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Work Hours and Well Being: An Investigation of Moderator Effects

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Abstract The relationship between work hours and subjective well being is marked by contradictory findings, thereby implying that it is far from being completely understood. A study of moderator effects can help explain variations in results across studies and, thus, overcome inconsistencies in past research. Accordingly, the current study aims to enlighten the relationship between work hours and well being by investigating how a number of variables moderate this relationship. To develop the research hypotheses concerning the moderator effects, this study relies mostly on social identity theory. Overall, the results suggest that work hours, per se, do not have a significant relationship with individual well being. Rather, their effects seem to depend on a number of issues, namely concerned with individuals' objective characteristics, as well as their social identities.

Keywords Work-hours · Subjective well being · Social identity theory · Moderator analysis

1 Introduction

Ng and Feldman (2008) register the wide concern that quality of life has been suffering from lengthening work weeks. Work hours have been related with a huge variety of outcomes. The literature provides evidence that it is associated with an array of health problems, including cardiovascular and digestive problems (Barton and Folkard 1993), poor mental health status and hypertension (Artazcoz et al. 2009), the fatigue of flight attendants (Ono et al. 1991), stress levels (Grainger et al. 1995; Savery 1986), injury hazard rate (Dembe et al. 2005), and errors of nurses (Rogers et al. 2004). Additionally, increases in overtime have been associated with increased suicide rates (Starrin et al.

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1990). In a meta-analytic review, Sparks et al. (1997) determined a significant association between working hours and poorer health, and Ng and Feldman (2008), also in a meta-analysis, obtained an association of work hours with job stress, mental strain, and work-to-family conflict. To compound this situation, there is evidence that individuals in developed countries are working longer hours (Brett and Stroh 2003). Not surprisingly, the issue of work hours has attracted some political debate as well as regulatory attention (Sparks et al. 1997).

Subjective well being (SWB), or happiness, has been the focus of increasing research across scientific areas. At the core of this scientific debate is the idea that knowledge of the antecedents of well being will enable action either by governments, employers, and/or individuals themselves to promote individual well being. Accordingly, a vast amount of research has emerged on its antecedents. A particular relationship that has received significant attention is that between work hours and well being (e.g., Beckers et al. 2008; Booth and Van Ours 2008; Boye 2009; Burke et al. 2009; Clark and Oswald 1996; Golden and Wiens-Tuers 2008; Pouwels et al. 2008; Scollon and King 2004; Sousa-Pozaa and Sousa-Pozab 2000).

Some studies considering the relationship between work hours and well being document a negative association (e.g., Clark and Oswald 1996; Scollon and King 2004). However, others fail to replicate such findings (e.g., Boye 2009; Clark 2010; Pouwels et al. 2008; Spector et al. 2004; Sousa-Pozaa and Sousa-Pozab 2000), presenting, for example, non-significant relationships, positive relationships, and even gender-specific relationships. These discrepant findings indicate that the relationship between work hours and SWB is far from being completely understood. Accordingly, it is the aim of this paper to contribute to enlighten such a relationship. We accomplish this by investigating the moderator effects of a number of variables on the relationship between working hours and SWB. In order to investigate such effects and, in particular, to develop the research hypotheses concerning these moderator effects, we rely mostly on social identity theory. Investigation of moderator effects should be highly significant in the present case, as such effects can contribute to the explanation of variations in results across studies and, thus, address inconsistencies in past research (e.g., Jackson and Schuler 1985; Kirca et al. 2005).

To accomplish such aims, this study is organized as follows. The next section provides an overview of the diverse consequences of work hours as well as of the relationship between work hours and SWB. Subsequently, we present the research hypotheses concerning the moderator variables, grouped under two broad categories, one comprising personal/objective moderators, and the other a set of variables whose predicted moderating effects follows social identity theory. In the following section, we present the methodology, which is followed by the presentation of the results. Finally, we conclude with a discussion of the major findings. To test the research hypotheses, the study relies on data from the European Social Survey (ESS).

2 Research Background

2.1 The Effects of Work Hours

This study focuses on the weekly working hours, defined "as the number of hours employees devote to all work-related activities … [including] both hours put in at the place of business and hours put into work in other settings, such as the home" (Ng and Feldman 2008:854). Evidence from research in related fields is suggestive of a negative relationship

between work hours and SWB, namely for its effects on health and family responsibilities. As working hours escalate, health should suffer as a result of individuals becoming overtired in a mental and physical way, together with their more extensive exposure to workplace stressors, and the association between work hours and deficient lifestyle habits (Sparks et al. 1997). Evidence for the negative effect of working hours on health is extensive (e.g., Artazcoz et al. 2009; Barton and Folkard 1993). Two meta-reviews have documented a systematic negative association between working hours and health, namely Harrington (1994) and Sparks et al. (1997).

Individuals also have to cope with the competing demands of family and work (Byron 2005). Accordingly, increased work hours are likely to detrimentally affect an individual's work-family balance, as time available to pursue family responsibilities, namely regarding parenthood and caring for other family relationships, is curtailed (Weston et al. 2004). Ng and Feldman (2008) determined, in their meta-review, that work hours were associated with an imbalance of work-non-work commitments, more specifically with work-to-family conflict and family-to-work conflict. Byron (2005), also in a meta-analytic study, established a negative association between work hours and work-interference with family. In a similar vein, research also documents a systematic detrimental effect of working hours on workers' attitudes, namely on job stress and mental strain (Ng and Feldman 2008).

