Becoming self-employed from inactivity: An in-depth analysis of satisfaction

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JEL classification: C21, I31, J24, J28, L26, M13, O52.

Keywords: satisfaction; well-being; self-employment; entrepreneurship; inactivity; paid employment; employment status; matching estimators; EU-15.

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1 Introduction

Inactive individuals represent a large pool of potential labour whose participation in the productive system could potentially bring economic, fiscal, and societal benefits. As a consequence, policies to encourage their participation in the labour market have become increasingly common worldwide (Eichhorst et al., 2008; Leaker, 2009; International Monetary Fund, 2018). In addition, from an individual point of view, being active offers the opportunity to grow both personally and professionally, as well as the chance to take on responsibility, make decisions, solve problems, and interact within a broader social environment (Blustein, 2008; Van den Broeck et al., 2016). This enables the fulfilment of basic psychological needs —such as *autonomy*, *competence* and *relatedness*— which are expected to increase satisfaction by achieving self-determination (Deci and Ryan, 1985b; Ryan and Deci, 2000; Gagné and Deci, 2005; Deci et al., 2017; Yu et al., 2017).

However, the high degree of heterogeneity within the group of inactive people (Little, 2007) implies that not all types of employment would increase their satisfaction relative to their current status. The main types of inactive individuals include homemakers, retirees and students.[1] They all have different lifestyles, characteristics and needs that may affect their search for satisfaction. Homemakers may need to find a balance between housekeeping duties and work (Wellington, 2006). Retirees may seek to return to the labour market —particularly if their retirement was involuntary (Van Solinge, 2014)— in search of a type of employment that grants them increased autonomy at work (Kautonen et al., 2017). Finally, young students might be more likely to value leisure over work (Cennamo and Gardner, 2008; Twenge et al., 2010). Therefore, not all types of work are equally likely to help them find satisfaction, given their particular needs.

In this paper, we explore whether self-employment could be an attractive alternative for them due to the nonpecuniary aspects of running one's own firm (Hamilton, 2000). Self-employed workers enjoy higher levels of autonomy (Croson and Minniti, 2012), flexibility (Hyytinen and Ruuskanen, 2007), and independence (Benz and Frey, 2008a) and often report high levels of procedural utility because they enjoy the process of being a business owner (Benz and Frey, 2008a, 2008b).

While the literature provides evidence that transitions from paid employment to self-employment are associated with increases in satisfaction (Benz and Frey, 2008a, Binder and

[1] Previous studies such as those of Blanchflower and Oswald (2004a) or Azzopardi and Bezzina (2014) take homemakers, retirees and students as the main subgroups of inactive individuals.

Coad, 2013; Kautonen et al., 2017), whether such a conclusion would hold when the transition occurs from (different types of) inactivity remains unexplored. Moreover, although past research shows that transitions from activity to joblessness lead to a decrease in satisfaction (Winkelmann and Winkelmann, 1998; Knabe and Ratzel, 2001; Lucas et al., 2004; Flint et al., 2013; Krueger, 2017), little is known regarding the effects on satisfaction in the reverse transition.

In this paper, we intend to fill such gaps by analysing changes in the satisfaction of formerly inactive individuals when they transition to self-employment compared to remaining inactive or becoming paid employees. Therefore, we contribute to two strands of the literature on satisfaction: (i) the literature on the relationship between *(in)activity and satisfaction*, where we analyse how satisfaction varies in transitions from inactivity to employment, not in the opposite direction, distinguishing between transitions to self- and paid employment; and (ii) the literature on *self-employment and satisfaction*, where we investigate the extent to which self-employment may affect the satisfaction of formerly inactive individuals, which is unknown at the time of writing. Thus far, few studies have focused on this population segment (Leaker, 2009), so this article offers the possibility of obtaining a broader picture of how and when inactive individuals become satisfied.

Drawing from the two aforementioned streams of the literature, we derive specific hypotheses for each subgroup of inactive individuals. In order to test them, we use data from the European Community Household Panel (ECHP) covering the period from 1994 through 2001. In particular, we compare changes *in satisfaction with main activity* of inactive individuals switching to self-employment to that of (i) those switching to paid employment and (ii) those remaining inactive. Since the decision to become self-employed or paid employee or to remain inactive is not random —i.e. individuals are likely to self-select into their preferred group—, we apply *propensity score matching techniques*. This procedure allows balancing treated and control groups and therefore alleviates potential problems of self-selection based on observed heterogeneity. In this way, the impact of a transition to self-employment on satisfaction can be interpreted as a conditional gap once we control for observable characteristics (see e.g., Caliendo and Lee, 2013; Caliendo et al., 2015).

The overall picture that emerges from our results is the following. On the one hand, for retirees and homemakers, self-employment seems to be associated with a more positive change in satisfaction than remaining in inactivity, whereas students becoming self-employed report similar levels of satisfaction than those who continue their studies. On the other hand, while homemakers and retirees who (re)enter the labour market are equally content in either

type of employment, students seem to be more satisfied when they become business owners instead of becoming employees. This new empirical evidence may be relevant to the design of policies aimed at stimulating the labour force participation of these groups of inactive individuals through active labour market programmes, particularly in light of the mixed effectiveness of previous measures (Carcillo and Grubb, 2006; Card et al., 2010).

The remainder of this paper is structured as follows. Section 2 contains a selective literature review and derives hypotheses about the potential impact of transitions to self-employment on *satisfaction with main activity* of each subgroup of inactive individuals. Section 3 describes the data and the methodology employed in the analysis. Section 4 presents and discusses the results. Section 5 concludes the paper.

2 Literature review and theory

This section reviews the theoretical and empirical literature, which helps us to develop hypotheses regarding the potential impact of a transition to self-employment on changes in satisfaction of previously inactive individuals. Thus, section 2.1 concentrates on the relationship between (in)activity status and satisfaction; section 2.2 focuses on the association between self-employment and satisfaction; and finally, section 2.3 highlights differences across groups of inactive individuals and derives hypotheses to be tested in the empirical part.

2.1. (In)activity and satisfaction

Satisfaction is associated with and affected by a very wide range of personal and environmental factors that relate to both pecuniary and nonpecuniary aspects of life (Frijters et al., 2004a; Erdogan et al., 2012). While the achievement of material values increases satisfaction (Frijters et al., 2004b), there is consistent evidence that having only materialistic goals leads to negative effects in the individual's well-being, both at work and on a personal level (Sirgy, 1998; Vansteenkiste et al., 2007). According to the *self-determination theory* (Deci and Ryan, 1985b; Ryan and Deci, 2000), in addition to seeking extrinsic satisfaction, it is essential to satisfy the intrinsic needs of *autonomy*, *competence* and *relatedness*. The desire for *autonomy* refers to choosing and acting according to one's own criteria (Deci, 1975; De Charms, 2013); the need for *competence* is related to the resolution of challenging situations autonomously (Skinner, 1995); and the need for *relatedness* is associated with the desire to connect with others through respect and trust (Baumeister and Leary, 1995).

Being active in the labour market is expected to help cover such needs, as it guides individuals towards growth and self-realization (Blustein, 2008). The need for *autonomy* is

met at work when labour freedom —such as decision-making or the ability to choose— is granted to workers, thereby leading to higher satisfaction levels (Deci et al., 1989; Benz and Frey, 2008a). The need for *competence* can also be addressed through employment since working facilitates learning, development and use of skills. This enables intrinsic motivation, satisfaction and commitment to work (Deci and Ryan 2000; Morrison et al., 2005; Rau, 2006). Finally, being employed answers a large part of the need for *relatedness* due to the social connections in the workplace —i.e., colleagues, customers, suppliers, etc.— (Schultheiss, 2003; Flum, 2001; Phillips et al., 2001).

In line with these arguments, empirical studies have found that satisfaction varies across employment situations (Lin et al., 2015; Stam et al., 2016) and that transitions from paid employment to joblessness lead to lower levels of satisfaction on average (Winkelmann and Winkelmann, 1998; Flint et al., 2013). Nonetheless, the difference in satisfaction between inactive individuals and paid employees appears to be heterogeneous across the different types of inactivity. For example, retirees and homemakers tend to report lower or equal levels of satisfaction compared to salaried employees (Blanchflower and Oswald, 2004a; Stutzer, 2004; Brereton et al., 2008), whereas students seem to experience greater satisfaction than salaried employees (Di Tella et al., 2001; Blanchflower and Oswald, 2004a) —or, at the very least, they are equally satisfied (Brereton et al., 2008). Comparisons between satisfaction levels of inactive individuals and self-employed individuals has been less explored. Next, we will use the above arguments to develop our hypotheses concerning the change in satisfaction experienced by those inactive individuals switching to self-employment compared to those remaining inactive. Before doing this, we complete the picture with a revision of the arguments behind the association between self-employment and satisfaction.

2.2. Self-employment and satisfaction

Self-employment has certain nonpecuniary characteristics that are linked to the basic needs described by self-determination theory. First, the freedom that entrepreneurs enjoy in the decision-making process is likely to fulfil the need for *autonomy* (Benz and Frey, 2008b; Croson and Minniti, 2012). Second, some self-employed workers can achieve *relatedness* both at work —through networking with suppliers, customers, and possibly other entrepreneurs— and outside of it —as a result of greater scheduling flexibility (Hyytinen and Ruuskanen, 2007). This favours social relationships with friends and family and thus positively affects well-being (Lelkes, 2006; Pichler, 2006). Finally, because entrepreneurial success is dependent on the performance of the owner, self-employment work incentivises

greater skill utilisation (Hundley, 2001; Benz, 2009; Congregado et al., 2016). This should make individuals more likely to meet the need for *competence*.

Such nonpecuniary aspects may indeed explain why most studies find that self-employed workers report higher levels of job satisfaction (e.g., Blanchflower and Oswald, 1998; Blanchflower, 2004; Benz and Frey, 2004) and life satisfaction (Oswald, 1997; Andersson, 2008). These results hold despite the fact that self-employment involves greater stress (Jamal, 1997; Parslow, 2004), longer working hours (Hyytinen and Ruuskanen, 2007), irregular timetables (Hamermesh, 1990), overall higher commitment and effort at work (Felfe et al., 2008) and lower and riskier earnings (Hamilton, 2000) compared to wage employment. It has been argued that entrepreneurs are more satisfied than paid employees thanks to the greater 'procedural utility' derived from running their firms (Benz and Frey, 2004). In other words, entrepreneurs not only enjoy the monetary outcomes of their job but also, and more importantly, the process of performing the job itself (Benz and Frey, 2008b).

Consistent with the above, empirical studies have found evidence that self-employed workers are more satisfied than paid employees and also that transitions to self-employment have a positive effect on satisfaction (e.g., Benz and Frey, 2008a, Binder and Coad, 2013; Kautonen et al., 2017) —although the effect might not be persistent over time (Georgellis and Yusuf, 2016). Importantly, transitions to self-employment may have varying effects on satisfaction depending on the initial employment status (Binder and Coad, 2013). To the best of our knowledge, inactivity has not been considered as a potential starting status in the context of transitions to self-employment. Nevertheless, we use these arguments to hypothesise about whether self-employment provides more or less satisfaction for each specific subgroup of inactive individuals compared to the alternatives of wage employment and inactivity.

2.3. Hypotheses development

We first hypothesise on the relationship between self-employment and the satisfaction of inactive individuals in comparison to remaining outside the labour force. Concerning *homemakers*, because they generally watch over their home and take care of the children —if it corresponds— (Stam et al., 2016) they may have troubles developing a professional career. Aspects such as skill utilisation, professional growth, assumption of responsibilities, social relations, and disconnection from home duties may increase their self-determination and well-being (Sahu and Rath, 2003; Dex et al., 2008; Bezzina et al., 2013). However, these are aspects that they cannot fully experience outside the labour market. In this sense, running a

business and contributing financially to their households may raise their self-esteem (Hughes, 2003) compared to the alternative of remaining outside the labour market. Thus, our hypothesis for this group posits a positive impact of the transition to self-employment on *satisfaction with main activity* compared with remaining inactive.

Along the same lines is the case of *retirees*. Retirement provides individuals with time to invest in leisure (Laslett, 1991; Blundell et al., 2016) and in interests unrelated to work (Shultz et al., 1998). However, after the end of their productive activity, some retirees may experience a feeling of lack of purpose and perhaps even loneliness —through the loss of work ties— resulting in a decrease in satisfaction (Siegrist et al., 2004; Wahrendorf and Siegrist, 2010). In this sense, research shows that older individuals often face a loss of well-being and subjective satisfaction after transitioning to inactivity (Stutzer, 2004). Hence, they might decide to come back to activity to regain their identity and to feel self-sufficient and productive again (Wang, 2007). Several studies agree that participation by retirees in any activity —even volunteering— is positively associated with greater well-being and quality of life (Li and Ferraro, 2005; Wahrendorf et al., 2006; Hao, 2008; Wahrendorf and Siegrist, 2010). As such, it is expected that running their own companies will have a positive impact on some of their psychological needs such as locus of control, autonomy, self-realization, and pleasure (Kautonen et al., 2017), which are positively related to quality of life (Hyde et al., 2003). Hence, we predict that retirees becoming self-employed will experience a higher change in satisfaction than those remaining out of the labour market.

Regarding *students*, arguments can be made in either direction. On the one hand, there is evidence that leisure has become increasingly important among younger generations (Cennamo and Gardner, 2008; Twenge et al., 2010; Ng and Feldman, 2015). Being a student is a relatively less strict activity than being a worker in terms of schedule flexibility and time management, particularly when class attendance is not compulsory —as in most tertiary education programmes. Students could take advantage of that situation and decide when and for how long they want to work on each task in a way that allows them to nurture social relations both at school and outside of it. Hence, not only educational environments offer ways to satisfy the need for competence (Deci et al., 1991), but also the need for autonomy and relatedness. On the other hand, given that students do not generally have a stable or significant source of income, a switch to the labour market should improve their financial status, thus helping them to become financially independent (Stern and Nakata, 1991). Moreover, the aforementioned benefits of study life are no different than those in self-employment. Being a self-employed worker is also associated with relatively high levels of

autonomy (Croson and Minniti, 2012), flexibility (Hyytinen and Ruuskanen, 2007), and independence (Benz and Frey, 2008a). However, the fact that earnings in self-employment are rather volatile (Hamilton, 2000) might reduce their satisfaction if their ventures incur financial losses. Moreover, the greater pressure or responsibility derived from running a firm (Parslow, 2004; Felfe et al., 2008) might play against their satisfaction with the activity that they perform. All in all, the conflicting theoretical arguments do not allow the formulation of a clear hypothesis regarding the changes in satisfaction of students switching to self-employment as compared to that of those remaining at school.

