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# Work engagement among different types of solo self-employed: the mediating role of intrinsic job resources

Jessie Gevaert
*Interface Demography – Department of Sociology, Vrije Universiteit Brussel, Brussels, Belgium*
Christophe Vanroelen
*Interface Demography – Department of Sociology, Vrije Universiteit Brussel, Brussels, Belgium and*
*Research Foundation Flanders, Brussels, Belgium*
Lara Stas
*Interfaculty Center for Data Processing and Statistics, Vrije Universiteit Brussel, Brussels, Belgium and*
*Department of Biostatistics and Medical Informatics, Vrije Universiteit Brussel, Brussels, Belgium, and*
Deborah De Moortel
*Interface Demography – Department of Sociology, Vrije Universiteit Brussel, Brussels, Belgium and*
*Research Foundation Flanders, Brussels, Belgium*

## Abstract

**Purpose** – The ideal-typical entrepreneur presents him/herself in the neoliberal iconography as an autonomous and pro-active individual who is highly engaged with his/her vocation. Nevertheless, empirical research on the actual work engagement of the self-employed is scarce. In addition, phenomena like "necessity self-employment" and "economically dependent self-employment" raise concerns about the potential eudaimonic well-being outcomes of these self-employed. In this study, it was therefore investigated to what extent necessity self-employment and economically dependent self-employment are associated to work engagement and whether this relation is mediated by intrinsic job resources.

**Design/methodology/approach** – The authors used data from the 2015 European Working Conditions Survey (EWCS) involving 5,463 solo self-employed participants. For analyzing the data, structural equation modeling (SEM) with the Lavaan package was used.

**Findings** – Both necessity self-employment and economically dependent self-employment were linked to poor work engagement, however, intrinsic job resources mediated both effects.

**Originality/value** – While previous studies have shown differences in hedonic well-being between opportunity/necessity entrepreneurs, and economically (in)dependent entrepreneurs, this study considers their



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distinct profiles regarding eudaimonic well-being. Eudaimonic well-being was deemed particularly relevant because of its implications for other outcomes such as life satisfaction, psychological well-being, ill-health, business performance and persistence in self-employment.

**Keywords** Self-employment, Economically dependent self-employment, Necessity self-employment, Work engagement, Job resources, Structural equation modeling

**Paper type** Research paper



## Introduction

In recent decades national governments encouraged workers to engage in self-employment and to embrace entrepreneurial values. The heroic depiction of "the entrepreneur", endowed with personal and professional success, has become an important ideological symbol of neo-liberalism (Anderson and Warren, 2011). "Becoming self-employed" is then the most visible expression of the "entrepreneurial discourse" proclaimed by neoliberalism (Cohen and Musson, 2000; Mould *et al.*, 2014). The ideal-typical entrepreneur presents him/herself in the neoliberal iconography as an autonomous and pro-active individual, who is highly engaged with his/her vocation (da Costa and Silva Saraiva, 2012; Warr and Inceoglu, 2017). Work engagement, therefore, seems central to the idea of entrepreneurial discourse (da Costa and Silva Saraiva, 2012; Warr and Inceoglu, 2017). Nevertheless, given that research on the work engagement of the self-employed is scarce (Ryff, 2019; Stephan *et al.*, 2020b; Toth *et al.*, 2021), one should investigate whether the self-employed are in fact, as engaged as is assumed.

Especially, the solo self-employed – i.e. individuals who manage their business independently without employing other workers – are an interesting group to study in that regard. For the solo self-employed, their work attitudes and work engagement are probably the most important (maybe only) factors determining business success and persistence (Schummer *et al.*, 2019).

Consequently, becoming (solo) self-employed ought to be a well-considered career step informed by an optimization of intrinsic, economic and/or work-private related advantages that would be unattainable as a wage-earner (Carree and Verheul, 2012). However, recent labour market history shows a gloomier picture for a growing group of solo self-employed, often entailing poor employment conditions such as "economically dependent self-employment", i.e. involving "subordinance" from one or a few dominant clients (Böheim and Mühlberger, 2009) or "necessity self-employment" – that is, a constrained (and sometimes even *forced*) choice out of a paucity of other employment opportunities (Johansson Sevä *et al.*, 2016; Reynolds *et al.*, 2002). Consequently, the solo self-employed have even appeared on the "Decent Work" agenda of the International Labour Organization (ILO), which aims to ensure that all work is fair and decent (ILO, 2002). The cases problematized in the decent work agenda are those where the "neoliberal entrepreneurial ideal" is an ideological trap (Boltanski and Chiapello, 2005), facilitating the acceptation of subordinated, employment-like relations with clients, vulnerability and a lack of advantages related to wage-employment, including social and occupational health and safety-protection (Weil, 2014) as well as lower earnings (van Stel *et al.*, 2018). According to some, this can lead to the same types of well-being consequences (e.g. anxiety, illness) that are often reported by those employed on casual contracts (Taylor *et al.*, 2017). Therefore, especially for economically dependent self-employment and necessity self-employment, there is a growing interest in investigating work engagement (Ryff, 2019; Toth *et al.*, 2021).

As such, in this study, the authors will investigate the relation between the employment conditions of the self-employed and work engagement. More specifically, they will dig into associations with economically dependent self-employment and necessity self-employment. Furthermore, the lower availability of intrinsic job resources, i.e. characteristics relating to the work task (Moulton and Scott, 2016; Navajas-Romero *et al.*, 2019), could offer an (alternative) explanation for (potential) associations between poor employment conditions of self-

employment (i.e. economically dependent self-employment and necessity self-employment) and low work engagement (Navajas-Romero *et al.*, 2019; Ryff, 2019). Intrinsic job resources have motivational potential by themselves (Bakker and Demerouti, 2007) and their availability to economically dependent self-employed and necessity self-employed has often been put into question (Shir *et al.*, 2019; De Vries *et al.*, 2020).

In this research, these assumptions will be investigated, namely whether poor employment conditions in solo self-employment (e.g. economically dependent self-employment and necessity self-employment) are associated with work engagement, and whether there is a mediating influence of intrinsic job resources in that association.

