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Can working conditions explain the return-to-entrepreneurship puzzle?

DANIEL S. J. LECHMANN

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return-to-entrepreneurship puzzle?*

Daniel S. J. Lechmann[a]

ABSTRACT: Most self-employed would apparently earn higher earnings if they were working in paid employment. One explanation for this "return-to-entrepreneurship puzzle" could be that entrepreneurship entails substantial non-monetary benefits, such as autonomy, flexibility, and task variety. Utilizing German data and a decomposition analysis, this study examines the contribution of such working conditions to the observed earnings differential between self-employment and paid employment. The results imply that working conditions differences do not contribute to resolve the return-to-entrepreneurship puzzle. Rather, (mis-)measurement of earnings seems to be an issue.

ZUSAMMENFASSUNG: Die meisten Selbständigen könnten als abhängig Beschäftigte anscheinend höhere Einkünfte erzielen. Möglicherweise arbeiten sie dennoch weiterhin als Selbständige, weil die Selbständigkeit nicht-monetäre Vorteile, wie etwa mehr Autonomie, Flexibilität und Abwechslung, mit sich bringt. Unter Verwendung eines Datensatzes deutscher Erwerbstätiger und mittels einer Zerlegungsanalyse untersucht diese Studie, inwiefern Unterschiede in solchen Arbeitsbedingungen die Unterschiede in den Einkünften zwischen Selbständigen und abhängig Beschäftigten erklären könnten. Die Ergebnisse deuten darauf hin, dass Unterschiede in den Arbeitsbedingungen nicht dazu beitragen, die (zu) niedrigen Einkünfte der Selbständigen zu erklären. Vielmehr scheinen Schwierigkeiten bei der Messung der Einkünfte eine Rolle zu spielen.

Keywords: compensating differentials, Germany, returns to entrepreneurship, self-employment, working conditions

JEL-Classification: J23, J31, J81

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[a] University of Erlangen-Nürnberg, Chair of Labour and Regional Economics, Lange Gasse 20, 90403 Nürnberg, Germany, E-mail: daniel.lechmann@wiso.uni-erlangen.de

1. INTRODUCTION

"What motivates entrepreneurship?" is one of the most investigated questions in entrepreneurship research, and governments aiming at providing incentives for entrepreneurship naturally depend on an accurate answer to that question. One prominent idea which has also been incorporated in many economic models on occupational choice is that people choose entrepreneurship because it is financially rewarding to do so (see, e.g., de Wit 1993 for a survey of some classical models on occupational choice). Quite in contrast to this idea, some influential studies find that entrepreneurship does not seem to pay in monetary terms. For instance, in a widely cited article, Hamilton (2000) finds that most self-employed would apparently have significantly higher earnings if they were working as paid employees. Moskowitz & Vissing-Jørgensen (2002) show that the returns to the investment in privately held firms are no higher than the returns to public equity despite the higher risk associated with private equity. Benz (2009: p. 23) eventually concludes that "entrepreneurship does quite generally not pay in monetary terms," a finding that has been termed the "return-to-entrepreneurship puzzle" in the literature (e.g., Hyytinen et al. 2013; see Åstebro 2012 for an extensive survey on the returns to entrepreneurship).

One potential explanation for low monetary returns to entrepreneurship is that there are non-monetary benefits associated with this occupation that compensate for the lower monetary rewards (cf. Hamilton 2000; Moskowitz & Vissing-Jørgensen 2002; see Rosen 1986 for a basic discussion on the theory of compensating differentials).[1] There is indeed a large body of literature showing that the self-employed report higher job satisfaction and that this can be attributed to having more beneficial working conditions like more variety, flexibility, and autonomy (e.g., Hundley 2001; Benz & Frey 2008; Schjoedt 2009; Millán et al. 2011; Lange 2012).[2] It seems thus natural to assume that there is a trade-off between these beneficial working conditions and earnings in self-employment that accounts for the apparently low returns to entrepreneurship. Croson & Minniti (2012) develop a theoretical model based on this idea that implies that the self-employed will in fact have (initially) lower earnings in exchange for more beneficial working conditions. Åstebro & Thompson (2011) also argue that entrepreneurs may be willing to forego earnings to satisfy a taste for variety. Finally, Benz (2009: p. 23) even states - somewhat provocatively - that en-

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[1] Other explanations include mismeasurement of self-employment earnings (an issue I will discuss in more detail later on in section 2) or just irrationality, esp. over-optimism, of self-employed individuals (cf. Åstebro 2012; Parker 2009: chap. 4.4.2).

[2] One interesting study questioning these findings is Hanglberger & Merz (2011), who show with German panel data that the self-employment satisfaction premium disappears once one accounts for anticipation and adaption effects.

trepreneurship is not mainly about making money but is "more adequately charac-
terized as a non-profit-seeking activity."

While this reasoning seems sensible at first glance, it remains somewhat specula-
tive since its empirical underpinning is rather limited. To the best of my knowledge,
there is no study examining the potential contribution of working conditions such as
flexibility, variety, and autonomy at the workplace to the observed earnings differ-
ential between self-employed and paid employees.[3] Thus, it is rather unclear by
what amount the returns to entrepreneurship should actually be higher if self-
employment did not offer better working conditions than paid employment. What is
more, the reasoning above seems to neglect the fact that self-employment is also
associated with a lot of uncomfortable working conditions. The self-employed face
more exposure to risk and uncertainty (see, e.g., Parker 2009: chap. 13.4), work
much more hours than paid employees do (cf. Hyytinen & Ruuskanen 2007), and
eventually report working under a lot of pressure, coming home from work ex-
hausted, losing sleep over worry, and being constantly under strain (cf.
Blanchflower 2004).