Our first hypothesis states the following:

Hypothesis 1: *Compared to their respective counterparts who stay in inactivity, retirees and homemakers sorting into self-employment will experience an increase in satisfaction with their main activity.*

Turning to the comparison between entering self-employment or opting for a paid job, the arguments in section 2.2 show that there exists positive as well as negative aspects of self-employment that have to be considered. In the following, we hypothesize that the positive arguments outweigh the negative ones for the three groups of inactive individuals considered.

There is evidence that some *homemakers* who enter the labour market choose self-employment to better balance their time at work and at home (Boden, 1999; Wellington, 2006), particularly if they have small children (Edwards and Field-Hendrey, 2002). However, self-employment does not grant a reduced amount of work-family conflicts. In fact, it may increase such conflicts if one gets too involved in the process of running the firm (Parasuraman and Simmers, 2001). Hence, it is up to the self-employed individual to make use of the flexibility and autonomy that self-employment provides to make decisions based on their specific home and family duties. Indeed, it has been found that women who become self-employed are likely to adapt their work schedule according to their home duties, which means that they can choose to work fewer hours even if it compromises potential earnings (Craig and Powell, 2012). In addition, they can work from home, which can alleviate work-family conflicts (Edwards and Field-Hendrey, 2002; Loscocco and Smith-Hunter, 2004). Hence, this increased autonomy and flexibility in self-employment becomes particularly relevant when confronted with the fact that women often have troubles accessing flexible paid jobs (Golden, 2008). Therefore, we expect that homemakers sorting into self-employment will experience higher levels of satisfaction thanks to their increased autonomy.

Concerning *retirees*, the literature suggests that older workers can achieve higher levels of quality of life managing their own businesses (Kautonen et al., 2017). The substantial amount

of experience and knowledge that they have gathered over their careers should help them perform well in self-employment (Agarwal et al., 2004; Chatterji, 2009). Some retirees might choose self-employment as a way to remain active without having to face problems of marginalization due to their age (Karpinska et al., 2011; Kibler et al., 2015). Moreover, the increased autonomy of self-employment may help them fulfil some psychological needs (Kautonen et al., 2017). Indeed, some older workers who become entrepreneurs do it because they want to continue with their working life at their own pace while enjoying higher levels of autonomy, control and self-realization (Kautonen et al., 2017). In addition, the autonomy, independence and flexibility of self-employment should allow them to work as much as they like and to devote themselves to activities that they enjoy, thus leading to higher levels of procedural utility (Benz and Frey, 2008a, 2008b). We therefore propose that, in general, former retirees are more likely to be satisfied with their activity if they choose self-employment compared with being a paid employee.

Finally, in the case of *students*, although their general lack of experience when they enter the labour market may harm their performance in terms of self-employment (Chatterji, 2009), such inexperience also makes it difficult for them to find a good first job (Koen et al., 2012). Moreover, past literature suggests that returns to education might be higher in entrepreneurship (Hartog, et al., 2010). In addition, students could be more likely to fulfil their need for competence in self-employment since skill utilisation (overqualification) is higher (lower) in entrepreneurship than in paid employment (Hundley, 2001; Congregado et al., 2016). Moreover, self-employment entails more varied tasks (Lazear, 2004; 2005), which may imply that students seeking a challenge might be more likely to find it in this type of employment. Finally, it is important to consider that autonomy at work has become more relevant among newer generations (Ng and Feldman, 2015), so it seems reasonable to think that self-employment might be more satisfying for students in this regard.

All in all, the arguments above lead to our second hypothesis:

Hypothesis 2: *Compared to their respective counterparts who sort into paid employment, homemakers, retirees and students sorting into self-employment will experience an increase in satisfaction with their main activity.*

3. Data and methods

3.1. Data

To obtain our estimates, we use data from the European Community Household Panel (ECHP), which cover the period from 1994 to 2001.[2] The ECHP is a standardised multi-purpose annual longitudinal survey that is conducted at the level of the EU-15.[3] It was designed and coordinated by the Statistical Office of the European Communities (Eurostat). The target population of the ECHP consists of people who live in private households in the national territory of each country. This panel offers information on 60,500 nationally representative households, which includes approximately 130,000 individuals aged 16 years and older. These individuals are interviewed about a wide range of topics concerning living conditions. These topics include detailed income information, the financial situation in a wider sense, working life, the housing situation, social relationships, health and the biographical information of the interviewed. One of its attractive features is the high level of comparability across countries and over time. Thus, by using the same questionnaire, all the members of the selected households are interviewed about issues that relate to demographics, labour market characteristics, income, and living conditions. Additional details on ECHP data can be found in Peracchi (2002).

3.2. Sample

Individuals in the ECHP are asked about their main activity status (paid employment, self-employment, unpaid work in a family enterprise, unemployment or inactivity). We are interested in analysing the relationship between a transition from inactivity to self-employment and *satisfaction with main activity*. To this end, our sample includes men and women who are inactive in period t and who (i) become self-employed (either with or without employees) in period t+1; (ii) become paid employed in period t+1; or (iii) remain inactive in period t+1.[4] The final dataset, after removing cases with missing data for any of the relevant variables, yields 210,467 observations, from which 202,327 (96.13%) correspond to individuals who remain inactive; 1,606 (0.76%) correspond to inactive individuals switching to self-employment; and 6,332 (3.01%) correspond to inactive individuals transitioning to paid employment.

Inactive individuals can be further categorised in those (i) who perform housework, look after children and other persons —*homemakers*—; (ii) who are retired —*retirees*—; (iii) who

[2] The ECHP data are used by permission of Eurostat (contract ECHP/2006/09, held with University of Huelva).

[3] Sweden was excluded from our analysis because this country presented missing values for several relevant variables.

[4] For individuals switching to either paid or self-employment, we restrict the sample to those who work for at least 15 hours per week.

are in education or training —*students*—; and (iv) categorised as other economically inactive (e.g., in community or military service). To account for the heterogeneous character of inactivity, in addition to the analysis with the whole sample of inactive individuals, we perform separate analyses for three subsamples of homemakers, retirees and students.[5]

3.3. Estimation methods[6]

We analyse the association between a transition from inactivity to self-employment and satisfaction using *propensity score matching (PSM) techniques*. Rosenbaum and Rubin's seminal work (Rosenbaum and Rubin, 1983) proposed PSM as a method to reduce the bias in the estimation of treatment effects with observational datasets. These methods have become increasingly popular in the evaluation of economic policy interventions (see, e.g., Caliendo et al., 2017) and have recently been applied to analyse the effects of self-employment on satisfaction (Binder and Coad, 2013, 2016; Kautonen et al., 2017), a strand of the literature in which our work fits.

In randomized controlled trials, where the allocation to treatment and control groups is random, individuals in both groups can be expected to be similar in terms of observable and non-observable characteristics. Thus, the treatment effect can be estimated by directly comparing outcomes between treatment and control groups (Austin, 2011). When dealing with observational data, however, individuals are likely to self-select into their preferred group, and therefore, it is realistic to assume that treatment and control groups are systematically different, which implies that comparing individuals from both groups is prone to *selection bias*. In this context, matching approaches make it possible to mimic randomized controlled trials with observational data. The idea is to match each observation in the treatment group with an observation from the control group that is the closest match based on relevant pretreatment characteristics. Therefore, the bias is reduced when the comparison of outcomes is performed using treated and control individuals who are as similar as possible. Since matching individuals on a large number of characteristics is typically unfeasible (*curse of dimensionality*), PSM proposes summarizing pretreatment characteristics of each individual into a single-index variable —the propensity score— that makes matching feasible (Caliendo and Kopeinig, 2008). Thus, the propensity score is calculated as the probability that an individual participates in the treatment given her observed characteristics.

[5] The subsample of other economically inactive is not separately analyzed because its own heterogeneous nature would make it difficult to interpret the results.

[6] See Imbens (2004) or Caliendo and Kopeinig (2008) for further details on the methodology that is applied in this work.

We follow Binder and Coad (2013, 2016) and Kautonen et al. (2017) by using propensity score matching as the estimation technique to analyse the relationship between a transition to self-employment and satisfaction. In particular, we compute *average treatment effects on the treated* (ATET) to compare satisfaction (the outcome variable) of inactive individuals becoming self-employed (treated group) with satisfaction of inactive individuals becoming paid employees (control group).[7]

Under the *conditional independence assumption (CIA)*, which implies that systematic differences in outcomes between treated and control groups with the same characteristics are attributable to treatment (Lechner, 1999), and *common support condition*, which ensures that individuals with the same characteristics have a positive probability of being both treated and control (Heckman et al., 1999), the PSM estimator for ATET can be written as:

$$\tau_{ATET}^{PSM} = E_{P(X)|D=1}\{E[Y(1)|D=1, P(X)] - E[Y(0)|D=0, P(X)]\}$$

where D is the treatment indicator that equals 1 if the individual receives treatment and 0 otherwise; $Y(D)$ is the potential outcome; $P(X) = P(D=1|X)$ is the propensity score —the probability that an individual participates in the treatment given her observed characteristics X. This is the mean difference in outcomes over the common support, appropriately weighted by the propensity score distribution of participants (Caliendo and Kopeinig, 2008).

The complete PSM procedure has been implemented for the whole sample of inactive individuals and separately for subsamples of homemakers, retirees and students to ensure a perfect match in terms of type of inactive situation and to identify potentially heterogeneous effects across these subgroups (Heckman et al., 1998).

We are aware that PSM does not take into account unobserved differences between treated and control groups, so that this approach can be quite sensitive to identification bias. However, it could be argued that unobserved heterogeneity is likely to be reflected in observed characteristics that we do control for (Stuart, 2010; Kaiser and Malchow-Møller, 2011). In this sense, although CIA cannot be formally tested, we check whether treatment and control observations indeed no longer differ significantly with respect to observable

[7] In a general framework, it could be considered that our treatment is multiple instead of binary (Imbens, 2000; Lechner, 2001). Thus, inactive individuals may have at least three alternatives: (i) switching to self-employment, (ii) switching to paid employment or (iii) not switching but remain as inactive. In this context, the estimation of the propensity score should take into consideration this multinomial choice (Caliendo and Kopeinig, 2008). However, as Lechner (2001) suggests, a practical alternative, which presents few differences in relative performance, is to estimate a series of binomial models (Caliendo and Kopeinig, 2008). In this vein, although our hypotheses are focused on the comparison between inactive individuals switching to self-employment and those inactive becoming paid employed, the empirical part of this work also includes analyses that make it possible to compare individuals switching to self-employment with those not switching and individuals switching to paid employment with those not switching.

characteristics after matching (balancing diagnosis). In addition, we perform a sensitivity analysis that follows the simulation approach by Nannicini (2007) and Ichino et al. (2008), which allows us to identify the robustness of our estimation strategy with respect to simulated confounders that recreate violations of the CIA. This simulation-based procedure relies on the following idea. It assumes that the CIA is not satisfied given the observables, but would be satisfied if an additional binary variable is included in the set of matching variables. A potential binary confounder is simulated in the data.[8] This confounder is considered as any other covariate and included in the set of matching variables used to estimate the propensity score and the ATET. The estimation procedure is replicated many times and a simulated ATET is retrieved as an average of the ATET over the distribution of the confounder. Thus, the comparison of the simulated ATET and the baseline ATET gives information about the robustness of the estimates with respect to the specific deviation from the CIA that is assumed.

In any case, an alternative interpretation of our results that does not rely on CIA is to consider the estimated effects as a conditional gap after having controlled for observable characteristics (see e.g., Caliendo et al., 2015; Caliendo and Lee, 2013). In this way, we simply focus on estimating the magnitude of the gaps in satisfaction between inactive individuals switching to self-employment and those switching to paid employment or remaining inactive that are unexplained by observed characteristics. Anyhow, given that we are controlling for a large set of observable characteristics that are correlated with others such as personality or ability, the remaining influence of unobserved differences should be significantly reduced. Thus, the conditional gap in satisfaction between control and treated groups might be explained, at least to some extent, by the transition to self-employment.[9]

3.4. Measures

In this section, we describe the variables that are used in our main analysis. Detailed definitions and descriptive statistics are presented in tables A1 and A2, respectively (see Appendix).

3.4.1. Dependent variable

[8] One approach for the simulation of the potential confounder is to mimic the distribution of some relevant binary covariates included in the PSM analysis.

[9] To avoid any misunderstanding, we emphasize that although we use the term ATET to refer to the results of the PSM estimates, as in the evaluation literature, we do not make causal interpretations here. Although the robustness checks we perform give confidence to our estimates, we prefer to be conservative and interpret the results as conditional gaps after having controlled for observable characteristics.

The ECHP offers two sets of questions related to satisfaction. The first is presented to all (working or not working) individuals, whereas the second set is only presented to individuals working more than 15 hours per week. The set presented to the whole sample includes a measure of the level of *satisfaction with work or main activity* in a scale that ranges from 1 (not satisfied) to 6 (fully satisfied).[10] With this information, we construct our main dependent variable, which measures the change between t and t+1 in satisfaction with work or main activity ($\Delta_{(t+1)-t}$ *S_main activity*).

3.4.2. Treatment variables

Since we are interested in analysing the relationship between a transition to self-employment and satisfaction, our treatment variables compare individuals who switched to self-employment to (i) those who remain inactive and (ii) those who switched to paid employment. To complete the picture, we also compare satisfaction of those switching to paid employment and those staying inactive. Given that we further disaggregate the inactive population to perform separate analysis for three different subsamples —homemakers (HM), retirees (RT) and students (ST)— we have the following 12 treatment variables:

Switching to self-employment vs. not switching

Four binary variables compare individuals who switch to self-employment with those who remain inactive: $IN_t \rightarrow SE_{t+1}$ *vs.* $IN_t \rightarrow IN_{t+1}$; $HM_t \rightarrow SE_{t+1}$ *vs.* $HM_t \rightarrow HM_{t+1}$; $RT_t \rightarrow SE_{t+1}$ *vs.* $RT_t \rightarrow RT_{t+1}$; $ST_t \rightarrow SE_{t+1}$ *vs.* $ST_t \rightarrow ST_{t+1}$.

