II* introduces leads and lags into the predicted life satisfaction equation. We find predicted life satisfaction to increase by 0.13-point for individuals who are about to become self-employed within the next 12 months. The level of optimism (in terms of predicted life satisfaction being above the level during the reference period) peaks in the first year after the transition: the coefficient for being self-employed for 0–1 year after the transition is 0.352, with a robust standard error of 0.07. We find little mean reversion to this heightened level of optimism during the first three years following the transition. However, there is a substantial decrease in the level of optimism for the years thereafter. The Specification in columns *III* and *IV* shows that the same dynamic patterns hold both for people who leave self-employment within five years after making the transition and for those who remain in self-employment for at least five years.

4.3. Are self-employed people overly optimistic about their future life?

Based on the estimates in Tables 1 and 2, we can now empirically address the question about the level of overoptimism that follows self-employment. Here, the prediction error is given by the difference in predicted satisfaction in the first interview after the event and the actual life satisfaction five years later, i.e., the difference between the predicted long-term impact of the event and the actual impact of the event.[6]

Fig. 1 shows a graphical representation of the coefficients in

[5] One could consider the latter group as a kind of "successful" entrepreneurs. Note that five to six years after the first transition to self-employment, only about one third are still self-employed.

[6] Strictly speaking, we calculate the prediction error by comparing how predictions and realizations change relative to people's respective level in the reference period (i.e., more than three years before they become self-employed). As the estimates are based on overlapping samples, the estimators are stochastically not independent from each other. This requires that the covariance of the two regressors is taken into account to test the difference between the regressors. To obtain the covariance between the two models, we apply the stacking method described in Weesie (1999). It allows the parameter estimates and associated (co-)variance matrices to be stored in one parameter vector to obtain a simultaneous (co-)variance matrix of the sandwich/robust type (Odermatt and Stutzer, 2019).

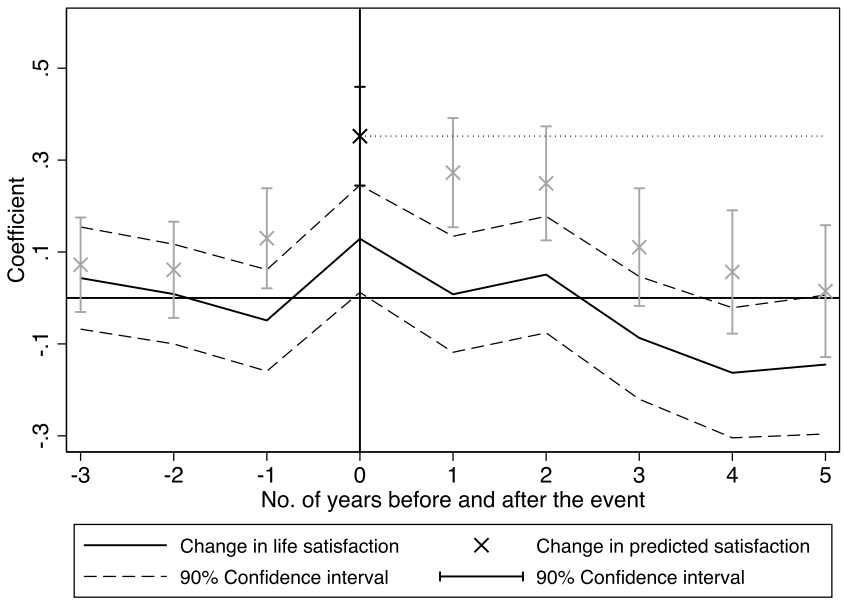

Fig. 1. Change in actual and predicted life satisfaction around the transition to self-employment
Note: The presented coefficients are from Specification II in the Tables 1 and 2 referring to the full sample. The horizontal dotted line is an auxiliary line that indicates the effect of the transition to self-employment on the expected satisfaction five years after the transition. The prediction error is reflected in the difference between the dotted line and the solid line capturing the effect on actual satisfaction in period 5. *Data source:* SOEP.

Specification *II* of Table 1 (solid line) and the coefficients in Specification *II* of Table 2 (gray crosses). The dotted line is an auxiliary line that indicates the effect of the transition to self-employment on the expected satisfaction five years after the transition. The prediction error is reflected in the difference between the dotted line and the solid line (capturing the effect on actual satisfaction) in period 5.

The prediction error can be calculated by the difference that results when the actual impact (the coefficient for *5–6 years* in Specification *II*, Table 1) is subtracted from the predicted impact (the coefficient for *0–1 year* in Specification *II*, Table 2). The estimates reveal a statistically significant prediction error of 0.497 (*z*-value: 5.30) on the eleven-point satisfaction scale. This indicates positive expectations that are overly optimistic. This finding is consistent with our hypothesis that, irrespective of their stable optimistic personality traits, people who become self-employed overestimate the positive impact of this transition on their realized life satisfaction in the future. As stated previously in Section 2.2., this might be partly due to humans' inability to accurately forecast their future emotional well-being (Loewenstein et al., 2003; Wilson & Gilbert, 2003, 2013). For example, when prompted with a question about their future life satisfaction, newly self-employed may be focusing too much on the potential successes and too little on how much their daily life will have to change when working as a self-employed, thus leading to a positive forecasting error about one's future well-being. Interestingly, the increase in predicted satisfaction in the transitional year to self-employment is statistically significantly higher than the increase in people's actual life satisfaction. This suggests that people in the first survey after getting self-employed, expect that their life satisfaction will further increase in the years after the transition. In contrast, actual life satisfaction, on average, continually decreases over the five-year period, leading to the sizeable average prediction error.[7]

[7] In three sensitivity analyses we considered gender differences, differences between East- and West-Germany as well as heterogeneity regarding the type of self-employment. In the sample with males only, the prediction error is about 20 percent larger than the one in the sample with females only. The size of the prediction error is similar when restricting the sample to residents in East- or West-German states, respectively. When excluding freelancers from the sample of newly self-employed, the resulting prediction error increases to 0.607 (while it amounts to 0.42 for freelancers only).