However, a number of discrepancies have emerged in the relationship between work hours and SWB (Dolan et al. 2008), implying that this relationship is still not completely understood. Some research has determined a negative relationship between work hours and individual well being (e.g., Clark and Oswald 1996). Similarly, Robone et al. (2008) determined a negative relationship between overtime work and well being. However, other studies obtained a non-significant effect for work hours (e.g., Burke et al. 2009). Clark (2010) found a non-significant relationship between work hours and job satisfaction. In addition, the literature denotes that the effects of work hours are moderated by other variables. Accordingly, Pouwels et al. (2008) only obtained a significant negative relationship for men, whereas Boye (2009) determined that work hours had a positive effect on women and a non-significant effect on men. Relatedly, Sousa-Pozaa and Sousa-Pozab (2000) only obtained a significant negative relationship between work hours and job satisfaction for women. The effects of working hours were also determined to be moderated by income (Scollon and King 2004).

Findings from related streams of research also indicate that other variables are influential on the relationship between working hours and well-being. Hughes and Parkes (2007), for example, determined that work-time control influenced the relationship between working hours and work-family interference. The relationship between work hours and work-family stress was found to be moderated by geographic region (Spector et al. 2004). Ezoe and Morimoto (1994) observed that in women, working hours were positively associated with mental health problems, whereas in men a negative relationship prevailed. Artazcoz et al. (2009) observe that work hours are associated with a number of adverse outcomes, essentially for women, which they attribute to the breadwinner role of male people.

Ng and Feldman (2008) explored the moderating effects of age, gender, and job complexity, determining that: gender moderated the relationships between work hours and mental strain and work hours and physical health problems; and that age and job complexity did not moderate the outcomes of work hours.

Not surprisingly, Sparks et al. (1997) stated that an extensive number of variables might moderate the relationship between work hours and health. They advance work-related issues such as job type and working environment and also socio-demographics (e.g., age and sex) as such variables. In a similar vein, Caruso et al. (2006:931) argue that "a wide

array of exacerbating and mitigating factors often makes it difficult to establish safe limits for working hours, or to characterize the circumstances leading to excessive risk. This difficulty is compounded because studies usually focus on a narrow subset of risk factors and limited samples of workers and employ different definitions of long hours."

In this context, this research aims to systematically investigate whether the effects of work hours on SWB is moderated by a number of variables.

A moderating effect occurs when a third variable affects the strength and/or directionality of the relationship between an independent variable and an outcome variable (Baron and Kenny, 1986). Thus, a moderator effect "postulates the 'when' or 'for whom'" an explanatory variable is more strongly or weakly related to a dependent variable (Wu and Zumbo 2008: 370). Accordingly, moderation implies that the effect of one variable is not constant over the levels of another (Aiken and West 1991). Therefore, the study of moderator effects may contribute to build a more precise understanding of the relationship between an independent and a dependent variable (Wu and Zumbo 2008). Not surprisingly, Baron and Kenny (1986: 1178) state that "moderator variables are typically introduced when there is an unexpectedly weak or inconsistent relation between a predictor and a criterion variable". Thus, the investigation of moderating effects in this study is likely to enlighten the relationship between work hours and well being, given the mixed findings evidenced by past research. Considering the huge variety of potential moderators of this relationship, we use mostly social identity theory in order to integrate and guide the hypotheses development.

2.2 Social Identity Theory

Social identity theory contends that individuals define their identity in terms of the groups to which they belong (Howard 2000; Jones and Volpe 2011; Meyer et al. 2006). Individuals may belong to multiple groups (e.g., family, employer organization) and thus, can have multiple social identities (van Dick et al. 2004), associated with clearly defined groups, or with more abstract social categories (Ellemers et al. 2002). The extent to which a group affects an individual will depend on that group's prominence or salience to the individual (Ellemers et al. 2002; Meyer et al. 2006; Ng and Feldman 2008). Social identities have a strong impact on individual perceptions, emotions and behaviors (Ellemers et al. 2002), thus making these an important theoretical avenue to consider when discussing SWB. It is likely that individuals' SWB reaction to work hours will depend on the social identities they have built, since work hours interfere with the social role of the individual within such groups. Following past research, we have considered family identity, occupational identity, organizational identity, and identity with broader, more diffuse community groups. Although the variables related to social identity theory constitute the major focus of this research, we also investigate the moderating role of a set of fundamental personal characteristics, namely gender, age and health.

3 Research Hypotheses

There are arguments to support both a positive and a negative relationship between work hours and SWB. However, from a social identity theory perspective, it is known that individuals usually belong to multiple groups, who tend to compete with each other for the time of an individual, which makes it difficult to concurrently satisfy all of them. This

suggests that, as work hours increase, an individual's ability to satisfy the demands of other groups diminishes. Accordingly, our baseline hypothesis is as follows:

H1 Work hours are negatively related to SWB.