*Labour market transformations towards (solo) self-employment*

Self-employment as a form of economic organization, in the second half of the 20th century, was considered a remainder of the past. The decline of the agricultural sector, the rise of capitalist mass production and the emergence of the standard employment relationship led to a strong and steady decline of self-employment between the early 20th century and the 1980s (Bennett *et al.*, 2019; Bögenhold and Staber, 1991). This caused many social stratification and labour market experts to believe that self-employment would eventually disappear or absorb into the formal, modern capitalist economy because self-employed's capital would not suffice for the scale on which Modern Industry was built on (Arum and Müller, 2004; Marx and Engels, 1976). Nevertheless, recent statistics point against such predictions and show that the decline of self-employment has halted or reversed the past decades (Arum and Müller, 2004). Many European countries follow a similar pattern of decline, with strong decreases in self-employment until the 1990s, but slowed-down decreases from then onwards. Belgium's self-employment rate in 1960 was still 26%, it declined to 19% in 1995, and then still declined – albeit slower – to 15% in 2020. Denmark showed self-employment rates of 21% in 1970, 10% in 1995, and 9% in 2020. Greece respectively had a self-employment rate of 68% in 1960, 46% in 1995 and 32% in 2020. And finally, for Ireland a self-employment rate of 39% was found in 1960, 22% in 1995, and 15% in 2020 (OECD, 2021). Alongside this general pattern in the prevalence of self-employment, also the internal composition of the self-employed has changed: from a majority of traditional shopkeepers and owners of small farms to a growing portion of solo self-employed individuals (i.e. self-employed persons who manage their business independently without having employees) in a variety of industries (Conen and Schippers, 2019). Much of the current self-employed population consists of self-employed persons without employees (Bögenhold and Fachinger, 2016; De Vries *et al.*, 2020). This growth of solo self-employment sustains recent stable or slightly increasing overall levels of self-employment in many countries (De Vries *et al.*, 2020). Between 1995 and 2019, the prevalence of self-employed without employees increased from 59% of total self-employment to 73% of total self-employment in the EU15 countries (*own calculations based on* Eurostat (2021) data). In addition, the self-employed without employees have been known as a heterogenous group in terms of start-up motivation and working conditions (Millán *et al.*, 2018; De Vries *et al.*, 2020) and hedonic well-being outcomes (Schonfeld and Mazzola, 2015). Yet, research on their eudaimonic well-being is scarce (Ryff, 2019).

*Eudaimonic well-being and self-employment: work engagement*

Hedonia and eudaimonia are two components of well-being. Hedonic well-being refers to the emotional component of well-being, which contains feelings of joy, serenity, and affection (Sirgy, 2012). Eudaimonic well-being, on the other hand, refers to a sense of well-being that is related to meeting your full potential, contributing to society, and achieving high standards of morality (Sirgy, 2012). Research has mostly focused on the hedonic component of well-being, while eudaimonia, of which work engagement is an example (Fisher, 2014), has often been

overlooked for the self-employed (Ryff, 2019). Notwithstanding this bias in the literature, it can be argued that the more eudaimonic component of well-being is particularly relevant, and even fundamental to self-employment. That is, because of the idea that self-initiated work is a core forum for the realization of personal talents and potential (Ryff, 2019). Especially the entrepreneurial discourse portrays high work engagement as a prominent feature of success (da Costa and Silva Saraiva, 2012; Warr and Inceoglu, 2017). Work engagement is also considered a crucial factor in determining other outcomes such as life satisfaction (Hakanen and Schaufeli, 2012), psychological and subjective well-being (Shuck and Reio, 2014) and health (Shimazu *et al.*, 2015) as well as business performance and growth (Beutell *et al.*, 2019; Dijkhuizen *et al.*, 2016b) and persistence in self-employment (Barba-Sánchez and Atienza-Sahuquillo, 2017). Conceptually, work engagement comprises energetic and effective connections with work activities, decreases chances of burnout, and is defined as a positive, fulfilling work-related state of mind (Bakker and Leiter, 2010).

While. many contemporary researchers agree that both hedonic and eudaimonic well-being matter if we want to comprehensively understand (pathways to) well-being (Henderson and Knight, 2012), this paper will be specifically dedicated to the eudaimonic interpretation of well-being. Eudaimonic well-being (and in extension, work engagement) has, so far, rarely been considered among the self-employed (Ryff, 2019; Stephan, 2018). This is where this study contributes to a gap in the study field.

*Mechanisms between solo self-employment and poor work engagement*

Despite little research on the topic, it can be easily hypothesized why some solo self-employed persons show higher work engagement than others. In this study, the authors consider the role played by two types of sub-optimal employment conditions (economic dependency and necessity self-employment) as well as by intrinsic job resources.

*The role of economic dependency and necessity self-employment.* The solo self-employed are a heterogeneous group (De Vries *et al.*, 2020) and different kinds of solo self-employment have been known to exist depending on degrees of economic dependency and reasons for becoming self-employed (e.g. necessity self-employment).

In most cases, self-employed persons work for multiple customers without placing themselves in hierarchical subordination to them (Muehlberger, 2007). However, recent discussions have pointed our attention to situations where self-employed persons are formally classified as self-employed, but do not benefit from the advantages of self-employment. Instead, they are economically dependent on a limited number of clients from whom they gain most of their income (Moisander *et al.*, 2017; Oostveen *et al.*, 2013). For reasons of cost-containment employers have increasingly hired solo self-employed workers to perform work that is normally done by employees, as it allows them to evade – among other things – minimum wages, compensation in case of dismissal, holiday payments and payments for sick leave (Thörnquist, 2011; Williams and Horodnic, 2018). According to Muehlberger (2007), this means that the entrepreneurial risk is transferred to the contracted self-employed worker. Meaning that the quantity of work for the self-employed worker is highly dependent on the main client. Economically dependent solo self-employment is (increasingly) found in two different labour market niches: i.e. among high-skilled (liberal) professions, as well as among lower-skilled "peripheral" jobs (Arum and Müller, 2004). In the post-Fordist service economy there is a rising demand for highly skilled professional self-employed services (e.g. consultants, lawyers, computer operators) (Thörnquist, 2015). These activities are characterized by high skill levels, specialization and competence leading to strong labour market positions, even though the workers involved are often dependent on a single employer (Muehlberger, 2007). At the same time, on the bottom of the labour market, non-core, low-skilled activities of companies are also increasingly contracted out to low-

skilled, self-employed workers (Thörnquist, 2015). Especially the situation of the latter usually relates to powerful negative health-affecting psychosocial consequences, like an increased sense of insecurity, low feelings of control over one's working life (Bosmans, 2016), and lower feelings of autonomy and competence (Shir *et al.*, 2019), which could all contribute to low work engagement. Consequently, in this study, economically dependent solo self-employed workers are expected to present a lower level of work engagement than other solo self-employed workers (hypothesis 1a).

In some situations, individuals are "pushed" into self-employment due to reasons which are generally unrelated to their entrepreneurial capabilities but are instead, the result of exclusion from the mainstream labour market, forcing people to go into solo self-employment. Such, "necessity self-employment" tends to be grounded within the "push-pull" debate (Stanworth and Stanworth, 1995). The necessity self-employed is the exponent of labour market insecurity and employment precariousness, being provoked by a lack of opportunities in waged employment (Bögenhold and Klinglmair, 2017). It is thus considered a less-desirable choice out of avoidance of unemployment or precarious waged employment (De Vries *et al.*, 2020). Furthermore, the necessity self-employed tends to show less "entrepreneurial capabilities" (relating to economic performance, as well as their skills and abilities) compared to other solo self-employed who did not become self-employed out of necessity (De Vries *et al.*, 2020).

In conclusion, necessity self-employment, characterized by being "pushed" into self-employment, makes us suspect that their work engagement will be lower compared to self-employed workers in other situations. Therefore, workers who are solo self-employed out of necessity are expected to present a lower level of work engagement than other solo self-employed workers (hypothesis 1b).