Switching to paid employment vs. not switching

Four binary variables compare individuals who switch to paid employment with those who remain inactive: $IN_t \rightarrow PE_{t+1}$ *vs.* $IN_t \rightarrow IN_{t+1}$; $HM_t \rightarrow PE_{t+1}$ *vs.* $HM_t \rightarrow HM_{t+1}$; $RT_t \rightarrow PE_{t+1}$ *vs.* $RT_t \rightarrow RT_{t+1}$; $ST_t \rightarrow PE_{t+1}$ *vs.* $ST_t \rightarrow ST_{t+1}$.

Switching to self-employment vs. switching to paid employment

Four binary variables compare individuals who switch to self-employment (SE) with those who switch to paid employment (PE): $IN_t \rightarrow SE_{t+1}$ *vs.* $IN_t \rightarrow PE_{t+1}$; $HM_t \rightarrow SE_{t+1}$ *vs.* $HM_t \rightarrow PE_{t+1}$; $RT_t \rightarrow SE_{t+1}$ *vs.* $RT_t \rightarrow PE_{t+1}$; $ST_t \rightarrow SE_{t+1}$ *vs.* $ST_t \rightarrow PE_{t+1}$.

3.4.3. Covariates used in the matching process

[10] Examples of studies that use this variable as proxies of job satisfaction or subjective well-being include those of D'Addio et al. (2007), Clark et al. (2009), Pagán and Malo (2009), Pedersen and Schmidt (2011) or Böckerman and Ilmakunnas (2012).

The choice of covariates used in the matching process should be based on economic theory and previous empirical findings (Caliendo and Kopeinig, 2008). These variables should simultaneously influence the treatment and the outcome variables and be unaffected by the treatment (or the anticipation of it) (Imbens, 2004; Ho et al., 2007). Thus, we use a set of variables measured in *t* —the period before the potential transition— which are known to influence the decision to enter self-employment (Evans and Leighton, 1989; Taylor, 1996; Carrasco, 1999; Blanchflower, 2000; Lin et al., 2000; Cowling and Taylor, 2001; Parker, 2012; Román et al., 2013) as well as job satisfaction (Freeman, 1978; Sousa-Poza and Sousa-Poza, 2000; Benz and Frey, 2004, 2008a, 2008b; Carree and Verheul, 2012; Lange, 2012; Millán et al., 2013; Alvarez and Sinde-Cantorna, 2014; Georgellis and Yusuf, 2016). These variables, which are also in line with the previous empirical research using PSM techniques to analyse the impact of transitions to self-employment on satisfaction (Binder and Coad, 2013, 2016; Kautonen et al., 2017), include gender, age, household type, health status, household financial situation, household main source of income, education, baseline levels of satisfaction and country dummies.[11]

3.5. Descriptive statistics

Table A2 in the Appendix reports basic descriptive statistics of our dependent variable and covariates used in the matching process. For the full sample of inactive individuals as well as each of the three subsamples considered (homemakers, retirees and students), we present means (and standard deviations) of treated (individuals switching to self-employment) and controls (individuals switching to paid employment and individuals remaining inactive).

On the one hand, this information confirms the heterogeneous character of the inactive population. Thus, we observe differences between subsamples of inactive individuals in terms of gender (most homemakers are females, whereas most retirees are males), age (students are the youngest while retirees are the oldest), health (students report the best health status whereas retirees have the lowest health level) or baseline levels of satisfaction (students are the most satisfied with their main activity), irrespective of whether a transition to paid or self-employment is made or not.

On the other hand, we observe that there also exist differences between individuals depending on the treatment (switching to self-employment, switching to paid employment or

[11] In addition to these variables, when using the whole sample of inactive individuals, we include a set of dummy variables that classify individuals depending on the type of inactive situation they have in *t* (in education or training; doing housework, looking after children or other persons; retired or other economically inactive).

not switching) that are irrespective of the subgroup of inactive individuals. For instance, those homemakers, retirees or students transitioning to either paid or self-employment show lower levels of baseline satisfaction with a financial situation and worse household financial situation than those remaining inactive. It can also be observed that compared with those switching to paid employment, individuals who become self-employed are older and less satisfied with their main activity at the baseline.

Finally, there are also differences across subgroups of inactive and treated individuals. Thus, in the case of homemakers and retirees, those switching to self-employment are less educated than those switching to paid employment, whereas the reverse is true for students. All these baseline differences highlight the appropriateness of matching techniques to assure that such covariate imbalances do not influence the treatment effects estimate, as well as the importance of considering the heterogeneity of an inactive population.

4. Results

4.1. Preliminary results

Before we present the results of the PSM analysis, in this section, we start with some naïve estimations to have a first orientation about the relationship between satisfaction and labour market status. Thus, we consider a sample of self-employed workers (the reference category), wage employees and inactive individuals and regress their level of *satisfaction with work or main activity* with the usual control variables, the main independent variables being those related to labour market status. The final dataset of this preliminary analysis yields 541,811 observations, from which 242,873 (44.83%) correspond to inactive individuals; 241,698 (44.61%) correspond to paid employees; and 57,240 (10.56%) correspond to self-employed workers. Table 1 presents the results concerning these estimations. Models I and II refer to ordered logit estimations. As is frequently reported in the literature, it can be observed that being a paid employee is associated with lower levels of satisfaction, compared with being a self-employed worker. Focusing on the comparison between self-employment and inactivity, although inactivity seems to be associated with lower levels of satisfaction than self-employment, interesting differences between groups of inactive individuals emerge. Thus, model II shows that, compared with self-employed workers, homemakers and other economically inactive individuals present lower levels of satisfaction, whereas students are more satisfied. Retirees do not present statistically significant differences.

-Insert table 1 around here-

Models III and IV in table 1 repeat the analysis but in a fixed-effects regression framework.[12] Taking into account time-invariant individual-specific components, the results are substantially the same: Wage employees, homemakers, retirees and other economically inactive individuals are less satisfied than the self-employed, whereas students are more satisfied than the self-employed.

These results are interesting by themselves, but as is well known, they might suffer from some drawbacks such as covariate imbalance between groups, lack of a common support or over-controlling (Binder and Coad, 2013, 2016). Therefore, in the next section, we concentrate on the PSM estimates to analyse the relationship between a transition from inactivity to self-employment and satisfaction.

4.2. Main results

This section discusses the main results of our propensity score matching estimates. Our main goal is to analyse the association between self-employment and satisfaction. As mentioned above, to have a complete picture, we consider three scenarios: (i) switching to self-employment *vs*. not switching; (ii) switching to paid employment *vs*. not switching; and (iii) switching to self-employment *vs*. switching to paid employment, the latter being our focus scenario.

After estimating the corresponding propensity score using the baseline variables described in section 3.4.3, we choose as a matching algorithm *nearest neighbour matching with a specified calliper distance* —tolerance level on the maximum propensity score distance. Thus, to avoid matching observations whose propensity scores are far away but that are nevertheless the closest available match, we set a calliper computed as 0.2 of the pooled standard deviation for the *logit* of the propensity score (Austin, 2011; Kautonen et al., 2017). As a first robustness test, we also present results using a calliper matching algorithm with oversampling (Caliendo and Kopeinig, 2008).

Table 2 shows the treatment effect estimates for the three scenarios considered. Panel A shows results concerning the comparison between those inactive individuals switching to self-employment and those remaining inactive. Panel B presents results that compare inactive individuals becoming self-employed with those becoming wage employees. Finally, panel C reports results regarding the comparison of those individuals transitioning to paid employment and those remaining inactive. Each panel offers results for the whole sample of

[12] Although the dependent variable is ordered, we use fixed effects OLS since it is shown that this does not alter findings substantially (Ferrer-i-Carbonell and Frijters, 2004).

inactive population (column 1) as well as separate results for subsamples of homemakers, retirees and students (columns 2, 3 and 4, respectively). For each case, we present the number of observations, ATET —whose interpretation is similar to a linear regression coefficient (marginal effect) giving information on the change in the dependent variable in response to the treatment— their standard errors and the *z*-statistics of the significance test.

-Insert table 2 around here-

Focusing on the *inactive population* as a whole (table 2, column 1), it can be observed that, compared to individuals remaining inactive, those switching to both self or paid employment present higher increments in satisfaction with their main activity (panels A and C). If we compare these two groups of switching individuals (panel B), we observe no statistically significant differences. Although these results are interesting in themselves, the separate analysis of each inactive subgroup sheds more light on the phenomenon we are analysing. Thus, we now develop the results of each subgroup separately.

Concentrating on the subsamples of *homemakers* and *retirees* (table 2, columns 2 and 3, respectively), our results show that those becoming self-employed present higher changes in *satisfaction with main activity* than those remaining out of the labour force, as *hypothesis 1* claims. Comparisons between those switching to wage employment compared to those remaining inactive lead to similar conclusions. Consequently, when comparing the change in *satisfaction with main activity* between those transitioning to self-employment and those becoming paid employees, the estimated ATET are not statistically significant. Thus, although the direction of the association goes as our *hypothesis 2* predicts, the coefficients are not statistically significant for these two groups of inactive individuals.

Regarding the subgroups of *students* (table 2, column 4), we observe that, compared with those remaining out of the labour force, the changes in satisfaction of those becoming self-employed are lower but not statistically significant. This non-significant result suggests that the competing theoretical arguments discussed in section 2.3 indeed counterbalance each other in practice and lead to an overall similar satisfaction for students becoming self-employed and those remaining in school. Estimates in panel B show that switching to self-employment is associated with higher increases in satisfaction than switching to paid employment for the subgroup of students, which lends partial support to *hypothesis 2*. Finally, for the case of students, becoming a wage employee is associated with lower changes in satisfaction than not switching.

In sum, our results seem to support our first hypothesis, so that self-employment offers higher chances of self-determination than remaining out of the labour force for homemakers

and retirees. When comparing individuals switching to self-employment with those switching to paid employment, hypothesis 2 is just partially supported: students becoming self-employed experience a higher change in satisfaction compared to those becoming employees, but the difference is not significant for the cases of homemakers and retirees. These results might be driven by differences in employment characteristics between both types of employment. Thus, after presenting the assessment of matching quality and describing some robustness checks in section 4.3, section 4.4 below presents some complementary analysis to shed new light in this issue.

4.3. Assessment of matching quality and robustness checks

Matching techniques are a robust way of identifying appropriate control and treatment groups. However, the results can be sensitive to identification bias (Binder and Coad, 2013). In particular, problems might arise if the conditional independence assumption is not valid (Caliendo and Kopeinig 2008). This assumption may be strong and cannot be verified directly but only with reference to theoretical considerations of what drives treatment and outcome (Binder and Coad, 2016). We justify the identifying assumption having selected our matching variables drawing on job satisfaction and determinants of the self-employment literature.

Moreover, figures 1a to 1d and table 3 assess the quality of our estimates by checking if the matching procedure balances the distribution of covariates in both treatment and control groups.[13] In particular, figures 1a to 1d show the visual degree of overlap achieved for the four subsamples considered in our main scenario. It can be observed that balancing after matching is good in the four samples considered —to a lesser extent in the case of retirees.

– Insert figure 1 around here –

– Insert table 3 around here –

In addition, table 3 reports *covariates balancing diagnostic* between treated and control groups before and after matching by means of *t*-tests for equality of means. The diagnostics show several statistically significant differences between treated and control groups in the unmatched samples. Nevertheless, the diagnostics also reveal that these differences are small and not statistically significant after matching.[14] We also report standardised differences,

[13] Figures 1a to 1d and table 3 are based on estimations with oversampling of panel A in table 2. Balance diagnostics for the rest of estimations on table 2 (not shown for brevity) lead to similar conclusions about covariates balancing and are available from the authors under request.

[14] Few exceptions are health status and household financial situation for the whole sample and baseline satisfaction for the retiree case.

which compare differences in means between treated and control (unmatched or matched) sub-samples in units of the pooled standard deviation and are not influenced by sample size (Rosenbaum and Rubin, 1985; Austin, 2011).[15] With few exceptions in the subsample of retirees, standardized differences are all below 0.1 in the matched case, as suggested in the literature (D'Agostino, 1998; Kautonen et al., 2017).

Table 3 also shows overall measures of covariate imbalance. It presents pseudo R^2 (Sianesi, 2004), which indicates how well the regressors explain the treatment probability. Pseudo R^2 are fairly low after matching, indicating that no systematic differences in the distribution of covariates between treated and control groups exist (Caliendo and Kopeinig, 2008). In addition, the results of likelihood ratio tests on the joint insignificance of all covariates are also presented. In the same lines as before, the null hypotheses are not rejected before matching, but they are after matching. Finally, table 3 also reports means of absolute value of standardised differences in percentage that are below 5% (or close to it in the case of the subsample of retirees) after matching, which is considered sufficient in the literature (Caliendo and Kopeinig, 2008). Overall, it can be concluded that the matching quality is adequate, so it can be argued that mean independence is fulfilled and hence, that the treatment effect on the treated is identified.

Moreover, we perform a sensitivity analysis based on the simulation approach by Nannicini (2007) and Ichino et al. (2008). This analysis allows us to identify the robustness of our estimation strategy with respect to simulated confounders that recreate violations of the CIA. Table 4 has the same structure as table 2 and presents the results when simulated confounders are calibrated to mimic the distribution of the observed variables female, tertiary education and age.[16] To compare actual and simulated results, the first row of each panel in table 4 shows the baseline ATET estimates obtained with no confounder in the matching set (using PSM without calliper). Outcome effect, selection effects, ATET and SE with calibrated confounders are estimated using command *sensatt* in Stata 14. Results are obtained after 500 simulated iterations. Outcome effect and selection effect show the influence of each confounder on the untreated outcome and on the selection into treatment, respectively. Values below (above) 1 indicate a negative (positive) impact of the confounder. It can be observed that the introduction of simulated confounders does not alter the ATET estimates in spite of the impact of the confounder on the outcome or on the selection. This fact leads us to

[15] Standardised differences compare differences in means between treated and control (unmatched or matched) sub-samples in units of the pooled standard deviation (Rosenbaum and Rubin, 1985).