3.1 Moderator Effects: Personal Characteristics

We initially consider the moderator effects of a number of personal/objective characteristics, more aligned with the genetic make-up of individuals, namely gender, age, and health. Regarding gender, and given that women frequently have to combine paid work with a home work shift (Hochschild 1997), they are likely to suffer more as work hours escalate. Regarding age, research indicates that work is less motivating for older workers (Lawrence 1996; Bertolino et al. 2011), and this suggests that work hours should be less positively seen by older individuals. As to health, individuals with disabilities will find it increasingly difficult to work as work hours increase. We thus predict the following:

H2 The negative relationship between work hours and SWB is strengthened by female gender (H2a), age (H2b), and poor health (H2c).

3.2 Moderator Effects: Social Identity Theory

3.2.1 Family Identity

Family identity concerns the extent to which individuals define themselves in terms of family responsibilities, such as those related to childcare, spouse relationships, nurturing an extended family, and attending family reunions. Family responsibilities and work are intertwined. Time is not elastic and, therefore, individuals who dedicate more time (and effort) to work, will have, accordingly, to dedicate less time to fulfil family responsibilities (Becker 1985). Therefore, work hours are likely to have a stronger negative effect on SWB for individuals with a more salient family identity. Considering the ESS, the study takes into account marital status, having a child, and number of people living in the household. Accordingly, we predict the following:

H3 The negative relationship between work hours and SWB is strengthened by being married/living with a partner (H3a), having children (H3b), and the number of people living in the household (H3c).

3.2.2 Occupational Identity

Individuals can identify themselves with their own careers (van Dick et al. 2004; Hoelkstra 2011). The marking characteristics of the self are defined in terms of what makes successful professionals. When individuals seek to fulfil the role expectations associated with their occupation, they are willing to make an extra effort in order to perform their duties in an exemplary manner (Ng and Feldman 2008). Thus, individuals with a salient occupational identity should look more positively to increasing work hours, as this is likely to contribute to fulfilling career expectations. Considering the ESS, we included the variables: career interruptions, income, job level, and education level. Following Ng and Feldman (2008), individuals that have had career interruptions in the past have had a lower contact with the occupation itself and a lower interaction with others with the same occupation, and thus, should display a lower occupational identity. Higher income/wage and job level

(that mirrors job promotions) are signals of career success, thus implying a higher occupational identity; and higher education is indicative of a greater career investment, thereby signalling a more salient occupational identity. Increased working hours should be more positively seen by individuals with a high occupational identity, as additional hours may help fulfil career expectations. Accordingly, we predict the following:

H4 The negative relationship between work hours and SWB is strengthened by career interruptions (H4a), and attenuated by income (H4b), job level (H4c), and education level (H4d).

3.2.3 Organizational Identity

Following Ng and Feldman (2008), organizational identity concerns the extent to which individuals appreciate the values of the organization for which they work. Identification with an organization provides individuals with an experience of positive self-worth, which motivates the deployment of efforts that benefit the organization (Joshi and Randall 2001). Similarly, Rousseau (1998) notes that helping the organization to achieve success can also contribute towards making a person feel more successful. Accordingly, the negative effects of work hours on SWB should be attenuated for individuals who have an organizational identity, since increasing work hours is an effort that benefits the organization and, for this reason, should be positively seen. When organizations offer individuals a wide spectrum of resources, such as monetary, interpersonal and symbolic, they spur the feeling of a relationship between the self and the employer, and contribute to identification with the organization (Rousseau 1998).

The ESS enables us to test the influence of job autonomy, having an unlimited contract, self-employed/working for family business, and establishment size. Increasing levels of autonomy, as well as an unlimited contract, signal to the employee that the organization cares about and supports him. Individuals working in their own business or for a family business should also perceive increases in work hours in a more positive way, as these benefit their own organization or an organization belonging to their kin. Finally, larger firms have a higher reputation (Chung et al. 2003), offer more training support (de Kok 2002), and provide individuals with safer jobs, job security, and wider promotion opportunities (Idson and Oi 1999). Accordingly, we predict the following:

H5 The negative relationship between work hours and SWB is attenuated by job autonomy (H5a), having an unlimited contract (H5b), being self-employed/working for family business (H5c), and organizational size (H5d).

3.2.4 Identity with Broader Community Groups

We use broader community identity to refer to the salience, or an individual's attachment, to a number of more abstract or enlarged social groups (see Cinnirella and Hamilton 2007; Ellemers et al. 2002). The extent to which individuals are integrated in society, such as through volunteering and membership of organizations, and more particularly, the extent to which individuals are acknowledged members of society, relates to SWB (Pichler 2006). Thus, integration with broader societal groups should interfere with the way individuals' SWB reacts to work hours. We consider the following ESS variables to approach broad societal groups: country citizenship, discrimination, domicile, degree of religiousness, political party affiliation, and political orientation. Individuals that are country citizens should have a higher identity with the country and its social groups, as opposed to

non-citizens, given the connectedness to their origins (Cinnirella and Hamilton 2007; Waldinger 2007). Following Pichler (2006), discrimination is associated with social exclusion, and thus, it is likely to mitigate social embeddedness, reducing identity with the large group that is society. Regarding domicile, there is evidence that there is a higher level of social integration in rural communities (Beaudoin and Thorson 2004). Religions create social capital (Clark and Lelkes 2009). Accordingly, the degree of religiousness can be considered an indicator of individuals' identification with a religious group. And finally, political orientation concerns a set of mental models, shared by a group of individuals, that provides an interpretation of the world, and that prescribes ways to deal with life problems (Jost et al. 2009). Following Jost and colleagues, a left orientation is usually associated with terms such as equality, solidarity and system change, whereas a right orientation is associated with terms such as system maintenance, effort, meritocracy, individualism and capitalism. This suggests that left-oriented individuals have a higher social embeddedness.