*Intrinsic job resources*

Yet, despite the study's hypotheses that necessity self-employment and economically dependent self-employment are both associated to poor work engagement, self-employed workers are also exposed differently to a set of intrinsic job resources (i.e. characteristics that relate to the work tasks themselves) (Navajas-Romero *et al.*, 2019). According to the job demands-resources model, these are characteristics of a job that "*reduce physiological/psychological costs, are functional in achieving work goals, and/or stimulate personal growth, learning and development*" (Schaufeli and Bakker, 2004). Intrinsic job resources have motivational potential as they can foster employees' growth, learning and development; they also help in achieving work goals (Bakker and Demerouti, 2007). It is consequently presumed that intrinsic job resources might lead to high work engagement for the self-employed as well (Dijkhuizen *et al.*, 2016b; McKeown and Cochrane, 2017). In this study, it is therefore hypothesized that intrinsic job resources will be positively associated to work engagement among solo self-employed workers (hypothesis 2).

As previously stated, both the situations of economically dependent self-employment and of necessity self-employment relate to less "entrepreneurial capabilities" (De Vries *et al.*, 2020), lower feelings of autonomy and competence (Shir *et al.*, 2019) and imply generally less intrinsic job quality (e.g. lower pay, less access to training) (Henley, 2021). Furthermore, the job demands-resources model postulates that the availability of resources could mediate the negative effects of particularly stressful conditions (like economical dependency and necessity self-employment) in determining well-being outcomes (Bakker and Demerouti, 2007). Therefore, the associations between economically dependent self-employment and work engagement (Hypothesis 1a), and necessity self-employment and work engagement (Hypothesis 1b) are expected to be (partly) mediated by the availability of intrinsic job resources (hypotheses 3a and 3b).

*Hypotheses*

Following the literature regarding the role of economic dependency and necessity self-employment, as well as the relationship of intrinsic job resources with the work engagement of the self-employed, the next hypotheses have been proposed:

*H1a.* Economically dependent solo self-employed workers present a lower level of work engagement than other solo self-employed workers.

*H1b.* Workers who are solo self-employed out of necessity present a lower level of work engagement than other solo self-employed workers.

*H2.* Intrinsic job resources (i.e. skill discretion, rewards, autonomy) are positively associated to work engagement among solo self-employed workers.

*H3a.* The association between economically dependent self-employment and work engagement are expected to be (partly) mediated by the availability of intrinsic job resources.

*H3b.* The association between necessity self-employment and work engagement are expected to be (partly) mediated by the availability of intrinsic job resources.

## Material and methods

*Sample*

The sample of this study consists of respondents having participated in the cross-sectional European Working Conditions Survey (EWCS) – wave 6 (2015). For the sampling of the EWCS, a multistage, stratified random sampling design was used. Face-to-face survey interviews were held at the respondents' homes (Eurofound, 2017).

The EWCS is a representative sample of workers (i.e. at least one hour of paid work in the week preceding the interview) aged 15 and over, living in private households (Eurofound, 2017). For these analyses, the authors included respondents from all 35 countries included in the EWCS. They only selected respondents that indicated to have self-employment as their "*main paid job*" and who answered "no" to the question: "*Do you have employees (working for you)?*" to include in the study. The final sample included 5,463 respondents (see Table 1).

*Measures*

Two variables (economically dependent self-employment and necessity self-employment) were used to operationalize the employment conditions in solo self-employment. They were included as separate variables into the final model because their correlation was not strong enough to form one factor ($r = 0.134$). Before including them in the structural equation model, the variable economically dependent self-employment was constructed using three indicators, following the operationalization of De Moortel and Vanroelen (2017) – see also Figure A1.: "*Regarding your business, do you generally have more than one client or customer?*" (yes/no), "*It is easy for me to find new customers?*" (Dummy indicator consisting of "(strongly) disagree" and "neither agree nor disagree and (strongly) agree") and "*What proportion of revenue do you receive from your most important client?*" (Dummy indicator consisting of ">75%" and "<76%"). Based on these items, the variable results in two categories: "economically dependent" contrasted against the reference category "not economically dependent" (independent). Respondents who respond to at least two items with a "dependent" response category were classified as economically dependent, while others were considered not economically dependent (independent).

Necessity self-employment was operationalized using the question "*When you became self-employed, was it mainly through your own personal preference or because you had no*

| | *N* | % |
|---|---|---|
| *Gender* | | |
| Male | 3,217 | 58.89 |
| Female | 2,246 | 41.11 |
| *Age* | | |
| Under 35 | 969 | 17.74 |
| 35–49 | 1,826 | 33.42 |
| 50 and over | 2,668 | 48.84 |
| *Education* | | |
| Primary | 811 | 14.88 |
| Secondary | 3,357 | 61.59 |
| Tertiary | 1,283 | 23.54 |
| *Economically dependent* | | |
| Independent | 3,215 | 59.30 |
| Economically dependent | 2,207 | 40.70 |
| *Necessity self-employed* | | |
| All other motivations for self-employment | 3,674 | 67.40 |
| Necessity self-employed | 1,777 | 32.60 |
| Total | 5,463 | |

**Table 1.**
Sample description

*alternatives for work*?". The item was coded as a dummy variable contrasting those who indicated "no other alternatives for work" (32.6%) (necessity) as the main reason for their self-employment, against a category of respondents based on a grouping of several other reasons (i.e. "own personal preferences" (48.3%), "combination of economic reasons and personal preferences" (14.9%), "neither one of these reasons" (4.1%)).

Three mediators (autonomy, skill discretion and rewards) representing intrinsic job resources (roughly based on the resources mentioned in the job demands-resources model of Dijkhuizen *et al.*, 2016a) were included in the model. In this study, they were first fitted as separate measurement models (*fit statistics not shown*), before adding them, as latent variables, to the full structural equation model.

The study used three items from the European Working Conditions Survey which served as indicators of the latent variable "autonomy" in the structural equation model. These were: "*Are you able to choose or change – your order of tasks?*", "*your methods of work?*" and "*your speed or rate of work?*" (Cronbach's $\alpha = 0.829$). Respondents were able to respond with "yes" (1) or "no" (0). "Skill discretion" was measured as a latent variable measured by five items: "*Does your main paid job involve meeting precise quality standards*", "*assessing yourself the quality of your own work*", "*solving unforeseen problems on your own*", "*complex tasks*", and "*learning new things*' (Cronbach's $\alpha = 0.682$). Respondents were able to respond with "yes" (1) or "no" (0). The latent variable "rewards" was measured by two items: "*I receive the recognition I deserve for my work*" and "*Considering all my efforts and achievements in my job, I feel I get paid appropriately*" (Cronbach's $\alpha = 0.675$). Respondents were able to respond with a 5-points Likert scale, which was recoded to a scale from 0 to 1 (Strongly disagree "0" to Strongly agree "1"). All three latent variables yielded significant positive standardized factor loadings ranging from 0.465 to 0.822 (see Table 2). A second-order latent construct was not in order, due to low correlations between the three mediators, see further (see Table 3).