The present study seeks to address these concerns with the current state of the
literature. Utilizing a rich German data set, I perform a decomposition analysis in-
cluding beneficial working conditions such as flexibility, autonomy, and variety but
also detrimental working conditions such as exposure to risk, pressure, and over-
strain as explanatory variables. There are at least two intricacies one faces when
examining the earnings differential between self-employment and paid employment.
First, the earnings differential may in part be due to measurement problems of
entrepreneurial earnings or wages. The advantage of a decomposition analysis is
that it allows one to decompose the earnings differential in a part that can be ex-
plained by working conditions and other observable characteristics, and a part that
remains unexplained and potentially reflects mismeasurement of earnings. Second,
the earnings differential is probably not only due to differences in observable char-
acteristics between self-employed and paid employees but also due to unobserv-
able characteristics. Given that the data set used is only cross-sectional, it is hardly
possible to fully account for unobserved heterogeneity. Nevertheless, I will address
the issue of selection into self-employment by a Heckman (1979) selection correc-
tion.

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[3] Besides that there seems to be no study examining the role of flexibility, variety, and autonomy
for the earnings differential between self-employment and paid employment, there also does not
seem to be a study investigating directly the link between such working conditions and the
earnings of the self-employed per se. Extant evidence focuses exclusively on the link between
working conditions and satisfaction. For paid employees on the other hand, there are plenty of
studies considering compensating wage differentials for certain working conditions (for recent
evidence, see, e.g., Fernández & Nordman 2009 and the literature cited therein; specifically for
Germany, one may start with Villanueva 2007).

The paper proceeds as follows. In section 2, I describe the data set and the measurement of earnings and working conditions. Section 3 provides some descriptive evidence. Section 4 analyzes the earnings differential between self-employed and paid employees utilizing hedonic earnings regressions and decomposition analyses. I conclude with a discussion of the results in section 5.

2. DATA AND VARIABLES

The data set used in this study is the *BIBB/BAuA Employment Survey of the Working Population on Qualification and Working Conditions in Germany 2012* (Hall et al. 2012; see Rohrbach-Schmidt & Hall 2013 for a more detailed description). This representative data set contains information on more than 20,000 individuals from the German active labor force population who are at least 15 years old and regularly work at least 10 hours per week. It provides exceptionally rich information on human capital endowments, job characteristics and in particular the working conditions of individuals, which makes it especially suitable for the present analysis.[4]

As is most often done in the literature, self-employment will be used as the empirical realization of "entrepreneurship" in this paper.[5] The group of the self-employed in the data consists of tradesmen and liberal professionals, coded as "Selbständige" and "freiberuflich Tätige" in the data set. The comparison group of paid employees consists of blue- and white-collar workers, but I exclude civil servants from the analysis because this group differs considerably from other paid employees with respect to working conditions and wage-setting, and civil service may not be the relevant outside option that most self-employed face. Freelance collaborators and helping family members are also excluded from the analysis since they are neither typical self-employed nor paid employees. The analysis sample then consists of 13,287 individuals who report income data and have no missing covariates. These include 800 male and 499 female self-employed individuals as well as 5,552 male and 6,436 female paid employees.

Turning to the measurement of the crucial variables for this study, the measurement of self-employment earnings is tricky (see Parker 2009: pp. 363-372). First of all, entrepreneurial income not only comprises money drawn from the business, but

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[4] The German SOEP collects information on working conditions only very sporadically (identical questions on some working conditions were asked recently in waves 2011 and 2006, and certain other working conditions were asked lastly in waves 2001 and 1995).

[5] Although not exactly the same, self-employment and entrepreneurship will essentially be used synonymously throughout this paper. For an extensive discussion on the alternative ways of defining and measuring entrepreneurship the reader may want to look into Iversen et al. (2008).

also retained profits. In the BIBB/BAuA Employment Survey 2012 the self-employed were asked (own translation):

"Now to your monthly gross earnings. We do not mean your monthly turnover or profit. Do not include child allowance, please. What are your monthly gross earnings from your work as <job of interviewee>?"

Thus, the measure of self-employment earnings in the present study likely corresponds to draw, the money drawn from the business on a regular basis by the owner (cf. Parker 2009: p. 363). Second, it has been found that self-employment earnings usually suffer from large non-response rates and considerable underreporting (e.g., Engström & Holmlund 2009, Sarada 2010, Hurst et al. 2010, Krichevskiy 2011: chap. 4).[6]

The question on the wages of paid employees in the BIBB/BAuA Employment Survey 2012 was:

"Now to your monthly gross earnings, i.e., your wage before taxes and social security contributions. Do not include child allowance, please. What are your monthly gross earnings from your work as <job of interviewee>?"

The comparison between self-employment earnings and wages of paid employees is further complicated because self-employment earnings include capital income whereas paid employees' wages do not. At the same time, reported wages of paid employees do not account for employer-provided fringe benefits or partial takeover of social security contributions.[7] Faulenbach et al. (2007) show that the majority of paid employees in Germany would have to generate higher gross earnings in self-employment in order to yield the same amount of net earnings and social security coverage as in paid employment.

All in all, it seems obvious that part of the difference in earnings between self-employed and paid employees is probably due to measurement problems of earnings. This poses no problem for the investigation of the role of working conditions for the earnings differential, however. It is still possible to decompose the earnings differential in a part that can be explained by differences in working conditions (and other observable characteristics), while mismeasurement will be picked up by the "unexplained" part in the decomposition analysis. The role of five sorts of working conditions is considered in this study: (1) flexibility, (2) autonomy, (3) variety, (4) risk, and (5) work stress.

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[6] In the BIBB/BAuA Employment Survey 2012 29% of the self-employed did not report earnings, whereas this was only the case for 19% of the paid employees.

[7] Specifically, on top of the gross wage, employers in Germany have to pay mandatory social security contributions amounting to about 20% of the gross wage (the so called "Arbeitgeberbeitrag zur Sozialversicherung").