Fig. 2a shows the coefficients in column *III* of the Specification with interaction terms in Tables 1 and 2, i.e., for those who leave self-employment within 5 years after the transition. The estimates reveal an even more pronounced prediction error of 0.592 (z-value: 4.96) on the eleven-point satisfaction scale. The bigger prediction error in the first year is not surprising as it comprises the very likely overestimation of the probability of remaining in self-employment for the relatively unsuccessful self-employed individuals. Fig. 2b shows the coefficients in column *IV* in Tables 1 and 2, i.e., for those who remain in self-employment for at least 5 years after the transition. Even for this selection of successful self-employed individuals, the estimates reveal a statistically significant prediction error. It is, however, about half the size compared to the unsuccessful self-employed. It amounts to 0.310 (*z*-value: 2.26) on the eleven-point satisfaction scale. This indicates that statistically significant overoptimism is prevalent even among the relatively successful self-employed in our sample.

Overall, this provides evidence that, on average, self-employment tends to be observed with a degree of overoptimism that is prevalent even for the successful self-employed who manage to remain self-employed for at least five years.

4.4. Comparisons: self-employment out of unemployment and voluntary employer change

In this section, we assess whether the detected overoptimism and its magnitude are particular characteristics of the voluntary switch to self-employment or whether the observed patterns in (predicted) satisfaction with life are a general feature related to changes in employment. For this, we engage in a comparison and additionally study the prediction errors for people who become self-employed after an unemployment spell and for people who switch their job and employer.

Regarding self-employment out of unemployment, we follow a distinction in the literature between opportunity and necessity self-employment. The former category refers to people who likely voluntarily switched into self-employment, and the latter to people who are pushed into self-employment due to bad employment prospects and the wish to escape from unemployment (see, e.g., Block & Wagner, 2010 or Fairlie & Fossen, 2019). We approximate people's motivation to become self-employed by their prior employment status. Necessity

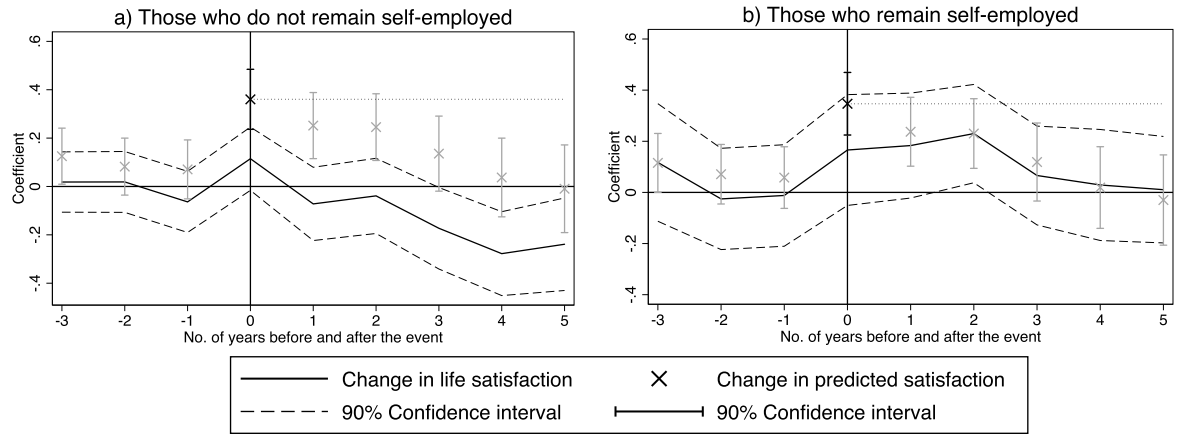

Fig. 2. Change in actual and predicted life satisfaction around the transition to self-employment for those who leave self-employment and those who do not
Note: The presented coefficients are from columns *III* and *IV* respectively in the Tables 1 and 2 referring to the two different subsamples. The dotted line is an auxiliary line that indicates the effect of the transition to self-employment on the expected satisfaction five years after the transition. The prediction error is reflected in the difference between the dotted line and the solid line (capturing the effect on actual satisfaction) in period 5. *Data source:* SOEP.

Table 3
Regression of life satisfaction (LS) and predicted life satisfaction (PS) on becoming self-employed out of employment versus unemployment and on voluntary change of employer.