[16] Age has been dichotomized so that the observations above the sample mean take a value of 1.

conclude that our results are robust with respect to simulated confounders that mimic the observed gender, tertiary education and age dummies.

– Insert table 4 around here –

Finally, we check the robustness of our estimates by using different matching algorithms —with and without replacement, oversampling with different number of neighbours and setting different calliper widths. In addition, we also estimated our models with different sets of covariates.[17] Results are quite robust, which lends confidence to our estimates.

4.4. Additional estimations

This section supplements previous results obtained with PSM, by presenting additional analyses that compare satisfaction levels of those inactive individuals switching to self-employment with that of those switching to paid employment by means of ordered logit estimations. Thus, we perform separate analyses for homemakers, retirees and students, where the dependent variable is the level of satisfaction with work or main activity in t+1 and the main independent variable is a dummy that equals one (zero) if the inactive individual is making a transition to self-employment (paid employment) between t and t+1. This setting allows us to control for some characteristics referred to the period after the transition occurs that cannot be used in the PSM framework. For these exercises, we take advantage of a set of job satisfaction variables offered by the ECHP that are only asked of individuals working more than 15 hours per week and measures the level of satisfaction with the present job in terms of (i) earnings; (ii) job security; (iii) type of work; (iv) number of working hours; (v) working times; (vii) working conditions and environment and (vii) distance to job / commuting. This analysis might help us to disentangle what is driving satisfaction differences between inactive individuals switching to self-employment and those switching to paid employment.

In this manner, tables 5 to 7 present the results of 9 different specifications for homemakers, retirees and students, respectively. In each table, specification I —the baseline— includes, in addition to the main independent variable, demographic characteristics, education, baseline levels of satisfaction, business sector dummies, a dummy for part-time employment and country dummies. Specifications II to IX add one by one

[17] In particular, alternatively to the variable that measures *ability of the household to make ends meet*, the household financial situation has been controlled with a variable that gives information about *income situation compared to last year*. Additionally, we also incorporated to the analysis a variable measuring the household general *feeling about present economic situation*. Finally, we control regional differences by incorporating harmonised unemployment rates instead of country dummies.

several variables that might be driving satisfaction differences between self and paid employment. Thus, Specifications II and III include two variables related with *outcomes*, such as job satisfaction with earnings and job satisfaction with job security. Specification IV tests the role of *competence* adding a dummy for overskilled workers.[18] Specifications V and VI check for the impact of *autonomy* through the inclusion of job satisfaction with type of work and job satisfaction with working conditions.[19] Finally, specifications VII to IX include, respectively, job satisfaction with working times, job satisfaction with working hours and job satisfaction with distance to work as measures of perceived *flexibility*.[20] We are interested in analysing how the coefficient associated with the main independent variable, $ST_t \rightarrow SE_{t+1}$ *vs.* $ST_t \rightarrow PE_{t+1}$, changes as these variables are included.

Focusing on the subsample of *homemakers*, the baseline model (table 5, model I) shows a positive association between transition to self-employment and *satisfaction with main activity*, compared with switching to paid employment, once we control for business sector and part-time employment. This result seems to be driven by more satisfying conditions for this group of inactive individuals in self-employment as regards job security, type of work and distance to work (the transition dummy becomes insignificant in models III, V and IX). In contrast, self-employment seems to offer less rewarding conditions in terms of earnings and working hours (the transition dummy becomes more significant in models II and VIII).

– Insert table 5 around here –

Regarding the subgroup of *retirees* (table 6), our baseline results show that those becoming self-employed are as satisfied as those becoming paid employees.[21] Only when controlling for job satisfaction with earnings (model II) the transition to self-employment dummy becomes significant, remaining statistically insignificant in models III to IX.

– Insert table 6 around here –

Finally, in the case of *students*, the baseline model (table 7, model I) shows that when controlling for the business sector and part-time employment, differences in satisfaction levels between those students switching to self-employment and those switching to paid

[18] Examples of works that emphasize the role of using skills in fulfilling the psychological needs of competence include those of Van Ruysseveldt and Van Dijke (2011), Van den Broeck et al. (2015), Vieira (2005) or Mateos-Romero and Salinas-Jiménez (2018).

[19] Autonomy and independence might be reflected in more freedom to determine the type of work and the working conditions and, therefore, in job satisfaction associated with these domains (Millán et al., 2013).

[20] Some contributions pay specific attention to the effect on workers' well-being of some forms of flexibility including working times and working hours (McNall et al., 2009; Origo and Pagani, 2008) or distance to work (Hundley, 2000; Hundley, 2001; Becker and Moen, 1999; Loscocco and Smith-Hunter, 2004).

[21] We acknowledge that results concerning this group of individuals should be taken with cautious, given the low number of observations.

employment are positive, although just marginally significant. When controlling for job satisfaction with earnings (table 7, model II), the coefficient associated with the transition to the self-employment dummy becomes more significant. This result is consistent with the previous literature that highlights the existence of an earnings penalty in entrepreneurship (Hamilton, 2000), compared with paid employment. Model III, which controls for job satisfaction with job security shows a result similar to the baseline specification. However, when testing the role of competence and autonomy (table 7, models IV to VI), the dummy $ST_t \rightarrow SE_{t+1}$ *vs.* $ST_t \rightarrow PE_{t+1}$ becomes totally insignificant, highlighting that the differences in satisfaction between students switching to self and paid employment might be associated with self-employment offering higher degrees of autonomy and independence for setting the type of work and the working conditions, as well as higher possibilities of skill utilisation. Finally, when domains of job satisfaction related with flexibility are considered (table 7, models VII to IX), it can be observed that working hours and working times might be more satisfying for students becoming wage employees, whereas in terms of distance to work and commuting, self-employment is more appropriate.

– Insert table 7 around here –

Our findings thus underscore that there are divergent forces at work that determine the overall relationship between self-employment and satisfaction, depending on the group of individuals considered.

4.5. Summary of results and discussion

This section summarizes the overall picture that emerges from our results and discusses them thoroughly. While we initially find that, taken as a whole, inactive individuals who transition to self-employment experience a larger increase in their satisfaction compared to those who remain inactive —but are no more satisfied than those transitioning to paid employment— specific analyses for homemakers, retirees, and students show a more detailed portrait.

Thus, focusing on the comparison between *switching and non-switching individuals*, our results show that, on the one hand, homemakers and retirees seem to find a boost in satisfaction when they start working, regardless of the type of job. On the other hand, students who move to self-employment are as satisfied as those continuing with their studies, while those who move to wage employment experience a decrease in satisfaction. This evidence is in line with the previous literature that analyses the impact of employment status on

satisfaction (Di Tella et al., 2001; Blanchflower and Oswald, 2004a; Stutzer, 2004; Brereton et al., 2008; Lin et al., 2015) and confirms educational settings as environments that enhance self-determination (Deci et al., 1991). Thus, homemakers and retirees cannot seem to achieve self-determination in the same way they would do if they were (self-) employed and they are more satisfied by simply (re)engaging in the labour market, whereas students depart from a position that they seem to be already content with.[22]

Turning to the comparison between switching individuals, we observe that there are no significant differences in the case of homemakers and retirees, while students becoming self-employed report a larger increase in satisfaction than those becoming wage employees. Interestingly, our complementary analysis —where we additionally control for employment characteristics— sheds additional light on this issue. Thus, once we control for job satisfaction with earnings, irrespective of the group of inactive individuals who we are considering, those switching to self-employment are more satisfied with their main activity than those switching to paid-employment. This seems to confirm that self-employment offers less *pecuniary* rewards than paid employment for the three subgroups of the inactive population considered in the analysis —homemakers, retirees and students. Although this result has to be qualified taking into consideration that self-employment earnings may need more time than wages to be satisfying (Lévesque and Minniti, 2006), it is in line with the previous literature, which shows that self-employment earnings are lower and riskier (Hamilton, 2000). This penalty may be exacerbated in the case of disadvantaged groups included in the inactive population, such as youth, women and seniors. These groups face barriers —market barriers, cultural barriers, skill barriers and institutional barriers— that hamper their access to finance and may turn them into *discouraged borrowers* (Kon and Storey, 2003). Consequently, those inactive individuals becoming self-employed have to rely more on their own resources and on the support of family and friends, which may be associated with lower levels of satisfaction with these respects. This result highlights the importance of introducing appropriate policy actions to extend the reach of emerging financing instruments —such as loan guarantees, microcredits, crowdfunding, peer-to-peer lending and business angel investment— that complement the role of traditional policies for the particular group of individuals we are analysing (OECD/EU, 2014).

[22] We do not have information about the phase of the studies in which the students are involved. Consequently, although we control for the level of educational attainment, we acknowledge that differences might arise between students that quit studying because of a great business opportunity and students that finished their studies and are forced to find employment.

Additionally, our results show that differences in satisfaction between self and paid employment can be explained by different underlying mechanisms for each subgroup of inactive individuals. In the case of homemakers, increased levels of satisfaction with self-employment seem to be associated with self-employment offering more possibilities to survive in the labour market while looking after their family (Heilman and Chen, 2003) and to make decisions that allow them to better balance work and family, such as choosing to work from home (Edwards and Field-Hendrey, 2002; Loscocco and Smith-Hunter, 2004). This positive association may, however, be offset by the fact that running a firm demands a higher commitment and effort at work (Felfe et al., 2008) working longer hours (Hyytinen and Ruuskanen, 2007) and having irregular working schedules adapted to clients' and suppliers' needs (Goffee and Scase, 1983; Hamermesh, 1990). Concerning retirees, differences in satisfaction between self-employment and paid employment remain statistically insignificant after controlling for differences across occupations in terms of job security, competence fulfilment, autonomy or flexibility. The results in Binder and Coad (2013, 2016) indicated that the positive association between job satisfaction and self-employment is linked to the voluntary character of the decision to become an entrepreneur, the relationship being less apparent in the case of necessity-driven transitions. In this sense, our results regarding this group may be consistent with retirees becoming self-employed as a last resort (Dingemans and Henkens, 2014) due to age discrimination in paid employment (Karpinska et al., 2011), which implies increasing levels of stress that offset the advantages of being self-employed in terms of autonomy and flexibility (Block and Wagner, 2010; Parker, 2012). Finally, the fact that former students experience higher levels of satisfaction when becoming self-employed seems to be related to the more varied set of tasks that self-employment implies (Lazear, 2004; 2005) and the greater chances of being able to apply what they learned and not feeling overskilled (Hundley, 2001; Millán et al., 2013; Congregado et al., 2016). They also seem to appreciate the higher degree of autonomy in self-employment (Ng and Feldman, 2015), in spite of having to work longer hours (Hyytinen and Ruuskanen, 2007) and being forced to give up something that they value, i.e., leisure time (Twenge et al., 2010).

All in all, this evidence highlights the existing heterogeneity between the three subgroups of inactive individuals considered and is suggestive of the need to adapt existing policy measures to support inclusive business creation —such as entrepreneurship training, coaching and mentoring, role models, microfinance, welfare bridges, business counselling and entrepreneurial networking— to address the specific needs of the different groups (OECD/EU, 2016). Specifically, we stress the potential of a particular subgroup of inactive

individuals —the students— as a target of highly selective policy incentives, which focus more on innovative and high-growth entrepreneurship. These measures, designed as entrepreneurship policies instead of as activation policies, are essential to contribute to the processes of growth and job creation (Santarelli and Vivarelli, 2007; Thurik et al., 2008; Shane, 2009; Congregado et al., 2010; Román et al., 2013).

5. Conclusions and avenues for future research

The global economic and financial crisis emphasized the necessity for *activation policies*, which provide groups at the margins of the labour market —such as youth, women, elderly and low-skilled workers— with the support, incentives and training to enter into employment. Activation policies recognise that engaging these groups in the labour market is crucial for strengthening overall economic growth, equality and social cohesion, as well as for improving their individual well-being (OECD, 2013). Because it is commonly accepted that there is no silver bullet solution to overcome the employment challenge, governments have implemented multipronged approaches. *Inclusive entrepreneurship policies* —aimed at ensuring that all groups of people, regardless of their background and personal characteristics, have an opportunity to start businesses and be self-employed— are part of the suite of activation policy actions (OECD/EU, 2015).

Although policy makers recognise the potential of self-employment in helping inactive people to enter the labour market and potentially improve their well-being, the academic literature on self-employment and entrepreneurship has overlooked this group of individuals. To the best of our knowledge, this study is the first to provide a comprehensive set of evidence concerning the association between transitions from inactivity to self-employment and satisfaction. Thus, using European data, we apply matching techniques, which minimize potential confounding effects caused by differences in observed characteristics, to compare changes in *satisfaction with main activity* of inactive individuals becoming self-employed with that of (i) those switching to paid employment and (ii) those remaining inactive.

Our estimates suggest that the inactive population is a rather heterogeneous group of people with different lifestyles, expectations and needs and that such heterogeneity should be accounted for to disentangle potentially mixed results. Thus, our results show that the dynamics of satisfaction across labour market statuses do not follow the same pattern for homemakers, retirees and students. In this sense, self-employment does not always provide a larger boost in satisfaction than paid employment or even inactivity. This fact might be related to self-employment providing different levels of satisfaction depending on the initial status

and the voluntary nature of the transition to this status (Binder and Coad, 2013; Block and Koellinger, 2009).

All in all, we believe that our study has relevant implications for both the academic literature and policy makers interested in engaging inactive individuals in the labour market. On the one hand, it highlights that analyses that neglect the heterogeneous nature of this group of individuals should be taken with a grain of salt. Hence, we encourage scholars to actively distinguish the subgroups of inactive individuals in future research since such a distinction will provide a more accurate picture of reality. On the other hand, this work also stresses that a *one-size-fits-all* activation policy —including measures promoting entrepreneurship— might be unsuitable, bringing to light the importance of considering varying needs, lifestyles and expectations of different groups of individuals.

As no study comes without limitations, a few shortcomings of our paper should be noted. First and foremost, as we have already mentioned, we cannot dismiss the possibility that our results are affected by unobserved characteristics. Thus, we are not able to make causal interpretations as regards the impact of a transition to self-employment on changes in satisfaction. Although the robustness checks we perform give confidence to our estimates, we interpret the results in terms of the gaps in satisfaction between inactive individuals switching to self-employment and those switching to paid employment or remaining inactive that are unexplained by observed characteristics. Nevertheless, given that unobserved characteristics such as personality or ability are correlated with the rich array of observable characteristics we are controlling for, the remaining influence of unobserved differences should be significantly reduced. Thus, the conditional gap in satisfaction between control and treated groups might be explained, at least to some extent, by the transition to self-employment. Thus, in spite of not doing any causal claims, the implications of our results in terms of the importance of taking into account the existing heterogeneity within inactive population and the need to consider such heterogeneity when designing activation policies are appropriate independently of the causal or conditional interpretation of the results.