Interviewees were asked about the flexibility of their working time scheduling in the following way:

"How often are you able to take family and private interests into account when scheduling working time?"

Possible answers were often, sometimes, and never. Since only very few people answered "never," I constructed a dummy variable with categories 1=often and 0=sometimes or never.

Two variables capture autonomy at work. You can be independent because you can do what you like, or you can be independent because there are no prescriptions on how to get things done. These alternatives are sometimes termed "strategic autonomy" and "operational autonomy" in the literature (cf., e.g., Tremblay & Genin 2010) and I adopt this terminology in the present study. In the survey, interviewees were asked whether a certain performance was prescribed at work and whether the execution of work was prescribed. The respective questions are:

"How often does it appear at your work that an exact number of pieces, a certain minimum performance or time is prescribed to perform a certain work?" and

"How often does it appear at your work that the execution of work is prescribed in every detail?"

Possible answers were often, sometimes, rarely, never. In each case a dummy was constructed with 1=rarely or never and 0=often or sometimes, such that 1 indicates more autonomy.

The questions on variety were asked in a similar fashion, i.e., it was asked how often certain working conditions appeared at work with possible answers being often, sometimes, rarely and never. Consequently, the respective dummies were also constructed in a similar fashion, with 1 indicating more variety. There are three dummies capturing three different aspects of variety at work: repetitive work (1=sometimes, rarely or never), facing new tasks (1=often) and trying new things or improve extant processes (1=often). The specific questions asked are:

"How often does it appear at your work that a certain work process repeats in detail?",

"How often does it appear at your work that you face new tasks that you first have to think about and work out?", and

"How often does it appear at your work that you improve extant processes or try out new things?"

Turning now to the less beneficial working conditions, there are two alternative ways how to include risk in the analysis. Interviewees were asked:

"How often does it appear at your work that even a small mistake or a minor inattentiveness could cause bigger financial losses?"

Again, possible answers were often, sometimes, rarely, never and the respective dummy was coded with 1 indicating often or sometimes. A potential problem with this measure of risk could be that it may not be comparable across self-employment and paid employment. The self-employed presumably would have to bear the financial losses themselves if they made a small mistake. On the contrary, big financial losses that are caused by a minor inattentiveness (and not by gross negligence) might hit partly or even primarily the firm for which paid employees work instead of the responsible employee herself. For this reason, I utilize a more subjective measure of risk in the main estimations (and use the other one as a robustness check). If an interviewee answered "often" to the question above, she was subsequently asked:

"Is this a strain for you?"

From this a dummy was derived, coded 1 if an interviewee was exposed to risk often and this was actually a strain for her, and 0 if either there was little exposure to risk or the individual did not care.

Finally, two variables take account of the stressful and demanding nature of the work of the self-employed. One indicates whether individuals have to work under a lot of pressure (1=often):

"How often does it appear at your work that you have to work under a lot of pressure of time or to perform?"

The other one indicates whether the work of individuals is rather challenging and possibly overcharging (1=often or sometimes):

"How often does it appear at your work that you have to go to the limits of your capacity?"

This variable is labeled "overstrain" in the tables.

Table 1 displays the correlation matrix of the ten working condition indicators. Generally, the correlation between the different indicators is not very high. That implies that, for instance, the different measures of autonomy and variety actually capture different aspects of these working conditions.

(Table 1 about here)

3. Descriptive evidence

Table 2 provides the descriptive statistics of the estimation sample. It is conspicuous that the self-employed on average report higher earnings than paid employees. Self-employed men report monthly gross earnings of €4,627, whereas male paid employees only report earnings of €3,461 on average. For women, reported earnings of the self-employed are also higher than those of female paid employees,

amounting to €2,520 and €2,168, respectively. It is important to note, however, that these figures do not imply that entrepreneurship pays. First, given the described measurement problems, it is not clear from these figures what the relative earnings position of the self-employed really is. Second, even if one took the earnings data at face value, the reported figures would not imply that entrepreneurship pays. The self-employed may simply be a positive selection and might earn even more were they working in paid employment.[8]

The data show that the self-employed indeed seem to be a distinctly positive selection in terms of several characteristics related to earnings (cf. Table 2): The self-employed work noticeably more hours than paid employees (48 vs. 42 and 40 vs. 34 hours for male and female workers, respectively), the share of those having a university degree is as much as two times higher for the self-employed than for paid employees (44 vs. 22 and 41 vs. 20 percent for male resp. female workers, respectively), and the self-employed also have considerably more working experience than paid employees on average (28.5 vs. 24.3 and 26.0 vs. 25.4 years for male and female workers, respectively). It is thus not surprising that the self-employed report higher earnings, but it is an open question whether they would be better off working in paid employment.

(Table 2 about here)

As laid down in the introduction, some authors argue that entrepreneurs earn less than what they could earn as paid employees because the former have more beneficial working conditions than the latter. Working conditions that are frequently mentioned in this context are autonomy, variety and flexibility. It is intuitively appealing that entrepreneurs should have more autonomy, variety and flexibility because they do not have to follow instructions received from any boss, and so, presumably can choose what to do, how to do it, and when to do it. Table 2 shows that the work of the self-employed indeed entails more autonomy and variety than that of paid em-

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[8] The multivariate analyses in section 4 will show that the self-employed actually report lower earnings than what they should earn in paid employment, implying that entrepreneurship does not pay. Other results for Germany, all based on German SOEP data, are ambiguous: McManus (2000), using the waves 1984 to 1995, does not find statistically significant earnings differences between the self-employed and paid employees. Martin (2013), utilizing the waves 1984 to 2008, concludes that entrepreneurship does pay in Germany, at least for men. Braakmann (2007), who analyzes the waves 2000 to 2005, finds that those self-employed below the 40% quantile of the earnings distribution would earn considerably higher earnings were they working in paid employment. Using the waves 1984 to 2005, Fossen (2012) shows that the self-employed would earn higher gross earnings in paid employment in the first 15 years of self-employment. Net earnings would be higher almost from the beginning for men, but women would have to endure lower net earnings for a long period of time. In contrast, Constant (2009) finds that self-employment also pays for women, when analyzing SOEP data from 2002. Finally, the results of Block et al. (2011) and Constant & Shachmurove (2006), utilizing the waves 1984 to 2004 and 2000, respectively, indicate that self-employment seems to be a particularly profitable option for immigrants. These analyses do not correct for potential mis-measurement of earnings though.

