



Psychological well-being of hybrid entrepreneurs

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ABSTRACT

Although the phenomenon of hybrid entrepreneurs—individuals who work in paid and self-employment simultaneously—is prevalent, the psychological well-being of hybrid entrepreneurs has not been researched systematically to date. This is unlike research on paid employment and (assumed) full-time entrepreneurship, where psychological well-being has been researched as a key factor. Using data from the United Kingdom Household Longitudinal Survey, we address this void by studying whether hybrid entrepreneurs display distinct psychological well-being patterns (measured via mental strain, job satisfaction, and life satisfaction), utilizing a comparison with full-time paid employed, full-time self-employed and individuals working in two paid jobs. We further examine whether the specific work arrangements of hybrid entrepreneurs shape their well-being. To this end, we study the changes in well-being of hybrid entrepreneurs and other individuals in the comparison groups who switch to other jobs. For this purpose, we employed matching (entropy balancing approach) to account for self-selection effects. Our results suggest that the well-being of hybrid entrepreneurs is indeed distinct and can be explained by both self-selection effects and unique aspects of their work arrangements. Our study is thus the first to deliver evidence showing that hybrid entrepreneurs need to be studied as a separate group in entrepreneurship research concerned with well-being and psychological functioning. Our results have important implications not only for future research but also for practice.

1. Introduction

Psychological well-being in the context of work is a highly important field for research and practice. Consequently, scholars pay considerable attention to identifying the level and predictors of psychological well-being in different work arrangements, including employed work and entrepreneurship (Benz and Frey, 2008a, b; Van Der Doef and Maes, 1999; Wiklund et al., 2019). One important finding from this research is that most studies report higher levels of job satisfaction for entrepreneurs compared to paid employees (see Stephan, 2018, for a review). This has been framed as a paradox because entrepreneurs presumably face more uncertainty, worse work—life balance, and less detachment from work during leisure time.

However, the well-being of hybrid entrepreneurs—individuals who simultaneously engage in self-employment and paid work (Folta et al., 2010)—has not been explicitly studied. This is a significant oversight because 50–85 percent of nascent entrepreneurs are hybrids (Bosma et al., 2008; Joona and Wadensjö, 2013; Reynolds, 2012). Moreover, the hybrid route is sometimes suggested as a suitable path into full-time entrepreneurship (Folta et al., 2010) without this advice being informed by knowledge of the well-being effects of hybrid entrepreneurship. Further, whether the hybrid work arrangement is enriching or depleting is theoretically unclear

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(Campion et al., 2020). Therefore, we address whether hybrid entrepreneurs have distinct psychological well-being patterns compared to full-time paid employees and the full-time self-employed? If they do, are the differences attributable to the unique work arrangements, or do they merely reflect selection effects? For example, ex-ante personal characteristics may both make a transition to hybrid entrepreneurship more likely and affect well-being (Baron et al., 2016; see also Schneider et al., 1995).

Taking studies of the psychological well-being of entrepreneurs vs. non-entrepreneurs as our vantage point (e.g., Benz and Frey, 2008a, 2008b; Hessels et al., 2017; Millán et al., 2013), we observe the levels of three frequently used measures: strain (a measure for general distress), job satisfaction, and life satisfaction (see Stephan, 2018). We venture beyond the simple group comparison approach to separate effects of self-selection (ex ante person factors) vs. effects of hybrid entrepreneurs' unique work arrangements (task characteristics). We achieve this by applying the entropy balancing approach (Hainmueller, 2012) to elaborately compare individuals who switch into and out of hybrid entrepreneurship to matched individuals who do not alter their job arrangements and those who undertake other job switches.

Our results suggest that the psychological well-being patterns of hybrid entrepreneurs are indeed distinct and can be attributed to both ex ante person factors (selection effects) and the unique work arrangement ("treatment effect" by task characteristics). By heeding calls to study the varying well-being effects of different types of entrepreneurial activity (Stephan, 2018; Wiklund et al., 2019) and presenting the first systematic picture of the well-being patterns of hybrid entrepreneurs, our study contributes to the entrepreneurship literature and the multiple jobholding literature.

2. Theoretical considerations

Procedural utility is the central argument used to explain the observed higher levels of job satisfaction among entrepreneurs compared to paid employees. This is the form of satisfaction that stems from the work characteristics of self-employment, which may help to fulfill the need for autonomy and control—one of the essential elements for psychological well-being (Frey et al., 2004; Benz and Frey, 2008a, 2008b; Ryan and Deci, 2001). Moreover, stressing that work has high centrality for entrepreneurs, some studies argue and find that the positive effect of work may spill over to other life domains, positively affecting overall life satisfaction (Andersson, 2008; Hessels et al., 2018; van der Zwan et al., 2018). Nonetheless, the entrepreneurship literature remains silent on whether the positive association between self-employment and psychological well-being remains when the entrepreneurial work is performed in combination with paid work. Similarly, in the multiple jobholding literature, the psychological well-being outcomes of working in two occupations remain uncertain, for example whether it is enriching or depleting (Campion et al., 2020).

A simple well-being comparison may help to gain an overview of whether similarities and differences in well-being exist across groups. However, from a theoretical perspective, the procedural utility argument—how the specific job characteristics explain the well-being of entrepreneurs—is only one possible mechanism. In fact, the fit between characteristics of the job and the individual's personal qualities may also explain the observed psychological well-being patterns (Schneider et al., 1995). Relevant personal qualities may include personality traits (Zhao et al., 2010), psychological capital (Baron et al., 2016), values (Warr and Inceoglu, 2018), and a predisposition for positive and negative affect (Nikolaev et al., 2020). Prior studies suggest the decision to engage in different types of entrepreneurial activities is not random. This raises the possibility that group differences in well-being may simply reflect self-selection the entrepreneurial work per se (Stephan, 2018). It is thus important to disentangle selection and treatment effects when trying to understand the well-being of individuals in the context of entrepreneurial work (Baron et al., 2016).

