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Reto Odermatt
University of Basel and CEP (LSE)

Nattavudh Powdthavee
Warwick Business School, CEP (LSE) and IZA

Alois Stutzer
University of Basel and IZA

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IZA – Institute of Labor Economics

Schaumburg-Lippe-Straße 5–9
53113 Bonn, Germany

Phone: +49-228-3894-0
Email: publications@iza.org

www.iza.org

ABSTRACT

Overoptimistic Entrepreneurs: Predicting Wellbeing Consequences of Self-Employment

The formation of expectations is a fundamental part of the process when people decide about engaging in an entrepreneurial venture. We evaluate the accuracy of newly self-employed people's predictions of their overall future wellbeing. Based on individual panel data for Germany, we find that they are overly optimistic when we compare their predicted life satisfaction with their actual life satisfaction five years later on. This overoptimism also holds for those entrepreneurs who successfully remain in business for at least five years. A possible reason might be that they underestimate the heavy workload reflected in higher working hours than desired and the drop in leisure satisfaction.

JEL Classification: D83, D91, J20, I31

Keywords: adaptation, overoptimism, life satisfaction, projection bias, wellbeing, self-employed

Corresponding author:
Alois Stutzer
Faculty of Business and Economics
University of Basel
Peter Merian-Weg 6
4002 Basel
Switzerland
E-mail: alois.stutzer@unibas.ch

1. Introduction

Launching and running one's own business is a dream of many employed people. Entrepreneurial ventures come with many promises from increased autonomy to high financial returns. However, such promises also come with uncertainty and potentially high efforts. The formation of expectations is thus a fundamental part of the process when people decide about becoming self-employed. In fact, entrepreneurs are generally more optimistic about their business success than employed managers, even when such expectations seem not to materialize.[1] One reason is that those people with dispositional optimism are more likely to self-select into entrepreneurship (De Meza and Southey, 1996). Another assertion is that there exists a popular belief that entrepreneurs who were not born with optimistic traits must somehow learn to adopt this kind of positive mental attitude if they want to stay focused, enthusiastic, and persistent in their attempt to achieve entrepreneurial success (Scheier et al., 2001; Carver and Scheier, 2003).

Against this background, we would like to assess whether and to what extent newly self-employed people's expectations for their life are met in terms of their overall wellbeing. This implies getting an idea on whether entrepreneurs, on average, are primarily optimistic or rather overoptimistic. Previous studies in the entrepreneurial literature have mainly focused their attention on establishing a link between entrepreneurial optimism and future performance.[2] However, little is known about entrepreneurs' general expectations for their individual wellbeing following the transition from regular employment to self-employment. Different questions might be asked: Do people, on average, have accurate expectations about

[1] There is a large literature exploring on the one hand the accuracy of self-employed people's predictions for their business success (see, e.g., Cooper et al., 1988; Busenitz and Barney, 1997; Dosi and Lovallo, 1997; Forbes, 2005; Fraser and Greene, 2006; Lowe and Ziedonis, 2006) and on the other hand their actual financial performance vis-à-vis people in paid employment (see, e.g., Hamilton 2000, Levine and Rubinstein 2017).

[2] Highly optimistic entrepreneurs not only significantly over-predict how well their new ventures will eventually perform in the future, their actual performance when measured in terms of revenue growth (Hmieleski and Baron, 2009) and survival rates (Gartner, 2005) also tend to be lower than the one of those ventures belonging to moderately optimistic entrepreneurs. These findings, which seem to contradict the popular belief about the positive effect of entrepreneurial optimism on entrepreneurial success, are perhaps best explained by studies documenting that highly optimistic individuals tend to set unrealistically high goals and are overconfident that they will achieve them, both of which are tendencies that are likely to interfere with effective performance. By contrast, moderately optimistic individuals are often more realistic about their goals and put forward the necessary effort to reach those goals (e.g., Brown and Marshall, 2001; Judge and Ilies, 2004).

the consequences of their self-employment on their long-term subjective wellbeing? Is there evidence of entrepreneurial optimism or even overoptimism in terms of expected subjective wellbeing at the time when people make the transition? How well do people know their preferences and how they might change after becoming self-employed? For instance, how do different domains of people's lives change after the transition to self-employment and do people correctly anticipate these changes? These are difficult questions, but they seem crucial for our understanding of people's perception about the consequences of their decisions to become entrepreneurs.