As work hours increase, individuals are left with a smaller amount of discretionary time to dedicate to community activities and pursue their community involvement. As such, we expect that identity with these broader, less well-defined community groups, should strengthen the negative effects of work hours. We thus offer the following:

H6 The negative relationship between work hours and SWB is attenuated for non-country citizens (H4a), discriminated individuals (H4b), and strengthened by rural living (H4c), degree of religiousness (H4d), affiliation with a political party (H4e), and a left political orientation (H4f).

4 Methodology

To test the research hypotheses we rely on data collected in the three initial rounds of the ESS,[1] funded by the European Commission, the European Science Foundation, and scientific funding bodies in each participating country. The first round took place in 2002/2003, the second in 2004/2005, and the third in 2006/2007. This data covers 24 countries.[2] However, some are totally or partially excluded from this research due to missing data on some variable. Therefore, this study has a cross-sectional nature, an approach that others have used (e.g., Blanchflower and Oswald 2004; Easterlin 2006; Senik 2009; Van Praag et al. 2010). In order to test the research hypotheses, we relied on the typical model used for estimating subjective satisfaction responses, which takes the form:

$$W_i^* = \alpha X_i + \beta_i + \delta_t + e_i$$

with W* consisting in the well-being level reported by individual I (a proxy for the true individual well-being W), X is a vector of independent variables, β is the country fixed effect, δ is the time effect (dummy variable for each round), and e_i regards non-available

[1] The ESS seeks to explain trends in attitudes, beliefs and values across countries in Europe and close neighbours. The questionnaire includes two main sections, each consisting of approximately 120 items; a 'core' module which will remain relatively constant from round to round, plus two or more 'rotating' modules, repeated at intervals. More details of the ESS and access to data may be obtained from the ESS home site at www.europeansocialsurvey.org.

[2] The cumulative file contains data from countries that have fielded two or three rounds: Austria, Belgium, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Luxembourg, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland, the United Kingdom and Ukraine.

factors and the error associated with the subjectivity of the responses (Blanchflower and Oswald 2004). Country dummies control for cultural and other institutional factors and round dummies for time effects. We rely on ordered probit regression for model estimation, with the true individual well-being constituting the latent variable.

The study was restricted to individuals who described their main situation during the last 7 days prior to being interviewed as being in paid work, whether as employee, self-employed or as working for family business. Therefore, this study did not consider individuals in education, unemployed, retired, in community or military service, permanently sick or disabled, doing housework, looking after children or other persons. Before estimating the equations, those observations with missing data on any of the variables used in this study and with unusual/extreme responses (detailed below) were eliminated from the aggregated data file. This resulted in a final sample of 34,333 individuals.

The dependent variable (W*), individual well-being, is measured by the question "*All things considered, how satisfied are you with your life as a whole nowadays*?", with answers ranging from 0 to 10, where 0 means extremely dissatisfied and 10 means extremely satisfied. The number of work hours is measured with the following ESS question: "*Regardless of your basic or contracted hours, how many hours do/did you normally work a week (in your main job), including any paid or unpaid overtime*." We excluded individuals responding more than 120 h.

With regard to individual characteristics, gender is a dummy variable, with male being the base category. For age, and consistent with previous studies, we consider a linear and a quadratic term. The measure for health is based on the following questions from the ESS: "*Are you hampered in your daily activities in any way by any longstanding illness, or disability, infirmity or mental health problem? IF YES, is that a lot or to some extent?*" Possible answers are "yes a lot", "yes to some extent" and "no". "No" is the omitted category, with two dummies capturing the two other possible responses.

We now consider the family identity variables. We created a dummy for households with three and four individuals, and another for five or more individuals. The baseline category is households with one or two individuals. This follows the following ESS question: "*Including yourself, how many people—including children—live here regularly as members of this household?*" We also created a dummy variable for those married or in a civil partnership. As to children, we have a dummy variable indicating whether or not there are children living at household grid.

As to the variables related to identification with broader community groups, religiousness is measured on a scale ranging from 0—not at all religious—to 10—very religious. The measure for discrimination relies on a dummy variable associated with the following ESS question: "*Would you describe yourself as being a member of a group that is discriminated against in this country?*" No discrimination assumes the value zero, and discrimination, one. Country citizenship is a dummy variable, with zero referring to citizens and one to non-country citizens. With regard to individuals' domicile, we relied on an ESS question asking about the area where individuals live. We created two dummies, one for living in country village/farm or home in the countryside, another for town/small city, and considered big city/suburbs or outskirts of a big city as the reference category. Finally, political orientation was measured with the following ESS question: "*In politics people sometimes talk of "left" and "right". Using this card, where would you place yourself on this scale, where 0 means the left and 10 means the right?*".