3. Methods

3.1. Design

To get an overview of whether psychological well-being patterns of hybrid entrepreneurs are distinct from other occupational groups, we started with a well-being comparison by using ANOVA. We then employ a matching approach to explore whether observed patterns are attributable to work arrangements, (cf. Abreu et al., 2019; Nikolova, 2019; Nikolova et al., 2020; Stephan et al., 2020). Matching helps disentangle the potential selection effects by simulating a random allocation of individuals. To this end, we use longitudinal data on job transitions and control for the time-invariant factors that contribute to both entrepreneurship and well-being (see Appendix Table A1). We then compare the well-being changes (outcome variables) of individuals who were assigned to the treatment groups (switch to new jobs) with those who persisted in their job (control group). Given that the estimated treatment effects were obtained after controlling for individuals' initial well-being levels and other observable factors, the changes in psychological well-being can be more justifiably attributed to job switches (Caliendo and Kopeinig, 2008).

We examined six types of job switches. First, we observe psychological well-being changes of full-time paid employed who switched to hybrid entrepreneurship and vice versa. Next, we examined well-being changes of hybrid entrepreneurs who switched to full-time self-employment. In addition to the three "treatments", we examined the effects of three other job switches, namely from a single (full-time) job holder to dual jobholder (working in two paid jobs) and vice versa, and the switch from full-time paid to full-time self-employment.

3.2. Dataset

We identified the United Kingdom Household Longitudinal Study (UKHLS)¹ dataset as particularly suitable for our research.² Unlike other publicly available datasets,³ the UKHLS offers the distinct advantage of recording respondents' primary and secondary jobs. This enables us to identify hybrid entrepreneurs. We gathered data from Wave C (data collection started in 2011) to Wave I (data collection started in 2017). While the Wave C survey recorded respondents' personality data which enable us to disentangle the self-selection effects of work, Wave I is the latest available wave.

3.3. Samples

Following [Folta et al. \(2010\)](#), we define a hybrid entrepreneur as an individual who simultaneously performs both paid and self-employment. The operationalization in the dataset we used treats paid employment as the primary job and self-employment as the additional job instead (see [Block et al., 2019](#)). This fits with our interest in nascent entrepreneurs who start as hybrids keeping their day job ([Raffiee and Feng, 2014](#)). The structure of the data enables us to identify individuals working in a single job as well as dual jobholders (those working in two paid jobs and hybrid entrepreneurs)⁴ ([Webster et al., 2019](#); [Schulz et al., 2017](#)). Overall, there are 119,446 full-time paid employed and 18,496 full-time self-employed (single jobholders), 3,847 hybrid entrepreneurs, and 5,149 individuals working in two paid jobs.

In addition, we constructed a second sample comprising full-time paid employed in the first sample who switched to hybrid entrepreneurship and those who persisted in their job status (between Wave C to D, D to E, E to F, F to G, G to H, and H to I). We used this sample to create the matched treatment and control groups. Across the six periods (C-D to H-I), individuals in the treated groups are full-time paid employed in time 1 (for example in Wave C) who switch to hybrid entrepreneurship in time 2 (Wave D) (See Appendix [Table A3](#)). Further, we constructed the third sample consisting of hybrid entrepreneurs in time 1 who switch to full-time paid employment in time 2. Lastly, we constructed the fourth sample, comprising hybrid entrepreneurs in time 1 who switch to full-time self-employment in time 2. The control group in our third and fourth samples consist of hybrid entrepreneurs who persist in their job status between time 1 and time 2 (see Appendix [Table A4](#)).

3.4. Measures

We used central psychological well-being measures used in prior entrepreneurship and well-being studies (see [Stephan, 2018](#) for the review). We focused on the level of strain (the manifestation of workplace stressors; [Ford et al., 2014](#)), job satisfaction, and life satisfaction. Strain was measured with the question: "Have you recently felt constantly under strain?" (4-point Likert scale, not at all = 1, no more than usual = 2, rather more = 3, and much more = 4), whereas job satisfaction was measured as "How dissatisfied or satisfied are you with your job?" Note that this measure refers to respondents' satisfaction with their primary (paid) job and thus does not reflect hybrid entrepreneurs' satisfaction with both jobs.^{5 6} Albeit not ideal, this measure helps to study hybrid entrepreneurs' satisfaction with their paid work and the changes in their job satisfaction when they switch to full-time self-employment. Finally, life satisfaction was measured as "How dissatisfied or satisfied are you with your life overall?" Similar to the job satisfaction question, responses to this question used 7-point Likert scales from not satisfied at all (1) to completely satisfied (7).⁷

3.5. Analysis

We performed a well-being comparison test by using analysis of variance (ANOVA) and the Games-Howell post-hoc test for a comparison of the group levels of strain, job satisfaction, and life satisfaction of the four comparison groups. We then turn to the matching method by employing entropy balancing. We pool the estimation across the six observation periods (C-D to H-I) to examine the psychological well-being changes. By using the weights from our balanced samples, we regressed the changes in strain, job satisfaction,

¹ University of Essex, Institute for Social and Economic Research, NatGen Social Research, Kantar Public. (2020). Understanding Society: Waves 1–10, 2009–2019 and Harmonised BHPS: Waves 1–18, 1991–2009. [data collection]. 13th Edition. UK Data Service. SN: 6614, <http://doi.org/10.5255/UKDA-SN-6614-14>.

² See [Bialowolski and Weziak-Bialowolska \(2021\)](#), [Carrino et al. \(2020\)](#), [Litsardopoulos et al. \(2021\)](#), and [van der Zwan et al. \(2020\)](#) for recent well-being studies utilizing the UKHLS dataset.