ployees. Both male and female self-employed more often report having autonomy and variety at work than their counterparts in paid employment, regardless of which indicator one uses for autonomy and variety. However, the self-employed apparently do not have more flexibility than paid employees as only 56% of male and 57% of female self-employed often report being able to take family and private interests into account when scheduling their working time, whereas this is the case for 58% and 62% of male and female paid employees, respectively. This finding may stem from the fact that self-employed work more hours, which may prevent them from better taking family and private interests into account, despite that they should principally have more freedom over the timing of their work.

Entrepreneurship is not only associated with some beneficial working conditions, but the entrepreneur is also characterized as having to bear a higher degree of uncertainty and risk (dating back to Knight 1921 and Kihlstrom & Laffont 1979), and Blanchflower (2004) found that the self-employed face more stresses and strains compared to paid employees. Regarding risk, Table 2 shows that the self-employed are indeed more often exposed to risk than paid employees, and that the share of those being exposed to risk that actually feel strained by risk is also higher among the self-employed than among paid employees (indicating that the self-employed indeed have to bear the consequences of their mistakes, i.e., the "big financial losses," themselves, while this may only partly be true for paid employees). For male self-employed, it is also true that they work more often under a lot of pressure and overstrain than male paid employees, but female self-employed do not seem to experience more pressure and overstrain than their regularly employed counterparts.

All in all, the data indicate that the self-employed experience more of certain beneficial working conditions such as autonomy and variety, but at the same time also more of certain detrimental working conditions, namely, risk, pressure and overstrain. To what extent these differences in working conditions may explain earnings differences between the occupations will be examined in the next section.

4. WORKING CONDITIONS AND THE SELF-/PAID EMPLOYMENT EARNINGS GAP

Before turning to a decomposition analysis, consider some simple OLS earnings regressions as displayed in Table 3. The table displays the results of regressions of logarithmic gross monthly earnings on a self-employment dummy and several control variables. The BIBB/BAuA Employment Survey 2012 contains exceptionally rich information on characteristics of individuals and in particular the jobs they perform, which enables one to account for a large set of control variables. To begin with, interviewees were asked about the specific skill requirements at their jobs. For eight

different areas they were to state whether their work required basic or expert knowledge in this area. Examples are technical skills, economic skills, math skills and legal knowledge. I include 16 dummies for basic and expert skills in these eight areas as control variables in the regressions. Further controls for human capital are the highest professional qualification (four dummies) and actual general and specific working experience. Actual general working experience is known because interviewees were asked when they were employed for the first time and also what the total amount of time of working intermissions was. Both variables are measured in years and included in the regressions in linear and squared form. Specific working experience is measured as tenure, i.e., years running the current business (years working at the current workplace for paid employees, respectively), and is also included in the regressions in linear and squared form. Regarding the job characteristics of individuals, interviewees were also asked in what tasks they were engaged. Examples are producing goods, quality control, purchasing or selling, advertising or marketing, etc. There were 17 tasks altogether, so I include 17 dummies capturing the tasks occurring at work. Additionally, eleven dummies capture the physical working environment of individuals; for instance, whether they were exposed to noise, dirt, or coldness.[9] Finally, working hours (in logarithmic form) and several socio-demographic variables (migration background, family status, place of residence) are included as control variables.

(Table 3 about here)

The regression results (columns 1 and 3 of Table 3) show that self-employed men report about 6.4% lower earnings on average than male paid employees with comparable skills and jobs (statistically significant at the 5% level), while female self-employed even report 18.2% lower earnings than comparable paid employees (statistically significant at the 1% level).[10] Can working conditions explain these lower reported earnings of the self-employed? In columns 2 and 4 of Table 3, working conditions are added to the regressions. The nine working conditions indicators are jointly statistically significant at the 1% level for both men and women. However, the self-employment dummy does barely change (it is even slightly lower). This casts some doubt on the idea that differences in working conditions are decisive for lower self-employment earnings.

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[9] Given this rich information on job characteristics, I do not additionally include a catch-all indicator of job characteristics like, for instance, dummies capturing professional fields. This seems especially appropriate since I want to separate the effects of certain working conditions and other job characteristics that are usually both captured by some industry or professional field dummies that serve as control variables.

[10] Taking the earnings data at face value one would thus conclude, in line with previous studies, that entrepreneurship does not pay, but such a conclusion would ignore the measurement issues.

Of course, a serious investigation of the returns to entrepreneurship requires a more thorough examination of the earnings gap between self-employment and paid employment. First of all, it is clear that the determinants of earnings differ between self-employment and paid employment, not least because "earnings" has different meanings for the two occupations. Thus, it would be more sensible to run regressions separately for self-employed and paid employees. These regressions can then be used to predict counterfactual earnings for one group using the coefficients of the earnings regression of the other group (the latter being called the "reference group"), providing an answer to the question what earnings the self-employed would probably report were they working as paid employees.