Now considering the *occupational identity* variables, career interruptions was measured through a dummy variable indicating whether individuals had ever been unemployed for 12 or more months. As to job level, we relied on an ESS question inquiring whether

individuals had any responsibility for supervising the work of other employees. This is a dummy variable, with one indicating a supervisory role. The ESS does not provide information for the income of each individual. Therefore, we had to proxy such information on the following ESS question: "*Using this card, if you add up the income from all sources, which letter describes your household's total net income?*" The answer options contain 12 income intervals—we merged the two lowest intervals due to a small number of observations in the lowest interval. For educational level, we created two dummy variables, one for secondary/post secondary (non tertiary) education, and another for less than secondary education. The omitted category is tertiary education.

Finally, for organizational identity, we created a dummy variable for those that are self-employed or work for family business. We measured autonomy using an ESS question inquiring about the extent to which individuals are allowed to decide how their own daily work is organised. The scale ranges from 0—no influence—to 10—complete control. Unlimited duration contract assumes the value one in a dummy variable. Last, for establishment size we created two dummy variables, one indicating firms with 25–99 employees, and another indicating firms with 100 or more employees. The omitted category is firms with less than 25 employees.

5 Results

5.1 Initial Results

Prior to estimations and forming the multiplicative, interaction terms, we have mean centered the continuous and interval measures in order to reduce the multicolinearity arising from the multiplicative terms (Aiken and West 1991). We develop a number of estimations for testing the moderating role of each set of moderating variables. Consistent with previous studies, we include in each estimation, a permanent set of basic explanatory variables, which include the following controls that could account for individual differences in SWB: gender, age, marital status, education level, health and income.

We first run a preliminary estimation with the set of basic explanatory variables, Eq. 1 in Table 1, which presents a number of expected results, namely that: women are happier than men; income is positively related to SWB; Married/living in a civil partnership contributes positively to SWB; a U-shaped relationship exists between age and SWB; and Health is negatively related to SWB. As to education, many studies find this positively related to SWB, but our results evidence a non-significant relationship. Additional estimations indicate that such result may be due to a mediating effect of income, as omission of this variable from the estimation yields significant results for education that are consistent with past research. Elimination of retired and other individuals from the database can also be a contributing factor to the non-significance of education. In Eq. 2, we add work hours, and obtain a negative relationship with SWB, as predicted in this study (*H1*).

5.2 The Moderating Effect of Personal Characteristics

Next, we add to the equation the moderating effects of personal characteristics—Eq. 3, Table 1. We observe that the main effect of work hours is no longer significant. In addition, gender, age and health prove to be significant moderators of the relationship between work hours and SWB. The interaction between work hours and gender has a

Table 1 Work hours and life satisfaction: the moderating effects of personal characteristics

	(1)		(2)		(3)	
	Coeff.	t-ratio	Coeff.	t-ratio	Coeff.	t-ratio
Females	.0805	7.14***	.0700	5.88***	.0671	5.60***
Age	−.0041	−7.82***	−.0042	−7.85***	−.0043	−8.06***
Age squared	.0005	13.17***	.0005	12.95***	.0005	12.77***
Married/civil partnership	.2465	19.58***	.2449	19.43***	.2436	19.29***
Education						
Less than secondary	−.0309	−1.20	−.0306	−1.19	−.0309	−1.20
Secondary/post secondary	.0001	−.01	−.0009	−.07	−.0029	−.23
Income	.0717	.21.72***	.0725	21.88***	.0728	21.97***
Health						
Some health problems	−.3174	.−18.88***	−.3187	−18.95***	−.3225	−19.11***
Strong health problems	−.5358	−12.41***	−.5385	−12.47***	−.5283	−12.08***
Work hours			−.0014	−2.73***	.0004	.46
Moderating effects						
Females					−.0029	−2.93***
Age					−.0001	−3.02***
Age squared					−.0000	−.18
Some health problems					−.0030	−2.27**
Strong health problems					.0054	1.78*
Number of observations	34,333		34,333		34,333	
LR	6,231.54		6,239.00		6,268.59	
LL	−62,402.364		−62,398.633		−62,383.839	
Pseudo R^2	.0476		.0476		.0478	

Estimations include round and country dummies, which are not reported

Cutpoints are also omitted, for parsimony reasons

*$p < 0.10$; **$p < 0.05$; ***$p < 0.01$

negative sign, implying that gender strengthens the negative relationship between work hours and SWB. Thus, as predicted in *H2a*, women, when compared to men, have a more pronounced negative relationship between work hours and SWB. In addition, and again as predicted in *H2b*, age strengthens the negative relationship between work hours and SWB. Finally, moderate health problems also seem to strengthen the negative effects of work hours, as was previously hypothesized (*H2c*). Surprisingly, however, when health problems are heightened, the negative effects of work hours are attenuated. A possible reason for this unexpected result is that individuals may obtain some psychological benefit by being able to work despite their problems.