The endogenous variable, work engagement, was also constructed as a latent variable using the ultra-short version of the Utrecht Work Engagement Scale (UWES) with three items

| Observed variable | Latent construct | $\beta$ | $B$ | SE($B$) |
|---|---|---|---|---|
| Vigour | Work engagement [NA] | 0.743 | 1.000 | |
| Dedication | Work engagement*** | 0.804 | 1.265 | 0.031 |
| Absorption | Work engagement*** | 0.593 | 0.808 | 0.024 |
| Being able to choose/change order of tasks | Autonomy[NA] | 0.773 | 1.000 | |
| . . . choose/change methods of work | Autonomy*** | 0.822 | 1.047 | 0.028 |
| . . . choose/change speed of work | Autonomy*** | 0.764 | 0.923 | 0.028 |
| Job involves meeting precise quality standards | Skill discretion[NA] | 0.465 | 1.000 | |
| . . . assessing yourself on the quality of your own work | Skill discretion*** | 0.530 | 0.972 | 0.042 |
| . . . solving problems | Skill discretion*** | 0.559 | 0.881 | 0.043 |
| . . . complex tasks | Skill discretion*** | 0.494 | 1.116 | 0.055 |
| . . . learning new things | Skill discretion*** | 0.580 | 1.280 | 0.069 |
| Receiving recognition | Rewards[NA] | 0.796 | 1.000 | |
| . . . appropriate pay | Rewards*** | 0.644 | 0.897 | 0.034 |

**Note(s):** NA $p$ not applicable; *$p < 0.05$; **$p < 0.01$; ***$p < 0.001$; Coefficients are from the final structural model
B-estimates, $p$-values and standard errors are bootstrapped

**Table 2.** Standardized and unstandardized coefficients for confirmatory factor analysis (CFA) of the latent variables

| | 1 | 2 | 3 | 4 |
|---|---|---|---|---|
| 1. Skill discretion | 1.00 | | | |
| 2. Rewards | 0.255*** | 1.00 | | |
| 3. Autonomy | 0.299*** | 0.113*** | 1.00 | |
| 4. Work engagement | 0.412*** | 0.643*** | 0.149*** | 1.00 |

**Note(s):** Values were achieved from a Confirmatory Factor Analyses model without regression lines between the latent constructs ($N$ = 5,463 (missing = pairwise); $p$-values: *$p < 0.05$; **$p < 0.01$; ***$p < 0.001$
Skill discretion = latent construct of five items (Job involves meeting precise quality standards - . . . involves assessing yourself the quality of your own work - . . . solving unforeseen problems - . . . complex tasks - . . . learning new things); Recognition = "Receiving the recognition, they deserve for work (0–1)"; Appropriate pay = "Considering efforts and achievements, getting paid appropriately (0–1)"; Autonomy = latent construct of three items (Able to choose order of tasks - . . . methods of work - . . . speed of work); Work engagement = latent construct of three items (Full of energy at work (0–1) - Enthusiastic about job (0–1) -Time flies when working (0–1))

**Table 3.** Pearson correlation matrix of the latent variables

as indicators (Schaufeli, 2018). Each of the items related to one of the three dimensions of work engagement. *Vigour* (i.e. having high levels of energy and resilience) was measured through "*At my work I feel full of energy*", *dedication* (i.e. having strong involvement, enthusiasm and a sense of significance or pride) with the statement "*I am enthusiastic about my job*" and *absorption* (i.e. being immersed in one's work) through the item "*Time flies when I'm working*" (Gorgievski *et al.*, 2014; McKeown and Cochrane, 2017) (Cronbach's $\alpha = 0.755$). All three items consisted of 5-point Likert scales ranging from "always" to "never". Despite containing only three items, this operationalization of work engagement is considered valid and reliable (Schaufeli, 2018). A separate measurement model was fitted first, before including this construct in the full structural equation model. In the confirmatory factor analysis, all indicators of work engagement showed significant positive standardised factor loadings ranging from 0.593 to 0.804 (see Table 2).

In the full structural equation model, the authors also controlled for possible effects of age, gender, and education. Age was included as a continuous variable, ranging from 15 to 87

(Mean: 48.46; Std. Dev.: 13.77). Gender was included as a dummy-variable with being "male" coded as 1, and "female" as 0. Lastly, a dummy-variable for high education was added which contrasted respondents with tertiary education (high education = 1) against respondents who were either primary or secondary educated (low education = 0).

*Analytical strategy*

For analysing the data, the authors applied structural equation modelling (SEM), with the Lavaan package (Rosseel, 2012), version 0.6–5 using the R software (R Core Team, 2019). Traditionally, mediation models are estimated using a series of multiple regression equations. However, the SEM framework has considerable advantages when performing a mediation analysis: all the coefficients are estimated in a single run, the indirect effect and total effect can be calculated simultaneously, and bootstrapping can be used. To account for the non-normal distribution of the indirect effects, 10,000 percentile-based bootstrap samples were used. This because the default Sobel (1982) test for mediation is considered too conservative (MacKinnon *et al.*, 1995) for estimating indirect effects. To minimize excluding observations, missing values were dealt with using pairwise deletion. While Eurofound's design weights would normally adjust for different sizes of at-work population per country, within the Lavaan-package it is currently not possible to use weights in combination with bootstrapping the confidence intervals. Not applying these weights, however, had little to no impact on the results (*see sensitivity analyses in Table A2*).

For testing the mediational hypotheses, Baron and Kenny's (1986) four steps approach was applied in a SEM framework. The first step requires showing that the causal variable(s) (e.g. economic dependency and necessity self-employment) are associated with the outcome work engagement (i.e. test if the total effect *c* differs significantly from zero). In a second step, it will be tested if economic dependency and necessity self-employment are associated with the mediators (i.e. test if the a-paths $a_{\text{skill dep}}$, $a_{\text{rewards dep}}$, $a_{\text{autonomy dep}}$ and $a_{\text{skill nec}}$, $a_{\text{rewards nec}}$, $a_{\text{autonomy nec}}$ differ significantly from zero, see Figure 1). Note that all mediators were included in a single model as they are conceptually distinct and not too highly correlated (Kenny *et al.*, 1998) (see Table 3). The advantage of testing them simultaneously is that one learns if the mediation is independent of the effect of the other mediators. In step three, the relationship between the mediators and work engagement will be tested, and thus paths $b_{\text{skill}}$, $b_{\text{rewards}}$, $b_{\text{autonomy}}$ (see Figure 1) will be estimated. The advantage of using a SEM is that the indirect