In this study, we empirically estimate how successful individuals are at making predictions about the development of their future life satisfaction in response to becoming self-employed. We deviate from the rational expectation assumptions in which people are assumed to know, first, about the stochastic processes that affect future economic development, and second, about their preferences in the future. We rather allow prediction errors in their expected outcomes and expected preferences. This perspective is able to integrate not only considerations about entrepreneurial optimism and (financial) returns of self-employment but also psychological insights about how people forecast consequences of changes in circumstances for individual wellbeing. This involves people's tendency to systematically over-estimate the extent to which they are affected by changes in their circumstances – a hypothesis going back at least to Adam Smith's reflections in his Theory of Moral Sentiments first published in 1759.[3] In particular, people tend to systematically discount their natural propensity to adapt to adverse life events and/or habituate to good life events in the future (see, e.g., Wilson and Gilbert, 2003; Kahneman and Krueger 2006; Frey and Stutzer 2014; and for a discussion Powdthavee and Stutzer 2014), which is due in part to impact bias, i.e., people's tendency to overestimate the intensity and duration of their emotional reactions to a life event (Gilbert et al., 1998), projection bias, i.e., people's tendency to falsely project current preferences onto future circumstances (Lowenstein et al., 2003), and focalism, i.e., people's tendency to focus too much on the event in question and not enough on the consequences of other future events (Wilson et al., 2000). Following from these considerations, our key hypothesis is that people will significantly over-predict their future

[3] In an often-quoted paragraph about the constitution of human nature, he wrote "The great source of both the misery and disorders of human life, seems to arise from over-rating the difference between one permanent situation and another." (Smith 1817: p. 235).

life satisfaction in the year of making the transition from regular employment to self-employment.

In order to study people's ability to accurately predict their future satisfaction in response to becoming self-employed, we follow the work by Odermatt and Stutzer (2017), applying data from the German Socio-Economic Panel (SOEP). In this annual survey, participants are not only asked about their current life satisfaction, but also about how satisfied they expect to be five years into the future. Both questions ask about general evaluations, which allow us to test the accuracy of people's predictions regarding the long-term impact of life changes without referring specifically to the event. In particular, the data track the survey participants' evaluations of actual life satisfaction, as well as their predictions about their future life satisfaction around the transition to self-employment. This allows us to compare the expected and the actual long-term consequences after the transition to self-employment. In our main analysis, we use data from 18 survey waves from 1991 until 2013, consisting of over 137,000 person-year observations from more than 28,000 individuals. The scope of this panel data enables us to use a within-subject approach to correct for any underlying correlation between unobserved but stable individual characteristics and people's ability to accurately forecast their future life satisfaction. Using this method, we are able to conclude that people tend to over-estimate their future life satisfaction in response to becoming self-employed. Furthermore, even the "successful" entrepreneurs who do not leave self-employment within five years after the transition turn out to be too optimistic about their future life satisfaction.

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 wellbeing as well as on the forecasting of individual wellbeing in general. Section 3 presents the data and the empirical strategy. The results are discussed in Section 4. Section 5 offers some concluding remarks.

2. Background literature

2.1. The subjective wellbeing of self-employed people

Many employed people in industrial countries report that they would prefer to be self-employed (Blanchflower et al. 2001). This seems to square with the evidence that the self-employed are significantly more satisfied with their jobs than those in full-time employment (Blanchflower and Oswald, 1998; Blanchflower, 2000; Hundley, 2001; Benz and Frey 2008). Yet the picture is less clear when it comes to life satisfaction. While cross-sectional studies such as Blanchflower and Oswald (1998), Alesina et al. (2004), and Hessels (2017) 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 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 that match on the observable characteristics of the individuals to the British Household Panel Surveys, and find that individuals who moved from regular employment to self-employment report a significant increase in life satisfaction in the year of making the transition. By contrast, they find that individuals moving from unemployment into self-employment are not more satisfied with life compared to individuals moving from unemployment into regular employment. One possible explanation for this is that only individuals who are optimistic enough to select themselves into self-employment to pursue entrepreneurial opportunities are the ones who actually enjoy being self-employed but not those who act from necessity (Cooper and Artz, 1995).

Another potential explanation for the empirically weak association between self-employment and life satisfaction is 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, Binder and Coad (2016) show that a transition from regular employment into self-employment is accompanied by a significant increase in life, work and health satisfaction and that these positive effects slightly increase in the first three years after the transition to self-employment. However, the same transition is also accompanied by a significant drop in satisfaction with leisure time.

There is little empirical evidence on the dynamics of subjective wellbeing in the years that precede and follow self-employment. One notable study that we are aware of is the work by Hanglberger and Merz (2015), which empirically investigates what happens to individual's job satisfaction before and after entering self-employment. Conditioning on individual fixed-effects, they do not find job satisfaction to drop or rise significantly in the years leading up to self-employment. Job satisfaction then increases sharply during the year of transition from regular employment into self-employment, before reverting completely back to the baseline level – i.e., the level before entering self-employment – three years after becoming self-employed.

Based on these past findings, we ask two relatively unexplored, and yet still very important, questions about the self-employed's life satisfaction:

1) What happens to an entrepreneur's life satisfaction before, during, and after becoming self-employed?
2) How good are entrepreneurs at accurately predicting their future life satisfaction after their status change to being self-employed?

We may speculate what the answer to 1) might be based on Hangelberger and Merz's (2015) findings that people, on average, seem to fully adapt to self-employment in terms of job satisfaction and Binder and Coad's (2016) finding of a persistent drop in leisure satisfaction following the decision to become self-employed. It could thus be the case that newly self-employed people might adapt to a positive change in their life satisfaction in the long run. The answer to 2) is open as it is much less clear whether people correctly foresee the net effects of changes in different life domains on their wellbeing.