Finally, previous studies have shown that a transition into self-employment causes an immediate boost in job satisfaction but also that the effect tends to disappear after the first few years (Hanglberger and Merz, 2015; Georgellis and Yusuf, 2016). Thus, a potential extension to the current paper would entail observing the evolution of the job satisfaction levels among inactive individuals sorting into either paid or self-employment and testing whether different levels of persistence can be found depending on the type of transition to self-employment. We believe this is an interesting avenue for future research, albeit its execution depends heavily

on the availability of longer panel data. In any case, our results are a good starting point for an in-depth analysis of the relationship between self-employment and satisfaction for the case of previously inactive individuals.

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Tables and figures *(to be inserted in the text)*

Table 1. Labour market status and satisfaction: Ordered logit regressions and fixed effects estimates

	Model I			Model II			Model III			Model IV		
	Ordered logit			Ordered logit			Fixed effects			Fixed effects		
	Coeff.	SE	z	Coeff	SE	z	Coeff	SE	t	Coeff	SE	t
Dependent Variable: S_main activity												
Labour market status												
Self-employed worker (*ref.*)												
Paid employee	-0.091	0.010	-9.36 ***	-0.075	0.010	-7.72 ***	-0.094	0.011	-8.28 ***	-0.077	0.011	-6.75 ***
Inactive	-0.026	0.010	-2.71 ***				-0.121	0.012	-10.45 ***			
Homemaker				-0.197	0.011	-17.34 ***				-0.117	0.013	-8.79 ***
Retiree				0.005	0.012	0.47				-0.148	0.013	-10.97 ***
Student				0.378	0.015	25.25 ***				0.095	0.018	5.36 ***
Other economically inactive				-0.727	0.017	-42.25 ***				-0.397	0.015	-26.02 ***
Demographic characteristics												
Female	-0.060	0.005	-11.58 ***	-0.017	0.005	-3.07 ***						
Age	0.009	0.000	44.23 ***	0.011	0.000	46.76 ***	-0.005	0.001	-6.58 ***	-0.004	0.001	-4.84 ***
Household type												
Single person (*ref.*)												
Single parent	-0.107	0.013	-8.10 ***	-0.088	0.013	-6.65 ***	-0.051	0.016	-3.12 ***	-0.052	0.016	-3.17 ***
Couple without children	0.046	0.009	4.89 ***	0.060	0.009	6.44 ***	-0.003	0.013	-0.25	-0.004	0.013	-0.32
Couple with children	-0.047	0.009	-5.15 ***	-0.020	0.009	-2.13 **	-0.017	0.013	-1.31	-0.019	0.013	-1.48
Other situations	-0.142	0.011	-12.51 ***	-0.114	0.011	-10.02 ***	-0.035	0.015	-2.32 **	-0.035	0.015	-2.31 **
Health status	-0.402	0.003	-116.85 ***	-0.390	0.003	-112.82 ***	-0.019	0.003	-7.40 ***	-0.019	0.003	-7.15 ***
Household financial situation	0.333	0.002	137.68 ***	0.327	0.002	135.29 ***	0.099	0.002	51.25 ***	0.100	0.002	51.37 ***
Household main source of income from SE	-0.059	0.009	-6.69 ***	-0.049	0.009	-5.53 ***	0.003	0.008	0.37	0.003	0.008	0.34
Education												
Basic education (*ref.*)												
Secondary education	0.234	0.006	36.88 ***	0.214	0.006	33.66 ***	0.033	0.006	5.16 ***	0.037	0.006	5.88 ***
Tertiary education	0.300	0.008	37.51 ***	0.293	0.008	36.58 ***	0.015	0.011	1.40	0.039	0.011	3.67 ***
Country dummies												
Austria	0.961	0.013	74.81 ***	0.936	0.013	72.64 ***						
Belgium	0.182	0.014	12.92 ***	0.153	0.014	10.84 ***						
Denmark	0.752	0.015	51.84 ***	0.715	0.015	49.18 ***						
Finland	0.372	0.014	26.88 ***	0.316	0.014	22.73 ***						
France	0.264	0.010	26.03 ***	0.224	0.010	21.90 ***						
Germany	-0.192	0.017	-11.10 ***	-0.217	0.017	-12.53 ***						
Greece	-1.000	0.010	-95.54 ***	-1.029	0.011	-97.74 ***						
Ireland	0.488	0.014	35.82 ***	0.502	0.014	36.79 ***						
Italy	-0.676	0.009	-71.63 ***	-0.716	0.009	-75.50 ***						
Luxembourg	0.565	0.034	16.86 ***	0.564	0.034	16.79 ***						
Netherlands	0.402	0.011	35.15 ***	0.453	0.011	39.38 ***						
Portugal	-0.370	0.010	-38.03 ***	-0.414	0.010	-42.34 ***						
Spain (*ref.*)												
United Kingdom	-0.008	0.022	-0.38	-0.021	0.022	-0.95						
Number of observations	541,811			541,811			541,811			541,811		
Log likelihood	-791,950.5			-790,016.3								
Pseudo R^2	0.0743			0.0766								
R^2 (within)							0.0071			0.0093		
R^2 (between)							0.1102			0.1225		
R^2 (overall)							0.0820			0.0906		
Hausman specification test												
Chi2							3.70			3.68		
p-value							0.000			0.000		

Notes: *** denotes significance at 1% level; ** denotes significance at 5% level; * denotes significance at 10% level.

Table 2. Effects of moving from inactivity to self-employment on change in satisfaction: PSM estimates

Dependent Variable: $\Delta_{(t+1)-t}$ S_main activity

Sample	INACTIVE POPULATION			HOMEMAKERS			RETIREES			STUDENTS		
Panel A. Switching to self-employment vs. not switching												
Treatment variable	$IN_t \rightarrow SE_{t+1}$ *vs.* $IN_t \rightarrow IN_{t+1}$			$HM_t \rightarrow SE_{t+1}$ *vs.* $HM_t \rightarrow HM_{t+1}$			$RT_t \rightarrow SE_{t+1}$ *vs.* $RT_t \rightarrow RT_{t+1}$			$ST_t \rightarrow SE_{t+1}$ *vs.* $ST_t \rightarrow ST_{t+1}$		
Number of observations	203,933			73,905			83,800			23,112		
	ATET	SE	*z*-stat.	ATET	SE	*z*-stat.	ATET	SE	*z*-stat.	ATET	SE	*z*-stat.
Matching algorithm												
Calliper	0.245	0.040	6.08 ***	0.147	0.053	2.79 ***	0.196	0.072	2.70 ***	-0.014	0.102	-0.14
Calliper with oversampling	0.246	0.034	7.20 ***	0.168	0.044	3.80 ***	0.165	0.062	2.68 ***	-0.003	0.074	-0.05
Panel B. Switching to self-employment vs. switching to paid employment												
Treatment variable	$IN_t \rightarrow SE_{t+1}$ *vs.* $IN_t \rightarrow PE_{t+1}$			$HM_t \rightarrow SE_{t+1}$ *vs.* $HM_t \rightarrow PE_{t+1}$			$RT_t \rightarrow SE_{t+1}$ *vs.* $RT_t \rightarrow PE_{t+1}$			$ST_t \rightarrow SE_{t+1}$ *vs.* $ST_t \rightarrow PE_{t+1}$		
Number of observations	7,938			2,774			577			3,330		
	ATET	SE	*z*-stat.	ATET	SE	*z*-stat.	ATET	SE	*z*-stat.	ATET	SE	*z*-stat.
Matching algorithm												
Calliper	0.042	0.070	0.61	-0.007	0.097	-0.07	0.187	0.148	1.26	0.329	0.131	2.52 **
Calliper with oversampling	0.045	0.059	0.77	0.006	0.067	0.09	0.085	0.095	0.89	0.175	0.098	1.78 *
Panel C. Switching to paid employment vs. not switching												
Treatment variable	$IN_t \rightarrow PE_{t+1}$ *vs.* $IN_t \rightarrow IN_{t+1}$			$HM_t \rightarrow PE_{t+1}$ *vs.* $HM_t \rightarrow HM_{t+1}$			$RT_t \rightarrow PE_{t+1}$ *vs.* $RT_t \rightarrow RT_{t+1}$			$ST_t \rightarrow PE_{t+1}$ *vs.* $ST_t \rightarrow ST_{t+1}$		
Number of observations	208,659			75,075			83,543			26,062		
	ATET	SE	*z*-stat.	ATET	SE	*z*-stat.	ATET	SE	*z*-stat.	ATET	SE	*z*-stat.
Matching algorithm												
Calliper	0.074	0.026	2.86 ***	0.142	0.037	3.80 ***	0.105	0.116	0.91	-0.116	0.032	-3.63 ***
Calliper with oversampling	0.057	0.022	2.61 ***	0.125	0.032	3.92 ***	0.239	0.087	2.75 ***	-0.124	0.028	-4.36 ***

Notes: ATET are calculated using command *teffects psmatch* in Stata 14. This command implement the estimator derived by Abadie and Imbens (2006, 2011). Standard errors (SE) are based on Abadie and Imbens (2016) and take into account that the propensity score is estimated rather than observed.

Variables used for calculating the propensity score include gender, age, household type, health status, household financial situation, household main source of income, education, baseline levels of satisfaction and country dummies.

For the matching procedure we set a calliper computed as 0.2 of the pooled standard deviation for the *logit* of the propensity score (Austin, 2011).

*** denotes significance at 1% level; ** denotes significance at 5% level; * denotes significance at 10% level.

Table 3. Balance diagnostic for PSM estimates – Switching from inactivity to self-employment vs. switching from inactivity to paid employment

Sample		INACTIVE POPULATION				HOMEMAKERS				RETIREES				STUDENTS			
		Mean		*t*-test	Std.	Mean		t-test	Std.	Mean		t-test	Std.	Mean		t-test	Std.
		T	C	*t*-stat	Diff.	T	C	*t*-stat	Diff.	T	C	*t*-stat	Diff.	T	C	*t*-stat	Diff.
STATUS IN T [a]																	
Homemaker	U	0.260	0.027	34.1***	0.704	--	--	--	--	--	--	--	--	--	--	--	--
	M	0.260	0.272	-0.8	-0.028	--	--	--	--	--	--	--	--	--	--	--	--
Retiree	U	0.499	0.311	14.3***	0.390	--	--	--	--	--	--	--	--	--	--	--	--
	M	0.499	0.481	1.1	0.036	--	--	--	--	--	--	--	--	--	--	--	--
Other economically inactive	U	0.123	0.162	-3.9***	-0.113	--	--	--	--	--	--	--	--	--	--	--	--
	M	0.123	0.120	0.2	0.008	--	--	--	--	--	--	--	--	--	--	--	--
DEMOGRAPHIC CHARACTERISTICS																	
Female	U	0.633	0.604	2.1**	0.058	0.974	0.962	1.5	0.065	0.225	0.363	-3.4***	-0.304	0.442	0.515	-2.0*	-0.146
	M	0.633	0.611	1.3	0.043	0.974	0.974	0.0	0.003	0.225	0.231	-0.2	-0.013	0.442	0.452	-0.2	-0.022
Age	U	48.113	28.701	54.3***	1.349	45.062	36.799	18.5***	0.748	66.058	57.469	10.1***	0.887	24.563	22.448	5.1***	0.386
	M	48.113	47.740	0.6	0.022	45.062	44.735	0.6	0.023	66.058	65.207	1.6	0.183	24.563	24.661	-0.2	-0.019
Household type [b]																	
Single parent	U	0.045	0.076	-4.3***	-0.127	0.037	0.051	-1.6	-0.067	0.038	0.050	-0.6	-0.056	0.095	0.088	0.3	0.025
	M	0.045	0.047	-0.2	-0.009	0.037	0.040	-0.2	-0.013	0.038	0.032	0.5	0.057	0.095	0.090	0.2	0.015
Couple without children	U	0.222	0.083	16.0***	0.393	0.165	0.075	7.2***	0.278	0.427	0.300	2.8***	0.266	0.047	0.080	-1.6	-0.134
	M	0.222	0.207	1.0	0.035	0.165	0.133	1.8	0.078	0.427	0.446	-0.6	-0.107	0.047	0.038	0.4	0.046
Couple with children	U	0.529	0.688	-12.1***	-0.330	0.601	0.751	-7.9***	-0.323	0.288	0.413	-2.9***	-0.263	0.700	0.669	0.9	0.066
	M	0.529	0.509	1.1	0.040	0.601	0.617	-0.7	-0.032	0.288	0.299	-0.3	0.058	0.700	0.707	-0.2	-0.015
Other situations	U	0.158	0.106	5.8***	0.153	0.182	0.115	4.7***	0.189	0.158	0.138	0.6***	0.058	0.105	0.092	0.6	0.043
	M	0.158	0.192	-2.5	-0.088	0.182	0.196	-0.7	-0.027	0.158	0.161	-0.1	-0.013	0.105	0.123	-0.5	-0.055
Health status	U	2.343	1.849	21.2***	0.553	2.183	1.970	6.1***	0.246	2.851	2.544	3.7***	0.344	1.663	1.678	-0.3	-0.022
	M	2.343	2.270	2.2**	0.077	2.183	2.175	0.2	0.023	2.851	2.932	-1.3	-0.059	1.663	1.669	-0.1	-0.013
Household financial situation	U	2.979	3.082	-3.1***	-0.087	2.964	3.008	-0.9	-0.037	2.851	3.200	-3.1***	-0.287	3.311	3.179	1.5	0.111
	M	2.979	3.028	-1.2**	-0.041	2.964	2.930	0.6	0.033	2.851	2.735	1.4	-0.009	3.311	3.302	0.1	0.008
Household main source of income from SE	U	0.261	0.107	16.2***	0.405	0.330	0.123	13.2***	0.510	0.153	0.044	3.6***	0.374	0.232	0.108	5.2***	0.334
	M	0.261	0.259	0.1	0.005	0.330	0.343	-0.5	-0.029	0.153	0.125	1.2	-0.013	0.232	0.203	0.7	0.068
EDUCATION [c]																	
Secondary education	U	0.242	0.402	-12.0***	-0.348	0.213	0.310	-5.2***	-0.222	0.082	0.231	-5.0***	-0.420	0.642	0.495	3.9***	0.299
	M	0.242	0.253	-0.7	-0.023	0.213	0.224	-0.5	-0.052	0.082	0.095	-0.7	-0.036	0.642	0.668	-0.5	-0.056
Tertiary education	U	0.085	0.117	-3.7***	-0.107	0.064	0.111	-3.8***	-0.167	0.072	0.125	-2.0**	-0.178	0.163	0.117	1.9*	0.134
	M	0.085	0.093	-0.8	-0.030	0.064	0.057	0.6	0.047	0.072	0.053	1.1	0.082	0.163	0.158	0.2	0.014
BASELINE LEVELS OF SATISFACTION																	
Satisfaction with main activity in *t*	U	3.740	4.104	-9.6***	-0.266	3.767	3.983	-3.7***	-0.156	3.657	3.925	-2.2**	-0.206	4.121	4.408	-3.3***	-0.237
	M	3.740	3.804	-1.3	-0.047	3.767	3.737	0.4	0.023	3.657	3.811	-1.8*	-0.129	4.121	4.202	-0.6	-0.067
COUNTRY DUMMIES [d]																	
Austria	U	0.042	0.075	-4.7***	-0.140	0.060	0.076	-1.5	-0.064	0.019	0.044	-1.7	-0.141	0.058	0.059	-0.1	-0.006