³ This includes the German Socio-Economic Panel (GSOEP) and the Household, Income and Labour Dynamics in Australia (HILDA) datasets.

⁴ In the UKHLS dataset, the main job (job 1) refers to the job with the most hours. If equal hours, then the main job is the highest-paid job. The second job (job 2) refers to any jobs that respondents do from time to time, apart from any main job that they have (a yes/no question, followed by an option; in paid or in self-employment). We identify full-time paid employed as individuals with job1 = paid employed, full-time self-employed as job1 = self-employed (both with no job 2), hybrid entrepreneurs as individuals with job 1 = paid employed and job 2 = self-employed, and individuals working in two paid jobs = job 1 and job 2 in paid employment.

⁵ Note that such single-item measures are well-established in the literature (e.g. [Binder and Coad, 2011, 2013, 2016](#); [Bjørnskov and Foss, 2020](#); [Shir et al., 2019](#); [van der Zwan et al., 2018](#); [Wolfe and Patel, 2018](#)).

⁶ With the exception of [Zickar et al. \(2004\)](#), past studies have not distinguished between individuals' satisfaction with their primary versus secondary jobs (see [Bögenhold and Klinglmair, 2016](#), for studies on hybrid entrepreneurs and [Baba and Jamal, 1992](#), [Jamal et al., 1998](#), and [Kottwitz et al., 2017](#), for other occupations).

⁷ According to conventional psychometric logic, these single-item measures are short of ideal. However, the psychometric logic is not unchallenged. [Rossiter \(2002\)](#) would classify and evaluate this type of measure as concerning a singular-concrete *object* (work/life as a whole) with a concrete *attribute* (overall satisfaction) and argue that it can be measured well with a single item. Other methodologists might disagree while supporting the focus on a unidimensional, overall assessment rather than including underlying reasons or other subdimensions in a complex, multidimensional index ([Davidsson et al., 2021](#); [Edwards, 2011](#); [Howell et al., 2007](#)).

and life satisfaction on the treatment variable (job switches).^{8,9} We present the resulting estimated average treatment effects of the treated (ATT) in the results section and the descriptive statistics before and after matching in the Appendix.

4. Results

4.1. Hybrid entrepreneurs vs. full-time self-employed individuals and vs. full-time employees

The ANOVA results in [Table 1](#) indicate that hybrid entrepreneurs' strain levels are significantly higher compared to full-time paid and self-employed ($p < 0.01$). Their strain levels are also higher than for individuals working in two paid jobs ($p < 0.05$). In terms of job satisfaction, the findings indicate that both hybrids and full-time paid employed are significantly less satisfied with their (primary, paid) jobs than full-time self-employed ($p < 0.01$). Concerning life satisfaction, the findings show that hybrid entrepreneurs' levels of life satisfaction are not significantly different compared to other groups.

In summary, the results suggest that hybrid entrepreneurs' psychological well-being pattern is distinct from all other groups. Therefore, we continue to the next analysis to examine whether this distinction was attributable to their unique work arrangements.

4.2. Analysis of switching work status

We began the switching analysis by using entropy balancing to pre-process our data. We created similar groups of individuals based on numerous observable characteristics ([Table A1](#), Appendix) measured in time 1 for our treatment and control groups. The pre-processing step is necessary, given that the data indicate certain differences between individuals who persist in their jobs and those who switch to other jobs. (See [Table A5](#), A.6, and A.7, in the Appendix). We used the weights from the balancing step to regress the well-being changes on the treatment variable (job switches). The resulting average treatment effects are attributable to the treatment because they are obtained from the balanced samples (samples with similar means and variance in personality traits, hybrid intensity, and psychological well-being levels that were observed prior to the job switch). By doing so, the method helps to eliminate the bias (systematic differences in the motives and other personal tendencies that drive job change which may also affect job outcomes), that we identified at the pre-processing step.

We present the resulting estimated average treatment effects of switching from full-time paid employment to hybrid entrepreneurship in [Table 2](#) and from hybrid entrepreneurship to full-time paid employment in [Table 3](#). In the two tables, we find an increase of strain and decreasing levels of job and life satisfaction following the two job switches. However, none of these changes is significant, nor do they indicate meaningful effect sizes. These results are in reverse compared to the switch from hybrid to full-time self-employment ([Table 4](#)). The findings indicate that the level of job satisfaction for switchers would be 0.996 points higher ($p = 0.000$) relative to similar individuals who remain as hybrid entrepreneurs. In addition, the level of life satisfaction would be 0.403 points higher ($p = 0.081$) compared to similar individuals who persist as hybrid entrepreneurs.

Our results suggest that only entry to full-time self-employment is related to changes in well-being; entry to and exit from hybrid work from full-time paid employment are not. To confirm, we repeated our analyses on three other job switches: 1) from a single job holder (full-time paid employed) to dual jobholder (working in two paid jobs); 2) vice versa, and 3) from full-time paid to full-time self-employment. Similar to our prior analyses, we constructed three samples drawn from six observation periods (C-D to H-I). In the first additional sample, the treatment group consisting of full-time paid employees in time 1 who work in two paid jobs in time 2 ([Sample 5](#)). In the second additional sample, the treatment group comprises of individuals working in two paid jobs in time 1 who switch to full-time paid employment in time 2 ([Sample 6](#)). The last treatment group comprises of full-time paid employed in time 1 who switch to full-time self-employment in time 2 ([Sample 7](#)). Our control groups in [Sample 5](#) and [7](#) consist of full-time paid employed who persist in their job in time 1 and time 2, whereas the control group in [Sample 6](#) comprises of individuals working in two paid jobs who persist in their job status between time 1 and time 2 (see [Table A8 & A.9](#) in the Appendix for details).