Another potential problem could be that individuals did not randomly select into self-employment but based on some characteristics that are unobservable, and can thus not be controlled for. This issue can be addressed by performing a Heckman (1979) selection correction. A pitfall of this approach is, however, that it requires a proper exclusion restriction, i.e., a variable that is correlated with being self-employed but not influencing earnings.[11] One variable that may by and large meet these conditions could be age. Since formal education and actual working experience, intermissions and tenure are already controlled for in the earnings regressions, age should not pick up any human capital endowments. At the same time, age is related to the probability of being self-employed, for instance, because older people are more likely to have received inheritances which could be used to overcome borrowing constraints, and older people may choose self-employment to avoid mandatory retirement provisions (cf. Parker 2009: chap. 4.2.1). Age is also associated with risk aversion, which may impact selection into self-employment and earnings at the same time, but "strained by risk" should account for the impact of risk on earnings. Still, age is of course no perfect exclusion restriction, for instance, because it is also associated with health status, which may impact selection into self-employment and earnings at the same time. Another variable that has already frequently been used as an exclusion restriction in the extant literature is the self-employment status of a parent (see, e.g., Fossen 2012, Constant & Shachmurove 2006). The BIBB/BAuA Employment Survey 2012 contains information on the self-employment status of the father or the mother of the interviewee at the age of 15. When including age (linear and squared) and a dummy indicating self-employment of a parent in a probit model (additionally to all other control variables and working conditions), they turn out to be significantly related to self-employment for both men and women (at the 1% level). Thus, the inverse Mill's ratios based on these probit

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[11] If no good instrument for selection is available, subsample OLS may in fact be more robust than "correcting" for selection (cf. Puhani 2000).

regressions were calculated and included in the earnings regressions to account for selection on unobservables.

Table 4 presents the results of Oaxaca-Blinder decompositions (Oaxaca 1973; Blinder 1973) of the earnings differential between self-employment and paid employment including the same control variables and working conditions as before, as well as the calculated inverse Mill's ratios. I use paid employees as the reference group, i.e., the decomposition is based on predicting counterfactual wages for the group of the self-employed using the coefficients of the earnings regression for paid employees. This seems sensible because predicting wages is definitely easier than predicting self-employment earnings, and taking paid employees as the reference group may thus yield more reliable results (nevertheless, my conclusions do not change if I use the self-employed as the reference group).[12]

(Table 4 about here)

As can be seen in column 1 of Table 4, male self-employed on average report approximately 15% higher earnings than male paid employees. The "unexplained" part of the earnings differential, however, indicates that predicted wages of the self-employed are 9% higher than reported self-employment earnings, i.e., the self-employed report lower earnings than what they are expected to earn in paid employment. The same finding applies for female workers, but with the "unexplained" part being much higher for women. Expected wages for self-employed women are on average approximately 21% higher than their reported self-employment earnings (column 3).[13]

The largest contribution to explaining the earnings differential between the self-employed and paid employees is made by working hours and human capital endowments. Together, differences in these variables explain a differential of 17.7 and 18.9 percentage points for men and women, respectively. Differences in the propensity of being self-employed, as captured in the inverse Mill's ratio, apparently do not contribute much to the earnings differential between self-employed and paid employees. The contribution of 4 and 3 percentage points for men and women, respectively, is economically relevant, but not statistically significantly different from zero at the 5% level.

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[12] The results of the respective selectivity-corrected earnings regressions for self-employed and paid employees separately are provided in Table A1 in the appendix.

[13] These "unexplained" differences in earnings presumably reflect the different measurement of self-employment earnings and wages (and some other unobserved factors). It is kind of puzzling, however, that the "unexplained" earnings differential is so much higher for women than for men. However, this finding is in line with extant evidence showing that the returns to entrepreneurship are considerably lower for women than for men in Germany (cf., e.g., Martin 2013; Fossen 2012), and that the relative earnings of women compared to men are considerably lower in self-employment than in paid employment (e.g., Lechmann & Schnabel 2012).

Coming to the main variables of interest in this study, the contribution of working conditions to the observed earnings differential is quite limited. Neither flexibility, autonomy, strain by risk nor pressure and overstrain contribute to the earnings differential in a statistically significant way (and the respective coefficients are all smaller than 1%). Only variety is statistically significant (at the 1% level), but it has the "wrong" sign. Having more variety at work contributes to 0.7% and 1.2% higher self-employment earnings relative to paid employees' wages for men and women, respectively. This is not consistent with the idea that the self-employed accept lower earnings in exchange for more variety at work. Thus, all in all, differences in working conditions do not seem to be decisive for earnings differences between self-employment and paid employment.

This insight still holds when performing a number of robustness checks. First of all, it could be argued that comparing mean earnings is not very meaningful given that entrepreneurial earnings are distinctly positively skewed (although taking logs somewhat alleviates the problem). Thus, I also conducted decompositions of the median earnings differential, utilizing the concept of RIF regression as described in Fortin et al. (2011). For this, one can run usual OLS regressions and Oaxaca-Blinder decompositions, but the dependent variable is replaced by the recentered influence function (RIF) of its median.[14] The results of the respective Oaxaca-Blinder decompositions are displayed in columns 2 and 4 of Table 4. Excluding extreme values of the logarithmic hourly earnings distribution (higher than the 75% quantile plus 1.5 times the interquartile range and lower than the 25% quantile minus 1.5 times the interquartile range, respectively), or including "exposure to risk" instead of "strained by risk," does not change my conclusions either. Finally, I differentiated between self-employed individuals without any other employees (i.e., solo self-employed) and those who also employ other workers. By and large, the contribution of working conditions remains insignificant and/or inconsistent with the idea of compensating differentials (the only exception being "pressure and overstrain" in the cases of male self-employed with employees and taking the self-employed as the reference group, and female self-employed without employees and taking paid employees as the reference group).