5.3 The Moderating Effect of Family Identity

Table 2 shows the results associated with the testing of the moderating role of family identity variables. The initial Eq. 4, which contains the results without the moderating effects, indicates that having a child, and the number of people in the household, do not

Table 2 Work hours and life satisfaction: the moderating effects of family identity

	(4)		(5)	
	Coeff.	t-ratio	Coeff.	t-ratio
Females	.0699	5.85***	.0695	5.80
Age	−.0043	−7.64***	−.0043	−7.64***
Age squared	.0005	11.39***	.0005	11.40***
Married/civil partnership	.2534	18.59	.2546	18.65***
Education				
Less than secondary	−.0291	−1.13	−.0293	−1.13
Secondary/post secondary	−.0001	−.01	−.0003	−.02
Income	.0729	21.57***	.0731	21.56***
Health				
Some health problems	−.3191	−18.97***	−.3192	−18.97
Strong health problems	−.5388	−12.48***	−.5389	−12.47
Work hours	−.0014	−2.80***	−.0017	−1.95*
Child	−.0155	−.71	−.0168	−.77
Household size				
3/4 members	−.0064	−.30	−.0056	−.26
5 or more members	−.0098	−.37	−.0080	−.30
Moderating effects				
Child			−.0029	−1.82*
Married/l.w.partner			.0006	.53
3/4 members			.0027	1.73*
5 or more members			.0018	.92
Number of observations	34,333		34,333	
LR	6,241.66		6,245.60	
LL	−62,397.304		−62,395.336	
Pseudo R^2	.0476		.0477	

Estimations include round and country dummies, which are not reported

Cutpoints are also omitted, for parsimony reasons

*$p < 0.10$; **$p < 0.05$; ***$p < 0.01$

exert a significant effect on SWB. With regard to having a child, Stanca (2012) obtained a negative relationship between parenthood and SWB, which resulted from a negative influence of having children over financial satisfaction. Regarding the predicted moderating effects, in Eq. 5 we observe, somewhat surprisingly, that these receive very little support. Being married/living in a civil partnership does not moderate the effects of work hours. We predicted that, when individuals are in a family relationship, they have to nurture it, and this would conflict with working longer hours. However, individuals also have to contribute to the family in financial ways, and this suggests an opposing effect to that predicted in *H3a*. These opposing forces probably justify the lack of a significant moderating effect. As to having children, it strengthens the negative relationship between work hours and SWB (as predicted in *H3b*), but only at the 7.3% significance level. Finally, considering the number of people in the household, and against predictions (*H3c*),

we observe the attenuating effect of households composed of three or four individuals, which is significant only at the 8% level. A possible explanation is that the existence of other individuals in the household might compensate for an individual's absence.

5.4 The Moderating Effect of Occupational Identity

We now consider the moderating effects of job level, career interruptions, income, and education, on the relationship between work hours and SWB. Equation 6, in Table 3, presents the results for the estimation without moderating effects. This equation contains the new variables job level and career interruptions, with the first exerting a positive effect on SBW and the latter a negative one. In Eq. 7 we observe that all variables related with occupational identity moderate the work hours-SWB relationship, with the main effects of work hours still being significant. A career interruption strengthens the negative effect of work hours, and this conforms with our prediction (*H4a*). Income attenuates the effects of

Table 3 Work hours and life satisfaction: the moderating effects of occupational identity

	(6)		(7)	
	Coeff.	t-ratio	Coeff.	t-ratio
Females	.0771	6.45***	.0775	6.47***
Age	−.0041	−7.72***	−.0042	−7.84***
Age squared	.0005	12.42***	.0005	12.45***
Married/civil partnership	.2394	18.98***	.2399	18.99***
Education				
Less than secondary	−.0075	−.29	−.0071	−.28
Secondary/post secondary	.0100	.79	.0117	.92
Income	.0676	20.22***	.0679	20.30***
Health				
Some health problems	−.3138	−18.65***	−.3145	−18.69***
Strong health problems	−.5339	−12.36***	−.5351	−12.38***
Work hours	−.0021	−4.21***	−.0038	−3.60***
Job level	.0673	5.48***	.0629	5.09**
Career interruptions	−.2116	−10.72***	−.2201	−11.05***
Moderating effects				
Job level			.0026	2.63***
Career interruptions			−.0046	−3.00***
Income			.0003	1.68*
Less than secondary			.0004	2.07**
Secondary/post secondary			.0013	1.21
Number of observations	34,333		34,333	
LR	6,390.55		6,416.24	
LL	−62,322.859		−62,310.014	
Pseudo R^2	.0488		.049	

Estimations include round and country dummies, which are not reported

Cutpoints are also omitted, for parsimony reasons

*$p < 0.10$; **$p < 0.05$; ***$p < 0.01$

work hours, although this effect is only significant close to the 10% level. The lower significance of this moderation may be related with the fact that the income variable captures the income of the entire household rather than the individual's income. Notwithstanding, this moderating effect accords with *H4b*. As predicted in *H4c*, job level attenuates the negative effects of work hours. However, the moderating effect of education level opposes what we initially predicted in *H4d*. We observe that the lowest level of education attenuates the effects of work hours, whereas we predicted that increasing education would attenuate such effects. A possible explanation is that individuals with lower education will look at work hours more positively because it might provide a means of increasing income.