As shown in [Tables 5 and 6](#), the findings confirm our prior results. We again find an increase of strain and decreasing levels of job and life satisfaction following entry to and exit from double paid work to full-time paid employment. There is an exception for the job satisfaction seemingly improving for those who switch from double paid work to full-time paid employment. Nonetheless, none of these changes are significant. Concerning the switch from full-time paid to full-time self-employment ([Table 7](#)), we found significant increases in job satisfaction ($p < 0.001$), and non-significant changes for the decrease in strain and the increase in life satisfaction. Overall, our results suggest that only the job switch to full-time self-employment is related to psychological well-being changes.

In summary, the results across the analyses gave some important insights ([Table 8](#)). First, by using group comparisons, the result shows that hybrid entrepreneurs' strain levels are distinct from other groups, whereas their levels of life satisfaction are statistically similar. Concerning job satisfaction, hybrids are similar to full-time paid employed who are less satisfied with their paid work compared to full-time self-employed. However, by taking the observed individual differences into account, the results suggest that the psychological well-being patterns of hybrid entrepreneurs are no different than full-time paid employed, but they differ from full-time self-employed in terms of job and life satisfaction. The results thus highlight the need to distinguish the work effect (treatment effect)

⁸ We looked at interindividual differences in psychological well-being by using simple group comparisons across four occupational groups. We then examined interindividual differences (between those at the treatments vs. control groups) in terms of the changes in their psychological well-being (intraindividual differences) in time 1 vs. time 2. We employed a matching approach to simulate random allocation of individuals in the treatment vs at the control group to reduce the pre-existing differences between the two, thus making them comparable.

⁹ Entropy balancing is robust and more efficient in reducing covariate imbalance compared to other matching methods, such as the standard propensity score or nearest neighbourhood matching. It achieves covariate balance by weighting the sample units and remains as similar as possible to uniform base weights to prevent loss of information from the raw data ([Hainmueller, 2012](#); [Hainmueller and Xu, 2013](#); [Zhao and Percival, 2017](#)).

Table 1
Comparison of the means.

	Hybrid Entrepreneur (n = 3.847)		Individuals in two paid jobs (n = 5.149)		Full time paid employed (n = 119.446)		Full-time self-employed (n = 18.496)		Mean difference hybrid entrepreneur vs. full-time paid employed	Mean difference hybrid vs. full-time self-employed	Mean difference hybrid vs. individuals in two paid jobs	Mean difference full time paid employed vs. full-time self employed
	Mean	S. D	Mean	S. D	Mean	S. D	Mean	S. D				
Strain	2.10	.745	2.05	.779	2.02	.754	1.95	.731	.08***	.15***	.049**	.07***
Job satisfaction	5.23	1.436	5.32	1.425	5.28	1.389	5.66	1.265	-.05	-.43***	-.94**	-.38***
Life satisfaction	5.19	1.345	5.17	1.428	5.20	1.385	5.22	1.422	-.01	-.03	.024	-.02

*** Significant at the 0.01 level (2-tailed).

Table 2
Average treatment effect of the treated (ATT); switching from full-time paid employment to hybrid entrepreneurship (n = 710).

Psychological well-being	ATT	S. E	p-value	R squared
Δ Strain	.016	.035	.639	.000
Δ Job satisfaction	-.094	.065	.153	.000
Δ Life satisfaction	-.060	.067	.365	.000

Table 3
Average treatment effect of the treated (ATT); switching from hybrid entrepreneurship to full-time paid employment (n = 878).

Psychological well-being	ATT	S. E	p-value	R squared
Δ Strain	0.041	.055	.457	.000
Δ Job Satisfaction	-.001	.107	.987	.000
Δ Life Satisfaction	-.043	.122	.724	.000

Table 4
Average treatment effect of the treated (ATT); switching from hybrid entrepreneurship to full-time self-employment (n = 111).

Psychological well-being	ATT	S. E	p-value	R squared
Δ Strain	-.056	.110	.608	.001
Δ Job Satisfaction	.996	.225	.000	.084
Δ Life Satisfaction	.403	.231	.081	.017

Table 5
Average treatment effect of the treated (ATT); switching from full-time paid employment to double paid jobs (n = 925).

Psychological well-being	ATT	S. E	p-value	R squared
Δ Strain	.043	.036	.229	.000
Δ Job satisfaction	-.059	.063	.345	.000
Δ Life satisfaction	-.091	.065	.162	.000

Table 6
Average treatment effect of the treated (ATT); switching from double paid jobs to full-time paid employment (n = 1427).

Psychological well-being	ATT	S. E	p-value	R squared
Δ Strain	.019	.048	.686	.000
Δ Job Satisfaction	.080	.075	.287	.000
Δ Life Satisfaction	-.028	.076	.709	.000

from the person effect (self-selection) in well-being studies, as it may alter our understanding of the psychological well-being outcomes of work.

Second, our results indicate that hybrid entrepreneurs' strain levels appear to be driven by the person and other factors, while their life satisfaction appears to be partly driven by job characteristics (the treatment). The results thus suggest that the observed psychological well-being levels of hybrid entrepreneurs can be explained from both person factors and job factors. Third, our results indicate that dual job holding (either hybrid entrepreneurship or working in two paid jobs) is not associated with significant psychological well-being differences compared to full-time paid employment. This suggests that dual jobholders experience neither depletion

Table 7

Average treatment effect of the treated (ATT); switching from full-time paid employment to full-time self-employment ($n = 567$).

Psychological well-being	ATT	S. E	p-value	R squared
Δ Strain	-.009	.056	.871	.000
Δ Job Satisfaction	.728	.105	.000	.042
Δ Life Satisfaction	.065	.089	.466	.000

Table 8

Summary table.