2.2. Predicting individual wellbeing

Previous studies in psychology have found that individuals are not very good at predicting their future emotional reactions to life events. Different reasons are put forward (for reviews, see Wilson and Gilbert 2003 and recently Wilson and Gilbert 2013). One of the main reasons for the misprediction is focalism, i.e., when people discount other daily life events in the future because they are not particularly salient to their attention at the time when these predictions are made, but are otherwise important to their future life satisfaction (see, e.g., Wilson et al., 2000). To give an example, a study by Kahneman et al. (2006) has shown 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 in terms of happiness – e.g., nice vacation, big screen television – and much less on how much they will need to spend more of their time working and commuting. The latter are examples of two activities likely to be associated with lower wellbeing and higher tension and stress (e.g., Stutzer and Frey, 2008; Bryson and MacKerron, 2016). Hence, it might be the case that people who are making the prediction about the future life satisfaction as an entrepreneur are focusing too much of their attention on the entrepreneurial activities and outcomes they aspire and too little on how much their daily lives will have to change when working as a self-employed.

Another reason for errors in predicting future life satisfaction is that people tend to underestimate their natural propensity to habituate to positive events and cope with negative events. While there is evidence showing that people successfully adapt to both positive and negative life events such as an increase in income (Di Tella et al., 2010), marriage (Lucas and Clark, 2006; Stutzer and Frey 2006; Qari, 2014), disability (Oswald and Powdthavee, 2008a), unemployment (Lucas et al., 2004), and bereavement (Oswald and Powdthavee, 2008b), people are generally unaware of their tendency to overestimate the initial impact and/or duration of an emotional event (e.g., Gilbert et al., 2002).[4] The general notion of this so-called "impact bias" is that people have biased expectations about the intensity and duration of their emotional responses, in the sense that the emotional impact in the future is less intense than predicted, 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 et al., 2003). In that sense, it is possible that new entrepreneurs may have biased expectations about the intensity and duration of wellbeing responses to becoming self-employed, especially when they experience a significant increase in job satisfaction in the year of making the transition from regular employment to self-employment.

[4] Immune neglect also explains why people tend to mispredict their emotional reactions to purely negative events. This is the notion that people are generally unaware of the influence that their psychological immune system has in reducing the initial negative effect brought about by encountering such events (Gilbert et al., 1998).

Optimism bias might provide yet another reason for some errors in affective forecasting. People might overestimate future wellbeing as they often overestimate the likelihood of positive events. This holds especially for those who are generally high in dispositional optimism (Sharot et al., 2007; see also Sharot, 2011, for a review). New entrepreneurs might underestimate the risk of failing ventures in the future, thus leading to an overestimation of future life satisfaction as a consequence.

In our attempt to address whether entrepreneurs are good at predicting their future wellbeing, 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. 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.

3. Data and empirical strategy

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 et al., 2007). Since 1984, SOEP has surveyed the German population and asked a wide range of questions regarding their socio-economic 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 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). 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 individual's actual and predicted life satisfaction in the years leading to and following the transition from employment to self-employment, irrespective of whether or not 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 an entrepreneur's life and how accurate entrepreneurs 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 wellbeing 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 18 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 1, for the sample of 1,313 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 1,313 self-employed individuals in the panel, 954 left self-employment within five years' time of making the initial transition. 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 entrepreneurs, 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.

[Table 1 about here]

3.2. Descriptive evidence

Figure 1 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.

Figure 2 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 becoming 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.

[Figures 1 and 2 about here]

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 wellbeing 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 wellbeing measures before and after the individuals' transition (see,

e.g., Clark et al. 2008, Odermatt and Stutzer 2017). The corresponding regression model has the following basic form:

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

where LS_{it} is the realized actual life satisfaction of individual i at time t; $\boldsymbol{X}_{it}$ 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. What this implies is that all the years preceding the three-year period prior to the transition makes up the reference level. Importantly, we further include individual fixed-effects, α_i. This controls for any time-invariant characteristics, and implies that the partial correlations are only based on variation within the same person over time. The vector of control variables, $\boldsymbol{X}_{it}$, includes age-specific fixed effects that capture changes in our dependent variables that are common for a particular age group, marital status, years of schooling, German nationality, number of children in the household, and household size. 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. 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 et al. 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 follow closely the identification strategy of Odermatt and Stutzer (2017). We use the estimation model in equation (1) and replace the dependent variable in order to estimate the pattern of the impact of the transition to self-employment on the predicted satisfaction in five years. 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. Are self-employed people overly optimistic about their future life?

We approach the core question in two steps in our main empirical analysis. In Table 2, 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 and life satisfaction (see Odermatt and Stutzer 2017). However, this estimated coefficient captures the association between self-employment and life satisfaction for those periods in the data someone is currently self-employed. It is further not restricted to the first transition to self-employment and thus captures also re-entries into self-employment. This estimation strategy does not capture any possible negative net effect on life satisfaction brought about by entering and then subsequently leaving self-employment again.