Belgium	M	0.042	0.042	0.0	0.000	0.060	0.048	1.1	0.047	0.019	0.030	-1.0	-0.083	0.058	0.066	-0.3	-0.034
	U	0.012	0.022	-2.6***	-0.079	0.009	0.012	-0.8	-0.034	0.010	0.025	-1.4	-0.118	0.037	0.032	0.4	0.027
	M	0.012	0.021	-2.0**	-0.071	0.009	0.010	-0.2	0.008	0.010	0.006	0.5	0.019	0.037	0.032	0.3	0.027
Denmark	U	0.012	0.042	-5.8***	-0.186	0.009	0.004	1.5	0.059	0.019	0.075	-3.3***	-0.265	0.011	0.062	-2.9***	-0.278
	M	0.012	0.010	0.6	0.020	0.009	0.007	0.4	0.033	0.019	0.013	0.7	0.042	0.011	0.011	-0.1	-0.005
Finland	U	0.026	0.080	-7.6***	-0.242	0.026	0.058	-3.6***	-0.160	0.031	0.069	-2.0**	-0.173	0.037	0.112	-3.3***	-0.289
	M	0.026	0.018	1.5	0.053	0.026	0.017	1.3	0.077	0.031	0.036	-0.4	-0.010	0.037	0.035	0.1	0.011
France	U	0.014	0.085	-9.9***	-0.329	0.017	0.084	-6.5***	-0.307	--	--	--	--	0.021	0.064	-2.4**	-0.214
	M	0.014	0.017	-0.6	-0.023	0.017	0.024	-0.9	-0.049	--	--	--	--	0.021	0.018	0.2	0.021
Germany	U	0.007	0.022	-3.7***	-0.118	0.005	0.031	-4.1***	-0.196	0.007	0.006	0.1	0.012	0.011	0.017	-0.7	-0.057
	M	0.007	0.006	0.4	0.015	0.005	0.006	-0.4	-0.016	0.007	0.001	1.3	0.120	0.011	0.008	0.3	0.027
Greece	U	0.216	0.077	16.6***	0.402	0.226	0.113	7.7***	0.303	0.264	0.150	2.9***	0.283	0.116	0.055	3.5***	0.219
	M	0.216	0.220	-0.3	-0.009	0.226	0.241	-0.7	-0.045	0.264	0.223	1.4	0.014	0.116	0.133	-0.5	-0.052
Ireland	U	0.035	0.080	-6.3***	-0.193	0.041	0.126	-6.8***	-0.309	0.031	0.056	-1.4	-0.123	0.011	0.074	-3.3***	-0.318
	M	0.035	0.035	0.1	0.002	0.041	0.046	-0.5	-0.041	0.031	0.029	0.2	0.029	0.011	0.010	0.0	0.000
Italy	U	0.178	0.114	7.0***	0.183	0.151	0.111	2.9***	0.120	0.163	0.225	-1.7	-0.157	0.305	0.093	9.4***	0.551
	M	0.178	0.178	0.0	0.002	0.151	0.158	-0.4	-0.006	0.163	0.122	1.7*	0.122	0.305	0.294	0.2	0.027
Luxembourg	U	0.001	0.003	-1.0	-0.030	0.002	0.007	-1.3	-0.204	--	--	--	--	--	--	--	--
	M	0.001	0.001	0.5	0.015	0.002	0.003	-0.2	0.037	--	--	--	--	--	--	--	--
Netherlands	U	0.027	0.075	-7.0***	-0.221	0.027	0.072	-4.5***	0.230	0.010	0.025	-1.4	-0.118	0.037	0.096	-2.7***	-0.238
	M	0.027	0.027	0.0	0.002	0.027	0.022	0.6	0.003	0.010	0.008	0.3	0.013	0.037	0.023	0.8	0.079
Portugal	U	0.249	0.159	8.4***	0.224	0.206	0.121	5.8***	-0.017	0.391	0.294	2.2**	0.205	0.147	0.177	-1.1	-0.081
	M	0.249	0.245	0.3	0.008	0.206	0.206	0.0	-0.054	0.391	0.490	-2.9***	-0.125	0.147	0.161	-0.4	-0.042
United Kingdom	U	0.007	0.013	-2.1**	-0.063	0.006	0.025	-3.3***	-0.064	0.005	0.013	-1.0	-0.083	--	--	--	--
	M	0.007	0.009	-0.8	-0.027	0.006	0.009	-0.7	0.047	0.005	0.003	0.5	0.052	--	--	--	--
OVERALL MEASURES OF COVARIATE BALANCE																	
Pseudo-R^2	U	0.328				0.199				0.228				0.132			
	M	0.006				0.005				0.027				0.007			
LR test on joint insignificance of covariates	U	$\chi^2 = 2623.68$		$p > \chi^2 = 0.000$		$\chi^2 = 662.93$		$p > \chi^2 = 0.000$		$\chi^2 = 155.25$		$p > \chi^2 = 0.000$		$\chi^2 = 192.02$		$p > \chi^2 = 0.000$	
	M	$\chi^2 = 24.65$		$p > \chi^2 = 0.647$		$\chi^2 = 10.89$		$p > \chi^2 = 0.993$		$\chi^2 = 30.86$		$p > \chi^2 = 0.126$		$\chi^2 = 3.54$		$p > \chi^2 = 1.000$	
Mean Std. Diff. (%)	U	27.8				20.8				23.1				18.3			
	M	2.7				2.6				6.0				3.0			

Notes: U: Unmatched; M: Matched; T: Treated; C: Control; Std. diff.: standardized difference.

t-test tests the null hypothesis of treated and control means being equal; *** denotes significance at 1% level; ** denotes significance at 5% level; * denotes significance at 10% level.

Reference categories: [a] Student; [b] Single person; [c] Basic education; [d] Spain.

Results are calculated using commands *pstest* and *tebalance* in Stata 14 after running estimations with oversampling of panel B in table 2. Balance diagnostics for the rest of estimations on table 2 (not shown for brevity) lead to similar conclusions about covariates balancing and are available from the authors under request.

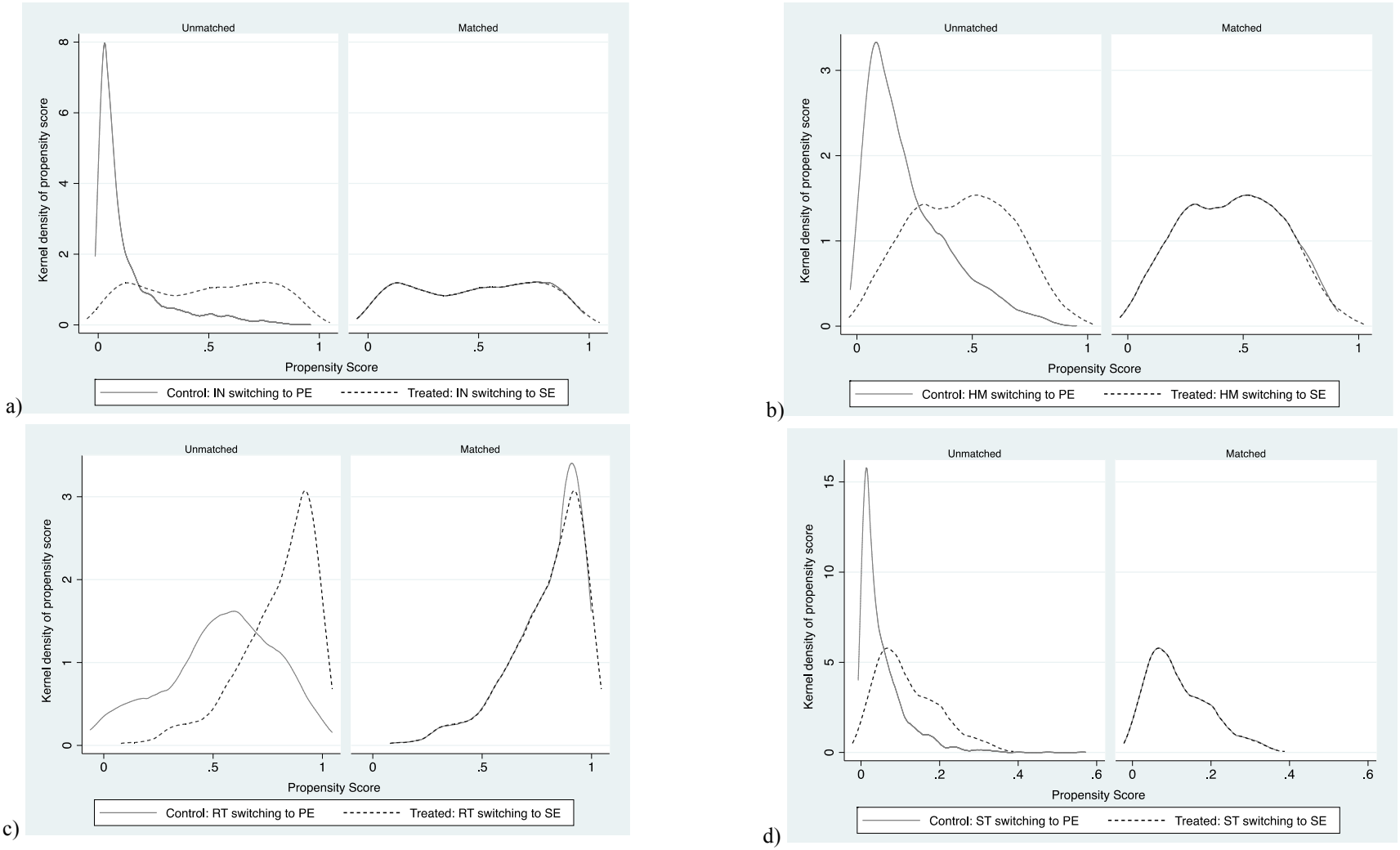

Fig. 1. Balance plots before and after matching – (a) Inactive population; (b) Homemakers; (c) Retirees; (d) Students

Note: Plots are obtained using command *tebalance* in Stata 14 after running estimations with oversampling of panel B in table 2. Balance plots for the rest of estimations on table 1 (not shown for brevity) lead to similar conclusions about covariates balancing and are available from the authors under request.

Table 4. Sensitivity analysis of PSM estimates: effect of *calibrated* confounders

Sample	INACTIVE POPULATION				HOMEMAKERS				RETIREES				STUDENTS			
	Outcome Effect	Selection Effect	ATET	SE	Outcome Effect	Selection Effect	ATET	SE	Outcome Effect	Selection Effect	ATET	SE	Outcome Effect	Selection Effect	ATET	SE
Panel A. Switching to self-employment vs. not switching																
No confounder	--	--	0.247	0.046	--	--	0.149	0.065	--	--	0.199	0.083	--	--	-0.030	0.138
Confounder-like																
Female	0.990	0.940	0.247	0.046	0.993	0.836	0.150	0.065	1.033	0.378	0.199	0.083	0.987	0.671	-0.030	0.138
Tertiary education	1.042	1.611	0.247	0.046	1.119	1.684	0.150	0.065	1.029	1.096	0.199	0.083	0.911	3.778	-0.030	0.138
Age[a]	1.015	0.324	0.247	0.046	1.015	0.345	0.150	0.065	0.939	0.545	0.199	0.083	0.973	7.559	-0.030	0.138
Panel B. Switching to self-employment vs. switching to paid employment																
No confounder	--	--	0.041	0.089	--	--	-0.007	0.106	--	--	0.187	0.275	--	--	0.329	0.155
Confounder-like																
Female	0.837	1.130	0.041	0.089	0.747	1.509	-0.007	0.106	1.011	0.526	0.187	0.275	0.888	0.759	0.329	0.155
Tertiary education	0.800	0.455	0.041	0.089	0.792	0.518	-0.007	0.106	0.556	0.708	0.187	0.275	1.033	0.944	0.329	0.155
Age[a]	1.185	8.517	0.041	0.089	1.002	3.021	-0.007	0.106	0.959	4.153	0.187	0.275	1.086	3.202	0.329	0.155
Panel C. Switching to paid employment vs. not switching																
No confounder	--	--	0.074	0.027	--	--	0.142	0.044	--	--	0.105	0.148	--	--	-0.117	0.034
Confounder-like																
Female	1.042	0.833	0.074	0.027	0.992	0.543	0.142	0.044	1.033	0.744	0.105	0.148	0.986	0.895	-0.117	0.034
Tertiary education	3.547	0.032	0.074	0.027	1.119	3.296	0.142	0.044	1.029	1.633	0.105	0.148	0.909	3.940	-0.117	0.034
Age[a]	1.018	0.020	0.074	0.027	1.026	0.078	0.142	0.044	0.940	0.077	0.105	0.148	0.974	2.573	-0.117	0.034

Notes: ATET with no confounder corresponds to baseline estimates without calliper. Outcome effect, selection effects, ATET and SE with calibrated confounders are estimated using command *sensatt* in Stata 14. This command implement the sensitivity analysis presented in Nannicini (2007). Results obtained after 500 simulated iterations.