Table 4 Work hours and life satisfaction: the moderating effects of organizational identity

	(8)		(9)	
	Coeff.	t-ratio	Coeff.	t-ratio
Females	.06555	5.49***	.0649	5.41***
Age	−.0065	−12.20***	−.0066	−12.21***
Age squared	.0005	14.01***	.0005	14.04***
Married/civil partnership	.2483	19.68***	.2480	19.65***
Education				
Less than secondary	.0027	.10	.0022	1.53
Secondary/post secondary	.0193	1.49	.0198	.08
Income	.0680	20.35***	.0679	20.28***
Health				
Some health problems				
Strong health problems				
Work hours	−.0019	−3.67***	−.0036	−2.80***
Autonomy	.0373	18.08***	.0378	18.22***
Unlimited contract	.0619	3.69***	.0649	3.83***
Self/family employed	−.0153	−.64	−.0208	−.85
Establishment size				
25–99 employees	.0439	2.97***	.0447	3.01***
100 or more employees	.0152	1.06	.0021	1.56
Moderating effects				
Autonomy			.0005	3.00***
Unlimited contract			.0011	.80
Self/family employee			.0013	.81
25–99 employees			.0004	.32
100 or more employees			.0021	1.56
Number of observations	34,333		34,333	
LR	6,113.04		6,127.77	
LL	−62,461.613		−62,454.25	
Pseudo R^2	.0467		.0468	

Estimations include round and country dummies, which are not reported

Cutpoints are also omitted, for parsimony reasons

*$p < 0.10$; **$p < 0.05$; ***$p < 0.01$

5.5 The Moderating Effect of Organizational Identity

Organizational identity was introduced in the model through the following variables: work autonomy granted to the individual, possession of an unlimited work contract, being self-employed or working for family business, and employer size. Equation (8), in Table 4, presents the results prior to introduction of the moderating effects. They indicate that autonomy, an unlimited contract, and working for mid-sized organizations, contribute positively to SWB. Being self-employed or working for family business does not have a significant effect on SWB. As to the moderating effects, Eq. 9, we observe that only autonomy moderates, in the predicted way (attenuating), the effects of work hours on SWB, thus supporting *H5a*. Thus, *H5b*, H5*c*, and *H5d*, which concern the moderating effects of work contract duration, working for own business/family business, and organizational size, do not receive support.

5.6 The Moderating Effect of Identity with Broad Community Groups

In Table 5 we present the results concerning the investigation of the moderating effects of identity with broad community groups. Equation (10) presents the results of the basic set of explanatory variables, together with the variables measuring identification with broader community groups, namely country citizenship, discrimination, domicile, religiousness, belonging to a political party, and left–right orientation. Amongst the new variables, religiousness, belonging to a political party, and a right political orientation, contribute positively to SWB. Living in country villages/farms also contributes positively to SWB. Being a non-citizen and discrimination, however, contribute negatively to SWB. The introduction of the moderating effects rendered non-significant the main effect for work hours—Eq. 11. Once again, this indicates that the effect of working hours on SWB is totally moderated by other variables. Thus, the effect of work hours seems to completely depend on other variables, namely an individual's identification with broad community groups. As predicted in *H6a*, being a non-country citizen attenuates the negative effects of work hours. However, this is only significant at a mild significance level. Discrimination is not found to statistically moderate the work hours—SWB relationship, as predicted in *H6b*. We find some evidence that the place of living affects the relationship between work hours and SWB. In particular, we observe that living in a town/small city strengthens the negative effects of work-hours, but no significant effect emerges for those living in a country village or farm. This provides some support for *H6c*. No significant moderating effect is found for religiousness, and thus *H6d* is not supported. *H6e* is also not supported, given the non-significance obtained for belonging to a political party. Finally, a right political orientation attenuates the negative relationship between work hours and SWB, and this conforms to the prediction in *H6f*.

6 Conclusions

The effects of work hours have received attention in several research fields, such as health, organizational studies, and economics, namely in individual well being studies. Past research provides contradictory evidence concerning the relationship between work hours and SWB (Dolan et al. 2008). Given this research background, we conducted a study in order to clarify the mixed findings offered by the literature. For doing so, we relied mostly on social identity theory to derive a number of research hypotheses concerning moderator

Table 5 Work hours and life satisfaction: The moderating effects of broad community groups

	(10)		(11)	
	Coeff.	t-ratio	Coeff.	t-ratio
Females	.0621	5.16***	.0618	5.12***
Age	−.0051	−9.48***	−.0050	−9.42***
Age squared	.0004	11.90***	.0004	11.93***
Married/civil partnership	.2189	17.18***	.2192	17.21***
Education				
Less than secondary	−.550	−2.12***	−.0557	−2.15**
Secondary/post secondary	−.0194	−1.51	−.0187	−1.45
Income	.0709	21.26***	.0710	21.28***
Health				
Some health problems	−.3123	−18.52***	−.3127	−18.54***
Strong health problems	−.5186	−11.98***	−.5201	−12.02***
Work hours	−.0017	−3.41***	−.0009	−.99
Country citizenship	−.1329	−4.50***	−.1346	−4.55***
Discrimination	−.3071	−12.35***	−.3078	−12.38***
Domicile				
Town/small city	.0091	.64	.0088	.61
Country village/farm	.0822	5.88***	.0825	5.90***
Religiousness	.0231	10.74***	.0230	10.70***
Belonging to political party	.906	3.76***	.0887	3.65***
Left–right orientation	.0355	12.55***	.0354	12.50***
Moderating effects				
Country citizenship			.0038	1.69*
Discrimination			−.0019	−1.03
Town/small city			−.0028	−2.30**
Country village/farm			−.0006	−.52
Religiousness			.000	.15
Belonging to political party			.0007	.36
Left–right orientation			.0007	2.98***
Number of observations	34,333		34,333	
LR	6,822.48		6,841.90	
LL	−62,106.896		−62,097.183	
Pseudo R^2	.0521		.0522	