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[14] The RIF of the median is $RIF(y; median) = median + (0.5-1\{y \leq median\})/(f_y(median))$, y being earnings, $f_y(.)$ being the respective density function and $1\{.\}$ being an indicator function. Basically, the RIF of the median is a dummy variable indicating whether an observation is below or above the median and hence gives the proportion of individuals being below or above a certain earnings level. By dividing by the density, one can invert proportions back to quantiles. Adding the median (thereby "recentering" the influence function) ensures that the expected value of the RIF equals just the median (since the expected value of the second summand equals zero). For a detailed review of this method, see Fortin et al. (2011).

5. CONCLUSIONS

Some influential studies find that entrepreneurship does apparently not pay in monetary terms (cf. Hamilton 2000, Moskowitz & Vissing-Jørgensen 2002). One prominent potential explanation for this finding is that entrepreneurs trade off earnings for more beneficial working conditions such as flexibility, autonomy and variety. This study examined to what extent differences of working conditions between self-employment and paid employment may contribute to the observed earnings differential between the two occupations. Utilizing an Oaxaca-Blinder de-composition, I do not find that working conditions such as flexibility, autonomy, and variety contribute to explaining lower self-employment earnings.

In a way, this finding may not be that surprising, given that the self-employed are generally found to report higher levels of job satisfaction than paid employees. If more comfortable working conditions were (fully) compensated for by having lower earnings, this pronounced satisfaction difference should not be observed. In a com-petitive market with free self-employment entry, individuals would switch between self-employment and paid employment until the earnings in each sector adjust, so as to equalize satisfaction in the two occupations. The fact that the self-employed still seem to be able to enjoy more beneficial working conditions than paid employ-ees, apparently without having to pay for this, implies that there exist barriers to self-employment (cf. Kawaguchi 2008), and that these barriers impede the emer-gence of compensating earnings differentials. If this is actually the case, there would clearly be scope for governmental interventions removing (some of) the ob-stacles that hinder people to become self-employed.[15]

A limitation of my analysis is that it is based on a cross-sectional data set. Although this data set provides very rich information on the human capital of individuals, in-cluding the precise skill requirements they need, it is not unlikely that there is still some unobserved ability which may be positively correlated with earnings and job amenities at the same time. This may also partly explain why I do not find that working conditions differences contribute to earnings differences between the self-employed and paid employees.

Besides addressing this issue of unobserved ability, future research on the returns to entrepreneurship should possibly primarily be concerned with figuring out how large the income difference between self-employment and paid employment really is. Since "the bulk of previous work (including the influential article of Hamilton, 2000) has not paid sufficient attention to problems of income under-reporting and

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[15] Such obstacles may, for instance, be liquidity constraints (cf., e.g., Blanchflower & Oswald 1998) or certain labor market regulations (see, e.g., Parker 2009: chap. 17.3).

other sources of mismeasurement, (…) it is far from clear what the relative average income position of entrepreneurs really is" (Parker 2009: p. 382). Thus, it may well be that entrepreneurship pays – not only in terms of beneficial working conditions but also in monetary terms.

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Table 1 Correlation matrix of working conditions

	Flexibility	Strategic autonomy	Operational autonomy	Non-repetitive work	New tasks	Trying new things	Exposure to risk	Strained by risk	Pressure	Overstrain
Flexibility	1.00									
Strategic autonomy	0.13	1.00								
Operational autonomy	0.08	0.22	1.00							
Non-repetitive work	0.01	0.06	0.25	1.00						
New tasks	-0.03	-0.08	0.08	0.19	1.00					
Trying new things	-0.01	-0.05	0.09	0.12	0.35	1.00				
Exposure to risk	-0.06	-0.14	-0.09	0.03	0.13	0.07	1.00			
Strained by risk	-0.09	-0.10	-0.06	-0.03	0.09	0.06	0.34	1.00		
Pressure	-0.18	-0.23	-0.13	0.01	0.22	0.15	0.18	0.14	1.00	
Overstrain	-0.21	-0.20	-0.13	0.00	0.17	0.12	0.20	0.14	0.35	1.00

All working conditions are coded as dummies, 1 indicating a higher prevalence of the respective working condition. The exact questions underlying these variables are provided in the text (section 2). The data set used is the BIBB/BAuA Employment Survey 2012.

Table 2 Descriptive Statistics

	Men		Women	
	Self-employed	Paid employees	Self-employed	Paid employees
Monthly gross earnings (in €)	4,627 (4,798)	3,461 (3,361)	2,520 (2,130)	2,168 (1,990)
Weekly working hours	48 (16)	42 (9)	40 (17)	34 (11)
Professional qualification: University (of applied sciences) degree (dummy)	0.44	0.22	0.41	0.20
Master craftsmen/ state certified technician/ business administrator etc. (dummy)	0.19	0.12	0.07	0.05
Vocational training (dummy)	0.32	0.61	0.46	0.67
No vocational degree (dummy)	0.06	0.06	0.06	0.08
Working experience (in years)	28.5 (11.7)	24.3 (11.7)	26.0 (11.8)	25.4 (11.7)
Working intermissions (in years)	0.9 (1.9)	0.9 (1.8)	2.6 (3.9)	2.9 (4.1)
Tenure at current job (in years)	13.8 (10.3)	13.4 (11.2)	10.6 (8.8)	12.4 (10.5)
Age (in years)	50.3 (10.9)	44.8 (10.8)	47.9 (10.2)	45.6 (10.6)
Married (dummy)	0.61	0.52	0.53	0.50
Migration background (dummy)	0.10	0.10	0.10	0.09
Self-employed parent (dummy)	0.24	0.12	0.24	0.13
Flexibility (dummy)	0.56	0.58	0.57	0.62
Strategic autonomy (dummy)	0.56	0.48	0.59	0.54
Operational autonomy (dummy)	0.67	0.48	0.71	0.44
Non-repetitive work (dummy)	0.68	0.57	0.58	0.43
New tasks (dummy)	0.57	0.44	0.49	0.33
Trying new things (dummy)	0.37	0.29	0.38	0.24
Exposure to risk (dummy)	0.53	0.49	0.33	0.28
Strained by risk (dummy)	0.10	0.08	0.06	0.05
Pressure (dummy)	0.58	0.56	0.48	0.51
Overstrain (dummy)	0.59	0.54	0.53	0.53
No. of observations	800	5,552	499	6,436

Sample means with standard deviations in brackets. The precise measurement of earnings and working conditions is provided in the text (section 2). The data set used is the BIBB/BAuA Employment Survey 2012.