[a] Age has been dichotomized so that the observations above the sample mean take a value of 1.

Table 5. Determinants of satisfaction after a transition from inactivity - Ordered logit regressions - Homemakers

	Model I		Model II		Model III		Model IV		Model V		Model VI		Model VII		Model VIII		Model IX	
	Coeff.	*z*	Coeff.	*z*	Coeff.	*z*	Coeff.	*z*	Coeff.	*z*	Coeff.	*z*	Coeff.	*z*	Coeff.	*z*	Coeff.	*z*
Transition to self-employment																		
$HM_t \rightarrow SE_{t+1}$ *vs.* $HM_t \rightarrow PE_{t+1}$	0.363	3.14***	0.450	3.84***	0.155	1.33	0.356	3.08***	0.107	0.89	0.273	2.31**	0.341	2.92***	0.489	4.18***	0.140	1.19
Outcomes																		
JS_earnings			0.697	17.76***														
JS_job security					0.594	17.22***												
Competence																		
Overskilled							-0.218	-2.55**										
Autonomy																		
JS_type of work									1.343	27.71***								
JS_workig conditions											0.877	20.31***						
Flexibility																		
JS_working times													0.660	16.57***				
JS_working hours															0.715	18.15***		
JS_distance to work																	0.392	11.02***
Demographic characteristics																		
Female	-0.220	-0.89	-0.265	-1.03	-0.137	-0.55	-0.218	-0.87	0.260	1.01	-0.020	-0.08	-0.081	-0.32	-0.045	-0.17	-0.264	-1.05
Age	0.009	1.97**	0.008	1.71*	0.004	0.88	0.008	1.75*	0.004	0.89	0.006	1.28	0.007	1.70*	0.008	1.73*	0.006	1.36
Household type																		
Single person (*ref.*)																		
Single parent	0.463	1.34	0.419	1.18	0.583	1.65*	0.432	1.25	0.294	0.82	0.358	0.99	0.458	1.31	0.457	1.30	0.318	0.92
Couple without children	0.337	1.04	0.344	1.02	0.378	1.13	0.301	0.92	0.187	0.55	0.243	0.71	0.312	0.94	0.302	0.91	0.218	0.67
Couple with children	0.342	1.11	0.287	0.90	0.454	1.43	0.304	0.99	0.174	0.54	0.203	0.63	0.357	1.14	0.337	1.07	0.224	0.73
Other situations	0.604	1.86*	0.566	1.69*	0.624	1.87*	0.575	1.77*	0.389	1.15	0.405	1.19	0.587	1.78*	0.624	1.88*	0.444	1.36
Health status	-0.278	-4.63***	-0.257	-4.24***	-0.232	-3.83***	-0.284	-4.73***	-0.216	-3.51***	-0.245	-4.05***	-0.245	-4.09***	-0.224	-3.69***	-0.261	-4.33***
Household financial situation	0.271	6.73***	0.118	2.84***	0.164	3.99***	0.272	6.74***	0.149	3.59***	0.238	5.84***	0.209	5.14***	0.185	4.53***	0.248	6.11***
Household main source of income from SE	0.094	0.84	0.098	0.87	-0.009	-0.08	0.092	0.83	0.010	0.09	0.061	0.54	0.169	1.51	0.209	1.85*	0.158	1.42
Education																		
Basic education (*ref.*)																		
Secondary education	0.086	0.80	0.064	0.59	0.045	0.42	0.129	1.18	-0.005	-0.04	-0.028	-0.25	0.084	0.77	0.168	1.54	0.057	0.53
Tertiary education	-0.057	-0.36	-0.055	-0.33	0.073	0.44	0.000	0.00	-0.213	-1.28	-0.225	-1.38	-0.081	-0.50	-0.084	-0.52	-0.062	-0.38
Baseline levels of satisfaction																		
Satisfaction with main activity in *t*	0.315	9.20***	0.270	7.82***	0.274	7.98***	0.315	9.20***	0.235	6.74***	0.253	7.27***	0.281	8.17***	0.278	8.09***	0.281	8.15***
Employment characteristics																		
Part time work	-0.019	-0.20	0.040	0.42	0.028	0.30	-0.011	-0.12	0.054	0.55	-0.165	-1.73*	-0.187	-1.96**	-0.173	-1.81*	-0.064	-0.68
Business sector dummies (18 categories; *ref.* Construction)	Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes	
Country dummies (14 categories; *ref.* Spain)	Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes	
Number of observations	2,064		2,064		2,064		2,064		2,064		2,064		2,064		2,064		2,064	
Log likelihood	-2,940.6		-2,937.3		-2,478.4		-2,715.6		-2,793.1		-2,763.7		-2,878.6		-2,771.3		-2,782.1	

Notes: *** denotes significance at 1% level; ** denotes significance at 5% level; * denotes significance at 10% level.

Table 6. Determinants of satisfaction after a transition from inactivity - Ordered logit regressions - Retirees

	Model I		Model II		Model III		Model IV		Model V		Model VI		Model VII		Model VIII		Model IX	
	Coeff.	*z*	Coeff.	*z*	Coeff.	*z*	Coeff.	*z*	Coeff.	*z*	Coeff.	*z*	Coeff.	*z*	Coeff.	*z*	Coeff.	*z*
Transition to self-employment																		
$ST_t \rightarrow SE_{t+1}$ *vs.* $ST_t \rightarrow PE_{t+1}$	0.296	0.93	0.664	2.01**	0.044	0.13	0.309	0.96	0.020	0.06	0.105	0.32	0.309	0.95	0.511	1.54	0.249	0.77
Outcomes																		
JS_earnings			0.664	5.63***													0.554	4.96***
JS_job security					0.825	7.70***												
Competence																		
Overskilled							0.109	0.39										
Autonomy																		
JS_type of work									1.493	10.04***								
JS_workig conditions											0.985	7.90***						
Flexibility																		
JS_working times													0.892	7.14***				
JS_working hours															1.148	8.23***		
JS_distance to work																	0.554	4.96***
Demographic characteristics																		
Female	-0.192	-0.69	-0.157	-0.56	-0.180	-0.65	-0.205	-0.73	-0.279	-0.96	0.010	0.04	-0.134	-0.47	0.080	0.28	0.001	0.00
Age	0.008	0.58	-0.001	-0.10	0.001	0.06	0.008	0.59	0.009	0.67	0.015	1.12	0.005	0.38	0.005	0.40	0.007	0.54
Household type																		
Single person (*ref.*)																		
Single parent	-1.934	-2.82***	-2.050	-2.94***	-1.696	-2.35**	-1.965	-2.85***	-2.068	-2.81***	-1.988	-2.83***	-1.816	-2.52**	-1.646	-2.28**	-2.290	-3.27***
Couple without children	-0.917	-2.07**	-1.083	-2.40**	-0.976	-2.16**	-0.919	-2.08**	-1.017	-2.22**	-0.628	-1.41	-0.778	-1.74*	-0.991	-2.15**	-0.790	-1.79*
Couple with children	-0.706	-1.47	-0.999	-2.04**	-0.706	-1.46	-0.719	-1.49	-1.007	-2.02**	-0.283	-0.58	-0.524	-1.09	-0.585	-1.19	-0.471	-0.98
Other situations	-0.463	-0.98	-0.667	-1.39	-0.397	-0.83	-0.479	-1.01	-0.927	-1.91*	-0.483	-1.02	-0.355	-0.75	-0.628	-1.30	-0.402	-0.85
Health status	-0.334	-1.96**	-0.259	-1.51	-0.289	-1.68*	-0.332	-1.95*	-0.376	-2.15**	-0.293	-1.68*	-0.453	-2.60***	-0.375	-2.16**	-0.400	-2.33**
Household financial situation	0.451	3.72***	0.267	2.13**	0.420	3.39***	0.450	3.71***	0.359	2.89***	0.358	2.95***	0.390	3.22***	0.474	3.82***	0.445	3.66***
Household main source of income from SE	0.179	0.51	0.097	0.27	0.012	0.03	0.167	0.47	0.013	0.03	0.034	0.10	0.151	0.42	0.426	1.17	0.214	0.61
Education																		
Basic education (*ref.*)																		
Secondary education	1.027	2.00**	0.805	1.55	1.283	2.43**	1.026	2.00**	0.842	1.58	0.909	1.74*	0.680	1.32	1.042	1.99**	1.059	2.05**
Tertiary education	1.431	2.77***	1.412	2.70***	2.023	3.84***	1.419	2.74***	1.115	2.08**	1.122	2.15**	1.196	2.33**	1.135	2.20**	1.866	3.52***
Baseline levels of satisfaction																		
Satisfaction with main activity in *t*	0.411	3.51***	0.365	3.12***	0.410	3.52***	0.409	3.49***	0.278	2.37**	0.307	2.63***	0.315	2.74***	0.319	2.76***	0.383	3.25***
Employment characteristics																		
Part time work	0.525	1.89*	0.333	1.17	0.429	1.51	0.535	1.92*	0.348	1.20	0.465	1.63	0.187	0.66	0.049	0.17	0.527	1.87*
Business sector dummies (18 categories; *ref.* Construction)	Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes	
Country dummies (14 categories; *ref.* Spain)	Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes	
Number of observations	307		307		307		307		307		307		307		307		307	
Log likelihood	-381.2		-381.1		-319.5		-346.4		-353.9		-343.3		-368.3		-364.7		-348.7	

Notes: *** denotes significance at 1% level; ** denotes significance at 5% level; * denotes significance at 10% level.

Table 7. Determinants of satisfaction after a transition from inactivity - Ordered logit regressions - Students

	Model I		Model II		Model III		Model IV		Model V		Model VI		Model VII		Model VIII		Model IX	
	Coeff.	*z*	Coeff.	*z*	Coeff.	*z*	Coeff.	*z*	Coeff.	*z*	Coeff.	*z*	Coeff.	*z*	Coeff.	*z*	Coeff.	*z*
Transition to self-employment																		
$ST_t \rightarrow SE_{t+1}$ *vs.* $ST_t \rightarrow PE_{t+1}$	0.253	1.60	0.387	2.39**	0.245	1.52	0.203	1.27	0.043	0.26	0.091	0.57	0.280	1.75*	0.369	2.31**	0.177	1.11
Outcomes																		
JS_earnings			0.714	22.41***														
JS_job security					0.467	17.80***												
Competence																		
Overskilled							-0.509	-6.97***										
Autonomy																		
JS_type of work									1.384	34.57***								
JS_workig conditions											0.922	24.51***						
Flexibility																		
JS_working times													0.600	17.85***				
JS_working hours															0.694	20.64***		
JS_distance to work																	0.335	12.04***
Demographic characteristics																		
Female	-0.053	-0.73	-0.078	-1.05	-0.004	-0.06	-0.064	-0.87	-0.120	-1.57	-0.068	-0.91	-0.055	-0.74	-0.071	-0.97	-0.070	-0.95
Age	0.002	0.34	0.014	1.97**	0.008	1.08	0.003	0.48	-0.014	-1.86*	0.009	1.21	-0.002	-0.25	0.007	1.00	-0.001	-0.19
Household type																		
Single person (*ref.*)																		
Single parent	-0.299	-1.77*	-0.052	-0.31	-0.115	-0.67	-0.300	-1.77*	-0.270	-1.54	-0.377	-2.20**	-0.212	-1.25	-0.310	-1.81*	-0.285	-1.68*
Couple without children	-0.045	-0.28	0.170	1.03	0.018	0.11	-0.043	-0.27	-0.205	-1.23	-0.199	-1.21	-0.077	-0.48	-0.052	-0.32	-0.005	-0.03
Couple with children	-0.143	-1.07	0.116	0.85	0.038	0.28	-0.121	-0.91	-0.150	-1.08	-0.218	-1.60	-0.142	-1.06	-0.278	-2.05**	-0.136	-1.01
Other situations	0.003	0.02	0.247	1.41	0.197	1.14	0.001	0.00	-0.058	-0.33	-0.198	-1.14	-0.097	-0.56	-0.207	-1.19	-0.057	-0.33
Health status	-0.262	-4.41***	-0.230	-3.82***	-0.208	-3.47***	-0.265	-4.46***	-0.178	-2.92***	-0.166	-2.76***	-0.212	-3.55***	-0.191	-3.17***	-0.214	-3.59***
Household financial situation	0.100	3.13***	0.000	-0.01	0.055	1.69*	0.097	3.05***	0.104	3.16***	0.072	2.21**	0.074	2.29**	0.075	2.32**	0.089	2.77***
Household main source of income from SE	0.080	0.74	0.040	0.37	0.037	0.34	0.065	0.60	-0.022	-0.20	-0.046	-0.42	0.055	0.50	0.092	0.85	0.047	0.43
Education																		
Basic education (*ref.*)																		
Secondary education	0.036	0.41	0.064	0.72	0.047	0.53	0.076	0.86	0.019	0.21	0.028	0.32	0.036	0.41	0.031	0.35	0.038	0.43
Tertiary education	0.119	1.08	0.163	1.46	0.162	1.46	0.141	1.27	-0.002	-0.02	0.137	1.23	0.113	1.02	0.105	0.94	0.164	1.47
Baseline levels of satisfaction																		
Satisfaction with main activity in *t*	0.274	8.59***	0.250	7.77***	0.242	7.56***	0.278	8.68***	0.211	6.42***	0.200	6.18***	0.238	7.44***	0.254	7.93***	0.246	7.69***
Employment characteristics																		
Part time work	-0.295	-3.07***	-0.182	-1.88*	-0.268	-2.78***	-0.259	-2.69***	-0.180	-1.76*	-0.311	-3.17***	-0.359	-3.70***	-0.137	-1.40	-0.317	-3.28***
Business sector dummies (18 categories; *ref.* Construction)	Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes	
Country dummies (14 categories; *ref.* Spain)	Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes	
Number of observations	2,966		2,966		2,966		2,966		2,966		2,966		2,966		2,966		2,966	
Log likelihood	-4,219.9		-4,195.4		-3,491.4		-3,894.8		-4,054.1		-3,994.5		-4,145.8		-3,949.4		-4,054.3	

Notes: *** denotes significance at 1% level; ** denotes significance at 5% level; * denotes significance at 10% level.