Psychological well-being indicators	Hybrid entrepreneur; psychological well-being differences with other groups			Hybrid entrepreneur; psychological well-being changes following job switches			full-time paid employed; psychological well-being changes following job switches		
	full time paid employed	full time self-employed	double paid jobs	to and from full time paid employment	to full time self-employment	Remarks	to and from double paid jobs	to full time self-employment	Remarks
Strain	Yes	Yes	Yes	No	No	No observable treatment effects	No	No	No observable treatment effects
Job satisfaction	No	Yes	Yes	No	Yes	Observable treatment effects for the switch to full-time self-employment	No	Yes	Observable treatment effects for the switch to full-time self-employment
Life satisfaction	No	No	No	No	Yes		No	No	No observable treatment effects

Group differences: hybrid entrepreneurs' strain levels are significantly higher compared to other groups ($p < 0.01$ compared to full-time paid and self-employed), and ($p < 0.05$ compared to individuals working in two paid jobs).

Treatment effects: a non-negligible treatment effect in the life satisfaction of hybrid entrepreneurs who are treated to full-time self-employment ($p = 0.081$; $R^2 = 0.017$). A large treatment effect in the job satisfaction (satisfaction with the primary, paid work) of hybrid entrepreneurs who are treated to full-time self-employment ($p < 0.001$; $R^2 = 0.084$). A medium treatment effect in the job satisfaction of full-time paid employed who are treated to full-time self-employment ($p < 0.001$; $R^2 = 0.042$).

nor enrichment from their work, particularly if we take the person factors into account. For hybrid entrepreneurs, the enriching outcomes of work are observed only if they switch to full-time self-employment. It should be noted that long-term effects may differ from the effects we observe 1–2 years after job switches (Lévesque and Stephan, 2020). This being said, with only 3 out of 18 job switch effects being statistically significant, the results do not indicate that the significant results reflect perceived well-being improvement that temporarily follows from any type of change in work arrangements.

Fourth, concerning job satisfaction, although we cannot attribute the finding to the outcome of hybrid work (as it reflects the satisfaction with the primary, paid job), the finding informs us that the positive well-being effect of switching to full-time self-employment is greater for the switch from hybrid entrepreneurship. This suggests that existing research that only compared employed individuals and self-employed individuals (and lumped hybrid and full-time self-employed together into the self-employed category) might have underestimated the positive well-being effect of self-employed work. Furthermore, the results suggest that the positive effect of job satisfaction is stable irrespective of individuals' specific characteristics (see also Lange, 2012). This is in contrast to the mixed findings on the general distress of entrepreneurs (Lerman et al., 2020; Rauch et al., 2018), where the personal characteristics of entrepreneurs may also explain their observed levels of general distress (e.g., Baron et al., 2016; Patzelt and Shepherd, 2011; Totterdell et al., 2006).

5. Discussion

Our study shows the distinct psychological well-being patterns of hybrid entrepreneurs compared to full-time paid and self-employed individuals. Moreover, we show that the observed patterns can be attributed to both person factors (selection effects) and the unique work arrangements (task characteristics). We thereby make a number of contributions. First, to the entrepreneurship literature, our study shows that the positive association between self-employment and psychological well-being is more apparent in full-time self-employment than in hybrid mode. This suggests that positive effects of procedural utility may require a more autonomous work arrangement to take effect (Benz & Frey, 2008a, 2008b; Ryan and Deci, 2000). The combination of self-employed work and employed work might actually reduce procedural utility for hybrid entrepreneurs as they have to coordinate both jobs at the same time. In addition, our study shows an even higher job satisfaction premium of opportunity driven self-employment by distinguishing job transitions that depart from hybrid entrepreneurship versus full-time paid employment. This, and the unique psychological well-being patterns of hybrid entrepreneurs suggest the need to study hybrid entrepreneurs as a distinct group to better understand the well-being consequences of entrepreneurship.

Second, our study contributes to multiple jobholding literature by showing that the psychological well-being outcomes of dual job holding, either in the form of hybrid entrepreneurship or double paid work, are neither enriching nor depleting. One potential explanation could be that hybrid status might add more job demands (e.g., more duties and roles), which could be a potential stressor that

might decrease well-being, while at the same time the person might also enjoy increased autonomy and procedural utility associated with self-employed work (Benz & Frey 2008a, 2008b) that come with hybrid status. Hence, from the perspective of job demands-resources theory (Bakker and Demerouti, 2017), this could be a zero-sum game resulting in no change in well-being. Lastly, to both literatures, our study shows the consequences of ignoring self-selection effects which may alter our understanding on work outcomes. This underscores the need to advance theoretical discussions regarding the self-selection effects which is underdeveloped in the literature (Stephan et al., 2020).

Our study has some limitations. Because the job satisfaction question refers to the primary job, we cannot use it to examine the effect of hybrid work on psychological well-being. However, the measure helps identify psychological well-being differences in the first step of our analysis and to understand hybrid entrepreneurs' job satisfaction with their paid work.

Measurement features that can be improved in future research include the well-being dimensions (e.g., Shir and Ryff, 2021) and inclusion of direct measures of job characteristics associated with the occupational groups being compared. Further, our matching results are contingent on respondent characteristics captured in the data. Future studies should account for other variables that may affect job choices and well-being simultaneously, such as attitude toward risk (Raffiee and Feng, 2014). Lastly, while our approach leads to a better causal understanding, the issue of causality is not fully resolved. The interactions among work characteristics, individual differences, and situational effects of undertaking a switch in combination make the research task extremely challenging. This said, our study takes us one step closer to a better understanding of the well-being implications of hybrid entrepreneurship and paves the way for future efforts to reach a greater level of understanding.

Credit author statement

Retno Ardianti: Conceptualization, Methodology, Formal analysis, Investigation, Data curation, Writing (Original Draft and Revision), Visualisation. Martin Obschonka: Conceptualization, Methodology, Writing (Original Draft and Revision), Visualisation, Supervision. Per Davidsson: Conceptualization, Methodology, Writing (Original Draft and Revision), Supervision.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Appendix.

Table A1

Variables used in the matching analysis.