[Table 2 about here]

To address this issue, 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. We can see that, though positive and of similar size as the coefficient obtained in Specification *I*, the estimated coefficient for the first year following the transition to self-employment is statistically only marginally significantly different from zero. We also find some evidence of a marked decline in life satisfaction four years after making the transition to self-employment. As can be seen in Specification *III*, 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 self-employment does not appear for those who remain in self-employment for at least five years (see Specification *IV*).[5]

Table 3 moves on to present the dynamics of predicted life satisfaction (5 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*).

[Table 3 about here]

In Specification *I*, we see that people are, on average, significantly more optimistic about their future life satisfaction in the years when being self-employed than in the years when they are not self-employed. This is consistent with the existing literature on entrepreneurial optimism (e.g., Cooper et al., 1988; Forbes, 2005; Lowe and Ziedonis, 2006).

Specification *II* introduces leads and lags into the predicted life satisfaction equation. It is revealed that there is a statistically significant increase by 0.13-point in the predicted life satisfaction 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 on becoming 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. Specifications *III* and *IV* show 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.

Based on the results in Tables 2 and 3, we can now empirically address the question about overoptimism. Thereby, 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,

[5] One could consider the latter group as a kind of "successful" entrepreneurs. Note that 5-6 years after the first transition to self-employment, only about one third are still self-employed. Specification *IV*

i.e., the difference between the predicted long-term impact of the event and the actual impact of the event.[6]

Figure 3 shows a graphical representation of the coefficients in Specification *II* of Table 2 (black solid line) and the coefficients in Specification *II* of Table 3 (red crosses). The red dashed 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 red dashed line and the black solid line (capturing the effect on actual satisfaction) in period 5.

[Figures 3 and 4 about here]

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 2) is subtracted from the predicted impact (the coefficient for *0-1 year* in Specification *II*, Table 3). 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 too optimistic. This finding is consistent with our hypothesis that people who become self-employed overestimate the positive impact of this transition on their realized life satisfaction in the future. 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 indicates that people in the first survey after getting self-employed, expect that their life satisfaction will further increase in the years after the transition.

Figure 4a shows the coefficients of Specification *III* in Tables 2 and 3, 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

[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. 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 2017, p. 18).

overestimation of the probability of remaining in self-employment for the relatively unsuccessful entrepreneurs. Figure 4b shows the coefficients of Specifications *IV* in Tables 2 and 3, i.e., for those who remain in self-employment for at least 5 years after the transition. Even for this selection of successful entrepreneurs, the estimates reveal a statistically significant prediction error. It is, however, about half the size compared to the unsuccessful entrepreneurs. 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 entrepreneurs in our sample.

Overall, this provides evidence that, on average, self-employed people are overly optimistic and that this overoptimism is prevalent even for the successful entrepreneurs who manage to remain self-employed for at least five years. Moreover their overoptimism does not seem to dissipate until 2-3 years after having made the transition.

4.2. Potential mechanisms

What could explain the stark evidence of overoptimism among the new entrepreneurs? Based on the theory of focusing illusion (Schkade and Kahneman 1998), newly self-employed people might put too much of attention on the most salient features of entrepreneurship (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 entrepreneurship (e.g., no weekends, more responsibilities, the chance of facing failure, etc.), all of which matter to one's wellbeing. Complementary to this theoretical account, newly self-employed people might also overestimate the continuation of their initial wellbeing boost after becoming self-employed (see, e.g., Gilbert et al., 1998 on the durability bias), or more generally project their current preferences into the future (Loewenstein et al., 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, we are nevertheless able to 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 data, 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.

Domain satisfaction

The estimated patterns in satisfaction in different domains before and after becoming self-employed are presented in Table 4. For ease of interpretation, we also display the estimated coefficients in Figure 5. Note that we only display and discuss the coefficients of the relatively successful entrepreneurs (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.

[Table 4 and Figure 5 about here]

We find a significant increase in work satisfaction (as in previous work) and household income satisfaction in the year after the transition from regular employment to self-employment. Moreover, we detect a statistically marginally significant increase in health satisfaction, and a large drop in leisure satisfaction within 12 months of becoming self-employed.[7]

One might speculate that beside the possibility that people mispredict (or 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 Table 4 (and Figure 5), 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

[7] There is also evidence of a significant selection effect 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.

satisfaction is improving over time for these relatively successful self-employed individuals. This suggests that the self-employed people largely adapt to the positive changes in their income domains, but remain stuck in a dissatisfying leisure time situation brought about by the transition.

Work outcomes

Table 5 shows the dynamics in more job-related characteristics brought about by self-employment. 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. For ease of interpretation, Figure 6 displays the estimated changes over time.

[Table 5 and Figure 6 about here]

Focusing on the sample of relatively successful entrepreneurs (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, 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 again is consistent with the drop in satisfaction with leisure time reported in Table 4.

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 entrepreneurs 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 entrepreneurs' 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).

An interesting divergence is observed for labor income and satisfaction with living standard. Table 5 and Figure 6 show that, on average, annual labor income increases in every year after the transition for the relatively successful entrepreneurs. However, as documented in Table 4 and Figure 5, 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 becoming richer over time, the income aspirations are rising at an even faster rate (see, e.g., Stutzer, 2004).