Appendix

Table A1. Description of variables

SATISFACTION VARIABLES	
$\Delta_{(t+1)-t}$ S_main activity	Change in the level of satisfaction with work or main activity between t and t+1.
JS_earnings$_{t+1}$	Ordered categorical variable ranging from 1 (not satisfied) to 6 (fully satisfied) that measures the level of job satisfaction with the present job in terms of earnings in period t+1.
JS_job security$_{t+1}$	Ordered categorical variable ranging from 1 (not satisfied) to 6 (fully satisfied) that measures the level of job satisfaction with the present job in terms of job security in period t+1.
JS_type of work$_{t+1}$	Ordered categorical variable ranging from 1 (not satisfied) to 6 (fully satisfied) that measures the level of job satisfaction with the present job in terms of type of work in period t+1.
JS_working hours$_{t+1}$	Ordered categorical variable ranging from 1 (not satisfied) to 6 (fully satisfied) that measures the level of job satisfaction with the present job in terms of number of working hours in period t+1.
JS_working times$_{t+1}$	Ordered categorical variable ranging from 1 (not satisfied) to 6 (fully satisfied) that measures the level of job satisfaction with the present job in terms of working times (day time, night time, shifts, etc.) in period t+1.
JS_working conditions$_{t+1}$	Ordered categorical variable ranging from 1 (not satisfied) to 6 (fully satisfied) that measures the level of job satisfaction with the present job in terms of working conditions / environment in period t+1.
JS_distance to work$_{t+1}$	Ordered categorical variable ranging from 1 (not satisfied) to 6 (fully satisfied) that measures the level of job satisfaction with the present job in terms of distance to job / commuting in period t+1.
TREATMENT VARIABLES	
Switching to SE vs. not switching $IN_t \rightarrow SE_{t+1}$ *vs.* $IN_t \rightarrow IN_{t+1}$ $HM_t \rightarrow SE_{t+1}$ *vs.* $HM_t \rightarrow HM_{t+1}$ $RT_t \rightarrow SE_{t+1}$ *vs.* $RT_t \rightarrow RT_{t+1}$ $ST_t \rightarrow SE_{t+1}$ *vs.* $ST_t \rightarrow ST_{t+1}$	Four binary variables that equal 1 for individuals who are inactive (homemaker / retiree / student) in period t and become self-employed in period t+1; the variables equal 0 for individuals who are inactive (homemaker / retiree / student) in periods t and t+1.
Switching to SE vs. switching to PE $IN_t \rightarrow SE_{t+1}$ *vs.* $IN_t \rightarrow PE_{t+1}$ $HM_t \rightarrow SE_{t+1}$ *vs.* $HM_t \rightarrow PE_{t+1}$ $RT_t \rightarrow SE_{t+1}$ *vs.* $RT_t \rightarrow PE_{t+1}$ $ST_t \rightarrow SE_{t+1}$ *vs.* $ST_t \rightarrow PE_{t+1}$	Four binary variables that equal 1 for individuals who are inactive (homemaker / retiree / student) in period t and become self-employed in period t+1; the variables equal 0 for individuals who are inactive (homemaker / retiree / student) in period t and become paid employed in period t+1.
Switching to PE vs. not switching $IN_t \rightarrow PE_{t+1}$ *vs.* $IN_t \rightarrow IN_{t+1}$ $HM_t \rightarrow PE_{t+1}$ *vs.* $HM_t \rightarrow HM_{t+1}$ $RT_t \rightarrow PE_{t+1}$ *vs.* $RT_t \rightarrow RT_{t+1}$ $ST_t \rightarrow PE_{t+1}$ *vs.* $ST_t \rightarrow ST_{t+1}$	Four binary variables that equal 1 for individuals who are inactive (homemaker / retiree / student) in period t and become paid employed in period t+1; the variables equal 0 for individuals who are inactive (homemaker / retiree / student) in periods t and t+1.
DEMOGRAPHIC CHARACTERISTICS	
Female	Dummy equals 1 for females.
Age	Age reported by the individual.
Household type	
Single person (*ref.*)	Dummy equals 1 if the household type is single person.
Single parent	Dummy equals 1 if the household type is single parent.
Couple without children	Dummy equals 1 if the household type is couple without children.
Couple with children	Dummy equals 1 if the household type is couple with children.
Other situations	Dummy equals 1 if the household type is different from those considered above.
Health status	Ordered categorical variable ranging from 1 (very good) to 5 (very bad) that measures the level of health.
Household financial situation	Ordered categorical variable ranging from 1 (with great difficulty) to 6 (very easily) that measures the ability of the household to make ends meet.
Household main source of income from SE	Dummy equals 1 if the household main source of income is self-employment.
EDUCATION	
Basic education (*ref.*)	Dummy equals 1 for individuals with less than second stage of secondary level education (ISCED 0-2).
Secondary education	Dummy equals 1 for individuals with second stage of secondary level education (ISCED 3).
Tertiary education	Dummy equals 1 for individuals with recognized third level education (ISCED 5-7).
BASELINE LEVELS OF SATISFACTION	
Satisfaction with main activity in t	Ordered categorical variable ranging from 1 (not satisfied) to 6 (fully satisfied) that measures the level of satisfaction with work or main activity in period t.
EMPLOYMENT CHARACTERISTICS	
Part time work	Dummy equals 1 for individuals who declare working in a part time basis.
Overskilled	Dummy equals 1 for individuals who declare having skills or qualifications to do a more demanding job.
Business sector dummies	18 dummies equalling 1 for individuals whose codes of main activity of the local unit of the business, by means of the Nomenclature of Economic Activities (NACE-93), are the following: A + B Agriculture, hunting and forestry, fishing. C + E Mining and quarrying + Electricity, gas and water supply. DA Manufacture of food products, beverages, and tobacco. DB + DC Manufacture of textiles, clothing, and leather products. DD + DE Manufacture off wood and paper products; publishing and printing.

	DF − DI Manufacture of coke, refined petroleum/chemicals/rubber/plastic, and other non-metallic mineral products.
	DJ + DK Manufacture of metal products, machinery, and equipment.
	DL − DN Other manufacturing.
	F Construction.
	G Wholesale and retail trade; repair of motor vehicles, motorcycles and personal/household goods.
	H Hotels and restaurants.
	I Transport, storage, and communication.
	J Financial intermediation.
	K Real estate, renting, and business activities.
	L Public administration and defence; compulsory social security.
	M Education.
	N Health and social work.
	O − Q Other community, social and personal service activities; private households with employed persons;
	extra-territorial organizations and bodies.
Country dummies	14 dummies equalling 1 for individuals living in the named country: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain (*ref.*), and the United Kingdom.

Table A2. Descriptive statistics

	Inactive individuals in *t*						Homemakers in *t*						Retirees in *t*						Students in *t*					
	Not switching		Switching to SE in *t*+1		Switching to PE in *t*+1		Not switching		Switching to SE in *t*+1		Switching to PE in *t*+1		Not switching		Switching to SE in *t*+1		Switching to PE in *t*+1		Not switching		Switching to SE in *t*+1		Switching to PE in *t*+1	
Number of observations	202,327		1,606		6,332		73,103		802		1,972		83,383		417		160		22,922		190		3,140	
	Mean	**(S.D.)**	**Mean**	**(S.D.)**	**Mean**	**(S.D.)**	**Mean**	**(S.D.)**	**Mean**	**(S.D.)**	**Mean**	**(S.D.)**	**Mean**	**(S.D.)**	**Mean**	**(S.D.)**	**Mean**	**(S.D.)**	**Mean**	**(S.D.)**	**Mean**	**(S.D.)**	**Mean**	**(S.D.)**
DEPENDENT VARIABLE																								
$\Delta_{(t+1)-t}$ S_main activity [a]	-0.02	(1.28)	0.27	(1.49)	0.15	(1.54)	-0.01	(1.30)	0.18	(1.47)	0.17	(1.52)	-0.02	(1.30)	0.26	(1.38)	0.28	(1.46)	-0.01	(1.24)	0.20	(1.49)	-0.06	(1.45)
DEMOGRAPHIC CHARACTERISTICS																								
Female [b]	0.65	--	0.63	--	0.60	--	0.98	--	0.97	--	0.96	--	0.43	--	0.23	--	0.36	--	0.54	--	0.44	--	0.51	--
Age	57.47	(19.15)	48.11	(16.72)	28.70	(11.60)	53.43	(15.30)	45.06	(11.87)	36.80	(10.17)	69.50	(8.70)	66.06	(8.35)	57.47	(10.84)	20.01	(4.15)	24.56	(5.33)	22.45	(5.62)
Household type																								
Single person [b]	0.14	--	0.04	--	0,04	--	0.09	--	0.02	--	0.00	--	0.20	--	0.08	--	0.10	--	0.03	--	0.05	--	0.07	--
Single parent [b]	0.05	--	0.05	--	0.08	--	0.05	--	0.04	--	0.05	--	0.04	--	0.04	--	0.05	--	0.09	--	0.09	--	0.09	--
Couple without children [b]	0.33	--	0.22	--	0.08	--	0.25	--	0.16	--	0.08	--	0.44	--	0.43	--	0.30	--	0.02	--	0.05	--	0.08	--
Couple with children [b]	0.36	--	0.53	--	0.69	--	0.50	--	0.60	--	0.75	--	0.18	--	0.29	--	0.41	--	0.76	--	0.70	--	0.67	--
Other situations [b]	0.12	--	0.16	--	0.11	--	0.11	--	0.18	--	0.12	--	0.14	--	0.16	--	0.14	--	0.10	--	0.11	--	0.09	--
Health status	2.55	(0.95)	2.34	(0.99)	1.85	(0.79)	2.40	(0.91)	2.18	(0.93)	1.97	(0.80)	2.84	(0.89)	2.85	(0.87)	2.54	(0.92)	1.64	(0.65)	1.66	(0.68)	1.68	(0.66)
Household financial situation	3.26	(1.24)	2.98	(1.19)	3.08	(1.19)	3.16	(1.24)	2.96	(1.18)	3.01	(1.18)	3.29	(1.27)	2.85	(1.20)	3.20	(1.23)	3.25	(1.15)	3.31	(1.18)	3.18	(1.17)
Household main source of income from SE [b]	0.09	--	0.26	--	0.11	--	0.13	--	0.33	--	0.12	--	0.04	--	0.15	--	0.04	--	0.15	--	0.23	--	0.11	--
EDUCATION																								
Basic education [b]	0.73	--	0.68	--	0.48	--	0.77	--	0.73	--	0.58	--	0.76	--	0.85	--	0.64	--	0.46	--	0.20	--	0.38	--
Secondary education [b]	0.21	--	0.24	--	0.40	--	0.19	--	0.21	--	0.31	--	0.17	--	0.08	--	0.23	--	0.47	--	0.64	--	0.50	--
Tertiary education [b]	0.06	--	0.08	--	0.12	--	0.04	--	0.06	--	0.11	--	0.07	--	0.07	--	0.13	--	0.07	--	0.16	--	0.12	--
BASELINE LEVELS OF SATISFACTION																								
Satisfaction with main activity in *t*	4.18	(1.36)	3.74	(1.38)	4.10	(1.36)	4.08	(1.37)	3.77	(1.37)	3.98	(1.40)	4.17	(1.40)	3.66	(1.27)	3.93	(1.33)	4.43	(1.14)	4.12	(1.25)	4.41	(1.16)
COUNTRY DUMMIES																								
Austria [b]	0.06	--	0.04	--	0.08	--	0.06	--	0.06	--	0.08	--	0.08	--	0.02	--	0.04	--	0.06	--	0.06	--	0.06	--
Belgium [b]	0.04	--	0.01	--	0.02	--	0.02	--	0.01	--	0.01	--	0.05	--	0.01	--	0.03	--	0.04	--	0.04	--	0.03	--
Denmark [b]	0.03	--	0.01	--	0.04	--	0.00	--	0.01	--	0.00	--	0.07	--	0.02	--	0.08	--	0.02	--	0.01	--	0.06	--
Finland [b]	0.03	--	0.03	--	0.08	--	0.00	--	0.03	--	0.06	--	0.06	--	0.03	--	0.07	--	0.04	--	0.04	--	0.11	--
France [b]	0.11	--	0.01	--	0.08	--	0.08	--	0.02	--	0.08	--	--	--	--	--	--	--	0.08	--	0.02	--	0.06	--
Germany [b]	0.02	--	0.01	--	0.02	--	0.02	--	0.00	--	0.03	--	0.04	--	0.01	--	0.01	--	0.01	--	0.01	--	0.02	--
Greece [b]	0.13	--	0.22	--	0.08	--	0.14	--	0.23	--	0.11	--	0.16	--	0.26	--	0.15	--	0.08	--	0.12	--	0.05	--
Ireland [b]	0.05	--	0.03	--	0.08	--	0.10	--	0.04	--	0.13	--	0.03	--	0.03	--	0.06	--	0.02	--	0.01	--	0.07	--
Italy [b]	0.17	--	0.18	--	0.11	--	0.18	--	0.15	--	0.11	--	0.19	--	0.16	--	0.23	--	0.25	--	0.31	--	0.09	--
Luxembourg [b]	0.01	--	0.00	--	0.00	--	0.01	--	0.00	--	0.01	--	--	--	--	--	--	--	--	--	--	--	--	--
Netherlands [b]	0.06	--	0.03	--	0.08	--	0.11	--	0.03	--	0.07	--	0.01	--	0.01	--	0.03	--	0.03	--	0.04	--	0.10	--
Portugal [b]	0.11	--	0.25	--	0.16	--	0.07	--	0.21	--	0.12	--	0.15	--	0.39	--	0.29	--	0.14	--	0.15	--	0.18	--
Spain [b]	0.16	--	0.17	--	0.15	--	0.19	--	0.21	--	0.16	--	0.13	--	0.05	--	0.02	--	0.22	--	0.21	--	0.16	--
United Kingdom [b]	0.02	--	0.01	--	0.01	--	0.01	--	0.01	--	0.03	--	0.03	--	0.00	--	0.01	--	--	--	--	--	--	--

Notes: [a] $\Delta_{(t+1)-t}$ denotes change in satisfaction level between *t* and *t*+1; [b] Dummy variable