Job change type:	Employed to self-employed		Unemployed to self-employed		New employer	
	I	II	III	IV	V	VI
Dependent variable:	LS	PS	LS	PS	LS	PS
Before the status change						
3–2 years before	0.043	0.072	–0.205*	–0.092	0.017	0.007
	(0.07)	(0.06)	(0.12)	(0.12)	(0.06)	(0.06)
2–1 years before	0.008	0.061	–0.172	–0.064	–0.091	0.048
	(0.07)	(0.06)	(0.14)	(0.14)	(0.06)	(0.06)
Within the next year	–0.049	0.130**	–0.541***	0.011	–0.139**	0.099*
	(0.07)	(0.07)	(0.14)	(0.13)	(0.06)	(0.06)
After the status change						
0–1 year	0.129*	0.352***	0.031	0.090	0.091	0.210***
	(0.07)	(0.07)	(0.16)	(0.14)	(0.06)	(0.05)
1–2 years	0.008	0.273***	–0.289*	–0.121	–0.026	0.107*
	(0.08)	(0.07)	(0.16)	(0.17)	(0.06)	(0.06)
2–3 years	0.051	0.249***	–0.134	0.014	0.025	0.108*
	(0.08)	(0.08)	(0.17)	(0.18)	(0.07)	(0.06)
3–4 years	–0.087	0.111	0.014	0.044	0.021	0.040
	(0.08)	(0.08)	(0.16)	(0.18)	(0.07)	(0.07)
4–5 years	–0.163*	0.057	–0.113	–0.101	0.115	0.059
	(0.09)	(0.08)	(0.14)	(0.16)	(0.07)	(0.07)
5–6 years	–0.145	0.015	–0.360**	–0.354*	0.076	0.052
	(0.09)	(0.09)	(0.18)	(0.20)	(0.07)	(0.07)
6 or more years	–0.109	0.022	–0.137	–0.290	0.050	0.043
	(0.08)	(0.08)	(0.17)	(0.19)	(0.07)	(0.07)
Prediction error in year 0–1:	0.497***		0.449**		0.135*	
PS(0–1year)–LS(5–6years)	(0.09)		(0.21)		(0.07)	
Individual controls	Yes	Yes	Yes	Yes	Yes	Yes
Age fixed effects (FE)	Yes	Yes	Yes	Yes	Yes	Yes
Time and region FE	Yes	Yes	Yes	Yes	Yes	Yes
Individual FE	Yes	Yes	Yes	Yes	Yes	Yes
No. of observations	137,727	137,727	128,834	128,834	112,909	112,909
No. of individuals	28,663	28,663	27,638	27,638	26,900	26,900
$_R2$	0.02	0.03	0.02	0.04	0.02	0.03

Notes: Standard errors clustered at the individual level in parentheses. Specifications I and II are included for easier comparison and are the same as Specification II of Tables 1 and 2, respectively. Individual controls include the marital status (married; widowed; single; separated; divorced), years of schooling, German nationality, number of children in household, and household size. Significance levels: * 0.05<p<.1, ** 0.01<p<.05, *** p<.01. *Data source:* SOEP.

self-employed individuals were unemployed in the last survey before they became self-employed. We observe 288 such transitions in our sample. Opportunity self-employed individuals were previously employed. Previous studies on necessity self-employed individuals find no or even a negative impact of the transition to self-employment on life satisfaction (e.g., Binder & Coad, 2016). How they fare in terms of predicted life satisfaction has not been addressed so far.

Table 3 provides a comparison of the leads and lags with current and predicted life satisfaction for the two groups. We observe a statistically significant and sizeable prediction error of 0.449 (z-value: 2.17) in the first year of self-employment for those who were previously unemployed in Specifications *III* and *IV*. This difference is not statistically

Table A.1
Descriptive statistics for three subgroups of our sample of employed and self-employed people in Germany, 1991–2013.

Never self-employed			Self-employed drop out within 5 yrs		Self-employed no drop out within 5 yrs	
	Mean	SD	Mean	SD	Mean	SD
Self-employed	0.00	0.00	0.18	0.39	0.63	0.48
Demographics						
Female	0.47	0.50	0.44	0.50	0.28	0.45
Age	40.25	11.58	38.80	11.19	40.52	9.95
No. of years schooling	12.15	2.57	12.83	2.90	13.24	2.90
German	0.93	0.25	0.92	0.27	0.95	0.22
Marital status						
Single	0.27	0.44	0.28	0.45	0.23	0.42
Married	0.63	0.48	0.62	0.48	0.65	0.48
Separated	0.02	0.13	0.03	0.16	0.03	0.16
Divorced	0.07	0.25	0.06	0.24	0.08	0.27
Widowed	0.01	0.12	0.01	0.10	0.01	0.11
Work characteristics						
Individual labor earnings	26,234.95	21,306.16	24,901.80	32,859.62	35,333.43	34,954.24
Actual weekly work time	38.33	11.41	41.71	15.88	47.74	14.88
Hours weekday leisure, hobbies	1.67	1.40	1.62	1.57	1.41	1.46
Desired weekly work hours	34.77	9.60	36.23	12.11	39.59	10.99
Autonomy in occupational actions	2.48	1.21	2.99	1.25	3.44	0.93
Household characteristics						
No. of children in HH	0.67	0.94	0.75	0.97	0.76	0.96
Number of persons in HH	2.99	1.24	3.03	1.23	2.94	1.23
Well-being measures						
Life satisfaction	7.11	1.61	6.97	1.76	7.03	1.63
Predicted life satisfaction in five years	7.27	1.77	7.47	1.78	7.46	1.68
Satisfaction with leisure time	6.57	2.17	6.08	2.41	5.58	2.46
Satisfaction with work	7.06	2.00	7.03	2.17	7.32	1.95
Satisfaction with household income	6.46	2.10	6.25	2.33	6.42	2.23
Satisfaction with personal income	6.33	2.20	6.01	2.58	6.26	2.46
Satisfaction with health	7.03	1.99	7.06	2.04	7.14	1.94
Satisfaction with family life	7.86	1.87	7.71	1.98	7.46	2.07
Satisfaction with housework	6.69	1.95	6.40	2.06	6.35	2.07
Satisfaction with standard of living	7.13	1.73	6.97	1.90	7.05	1.80
No. of observations	126,188		7330		4209	
No. of individuals	27,350		954		359	