Variable Name	Definition
Psychological well-being:	
Δ Strain	Changes in strain between t1 and t2
Δ Job satisfaction	Changes in job satisfaction between t1 and t2
Δ Life satisfaction	Changes in life satisfaction between t1 and t2
Matching covariates	
Age	Respondents' age at t1
Age2	Quadratic age at t1
Gender	Dummy coded variable (Male = 1, Female = 0)
Marital status	Dummy coded variable (Married = 1, Not married = 0)
Education	Dummy coded variable (Has higher degree qualification = 1, Otherwise = 0)
Org. type	Dummy coded variable (Government = 1, Private = 0) of hybrid entrepreneurs' employers' category.
Agreeableness	Composite score from a 7-point Likert scale of self-reported measure on agreeableness.
Conscientiousness	Composite score from a 7-point Likert scale of self-reported measure on conscientiousness.
Extraversion	Composite score from a 7-point Likert scale of self-reported measure on extraversion.
Neuroticism	Composite score from a 7-point Likert scale of self-reported measure on neuroticism.
Openness	Composite score from 7 points Likert's scale of self-reported measure on openness to experience.
Income changes hybrid intensity	The gap between income in t2 and t1 the ratio of self-the The ratio of self-employment and paid employment income.

Note: PE = paid employment; SE = self-employment.

The variables listed are predictors for a transition to entrepreneurship as well as the well-being of individuals (e.g., Sørensen, 2007; Unger et al., 2011; Zhao et al., 2020; Zhao et al., 2010). Prior studies use demographic variables, prior work experience, personality traits, and income shocks to predict job transitions as well as well-being. We added hybrid intensity to this list, as it predicts transitions from hybrid entrepreneurship to full-time self-employment (Folta et al., 2010).

Table A2

Sample 1; for comparison of the means test

	Hybrid Entrepreneurs	Individuals working in two paid jobs	Full time paid employed	Full-time self-employed
Wave C	575	839	20.894	3.091
Wave D	654	783	18.261	2.737
Wave E	476	715	17.228	2.623

(continued on next page)

Table A2 (continued)

	Hybrid Entrepreneurs	Individuals working in two paid jobs	Full time paid employed	Full-time self-employed
Wave F	673	765	17.113	2.776
Wave G	520	660	16.352	2.622
Wave H	516	688	15.364	2.452
Wave I	433	699	14.234	2.195
Total observations	3847	5149	119.446	18.496

Table A3

Sample 2*; to estimate the effects of switching from full-time paid employment to hybrid entrepreneurship**

	Persisting in full time paid employment in time 2	Switch to hybrid entrepreneurship in time 2
Wave C-D	15.974	283
Wave D-E	12.997	93
Wave E-F	10.234	170
Wave F-G	8.432	66
Wave G-H	7.116	68
Wave H-I	5.905	30
Total observations	60.658	710

*We use pooled sampling method because our main interest is in the well-being effects of job switching rather than observing the individuals' overall career trajectories. We compared the psychological well-being changes of switchers with those of non-switchers in the same period (time 1 and time 2) across six observations periods. Due to the nature of a longitudinal dataset and the career patterns of self-employed which are not always persistent (e.g., intermittent or mixed patterns (Koch et al., 2021)), certain individuals may be presented for more than one time in our pooled sample. For example, certain individuals made re-entry to hybrid or full-time entrepreneurship during our period of observations.

**Given that respondents' personality data is only available in the Wave C survey, we ensured the accuracy of our respondents' observed personality traits by restricting our samples on individuals who worked as full-time paid employed in their primary job when their personality traits were being measured (in the Wave C survey). We excluded individuals who were in other types of employment or not in employment to ensure that the individuals were in similar job status between the time when their personality traits were being measured and at the time when they switched to other jobs. In doing so, we reduced the potential of treatment effect of other types of work where work experiences may shape the individuals' personality traits (e.g., Li et al., 2021; Wille and De Fruyt, 2014; Wu, 2016).

Table A4

Sample 3 & 4; to estimate the effects of switching from hybrid entrepreneurship to full-time paid employment and self-employment

	Hybrid entrepreneurs	Switch to full time paid employment in time 2 (Sample 3)	Switch to full-time self-employment in time 2 (Sample 4)
Wave C-D	435	189	21
Wave D-E	410	194	25
Wave E-F	285	113	19
Wave F-G	364	177	17
Wave G-H	262	107	17
Wave H-I	242	98	12
Total observations	1998	878	111

Table A5

Descriptive statistics before and after matching: switching from full-time paid employment to hybrid entrepreneurship

Variable	Before matching				After matching			
	Treated		Control		Treated		Control	
	Mean	Variance	Mean	Variance	Mean	Variance	Mean	Variance
Strain	2.115	.5182	2.009	.5478	2.115	.5182	2.115	.6059
Job satisfaction	5.05	2.238	5.266	1.892	5.05	2.238	5.05	2.184
Life satisfaction	5.023	2.087	5.21	1.847	5.023	2.087	5.023	2.113
Age	40.52	128.7	43.48	134.1	40.52	128.7	40.52	128.5
Age2	1770	880,586	2024	1,019,565	1770	880,586	1770	879,015
Education	.4122	1.148	.2762	1.628	.4122	1.148	.4121	.8652
Sex	.4391	.2467	.4482	.2473	.4391	.2467	.4391	.2463
Marital status	.003584	.003578	.003199	.003189	.003584	.003578	.003584	.003571
Government	.3817	.2364	.3841	.2366	.3817	.2364	.3817	.236
Agreeableness	5.627	.9919	5.607	1.001	5.627	.9919	5.627	1.011
Conscientiousness	5.577	.8944	5.603	.9887	5.577	.8944	5.577	1.008
Extraversion	4.841	1.549	4.61	1.605	4.841	1.549	4.841	1.537
Neuroticism	3.538	1.764	3.564	1.847	3.538	1.764	3.538	1.881
Openness	4.973	1.513	4.579	1.413	4.973	1.513	4.973	1.301
Log income changes	.07349	1.132	.02733	.827	.07349	1.132	.07349	.8308

Note: Entrepreneurs are associated with certain personality traits, such as high in extraversion and openness, low in agreeableness, conscientiousness, and neuroticism (e.g., Brandstätter, 2011; Obschonka et al., 2013; Zhao et al., 2010). As shown in before the matching columns, those who switched showed higher extraversion and

openness scores, although their conscientiousness scores were lower, and their agreeableness and neuroticism scores were similar. Further examinations with a logit model indicated a significant effect of extraversion ($p = 0.006$) and openness ($p = 0.000$) to predict job switches from full-time paid employment to hybrid entrepreneurship.