5. Concluding remarks

Our evaluation of the expectations and experiences of people choosing to become self-employed in Germany allows us putting some popular beliefs about the (wellbeing) consequences of entrepreneurial ventures to an empirical test. Thereby, we make 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 can study 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.

The main novel insight of this study reveals that, on average, people turning self-employed are overly optimistic regarding their satisfaction with life in the future. This overoptimism is prevalent even for the successful entrepreneurs who manage to remain self-employed for at least five years. This finding suggests that the overoptimism cannot easily be explained by wrong perceptions about the probability to be successful – at least not regarding the probability to remain self-employed for five years or not.[8] Instead, a (too) strong focus on the positive work engagement and an underestimation of the increase in the workload might be reasons for the systematic overoptimism even among the successful entrepreneurs. In fact, we find that self-employed people report lower leisure satisfaction and work more hours than desired whereby both effects are not mitigated over time. However, one promise of becoming self-employment seems to come true, namely that these people, on average, report an increase in autonomy in their occupational actions.

Overall welfare implications are difficult to draw. First, the empirical framework does not offer a simple implication on whether too many people become self-employed due to the detected overoptimism. Please note, however, that the misprediction of future wellbeing is

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

not necessary to have entrepreneurs in society. Even if people were to hold more accurate expectations with regard to the overall rate of return to becoming self-employed, many (but, of course, fewer) would still decide to do so. Second, if people decide to become self-employed due to their overoptimistic expectations but then do not succeed, they might still gain valuable experiences. For example, first time failure might lead to a higher success rate when they engage in an entrepreneurial venture for a second time. Or they are happier when they return to paid employment as they might value a secure income and regular working hours more after the experience. Moreover, their counterfactual satisfaction with life is not known anyhow. Third, the individual perspective also neglects welfare effects at the societal level. Successful as well as failed entrepreneurs might contribute to the development of new products and services creating positive spillovers in society.

Given the finding that entrepreneurs, on average, hold inaccurate beliefs about the wellbeing consequences of self-employment, many challenges remain for future research. In particular, we need to better understand how the beliefs about the value of entrepreneurial activities are formed and how they are related to the treatment of "successful" and "failed" entrepreneurs in society. This is an issue of entrepreneurial 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 entrepreneurs will contribute productively to the policy discourse on entrepreneurship.

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Table 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	26234.95	21306.16	24901.80	32859.62	35333.43	34954.24
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		7,330		4,209	
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. 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.

Table 2: 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 hence		0.043	0.018	0.117
		(0.07)	(0.08)	(0.14)
2-1 years hence		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	Yes
Age fixed effects (FE)	Yes	Yes	Yes	Yes
Time and region FE	Yes	Yes	Yes	Yes
Individual FE	Yes	Yes	Yes	Yes
No. of observations	137,727	137,727	137,727	137,727
No. of individuals	28,663	28,663	28,663	28,663
R^2	0.02	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 Specification *III* and *IV* indicate interaction terms for the respective groups. Significance levels: * .05<p<.1, ** .01<p<.05, *** <.01.

Data source: SOEP.

Table 3: Regression of predicted life satisfaction on becoming self-employed in Germany, 1991-2013

	I	II	III	IV
Dependent variable: Predicted life satisfaction			do not remain self-empl.	remain self-empl.
Self-employed (0,1)	0.207***			
	(0.04)			
Before becoming self-employed				
3-2 years hence		0.072	0.125*	–0.095
		(0.06)	(0.07)	(0.12)
2-1 years hence		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	Yes
Age fixed effects (FE)	Yes	Yes	Yes	Yes
Time and region FE	Yes	Yes	Yes	Yes
Individual FE	Yes	Yes	Yes	Yes
No. of observations	137,727	137,727	137,727	137,727
No. of individuals	28,663	28,663	28,663	28,663
R^2	0.03	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 coefficients for Specification *III* and *IV* indicate interaction terms for the respective groups. Significance levels: * .05<p<.1, ** .01<p<.05, *** <.01.

Data source: SOEP.

Table 4: 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 hence	–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 hence	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
R^2	0.01	0.01	0.01	0.02	0.04	0.02

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 domain satisfaction measure is available. Significance levels: * .05<p<.1$, ** .01<p<.05, ***$<.01.

Data source: SOEP.