Notes: *Never self-employed* refers to the sample of people who do not become self-employed. *Self-employed drop out within 5 yrs* refers to the sample of people who become self-employed but who leave self-employment within five years' time. *Self-employed no drop out within 5 yrs* refers to the sample of people who become self-employed and remain self-employed for at least five years. The three groups together provide a sample of 137,727 observations from 28,663 individuals. Of the 1303 individuals who become self-employed, we still observe 687 individuals five years after the transition to self-employment. Please note that some satisfaction measures and work characteristics are not surveyed in every year and for all individuals and thus have lower number of observations. *Data source:* SOEP.

significantly different from the prediction error for those people who switch from employment to self-employment in Specifications *I* and *II*. At first glance, the finding suggests that necessity and opportunity self-employed are similarly overoptimistic. However, there are notable differences in the estimated profiles for the two groups. While we observe a significantly smaller change in predicted satisfaction for those who switch to self-employment out of necessity (less initial optimism), they experience a more pronounced decrease in life satisfaction 5 to 6 years after the transition. A possible interpretation of the overoptimism refers to the hope of remaining on a level of life satisfaction that they experienced before losing the job while they are actually experiencing, on average, a setback. The difference in the initial optimism between the two groups corroborates the distinction in the literature regarding the motivation behind necessity and opportunity self-employment.

The second comparison involves people who switch their employer. This allows us to better understand whether the observed sizable overoptimism is distinctive for self-employment or whether the finding represents a more general phenomenon about employment changes. We focus on voluntary job changes that involved a change of the employer (and thus of significant circumstances). Following Chadi and Hetschko (2016) who study the impact of voluntary and involuntary job changes on life satisfaction, we define voluntary job changes as changes triggered by people's own resignation. We observe 1789 such voluntary job changes in our sample. In Specifications *V* and *VI* in Table 3, we report the estimates for the patterns around the voluntary change of the employer regarding current and predicted life satisfaction, respectively. The estimates reveal a statistically significant overestimation of future life satisfaction in the first year after the change of the employer of 0.135 (z-value: 1.89). This effect is less than a third of the prediction error for people who become self-employed. Overall, the findings suggest that prediction errors are generally prevalent around employment changes. The economically and statistically significant difference in the size of the error, however, indicates that overoptimism is most pronounced and a characteristic feature for transitions into self-employment.

5. Potential mechanisms

What explains the stark evidence of overoptimism among the new self-employed? Based on the theory of focusing illusion (Schkade & Kahneman, 1998), newly self-employed people may allocate too much of their attention on the more salient features of self-employment (e.g., being financially successful, having the autonomy to do what one wants to do, enjoying one's job, etc.), and too little on the less salient features of self-employment (e.g., no weekends, more responsibilities, the chance of facing failure, etc.), all of which matter to one's well-being. Complementary to this theoretical account, newly self-employed people might also overestimate the continuation of their initial well-being boost after becoming self-employed (see, e.g., Gilbert, Pinel, Wilson, Blumberg, & Wheatley, 1998 on the durability bias), or more generally project their current preferences into the future (Loewenstein et al.,