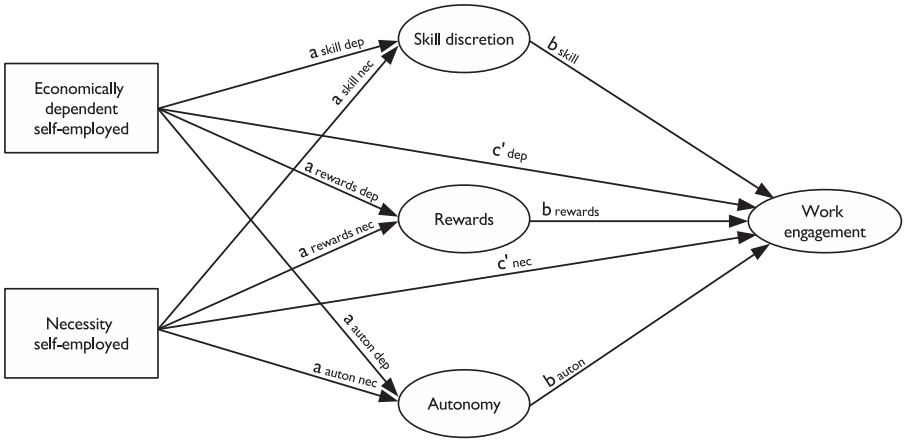


**Figure 1.**
Mediation model to be tested

effect (*ab*) can be directly calculated from the model by multiplying the *a*- and *b*-path. Finally, in step four, the authors will test if the direct effects *c*' of economic dependency and necessity self-employment are still associated with the outcomes after considering the mediators (i.e. test if the total effect differs significantly from zero). That is, it will be tested whether the mediators fully or partly mediate the relationship between economic dependency and work engagement, and between necessity self-employment and work engagement. In case of full mediation, the paths $c'_{dep}$ and $c'_{nec}$ will be zero. Additionally, the mediated proportion is calculated. If the first three steps are met, but step four is not, this would imply partial mediation. If all four steps are met, full mediation can be established. A single model is used to estimate all the effects (see Figure 1).

One should be aware that including latent variables in the mediation model complicates step one of Baron and Kenny's (1986) mediation technique. That is, if two models would be estimated, one with the mediator and one without, the paths *c* and *c*' are not directly comparable because their factor loadings will differ. Therefore, it is inadvisable to compare these two structural models, one with the mediator and one without. Rather *c*, the total effect, can be estimated using the formula of $c' + ab_{skill} + ab_{rewards} + ab_{autonomy}$. This is done by defining new parameters to calculate the total effect for each predictor variable (see below).

In the model, correlations are allowed between the control variables (gender, age and education) and all other variables in the model. Economic dependency and necessity self-employment were also allowed to correlate. Furthermore, the authors also allowed for correlations between all mediating variables (e.g. rewards, skill discretion, and autonomy).

Finally, the goodness-of-fit of the models was evaluated using the $\chi^2$ goodness-of-fit, Tucker Lewis Index (TLI), Comparative Fit Index (CFI), and Root Mean Square Error of Approximation (RMSEA). First, if the chi-square is not significant, the model is considered acceptable since the observed covariance matrix is similar to the model-implied covariance matrix. For the two relative indices (TLI and CFI), values above 0.95 were considered to be indicative of a good fit (Hu and Bentler, 1999), values above 0.90 are considered acceptable (Bentler and Bonett, 1980). For the RMSEA, an acceptable fit coincides with a value lower than 0.08 (Schreiber, 2008), good model fits are indicated with a value lower than 0.04.

## Results

### *Descriptives*

In this study, relatively weak, positive correlations between the three mediators (e.g. skill discretion, rewards, and autonomy) ranging from 0.113 to 0.299 (see Table 3) are found. Based on this, the authors do not believe the three mediators are sufficiently correlated to construct a second-order latent variable. The mediators (skill discretion, rewards, and autonomy) were all positively correlated to work engagement.

The strongest association was found between receiving rewards (0.643) and work engagement. The correlation between skill discretion and work engagement (0.412) was modest, while the correlation between autonomy and work engagement (0.149) was relatively weak.

### *Structural model of work engagement*

One mediated model was fitted to estimate the *a*-, *b*- and *c*'-paths, as well as to calculate the indirect effects (*ab*-paths), total effects (*c*-paths), and mediated proportion (see Figure 2). The fit indices of the model were $\chi^2(105) = 1120.46$, $p < 0.001$, CFI = 0.951, TLI = 0.929, RMSEA = 0.042. Although the $\chi^2$ statistic for the model was significant, problems with this test statistic for large sample sizes are well documented (Schreiber, 2008). The other relevant fit indices indicate a good overall fit, as the CFI exceeds 0.95 and the RMSEA is below 0.08.

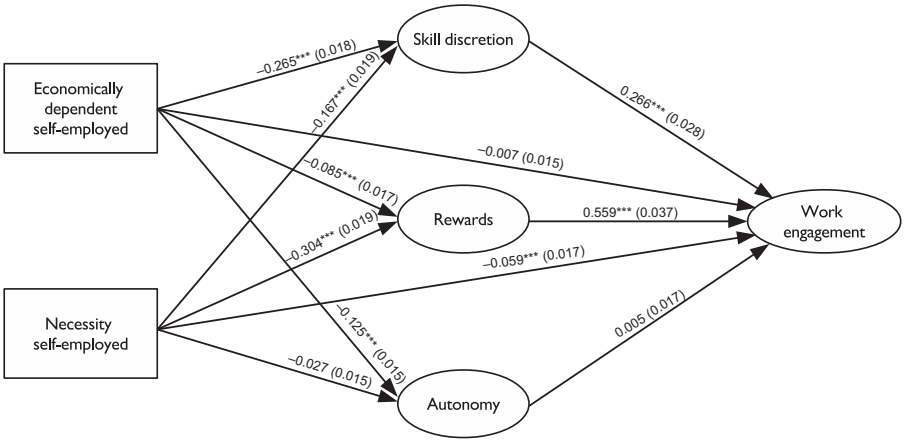


**Figure 2.**
Standardized regression estimates and standard errors (in brackets) of a structural model of work engagement, conditions in self-employment and intrinsic job resources (*simplified*)

**Note(s):** 6th EWCS (2015); *p*-values: * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$; *N* observations in model after pairwise deletion: 5,463; Fit statistics: / (d.f.) = 1,120.46 (105), CFI = 0.95, TLI = 0.93, RMSEA = 0.04. The figure does not show the separate items from the latent variables (see Table 2). The structural equation model also allowed for correlations between all mediating factors (e.g. rewards, skill discretion, and autonomy) as well as between economic dependency and necessity, which are left out for reasons of clarity. There are also correlations between the confounding variables (gender, age, and education) and the variables shown in this figure

The TLI is also considered to be acceptable, exceeding 0.90. The standardized regression estimates of the model are shown in Figure 2. In Table 4, the estimation of the direct, indirect, and total (unstandardized and standardized) effects is presented.

In a first step, the newly defined parameters for the total effects were inspected (i.e. $c_{dep} = c'_{dep} + ab_{skill} + ab_{autonomy} + ab_{rewards}$ and $c_{nec} = c'_{nec} + ab_{skill} + ab_{autonomy} + ab_{rewards}$). The total effect of the relationship between economically dependent self-employment and work engagement was statistically significant ($\beta = -0.126$, 95% CI [−0.158, −0.093], $p < 0.001$), which confirmed hypothesis 1a. A similar calculation was made with regards to the relationship between necessity self-employment and work engagement. The total effect of that relationship amounted to $\beta = -0.274$, 95% CI [−0.315, −0.232], $p < 0.001$, confirming hypothesis 1b.