Table 3   Hedonic earnings regressions (OLS)

Dependent variable: logarithmic gross monthly earnings	Men		Women	
	without working conditions	including working conditions	without working conditions	including working conditions
Self-employed (dummy)	**-0.064** (0.026)	**-0.065** (0.026)	**-0.182** (0.034)	**-0.186** (0.034)
Flexibility (dummy)	n/a	**0.035** (0.012)	n/a	**0.046** (0.011)
Autonomy: Strategic autonomy (dummy)	n/a	0.007 (0.012)	n/a	-0.019 (0.011)
Operational autonomy (dummy)	n/a	0.006 (0.012)	n/a	**0.024** (0.011)
Variety: Non-repetitive work (dummy)	n/a	**0.045** (0.013)	n/a	**0.043** (0.011)
New tasks (dummy)	n/a	**0.026** (0.013)	n/a	0.009 (0.012)
Trying new things (dummy)	n/a	-0.008 (0.014)	n/a	0.014 (0.013)
Strained by risk (dummy)	n/a	0.005 (0.021)	n/a	-0.027 (0.022)
Pressure (dummy)	n/a	**0.048** (0.013)	n/a	0.013 (0.011)
Overstrain (dummy)	n/a	-0.003 (0.013)	n/a	**0.026** (0.012)
Log working hours	**0.910** (0.033)	**0.908** (0.033)	**1.017** (0.018)	**1.021** (0.018)
Highest professional qualification (reference: none): University (of applied sciences) degree (dummy)	**0.378** (0.034)	**0.366** (0.034)	**0.298** (0.026)	**0.285** (0.026)
Master craftsmen/ state certified technician/ business administrator etc. (dummy)	**0.191** (0.034)	**0.183** (0.034)	**0.152** (0.030)	**0.149** (0.030)
Vocational training (dummy)	**0.165** (0.030)	**0.158** (0.030)	**0.071** (0.023)	**0.071** (0.023)
Working experience (in years)	**0.016** (0.002)	**0.016** (0.002)	**0.012** (0.002)	**0.012** (0.002)
Working experience (squared / 100)	**-0.029** (0.005)	**-0.029** (0.005)	**-0.023** (0.004)	**-0.023** (0.004)
Working intermissions (in years)	**-0.028** (0.005)	**-0.028** (0.005)	**-0.012** (0.003)	**-0.012** (0.003)
Working intermissions (squared / 100)	0.045 (0.037)	0.046 (0.036)	**0.030** (0.015)	**0.031** (0.015)
Tenure (in years)	**0.022** (0.002)	**0.022** (0.002)	**0.024** (0.002)	**0.024** (0.002)
Tenure (squared / 100)	**-0.033** (0.005)	**-0.033** (0.005)	**-0.034** (0.004)	**-0.034** (0.004)
Skills required at work (16 dummies)	**Yes**	**Yes**	**Yes**	**Yes**
Tasks occurring at work (17 dummies)	**Yes**	**Yes**	**Yes**	**Yes**
Physical working environment (11 dummies)	**Yes**	**Yes**	**Yes**	**Yes**
Migration background (dummy)	0.022 (0.022)	0.028 (0.022)	-0.031 (0.019)	-0.025 (0.019)
Family status (5 dummies)	**Yes**	**Yes**	Yes	Yes

Place of residence (16 "Bundesländer" dummies)	**Yes**	**Yes**	**Yes**	**Yes**
Constant	**3.888** (0.121)	**3.825** (0.123)	**3.409** (0.063)	**3.334** (0.066)
No. of observations	6,352	6,352	6,935	6,935
R²	0.56	0.56	0.67	0.67

All working conditions are coded as dummies, 1 indicating a higher prevalence of the respective working condition. The exact questions underlying these variables are provided in the text (section 2). The nine working conditions variables are jointly statistically significant at the 1% level. Robust standard errors in brackets. Bold indicates statistical significance at the 5% level. The data set used is the BIBB/BAuA Employment Survey 2012.

Table 4 Oaxaca-Blinder decomposition of the self-/paid employment earnings gap

Dependent variable: logarithmic gross monthly earnings	Men (N=6,352)		Women (N=6,935)	
	Mean	Median	Mean	Median
Paid employees	7.9562 (0.0085)	7.9366 (0.0078)	7.4576 (0.0087)	7.5265 (0.0095)
Self-employed	8.1044 (0.0297)	8.1070 (0.0353)	7.4752 (0.0441)	7.4825 (0.0531)
Difference	**-0.1482** (0.0307)	**-0.1704** (0.0361)	-0.0176 (0.0447)	0.0440 (0.0538)
Unexplained	**0.0928** (0.0305)	0.0128 (0.0346)	**0.2065** (0.0369)	**0.2176** (0.0474)
Explained	**-0.2410** (0.0256)	**-0.1831** (0.0173)	**-0.2242** (0.0301)	**-0.1736** (0.0277)
Flexibility	0.0003 (0.0005)	0.0002 (0.0004)	0.0020 (0.0011)	0.0024 (0.0014)
Autonomy	-0.0037 (0.0024)	**-0.0068** (0.0026)	-0.0054 (0.0032)	**-0.0133** (0.0048)
Variety	**-0.0068** (0.0023)	-0.0046 (0.0025)	**-0.0118** (0.0032)	**-0.0099** (0.0046)
Strained by risk	0.0001 (0.0005)	-0.0002 (0.0005)	0.0002 (0.0004)	-0.0001 (0.0005)
Pressure and overstrain	-0.0005 (0.0008)	-0.0015 (0.0012)	0.0009 (0.0009)	0.0010 (0.0012)
Working hours (logarithmic)	**-0.0785** (0.0158)	**-0.0194** (0.0042)	**-0.1348** (0.0229)	**-0.0962** (0.0165)
Human capital	**-0.0985** (0.0155)	**-0.0924** (0.0142)	**-0.0543** (0.0118)	**-0.0560** (0.0143)
Other job characteristics (tasks and physical working environment)	-0.0061 (0.0100)	-0.0183 (0.0101)	0.0114 (0.0084)	-0.0098 (0.0111)
Sociodemographic control variables	-0.0071 (0.0044)	**-0.0076** (0.0038)	-0.0032 (0.0050)	-0.0007 (0.0053)
Inverse Mill's ratio	-0.0403 (0.0305)	-0.0326 (0.0230)	-0.0293 (0.0170)	0.0091 (0.0232)