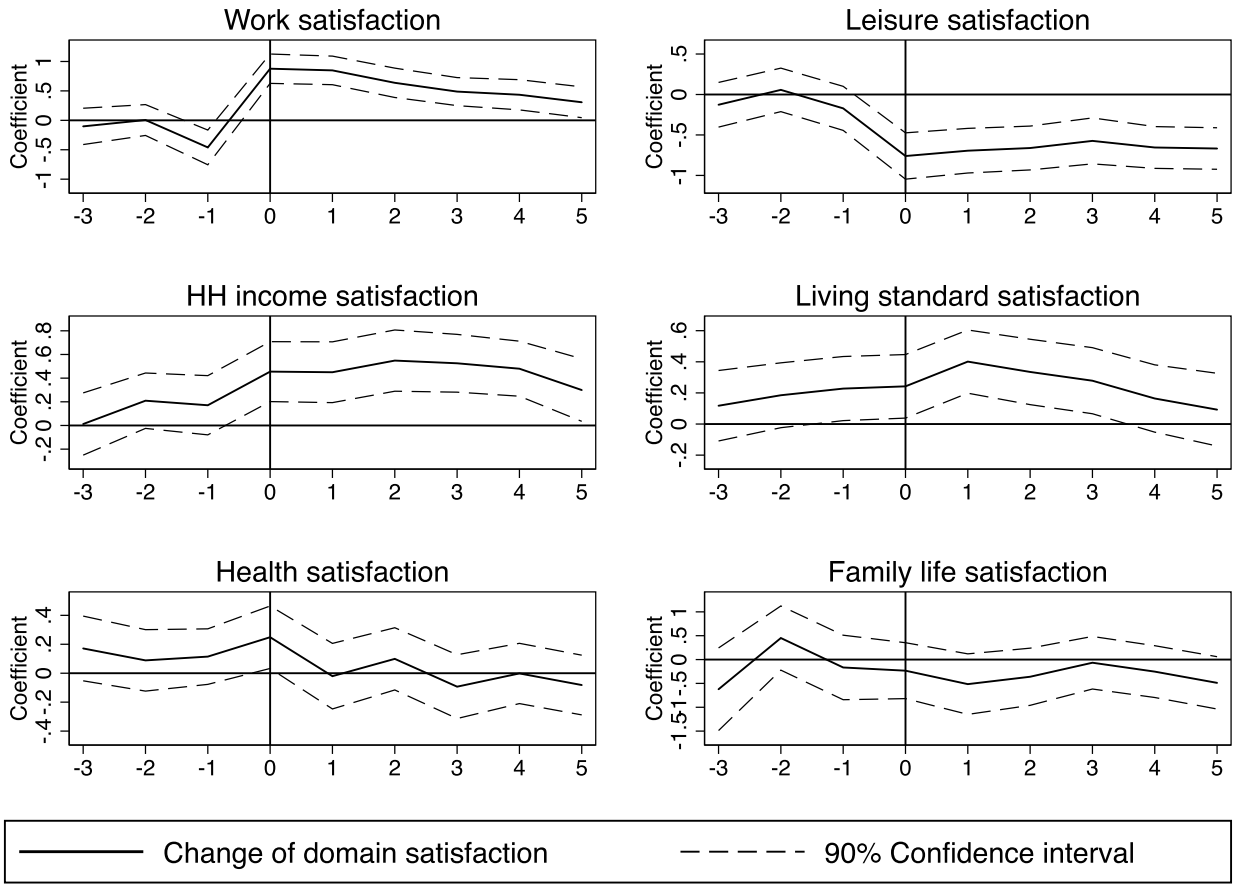

Fig. 3. Change in domain satisfactions around the transition to self-employment
Sample: People who remain in self-employment for at least five years
Notes: This figure displays the estimated coefficients presented in Table A.2. Individual controls include the marital status (married; widowed; single; separated; divorced), years of schooling, German nationality, number of children in household, and household size. *Data source:* SOEP.

2003). Moreover, these people might also overestimate the objective probability of success and underestimate the objective probability of failure of their new ventures at the time when making the transition to self-employment (Sharot et al., 2007).

While we cannot unpack the prediction process and do not observe people's predictions regarding their satisfaction for specific life domains, we can nevertheless examine what happens to different domains of a person's life after becoming self-employed. By looking at the dynamics of domain satisfactions (i.e., work, living standard, family life, leisure, household income, and health) and work outcomes (i.e., labor income, work hours, leisure time, deviation from desired working time, and autonomy at work) available within the dataset, we can gain a deeper insight into which parts of a person's life change the least and the most with self-employment. If these patterns in related life circumstances and their evaluation are not foreseen, they are prime candidates for a contextual circumscription of the observed phenomena of overoptimism.

5.1. Domain satisfaction

The estimated patterns in satisfaction in different domains before and after becoming self-employed are presented in Fig. 3 (the corresponding regression outputs are shown in Table A.2). Note that we only display and discuss the coefficients of the relatively successful self-employed (i.e., those who remain in self-employment for at least five years), because we would like to better understand the aspect of overoptimism that is independent of people's inability to accurately estimate the probability of remaining in self-employment, a proxy for a minimum level of business success.

Consistent with previous work, we find a significant and sizeable increase in work satisfaction of 0.88. Moreover, we detect a significant increase in satisfaction with household income and a statistically marginally significant increase in health satisfaction in the year after the transition from regular employment to self-employment. However, we observe a large drop in leisure satisfaction within 12 months of becoming self-employed.[8]

One might speculate that beside the possibility that people mispredict (or do not anticipate) the sharp decline in leisure satisfaction following self-employment, it might also be the case that people either overestimated the intensity and duration of the positive self-employment effect on their satisfaction with work, household income, and living standard, or did not anticipate their natural propensity to adapt to the positive changes in these life domains over time. As revealed in Fig. 3 (and Table A.2), satisfaction in all three domains, on average, experiences a notable decline over the course of self-employment, although adaptation is never complete for work satisfaction for the self-employed. In contrast, there is little evidence that leisure satisfaction is improving over time for these relatively successful self-employed individuals. This suggests that the self-employed people

[8] There is also evidence of a significant selection effect into self-employment that can be seen in satisfaction with one's living standard within one year before entering self-employment. This makes intuitive sense, considering that people who grew more comfortable with their living standard are probably more likely to start their own business in the near future.

Table A.2
Regression of different domain satisfactions on becoming self-employed Sample: People who remain in self-employment for at least five years.

	Work satisfaction	Leisure satisfaction	HH income satisfaction	Living stand. satisfaction	Health satisfaction	Family life satisfaction
Before becoming self-employed						
3–2 years before	–0.103	–0.127	0.012	0.117	0.171	–0.623
	(0.19)	(0.17)	(0.16)	(0.14)	(0.13)	(0.52)
2–1 years before	0.005	0.057	0.209	0.185	0.089	0.451
	(0.16)	(0.16)	(0.14)	(0.13)	(0.13)	(0.41)
Within the next year	–0.460***	–0.171	0.171	0.228*	0.115	–0.166
	(0.18)	(0.16)	(0.15)	(0.12)	(0.12)	(0.41)
After becoming self-employed						
0–1 year	0.877***	–0.760***	0.455***	0.242**	0.249*	–0.233
	(0.15)	(0.17)	(0.15)	(0.12)	(0.13)	(0.35)
1–2 years	0.848***	–0.695***	0.450***	0.401***	–0.020	–0.516
	(0.15)	(0.17)	(0.15)	(0.12)	(0.14)	(0.38)
2–3 years	0.637***	–0.661***	0.548***	0.335***	0.099	–0.361
	(0.15)	(0.16)	(0.16)	(0.13)	(0.13)	(0.36)
3–4 years	0.488***	–0.573***	0.526***	0.278**	–0.093	–0.066
	(0.14)	(0.17)	(0.15)	(0.13)	(0.13)	(0.33)
4–5 years	0.434***	–0.655***	0.480***	0.164	–0.002	–0.253
	(0.15)	(0.16)	(0.14)	(0.13)	(0.13)	(0.33)
5–6 years	0.307*	–0.668***	0.299*	0.092	–0.082	–0.489
	(0.16)	(0.15)	(0.16)	(0.14)	(0.12)	(0.33)
6 or more years	0.345**	–0.491***	0.199	0.056	–0.008	–0.326
	(0.13)	(0.14)	(0.14)	(0.11)	(0.11)	(0.30)
Individual controls	Yes	Yes	Yes	Yes	Yes	Yes
Age fixed effects (FE)	Yes	Yes	Yes	Yes	Yes	Yes
Time and region FE	Yes	Yes	Yes	Yes	Yes	Yes
Individual FE	Yes	Yes	Yes	Yes	Yes	Yes
No. of observations	181,156	176,121	185,141	127,246	186,831	70,647
No. of individuals	34,352	30,157	34,914	26,950	35,089	21,747
$_R2$	0.01	0.01	0.01	0.02	0.04	0.02