When testing the a-paths, the authors found statistical evidence for an association between economic dependency and skill discretion ($\beta = -0.265$, 95% CI [−0.301, −0.229], $p < 0.001$), between economic dependency and autonomy ($\beta = -0.125$, 95% CI [−0.156, −0.095], $p < 0.001$), and between economic dependency and rewards ($\beta = -0.085$, 95% CI [−0.120, −0.051], $p < 0.001$). In this study, the authors also found statistically significant associations between necessity self-employment and skill discretion ($\beta = -0.167$, 95% CI [−0.205, −0.129], $p < 0.001$), as well as between necessity self-employment and rewards ($\beta = -0.304$, 95% CI [−0.341, −0.266], $p < 0.001$). However, there was only a marginally significant association between necessity self-employment and autonomy ($\beta = -0.027$, 95% CI [−0.057, 0.003], $p = 0.078$). The effects above show that economically dependent self-employed, as well as necessity self-employed is expected to have less intrinsic job quality compared to their reference categories (e.g. independent self-employed and those who did not become self-employed out of necessity).

**Table 4.**
Unstandardized and standardized regression estimates and 95% confidence intervals of a structural model of work engagement, conditions in self-employment and intrinsic job resources

| | Skill discretion | | Rewards | | Autonomy | | Work engagement | |
|---|---|---|---|---|---|---|---|---|
| | *B* (95% CI) | *β* (95% CI) | *B* (95% CI) | *β* (95% CI) | *B* (95% CI) | *β* (95% CI) | *B* (95% CI) | *β* (95% CI) |
| *Direct effects (c')* | | | | | | | | |
| Economically dependent self-employed | −0.119*** (−0.137, −0.102) | −0.265*** (−0.301, −0.229) | −0.042*** (−0.059, −0.025) | −0.085*** (−0.120, −0.051) | −0.067*** (−0.084, −0.051) | −0.125*** (−0.156, −0.095) | −0.002 (−0.013, 0.008) | −0.007 (−0.026, −0.023) |
| Necessity self-employed | −0.079*** (−0.096, −0.062) | −0.167*** (−0.205, −0.129) | −0.156*** (−0.175, −0.139) | −0.304*** (−0.341, −0.266) | −0.015$^{+}$ (−0.032, 0.002) | −0.027$^{+}$ (−0.057, 0.003) | −0.021*** (−0.033, −0.009) | −0.059*** (−0.093, −0.026) |
| Skill discretion | | | | | | | 0.204*** (0.165, 0.246) | 0.266*** (0.212, 0.321) |
| Rewards | | | | | | | 0.391*** (0.354, 0.430) | 0.559*** (0.487, 0.632) |
| Autonomy | | | | | | | 0.003 (−0.018, 0.025) | 0.005 (−0.028, 0.039) |
| *Indirect effects (ab)* | | | | | | | | |
| *Total indirect effect economically dependent* | | | | | | | −0.041*** (−0.050, −0.032) | −0.119*** (−0.147, −0.091) |
| Skill discretion | | | | | | | −0.024*** (−0.030, −0.019) | −0.071*** (−0.087, −0.054) |
| Rewards | | | | | | | −0.016*** (−0.023, −0.010) | −0.048*** (−0.068, −0.028) |
| Autonomy | | | | | | | 0.001 (−0.002, 0.001) | −0.001 (−0.005, 0.004) |
| *Total indirect effect necessity* | | | | | | | −0.077*** (−0.088, −0.067) | −0.214*** (−0.250, −0.179) |
| Skill discretion | | | | | | | −0.016*** (−0.021, −0.012) | −0.045*** (−0.059, −0.030) |
| Rewards | | | | | | | −0.061*** (−0.071, −0.052) | −0.170*** (−0.200, −0.139) |
| Autonomy | | | | | | | 0.001 (−0.001, 0.001) | 0.001 (−0.001, 0.001) |
| *Total effects (c)* | | | | | | | | |
| Economically dependent self-employed | | | | | | | −0.043*** (−0.054, −0.033) | −0.126*** (−0.158, −0.093) |
| Necessity self-employed | | | | | | | −0.099*** (−0.110, −0.087) | −0.274*** (−0.315, −0.232) |

**Note(s):** 6th EWCS (2015); *p*-values: $^{+}p < 0.10$* $p < 0.05$; **$p < 0.01$; ***$p < 0.001$; *N* observations: 5,463; Fit statistics: $\chi^2$/(d.f.) = 1,120.46 (105), CFI = 0.95, TLI = 0.93, RMSEA = 0.04,Unst. = Unstandardized estimates; St. = Standardized estimates; (CI) = Confidence Interval/The model also allowed for correlations between all mediating factors (e.g. rewards, skill discretion, and autonomy) as well as between economic dependency and necessity. There are also correlations between socio-demographic variables (gender, age, and education) and the variables in the model) (results not shown)

In a third step, the *b*-paths were tested. In line with hypothesis 2, statistical evidence was found for a positive relationship between two mediators and work engagement: i.e. with skill discretion ($\beta = 0.266$, 95% CI [0.212, 0.321], $p < 0.001$), and with rewards ($\beta = 0.559$, 95% CI [0.487, 0.632], $p < 0.001$). However, no statistical evidence was found for a relationship between autonomy and work engagement ($\beta = 0.005$, 95% CI [−0.028, 0.039], $p = 0.759$).

The total indirect effect of economic dependency on work engagement ($ab_{dep} = ab_{skill} + ab_{autonomy} + ab_{rewards}$) was significant ($\beta = -0.119$, 95% CI [−0.147, −0.091], $p < 0.001$). In particular, the mediators were able to explain 94.7% ($p < 0.001$) of the total effect between economically dependent self-employment and work engagement. Since no statistical evidence was found for a direct association ($c'_{dep}$) between economic dependency and work engagement ($\beta = -0.007$, 95% CI [−0.036, 0.023], $p = 0.657$) it can be asserted that the relationship between economic dependency and work engagement is fully mediated by the job resources included in the model. This is in line with hypothesis 3a.

The total indirect effect ($ab_{nec}$) of necessity self-employment on work engagement was found to be significant ($\beta = -0.214$, 95% CI [−0.250, −0.179], $p < 0.001$). In particular, the mediators were able to explain 78.4% ($p < 0.001$) of the total effect between necessity self-employment and work engagement. This study found partial mediation as there was a remaining direct association ($c'_{nec}$) between necessity self-employment and work engagement ($\beta = -0.059$, 95% CI [−0.093, −0.026], $p = 0.001$). Consequently, hypothesis 3b can be accepted, although mediation is partial.

## Discussion

Despite the neoliberal, entrepreneurial discourse – which describes self-employed persons to be autonomous, pro-active, and engaged individuals (da Costa and Silva Saraiva, 2012; Warr and Inceoglu, 2017) – research on the work engagement of (solo) self-employed and its determinants is particularly scarce (Ryff, 2019; Stephan *et al.*, 2020b). While the self-employed's eudaimonic well-being remains largely unexplored (Stephan, 2018), there is a growing interest in investigating, for example, the relevance of the difference between opportunity and necessity self-employed, or between economically dependent and independent self-employed regarding work engagement (Ryff, 2019; Toth *et al.*, 2021). In response to this growing interest, this research investigated whether poor employment conditions in solo self-employment (e.g. economically dependent self-employment and necessity self-employment) are associated to poor work engagement and whether there is a mediating influence of intrinsic job resources.