Table 5: Regression of different work related outcomes on becoming self-employed

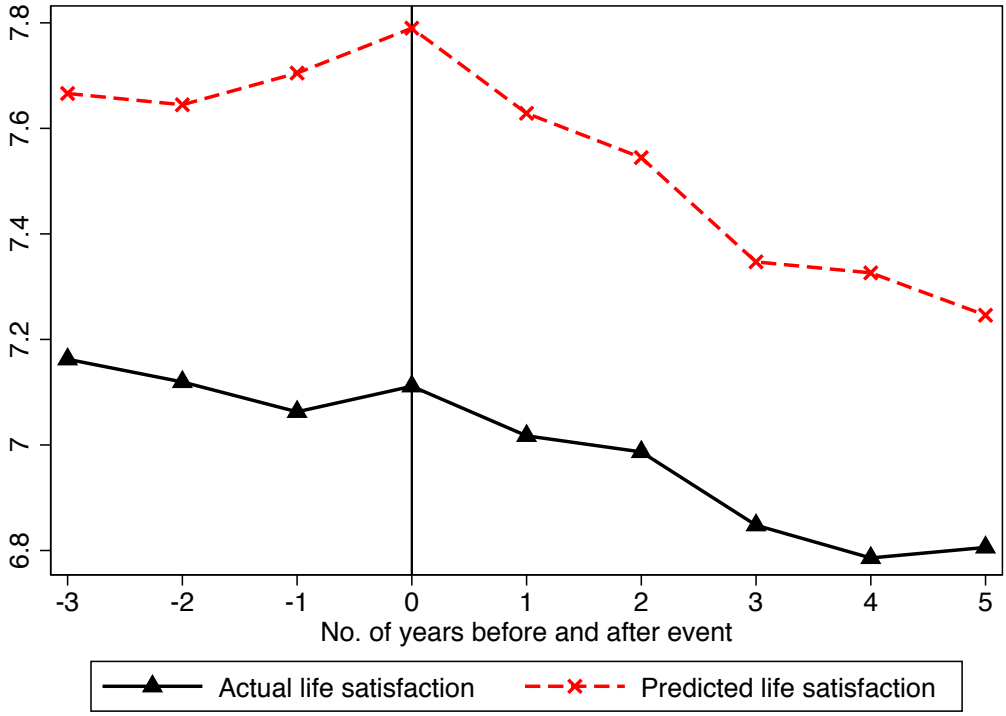
Sample: People who remain in self-employment for at least five years

	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 hence	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 hence	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
R^2	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 domain satisfaction measure is available. Significance levels: * $.05<p<.1$, ** $.01<p<.05$, ***$<.01$.

Data source: SOEP.

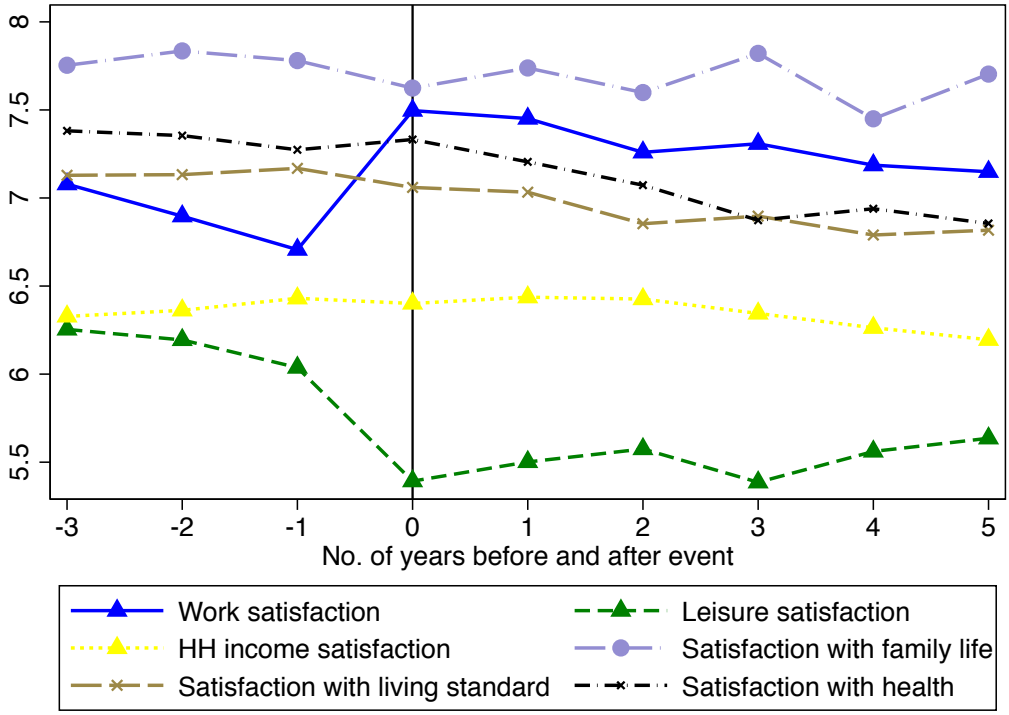
Figure 1: Descriptive profiles of actual and predicted life satisfaction around the transition to self-employment



Note: Data points for year zero capture responses within the first year after the status change to self-employed.

Data source: SOEP.