The reference group is paid employees. Bootstrapped standard errors in brackets. Bold indicates statistical significance at the 5% level. "Autonomy" reflects the joint contribution of "strategic autonomy" and "operational autonomy". "Variety" reflects the joint contribution of "non-repetitive work", "new tasks" and "trying new things". "Human capital" includes professional qualification, working experience, working intermissions, tenure and 16 skill dummies. The data set used is the BIBB/BAuA Employment Survey 2012.

APPENDIX

Table A1 Selectivity-adjusted earnings regressions (heckit) for self-employed and paid employees separately

Dependent variable: logarithmic gross monthly earnings	Men		Women	
	Self-employed	Paid employees	Self-employed	Paid employees
Flexibility	**0.144**	0.021	0.138	**0.042**
(dummy)	(0.049)	(0.011)	(0.073)	(0.010)
Autonomy:				
Strategic autonomy	0.043	-0.001	**-0.177**	-0.012
(dummy)	(0.050)	(0.012)	(0.071)	(0.010)
Operational autonomy	**-0.119**	0.020	-0.158	0.022
(dummy)	(0.057)	(0.012)	(0.090)	(0.011)
Variety:				
Non-repetitive work	0.058	**0.044**	-0.033	**0.047**
(dummy)	(0.052)	(0.012)	(0.070)	(0.010)
New tasks	0.049	0.020	-0.070	0.010
(dummy)	(0.054)	(0.013)	(0.076)	(0.012)
Trying new things	-0.014	-0.006	-0.071	0.024
(dummy)	(0.051)	(0.013)	(0.072)	(0.012)
Strained by risk	0.118	-0.006	0.018	-0.027
(dummy)	(0.077)	(0.020)	(0.140)	(0.022)
Pressure	**0.237**	0.017	-0.038	**0.024**
(dummy)	(0.053)	(0.012)	(0.078)	(0.011)
Overstrain	-0.050	0.003	**0.172**	0.013
(dummy)	(0.055)	(0.012)	(0.074)	(0.011)
Log working hours	**0.686**	**0.972**	**0.767**	**1.034**
	(0.073)	(0.023)	(0.094)	(0.015)
Highest professional qualification (reference: none):				
University (of applied sciences) degree (dummy)	**0.337**	**0.372**	0.195	**0.280**
	(0.101)	(0.028)	(0.159)	(0.023)
Master craftsmen/ state certified technician/ business administrator etc. (dummy)	**0.254**	**0.187**	-0.092	**0.158**
	(0.117)	(0.029)	(0.188)	(0.028)
Vocational training	**0.328**	**0.149**	0.116	**0.075**
(dummy)	(0.120)	(0.025)	(0.146)	(0.019)
Working experience	0.002	**0.018**	0.007	**0.012**
(in years)	(0.009)	(0.002)	(0.011)	(0.002)
Working experience	-0.006	**-0.036**	-0.020	**-0.024**
(squared / 100)	(0.016)	(0.004)	(0.022)	(0.003)
Working intermissions	-0.032	**-0.027**	-0.033	**-0.008**
(in years)	(0.019)	(0.005)	(0.022)	(0.003)
Working intermissions	-0.047	0.068	0.110	0.016
(squared / 100)	(0.001)	(0.036)	(0.137)	(0.015)
Tenure	**0.031**	**0.021**	**0.025**	**0.024**
(in years)	(0.008)	(0.002)	(0.012)	(0.001)
Tenure	**-0.067**	**-0.027**	-0.024	**-0.032**
(squared / 100)	(0.020)	(0.004)	(0.039)	(0.004)
Skills required at work (16 dummies)	**Yes**	**Yes**	**Yes**	**Yes**
Tasks occurring at work (17 dummies)	**Yes**	**Yes**	**Yes**	**Yes**
Physical working environment (11 dummies)	Yes	**Yes**	Yes	**Yes**
Migration background (dummy)	**0.186**	0.001	0.039	-0.028
	(0.078)	(0.019)	(0.109)	(0.017)
Family status (5 dummies)	**Yes**	**Yes**	Yes	Yes

Place of residence (16 "Bundesländer" dummies)	**Yes**	**Yes**	Yes	**Yes**
Constant	**4.708** (0.533)	**3.568** (0.087)	**4.593** (0.626)	**3.283** (0.056)
Inverse Mill's ratio	-0.037 (0.127)	**0.101** (0.050)	-0.261 (0.162)	0.115 (0.060)
No. of observations	800	5,552	499	6,436

All working conditions are coded as dummies, 1 indicating a higher prevalence of the respective working condition. The exact questions underlying these variables are provided in the text (section 2). Standard errors in brackets (corrected for two-step estimation). Bold indicates statistical significance at the 5% level. The data set used is the BIBB/BAuA Employment Survey 2012.

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