The authors argue that work engagement is important to investigate due to its strong associations to a variety of other important work-related well-being outcomes (Shimazu *et al.*, 2015; Shuck and Reio, 2014), productivity (Schummer *et al.*, 2019) and persistence in self-employment (Barba-Sánchez and Atienza-Sahuquillo, 2017). Some studies even observe that firm performance is more likely to benefit from the self-employed's eudaimonic well-being than from their hedonic well-being (Stephan, 2018).

In this study, the first hypothesis (hypothesis 1a) focused on the connection between solo self-employed who are economically dependent (i.e. involving "subordinance" from one or few dominant clients (Böheim and Mühlberger, 2009)) and work engagement. In addition, the authors also hypothesized (hypothesis 3a) that job resources would be able to mediate the association between economically dependent self-employment and work engagement. The results show that the total effect of economically dependent self-employment on work engagement is fully mediated by job resources. It thus seems that economically dependent solo self-employed indeed report lower work engagement (Gevaert *et al.*, 2018). According to Binder (2018) a potential explanation for lower well-being amongst dependent self-employed is that they are faced with greater concerns about job security (i.e. they are dependent, but

self-employed). Our findings provide an alternative explanation, as our results imply that the lower work engagement of the dependent self-employed is entirely attributable to the availability of job resources. Job resources furthermore were found to have clear motivational potential (hypothesis 2) (Bakker and Demerouti, 2007). Stephan *et al.*'s (2020a, b) observations that day-to-day autonomy and independence might not be as advantageous for eudaimonic well-being as is usually expected in research, might, explain why the effect of economic dependency as such was entirely mediated by other intrinsic job characteristics, such as skill discretion and appropriate rewards. In sum, it is the tendency, for self-employed persons who are economically dependent, of having less intrinsically "rich" or rewarding work characteristics (Navajas-Romero *et al.*, 2019) that explains their lower work engagement (Bakker and Demerouti, 2007).

In addition, according to Stephan *et al.* (2015), much of the debate surrounding the advantages and disadvantages of solo self-employed also deals with someone's reasons for becoming self-employed. As such, previous studies have argued that investigating the relevance of the difference between opportunity and necessity self-employment for work engagement, would be an important future research direction (Toth *et al.*, 2021). Hypothesis 1b therefore focused on the association between necessity self-employment (i.e. a constrained choice out of a paucity of other employment opportunities (Reynolds *et al.*, 2002)) and work engagement. Based on the job demands-resources model (Bakker and Demerouti, 2007; Schaufeli and Bakker, 2004), this study also assumed that job resources would mediate the afore-mentioned relationship (hypothesis 3b). The results show lower mean values for work engagement for necessity self-employed compared to those who became self-employed out of opportunity. While job resources were partially able to mediate that relationship, a negative relationship between necessity self-employment and work engagement remained. It seems that a necessity choice for self-employment is taxing for work engagement in this context, which is similar to earlier findings regarding work satisfaction, life satisfaction and health satisfaction (Binder and Coad, 2013, 2016). Nevertheless, these results are contradictory to Stephan *et al.* (2020a, b)'s recent study, where robustness checks showed no difference between necessity and opportunity entrepreneurs. The authors expect operationalization strategies to be the cause of these differences (i.e. in their limitations Stephan *et al.* (2020a, b) state their measurements for opportunity/necessity entrepreneurship to be "too crude"). In Stephan's (2018) influential review, she found that authors often explain well-being differences between opportunity and necessity entrepreneurs by referring to the higher autonomy and deliberate choice that opportunity self-employment involves. In previous empirical studies, this is often explained by the concept of *procedural utility*, which theorizes how low satisfaction is related to the idea that the self-employed person did not choose to become self-employed in the first place (Block and Koellinger, 2009; Frey *et al.*, 2002). Stephan *et al.* (2020b) posited that self-employment, relative to wage employment, is a more self-determined and volitional career choice. Therefore, the self-employed are assumed to experience work as more meaningful (i.e. entails more opportunity to align work with one's values, needs and skills, and to express oneself and identity) and, in turn, also experience greater subjective vitality (Stephan *et al.*, 2020b). From that it can be deducted that becoming self-employed out of a lack of other viable alternatives – i.e. resulting from pressure rather than from freedom of agency (Shir *et al.*, 2019) – might lead to lower levels of entrepreneurial passion (Toth *et al.*, 2021) and thus ultimately less work engagement. It is worth noting however, that intrinsic job resources, also in the case of necessity self-employment, acted as motivational resources (Bakker and Demerouti, 2007), and were thus able to (partially) mediate the relationship.

## Conclusions

Usually, self-initiated work is considered a core forum for the realization of personal talents and potential (Ryff, 2019). This study investigated whether that is true for forms of self-employment that are considered "poor" in terms of employment conditions. The main

contribution of this study concerns new insights into the variety of self-employment situations and their attachment to well-being outcomes, more specifically work engagement. The paper concludes with two major findings: (1) Self-employed who are economically dependent on few clients showed poor work engagement, nevertheless, intrinsic job resources fully mediated the effect. (2) There was a negative association between a "necessity" motivation towards self-employment and work engagement. Intrinsic job resources partially mediated the effect. Existing research has also often hailed positive job characteristics as an advantage of self-employment, and as a source of well-being. Recent works from Stephan *et al.* (2020b) however, had provided an alternative lens, explaining that self-employed's self-determined choice is what is central to the understanding of their eudaimonic well-being. Our study provides middle ground to both these research traditions and shows that self-determined choice indeed matters (as part of an opportunity choice for self-employment), but that intrinsic job characteristics like skill discretion and appropriate rewards matter as well. Finally, while previous studies have shown differences in hedonic well-being between opportunity and necessity entrepreneurs, and economically (in)dependent entrepreneurs (Stephan, 2018), this study is – to the authors' knowledge – one of first to consider their distinct profiles regarding a eudaimonic interpretation of well-being, i.e. work engagement.

*Implications for theory and practice*

Multiple calls in the research field have been raised to improve the understanding of modern self-employment. This study responds to two of these calls. Firstly, there is the call for better considering entrepreneurs' eudaimonic well-being to advance the overall understanding of well-being in entrepreneurship (i.e. current studies have focused on hedonic well-being) (Ryff, 2019; Stephan, 2018; Stephan *et al.*, 2020b; Toth *et al.*, 2021). Secondly, the "decent work"-debate (see, e.g. the Taylor Review (2017) and Stephan's (2018) systematic review) calls for the importance of recognizing the wide variety of forms of modern self-employment, to be able to recognize and protect those who are most vulnerable. The study also responds to that call by drawing attention to the variety in forms of self-employment (i.e. economically dependent, and independent self-employed, and between necessity and opportunity self-employed) and their differential relation with eudaimonic outcomes.