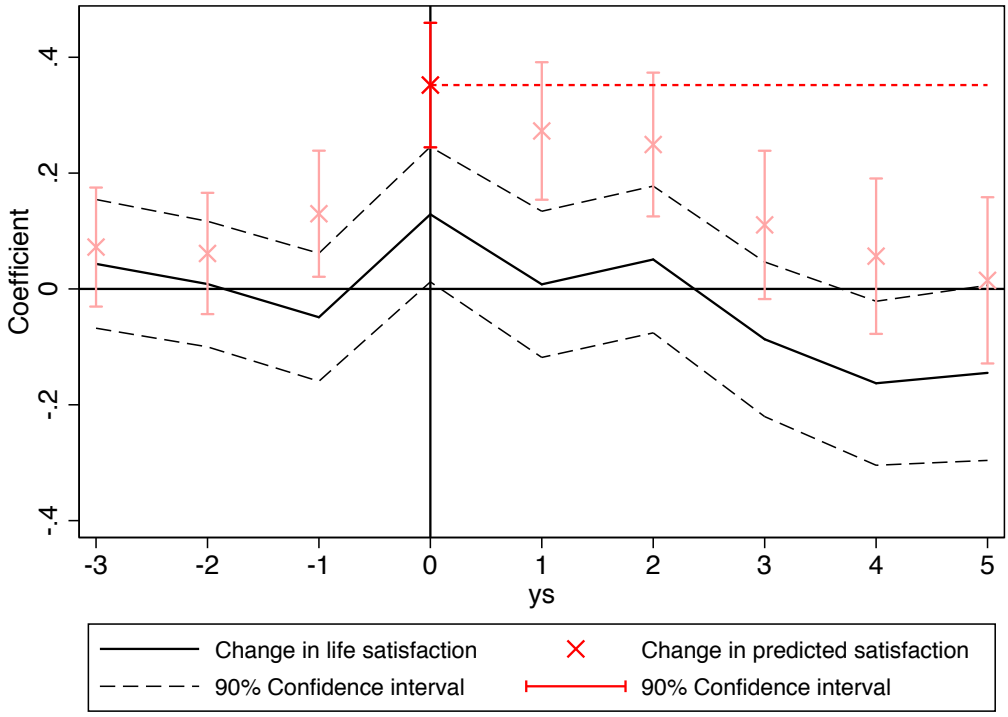
Figure 2: Descriptive profiles for various measures of domain satisfaction around the transition to self-employment



Note: Data points for year zero capture responses within the first year after the status change to self-employed.

Data source: SOEP.

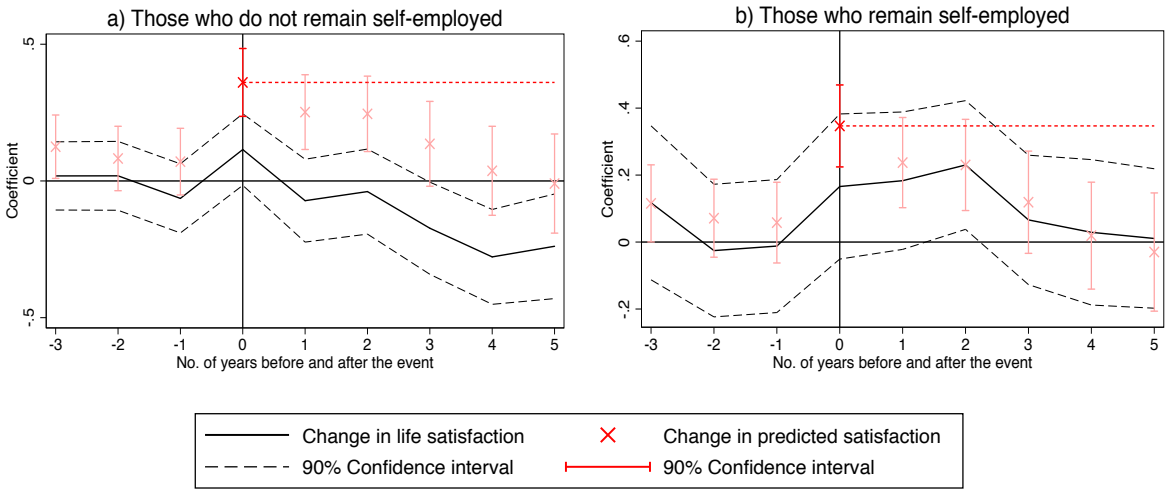
Figure 3: Change in actual and predicted life satisfaction around the transition to self-employment



Note: The presented coefficients are from Specifications II in the Tables 2 and 3 referring to the full sample.

Data source: SOEP.

Figure 4: Change in actual and predicted life satisfaction around the transition to self-employment for those who leave self-employment and those who do not