Notes: Standard errors clustered at the individual level in parentheses. Individual controls include the marital status (married; widowed; single; separated; divorced), years of schooling, German nationality, number of children in household, and household size. The samples consist of all observations from the period between 1991 and 2013 for which the respective domain satisfaction measure is available. Significance levels: * 0.05<p<.1, ** 0.01<p<.05, *** p<.01. *Data source:* SOEP.

largely adapt to the positive changes in their income domains, but remain stuck in a dissatisfying leisure time situation brought about by the transition.

5.2. Work outcomes

Fig. 4 shows the dynamics in more job-related characteristics brought about by self-employment (the corresponding regression outputs are shown in Table A.3). This includes average changes in a person's annual labor income, working hours, hourly wages, amount of leisure per day, actual minus desired work hours per week, and work autonomy after becoming self-employed.

Focusing on the sample of relatively successful self-employed individuals (i.e., those who remain in self-employment for at least 5 years), the results for work outcomes provide a picture that is largely consistent with the findings for satisfaction in different life domains. For example, the noticeable increase in the perceived autonomy at work might be one of the many drivers of the increase in job satisfaction. Furthermore, there is evidence of a statistically significant and sustained increase in the number of work hours per week following the transition. This corresponds fairly well with the clear and persistent drop in the number of leisure hours per day, which is consistent with the decrease in satisfaction with leisure time reported in Fig. 3.

One possible objection is that the increased number of work hours following self-employment is actually desired by the individuals. Yet, when we examine the actual minus desired work hours, we find the self-employed to work, on average, significantly more hours than desired compared to when they were not self-employed. It is also worth noting that the discrepancy between the self-employed's actual and desired work hours is significantly larger in the later years of being self-employed (5.44 hours in 5–6 years following self-employment) than in the beginning (2.56 hours in year 0–1).

The reduction in disposable leisure might indeed be one of the main adverse (and unexpected) work outcomes related to self-employment and might partly explain the prediction error. When we include the (endogenous) number of working hours beyond the desired level as an additional control variable in the regressions represented in Fig. 1, the estimated prediction error is 17 percent smaller (regressions not shown).

An interesting divergence is observed for labor income and satisfaction with living standard. Fig. 4 and Table A.3 show that, on average, annual labor income increases in every year after the transition for the relatively successful self-employed. However, as documented in Fig. 3 and Table A.2, after an initial increase in the satisfaction with one's living standard, there is a continuous decline close to the level in the reference period. One explanation might be that, despite earning more over time, the income aspirations are rising at an even faster rate (see, e.g., Stutzer, 2004).

6. Concluding remarks

The formation of expectations is a fundamental part of the process when people decide about becoming self-employed. Our evaluation of the expectations and experiences of people who become self-employed in Germany allowed us to examine empirically some of the popular beliefs about the (well-being) consequences of self-employment. We made use of the large German Socio-Economic Panel including information about people's work environment, work conditions as well as their evaluation of their satisfaction with various aspects of their work and private life. Importantly, we studied people's predictions of how satisfied they expect to be five years in the future and compare these predictions with the actual realizations five years later.

We showed that, irrespective of their stable optimistic personality traits, people who enter self-employment tend to be overly optimistic about how satisfied they will be with their lives in the future. This overoptimism is prevalent even for the successful self-employed who manage to remain self-employed for at least five years, which suggests