Table A6
Descriptive statistics before and after matching: switching from hybrid entrepreneurship to paid employment.

Variable	Before matching				After matching			
	Treated		Control		Treated		Control	
	Mean	Variance	Mean	Variance	Mean	Variance	Mean	Variance
Strain	2.084	.545	2.110	.546	2.084	.5458	2.084	.5669
Job satisfaction	5.220	2.148	5.201	2.054	5.22	2.148	5.22	2.094
Life satisfaction	5.068	1.907	5.258	1.666	5.068	1.907	5.068	1.934
Education	.533	.249	.598	.2406	.5332	.2493	.5333	.2492
Gender	.482	.250	.529	.2494	.4827	.2501	.4827	.25
Age	42.370	144.1	45.03	108.9	42.37	144.1	42.37	144
Age ²	1939	1,056,067	2136	878,807	1939	1,056,067	1939	1,105,921
Marital status	.002	.002	.002418	.002415	.00289	.002886	.002889	.002884
Government	.404	.241	.4982	.2503	.4046	.2413	.4047	.2412
Agreeableness	5.574	1.010	5.632	.855	5.574	1.012	5.574	.9334
Conscientiousness	5.512	1.000	5.59	.8281	5.512	1.009	5.512	.9056
Extraversion	4.773	1.560	4.727	1.54	4.773	1.568	4.773	1.718
Neuroticism	3.603	1.733	3.456	1.597	3.603	1.733	3.603	1.553
Openness	4.951	1.587	5.012	1.424	4.951	1.587	4.951	1.487
Log income changes	-.070	.122	.03283	.1126	-.07046	.122	-.07041	.1256
Hybrid intensity	.496	.099	.7104	.03806	.4963	.09917	.4964	.09329

Note: As shown in before the matching columns, those who switched to full-time paid employment showed lower agreeableness scores, higher neuroticism, and lower openness to experience, although their conscientiousness and extraversion scores were similar to those who persisted as hybrid entrepreneurs. In addition, data indicated that the ratio between self-versus paid employment income (hybrid intensity) for those who switched to full-time paid employment was 0.496, while those who persisted as hybrid entrepreneurs was 0.710 (a significant predictor; $p = 0.000$ in the logit model to predict switching to full-time paid employment).

Table A7
Descriptive statistics before and after matching: switching from hybrid entrepreneurship to full-time self-employment.

Variable	Before matching				After matching			
	Treated		Control		Treated		Control	
	Mean	Variance	Mean	Variance	Mean	Variance	Mean	Variance
Strain	2.192	.495	2.11	.546	2.192	.495	2.192	.6699
Job satisfaction	4.846	2.833	5.201	2.054	4.846	2.833	4.847	2.663
Life satisfaction	5.026	2.207	5.258	1.666	5.026	2.207	5.026	1.869
Education	.50	.2532	.5985	.2406	.5	.2532	.5001	.2503
Gender	.5897	.2451	.5296	.2494	.5897	.2451	.5897	.2422
Age	43.5	133.5	45.03	108.9	43.5	133.5	43.5	132
Age ²	2024	1,042,289	2136	878,807	2024	1,042,289	2024	1,101,414
Marital status	0	0	.0024	.0024	0	0	.000	.0000
Government	.3077	.2158	.4982	.2503	.3077	.2158	.3078	.2133
Agreeableness	5.462	1.239	5.632	.855	5.462	1.239	5.462	.9259
Conscientiousness	5.577	1.234	5.59	.8281	5.577	1.234	5.577	.9524
Extraversion	4.872	1.646	4.727	1.54	4.872	1.646	4.872	1.572
Neuroticism	3.308	1.618	3.456	1.597	3.308	1.618	3.308	1.382
Openness	5.141	1.577	5.012	1.424	5.141	1.577	5.141	1.334
Log income changes	-.3253	.5554	.03283	.1126	-.3253	.5554	-.325	.1856
Hybrid intensity	.6842	.07179	.7104	.03806	.6842	.07179	.6843	.04082

Note: As shown in before the matching columns, those who switched to full-time self-employment showed lower agreeableness scores, higher extraversion, lower neuroticism, higher openness to experience, although their conscientiousness scores were similar to those who persisted as hybrid entrepreneurs. Data also indicated that the ratio between self-versus paid employment income (hybrid intensity) for those who switched to full-time self-employment was 0.684, while those who persisted as hybrid entrepreneurs was 0.710. Further examinations with a logit model indicated a significant effect of agreeableness ($p = 0.012$) and neuroticism ($p = 0.048$) to predict job switches to full-time self-employment.