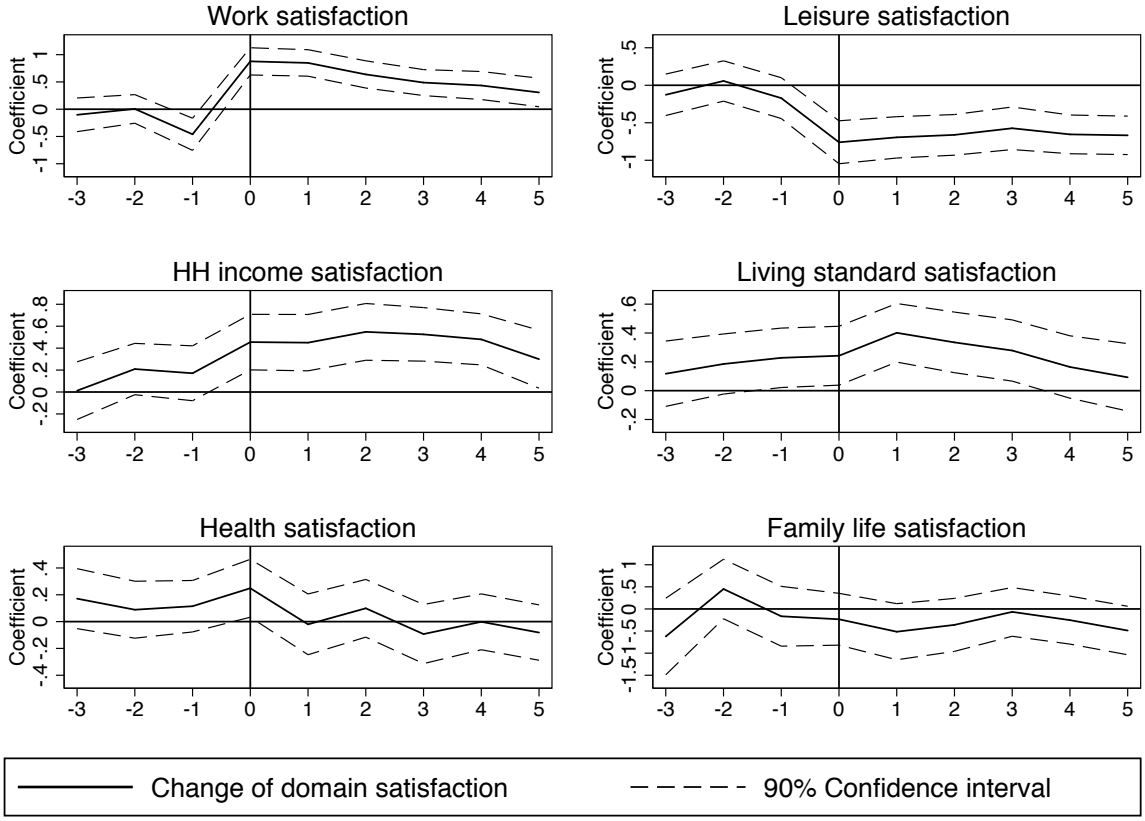


Note: The presented coefficients are from Specifications *III* and *IV* respectively in the Tables 2 and 3 referring to the two different samples.

Data source: SOEP.

Figure 5: Change in domain satisfactions around the transition to self-employment

Sample: People who remain in self-employment for at least five years

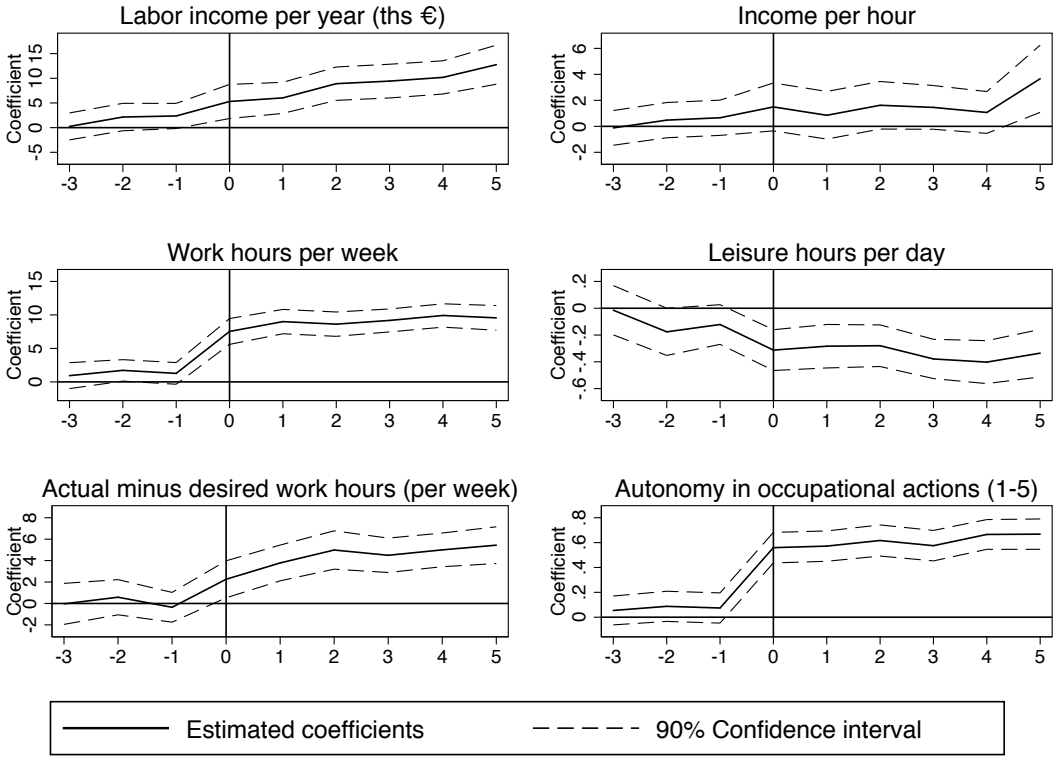


Note: The presented coefficients are from Table 4.

Data source: SOEP.

Figure 6: Change in work outcomes around the transition to self-employment

People who remain in self-employment for at least five years



Note: The presented coefficients are from Table 5.

Data source: SOEP.