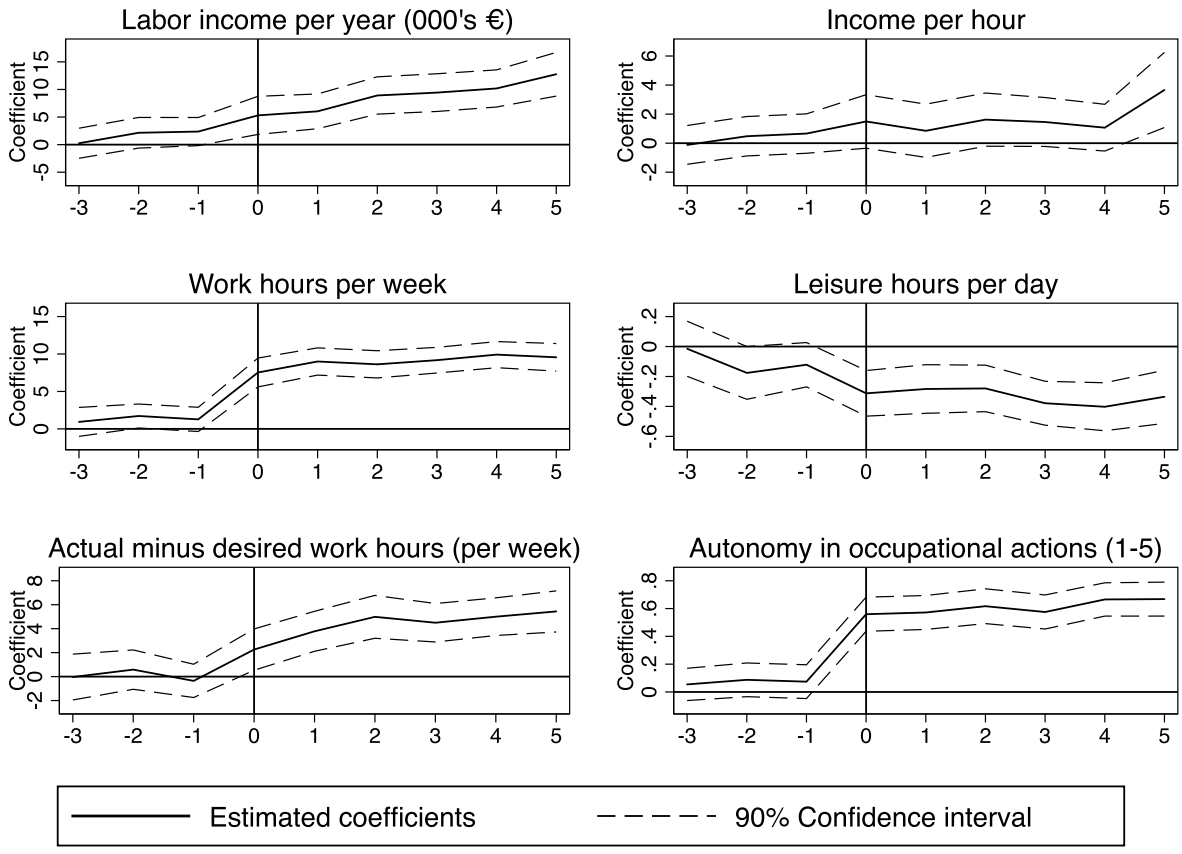

Fig. 4. Change in work outcomes around the transition to self-employment
People who remain in self-employment for at least five years
Notes: This figure displays the estimated coefficients presented in Table A.3. Individual controls include the marital status (married; widowed; single; separated; divorced), years of schooling, German nationality, number of children in household, and household size. *Data source:* SOEP.

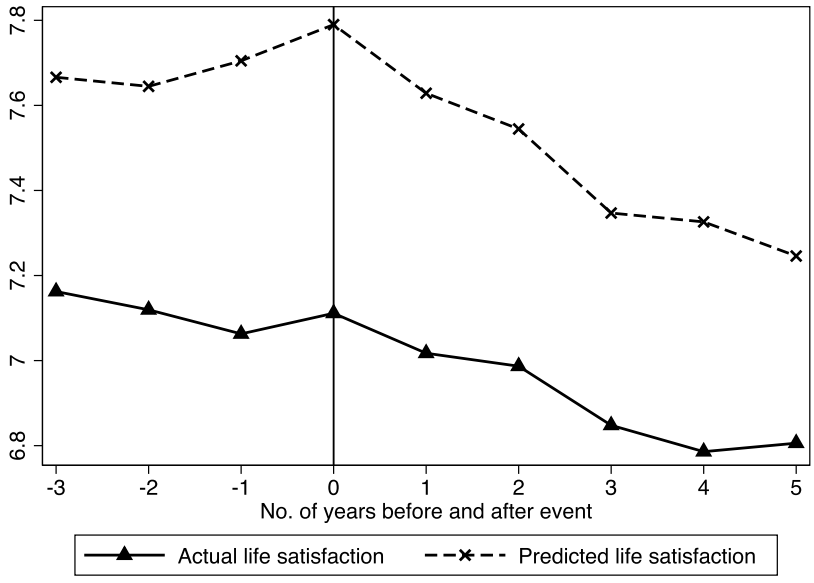

Fig. A.1. Descriptive profiles of actual and predicted life satisfaction around the transition to self-employment
Notes: Data points for year zero capture responses within the first year after the status change to self-employed. *Data source: SOEP.*

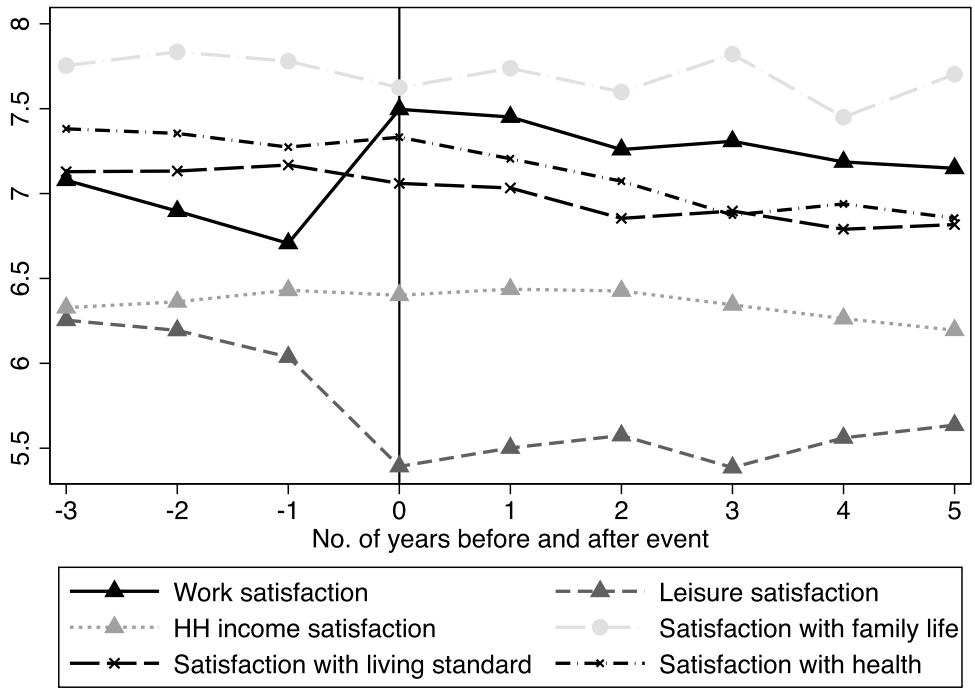

Fig. A.2. Descriptive profiles for various measures of domain satisfaction around the transition to self-employment
Notes: Data points for year zero capture responses within the first year after the status change to self-employed. *Data source:* SOEP.