Table A8

Sample 5 & 7; to estimate the effects of switching from full-time paid employment to double paid jobs and full-time self-employment

	Full time paid employed in time 1 and time 2	Full time paid employed in time 1 who switch to double paid jobs in time 2 (Sample 5)	Full time paid employed in time 1 switch to full-time self-employment in time 2 (Sample 7)
Wave C-D	15.691	341	172
Wave D-E	12.904	184	123
Wave E-F	10.064	163	112
Wave F-G	8.366	89	76
Wave G-H	7.048	75	40
Wave H-I	5.875	73	34
Total observations	59.948	925	567

Table A.9

Sample 6; to estimate the effects of switching from double paid jobs to full-time paid employment

	Dual job holders	Switch to full-time paid employment in time 2	Persist in double paid jobs in time 2
Wave C-D	630	315	315
Wave D-E	541	271	270
Wave E-F	435	221	214
Wave F-G	412	199	213
Wave G-H	349	205	144
Wave H-I	347	216	131
Total observations	2714	1427	1287

Table A10

Descriptive statistics before and after matching: switching from full-time paid employment to double paid jobs

Variable	Before matching				After matching			
	Treated		Control		Treated		Control	
	Mean	Variance	Mean	Variance	Mean	Variance	Mean	Variance
Strain	2.045	.5928	2.024	.5505	2.045	.5928	2.045	.5756
Job satisfaction	5.267	1.93	5.265	1.898	5.267	1.93	5.267	1.896
Life satisfaction	5.052	2.143	5.207	1.853	5.052	2.143	5.052	2.132
Age	39.78	145.1	43.39	134.4	39.78	145.1	39.78	144.9
Age2	1727	907,767	2017	1,018,558	1727	907,767	1727	987,378
Sex	.3041	.2119	.4479	.2473	.3041	.2119	.3041	.2116
Marital status	.002829	.002825	.003241	.003231	.002829	.002825	.002829	.002821
Education	1.069	1.886	.9533	1.654	1.069	1.886	1.069	1.793
Government	.4653	.2492	.3851	.2368	.4653	.2492	.4653	.2488
Agreeableness	5.634	1.074	5.607	1.003	5.634	1.074	5.634	.9814
Conscientiousness	5.604	1.189	5.604	.9901	5.604	1.189	5.604	.9778
Extraversion	4.744	1.573	4.612	1.607	4.744	1.573	4.744	1.563
Neuroticism	3.693	1.955	3.564	1.846	3.693	1.955	3.693	1.902
Openness	4.649	1.509	4.58	1.416	4.649	1.509	4.649	1.416
Log income changes	.2933	.2965	.03115	.1364	.2933	.2965	.2933	1.405

Table A11

Descriptive statistics before and after matching: switching from double paid jobs to full-time paid employment

Variable	Before matching				After matching			
	Treated		Control		Treated		Control	
	Mean	Variance	Mean	Variance	Mean	Variance	Mean	Variance
Strain	2.075	.595	2.005	.5744	2.075	.595	2.075	.6416
Job satisfaction	5.266	2.249	5.362	1.948	5.266	2.249	5.266	2.139
Life satisfaction	5.189	1.958	5.151	2.109	5.189	1.958	5.189	2.054
Age	40.72	169.7	43.75	127.8	40.72	169.7	40.73	169.9
Age2	1828	1,132,889	2042	913,452	1828	1,132,889	1828	1,132,120
Sex	.3403	.2247	.2964	.2087	.3403	.2247	.3403	.2248
Marital status	.000995	.000995	.001802	.0018	.000995	.000995	.000946	.0009945
Education	1.022	1.804	.9604	1.53	1.022	1.804	1.022	1.595

(continued on next page)

Table A11 (continued)

Variable	Before matching				After matching			
	Treated		Control		Treated		Control	
	Mean	Variance	Mean	Variance	Mean	Variance	Mean	Variance
Government	.4935	.2502	.5252	.2496	.4935	.2502	.4933	.2502
Agreeableness	5.67	1.02	5.714	1.045	5.67	1.02	5.67	1.085
Conscientiousness	5.599	1.131	5.63	1.056	5.599	1.131	5.598	1.091
Extraversion	4.754	1.586	4.693	1.715	4.754	1.586	4.753	1.639
Neuroticism	3.696	1.917	3.632	1.996	3.696	1.917	3.696	2.014
Openness	4.692	1.558	4.547	1.615	4.692	1.	4.691	1.532
Mjh int	.7732	.03921	.8517	4.216	.7732	.03921	.7732	.1022
Log income changes	-.1382	.2604	.03806	.1426	-.1382	.2604	-.1382	.2542

Table A12

Descriptive statistics before and after matching: switching from full-time paid employment to full-time self-employment

Variable	Before matching				After matching			
	Treated		Control		Treated		Control	
	Mean	Variance	Mean	Variance	Mean	Variance	Mean	Variance
Strain	2.086	.5785	2.025	.5507	2.086	.5785	2.086	.5833
Job satisfaction	4.914	2.735	5.265	1.897	4.914	2.735	4.914	2.372
Life satisfaction	5.227	1.782	5.207	1.852	5.227	1.782	5.227	1.802
Age	43.16	144	43.38	134.3	43.16	144	43.16	143.7
Age2	2007	1,136,250	2016	1,017,639	2007	1,136,250	2007	1,089,547
Sex	.6045	.2397	.4479	.2473	.6045	.2397	.6045	.2391
Marital status	.005038	.005025	.003239	.003229	.005038	.005025	.005038	.005012
Education	.937	1.291	.9541	1.657	.937	1.291	.937	1.534
Government	.2242	1.744	.3851	.2368	.2242	1.744	.2242	1.739
Agreeableness	5.577	1.098	5.607	1.003	5.577	1.098	5.577	1.019
Conscientiousness	5.617	.9793	5.603	.9899	5.617	.9793	5.617	.9469
Extraversion	4.713	1.761	4.612	1.607	4.713	1.761	4.713	1.548
Neuroticism	3.322	1.896	3.564	1.846	3.322	1.896	3.322	1.819
Openness	4.904	1.551	4.58	1.415	4.904	1.551	4.904	1.308
Log income changes	-.3992	2.517	.03155	.1289	-.3992	2.517	-.3992	2.688

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