Estimations include round and country dummies, which are not reported

Cutpoints are also omitted, for parsimony reasons

*$p < 0.10$; **$p < 0.05$; ***$p < 0.01$

effects. In two of the estimated equations, the coefficient for work hours lost significance with the introduction of the moderating effects. Therefore, the results suggest that work hours do not have a relationship with SWB. Their effect on SWB might be totally moderated by a number of individual characteristics, such as demographic factors, as well as factors related to the identification with a number of social groups.

The effect of work hours is moderated by individuals' demographic/objective characteristics. In particular, such effect depends on gender, with women suffering more than men. The negative relationship between work hours and SWB is also worse for older and less healthy individuals.

Social identity theory proved to offer a relevant and integrative framework for the development of moderator hypotheses, many of which received statistical support. This study considered four different foci of social identification, namely family, occupation, organization, and the broader community, and found that factors in each of these moderated the work hours—SWB relationship. This implies that future studies should consider this theory in order to further enlighten the determinants of SWB. Regarding the moderating effect of family identity variables, we obtained evidence, although at mild significance levels, that having a child worsens the negative relationship between work hours and SWB, but having a household with three/four individuals, to some extent, seems to compensate this. The presence of other individuals in the household may contribute to alleviate increasing work hours as it means the availability of other individuals to support the family. A possible reason for the less robust statistical results regarding family identity factors is that individuals, apart from having to nurture family relationships, are also expected to contribute financially, and this may have weakened the predicted effects.

The variables concerning occupational identification proved to be relevant moderators. As predicted, career interruptions, job level, and income attenuate the relationship between work hours and SWB. Educational level had the opposed moderating effect. As to organizational identification variables, only autonomy moderated the work hours—SWB relationship, which is attenuated. Finally, consideration of variables regarding individuals' identification with broader community groups also proved to be beneficial. A political right identification ameliorates the effects of work hours on SWB, just like non-country citizenship. Opposing this, living in a town/small city worsens the effects of work hours on SWB.

Consequently, the obtained results provide useful information for managers and policymakers concerned with the quality of life of individuals. For example, managers interested in maximizing individuals' productivity could think of designing appropriate work arrangements that meet the needs of their employees. For women as well as for older and less healthy employees, managers might consider redesigning work schedules so as to increase their quality of life. Human resource practices can also be engendered in order to build an individual's identification with the organization and occupation, so that lengthening work hours, when needed, becomes more acceptable.

The consideration given to the above findings, however, must take into account the limitations of the study. The measurement of certain variables, such as income, does not exactly capture the intended domain of interest. In addition, the integrated database for the three rounds of the European Social Survey also does not contain important constructs, such as that of job satisfaction (for which, however, job autonomy may be taken as an approximation). This may have detrimentally affected the results. Possible evidence of this is the statistical significance of some of the coefficients associated with moderating effects, which is not that large.

Another limitation of this study is that it relies on cross-sectional data, and this implies that causality inferences cannot be derived. It is also possible that some reciprocal effects take place, with individuals less satisfied with their lives, for example, deciding to reduce or increase work hours. Accordingly, a longitudinal study would provide stronger evidence of the true relationships at play.

The study also relies on data collected from a self-report approach, and this implies that the results may be affected by common method variance. However, given the nature of the variables, it may be difficult, if not impossible, to proceed in different ways. Ng and Feldman (2008: 854), for example, with regard to the independent variable work hours, note that "individuals themselves are usually the only viable source of information about how much work takes place outside of the formal worksite and "normal" work hours". Not surprisingly, related studies also rely on self-report data.

The obtained results did not provide much support for the role of family and organizational identification variables as moderators of the work hours—SWB relationship. However, this should not be taken as a signal of the minor importance of such potential moderators. The results presented in this study are influenced by the variables available in the ESS and, thus, it is possible that other variables reflecting family as well as organizational identity, but that are not included in this questionnaire, could have generated other results. This suggests that future studies could give particular attention to how family and organizational issues interfere in the relationship between work hours and SWB, considering different factors within such foci, as well as different measurements for the factors considered in this study. Future studies should also look at cross-country variations in the relationship between work hours and SWB. It is very likely that this relationship will change from country to country, reflecting different institutional settings and cultural values. Thus, such a purposefully designed study is likely to provide a significant contribution to the literature. Finally, although the issue of work hours has received significant research (and societal) attention, it is just one amongst the many determinants of SWB, and therefore, a reason why those interested in the topic must consider these findings in a wider context. This brings to the attention the fact that research in this area provides several circumstances of unexpected and inconsistent results for other determinants of SWB, implying that the study of moderator effects could be of value.

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