Table A.3
Regression of different work-related outcomes on becoming self-employed
Sample: People who remain in self-employment for at least five years.

	Labor income per year (ths €)	Labor income per hour	Work hours per week	Leisure per day	Actual–desired work hrs p.w.	Autonomy at work
Before becoming self-employed						
3–2 years before	0.246	–0.120	0.933	–0.015	–0.038	0.054
	(1.64)	(0.81)	(1.17)	(0.11)	(1.15)	(0.07)
2–1 years before	2.146	0.479	1.719*	–0.176*	0.582	0.087
	(1.67)	(0.82)	(0.97)	(0.11)	(0.99)	(0.07)
Within the next year	2.368	0.661	1.268	–0.122	–0.358	0.074
	(1.54)	(0.82)	(0.98)	(0.09)	(0.84)	(0.07)
After becoming self-employed						
0–1 year	5.304**	1.494	7.530***	–0.313***	2.257**	0.559***
	(2.08)	(1.11)	(1.16)	(0.09)	(1.04)	(0.07)
1–2 years	6.036***	0.851	9.002***	–0.284***	3.782***	0.572***
	(1.90)	(1.11)	(1.10)	(0.10)	(1.01)	(0.07)
2–3 years	8.909***	1.621	8.621***	–0.280***	4.986***	0.617***
	(2.04)	(1.10)	(1.10)	(0.09)	(1.08)	(0.08)
3–4 years	9.426***	1.458	9.177***	–0.379***	4.494***	0.575***
	(2.06)	(1.01)	(1.03)	(0.09)	(0.97)	(0.07)
4–5 years	10.184***	1.067	9.916***	–0.402***	5.001***	0.666***
	(2.03)	(0.97)	(1.05)	(0.10)	(0.95)	(0.07)
5–6 years	12.755***	3.663**	9.558***	–0.335***	5.439***	0.668***
	(2.39)	(1.56)	(1.11)	(0.11)	(1.03)	(0.07)
6 or more years	13.842***	2.964**	8.614***	–0.318***	4.247***	0.542***
	(2.11)	(1.16)	(0.89)	(0.09)	(0.74)	(0.07)
Individual controls	Yes	Yes	Yes	Yes	Yes	Yes
Age fixed effects (FE)	Yes	Yes	Yes	Yes	Yes	Yes
Time and region FE	Yes	Yes	Yes	Yes	Yes	Yes
Individual FE	Yes	Yes	Yes	Yes	Yes	Yes
No. of observations	184,436	175,590	180,461	181,700	166,191	175,640
No. of individuals	34,651	32,824	34,690	34,849	31,012	33,172
$_R2$	0.15	0.05	0.04	0.03	0.01	0.05

Notes: Standard errors clustered at the individual level in parentheses. Individual control include the marital status (married; widowed; single; separated; divorced), years of schooling, German nationality, number of children in household, and household size. The samples consist of all observations from the period between 1991 and 2013 for which the respective work-related outcomes are available. Significance levels: * 0.05<p<.1, ** 0.01<p<.05, *** p<.01. *Data source:* SOEP.

that overoptimism is not caused entirely by people mispredicting their own probability of success in the business.[9] Rather, it is more likely to be caused by people putting too much weight on the positive work engagement and too little weight on the amount of workload when making a forecast about what their life would be like as a self-employed, which is consistent with findings in the affective forecasting literature (Wilson & Gilbert, 2003, 2013). This is reflected in the evidence that self-employed people report lower leisure satisfaction and an increase in the number of hours worked that go beyond the desired level of working hours in the years after the transition. However, one promise of becoming self-employed seems to come true, namely that these people, on average, report an increase in autonomy in their occupational actions.

There are several limitations to drawing general welfare implications from our findings. First, although our results suggest that some people might only have entered self-employment due to overoptimism, the current empirical framework simply does not allow us to test such a hypothesis directly. Second, even if unrealistic expectations tend to be observed generally with the decision to become self-employed, people who take that leap but do not succeed may still gain valuable experiences from doing so. For example, first time failure might lead to a higher success rate when they run a self-employed activity for a second time. They may also become more satisfied when they return to paid employment as they might value a secure income and regular working hours more after the experience. Third, the observed overoptimism might reflect motivated beliefs (Bénabou & Tirole, 2016) for which accuracy might not be the only objective as beliefs also serve an important purpose of motivating people so that they persevere with putting in effort to achieve goals. This instrumental aspect emphasizing the enhancement of self-efficacy is complemented by other motives as people might want to share beliefs in accordance with their peer group or their self-image. Fourth, the individual perspective also neglects welfare effects at the societal level. Successful as well as failed self-employment might contribute to the development of new products and services creating positive spillovers in society.

In future research, we need to better understand how the beliefs about the value of self-employed activities are formed and to what degree they influence people's decision to enter self-employment. In particular, it would be interesting to understand how the beliefs are related to the treatment of "successful" and "failed" business owners in society. This is an issue of entrepreneurial and self-employment culture but also the choice of legal institutions. A more complete understanding of how different institutional environments relate to actual *as well as expected* outcomes of latent and actual self-employed individuals will contribute productively to the policy discourse on self-employment and entrepreneurship.

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[9] It might still be that those who remain self-employed have expected to be even more successful, for example, by earning more or having more employees after 5 years of self-employment.

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