The study has more specific implications as well. The results suggest that economic dependence is mostly a "negative issue" for solo self-employed in lower-skilled, "peripheral" activities, who generally have few (intrinsic) job resources (Arum and Müller, 2004). The study thus clearly indicated that economically dependent self-employed could benefit from improvements in job resources such as skill discretion and appropriate rewards. The connection between work engagement and a variety of other favourable work-related outcomes (e.g. higher business persistence and performance, greater feelings of personal accomplishment, enhanced life satisfaction, low ill-health, lower levels of exhaustion, and higher psychological well-being) for the (solo) self-employed has been established in several, empirical studies (Barba-Sánchez and Atienza-Sahuquillo, 2017; Schummer *et al.*, 2019; Shimazu *et al.*, 2015; Shuck and Reio, 2014). Furthermore, for the self-employed, good *eudaimonic* well-being is of utmost importance to run a business successfully and to adequately deal with stressors and adversities (Hessels *et al.*, 2020).

The results of this study are also valuable to policymakers worldwide. Many national public authorities have encouraged unemployed persons to become self-employed using active labour market policies (Caliendo, 2016). While it cannot be denied that studies have found that self-employment initiatives across many countries help alleviate poverty and strengthen the economy (Caliendo, 2016), this study suggests that encouraging low-skilled unemployed persons to become self-employed might not have the desired effects. Earlier studies similarly found that self-employed who have started a firm out of necessity are not

likely to have high ambitions for their business, and will not make a significant contribution to their country's growth, innovation etc (Hessels *et al.*, 2008). But also, in terms of consequences for the individual, it is argued, in line with other authors (Stephan *et al.*, 2020a), that self-employment out of necessity should not be advocated as a "healthy" career. Policies promoting self-employment among the unemployed should be cautious for poor individual-level well-being consequences of (poor intrinsic quality) necessity self-employment. This statement aligns with conclusions in a recent review of self-employment policies (Dvouletý and Lukeš, 2020). The authors argue that national public authorities could benefit from more in-depth evaluations of the working conditions of the different, heterogenous groups of self-employed, as well as investigate the consequences of self-employment policies (Dvouletý and Lukeš, 2020). In addition, getting "the lay of the land" regarding self-employment policies would also help in coordinating different entrepreneurship and active labour market policies. Consequently, good policies in this domain should not limit themselves to financially supporting the transition from unemployment to self-employment, but should simultaneously aim for skill development and entrepreneurial coaching of these "necessity self-employed".

*Limitations*

While valuable for theory and practice, this study also has its limitations. The cross-sectional nature of the data prevents us from making firm causal claims regarding the associations found. The authors' assumptions on causality are based on theoretical grounds, but reverse causation is possible. For example, eudaimonia can be particularly important in explaining why someone becomes self-employed in the first place. Meaning that those with a pre-existing profile of purpose will more likely embark on the path of self-employment than those without that sense of eudaimonia, who would only be inclined to engage in self-employment out of a lack of alternatives. Thus, lower eudaimonia for the necessity self-employed might have been prevalent before becoming self-employed (Ryff, 2019). However, Block and Koellinger's (2009) theory regarding procedural utility provides us with a sound theoretical basis to argue that a lack of involvement in the decision to become self-employed can severely damage one's subsequent work engagement. Nevertheless, more sophisticated, longitudinal designs might help in further clarifying the causal directions of the associations that were found.

In addition, one might also argue that the data is rather "dated", as it was collected in 2015. Normally, the next wave of the EWCS (Eurofound, 2020) should have been available by now. However, due to fieldwork delays (related to COVID-19) data collection was still ongoing in 2021 and new EWCS-data will only be available during 2022 (Eurofound, 2020). Therefore, at the time of writing, it is safe to state that the EWCS 2015 (Eurofound, 2017) is still the most recent survey, with substantial and reliable information regarding the quality of work of (self-)employed in Europe. Furthermore, the sixth wave of the EWCS was particularly revised in order to better suit the situation of self-employed workers as well (for example, to be able to distinguish between economically dependent and independent self-employment) (Pärnänen and Sutela, 2016), which makes the data particularly useful for this study. Most of these questions will be included in the 2021 EWCS, but due to the online interviewing procedure that has been applied, the number of observations will be lower. As such, despite being cross-sectional and collected in 2015, the sixth wave of the EWCS is a well-suited database for this study.

Finally, while the data has a cross-country nature, the authors were unable to consider country-effects in the analyses. Both adjusting for different sizes of at-work population per country (by using design weights) or for the nested structure of the data (by running a hierarchical SEM model) were not possible in combination with bootstrapping the confidence intervals in Lavaan. Sensitivity analyses showed that applying these two adjustments had

little impact on the results. However, it must be mentioned that running an "empty" hierarchical SEM model (i.e. without the indicators included in the final model), did show some substantial intraclass correlation for some variables (i.e. the part of the variance between individuals that is due to country-level characteristics). In addition to the technical limitation that a hierarchical SEM model does not allow us to bootstrap, it was found that investigating cross-country differences surpassed the objective of the current research, even though it is an interesting line for future research.

*Future research directions*

The findings of this study are based on a European sample; nevertheless, studies have found that self-employment tends to vary a great deal across countries and institutional contexts (Blanchflower, 2004). A highly interesting subsequent research question therefore concerns the influence of institutional factors and regulations on the effects of employment conditions and job resources on engagement of solo self-employed. Fritsch *et al.* (2019) have already argued for well-being differences in self-employment across institutional contexts. Such suggestions also leave us wondering about the context-specific validity of the findings, and whether or not they would be similar in American, Asian or African contexts. Similarly, concerns about economic dependency and being *pushed* into self-employment are prevalent in many of those contexts (Gindling and Newhouse, 2014; Ishida, 2004; Margolis, 2014; Yu and Su, 2004; Yun, 2011), but the causes for such phenomena often vary – e.g. in Taiwan, there is a lack of protection on the regular waged labour market (Yu and Su, 2004); in many African countries, self-employment occurs in a context of a different level of economic development and high levels of informal employment (Margolis, 2014). Therefore, it is unclear whether the impact of economically dependent self-employment on well-being would be the same. Future research should try to consider this variation across the world, perhaps by utilizing the European Working Conditions Survey as well as the Korean (Park and Lee, 2009), (Latin) American Working Conditions Surveys (Maestas *et al.*, 2017) and surveys in Tanzania (Eurofound, 2012a) and Mozambique (Eurofound, 2012b), which were all modelled after the EWCS, to enable global comparison.

Additionally, studies point out that work and identity are closely intertwined for the self-employed, and authors often suggest that feelings of *obsession* and *addiction* to work are not far off (Stephan, 2018). Further research could investigate, when, or how, the self-employed's work engagement passes the tipping point towards "unhealthy" obsession or addiction.

Finally, given the heterogenous nature of solo self-employment portrayed in the literature (Millán *et al.*, 2018; De Vries *et al.*, 2020) and in the current paper, there is also a need for more studies using qualitative methods focusing on the motivations for and outcomes of (transitions to) solo self-employment (Gartner and Birley, 2002).

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## Appendix

The supplementary file for this article can be found online.

**Corresponding author**

Jessie Gevaert can be contacted at: jessie.gevaert@vub.be