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The Relationship Between Academic Well-Being and Territoriality in Italy

Benedetto Torrisi¹ · Giuseppe Pernagallo²

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Abstract

The multivariate nature of academic well-being makes difficult to provide a single definition, and finding adequate measures is a difficult task. We accomplished this purpose using job satisfaction and work engagement as measures for academic well-being thanks to the results obtained from the project PIR 2012 “Productivity of Italian Researchers” and the results of the questionnaire UWES-17 administered to Italian scholars. The territorial element appeared to be important to analyse properly the phenomenon of well-being; in particular, we used two notions of territoriality. One aimed to gather information relatively to the perception of the Italian academic system with respect to foreign systems and was mainly concerned with job satisfaction. The other one aimed to gather information at the regional level, comparing the three dimensions of work engagement by macro-areas. The results of our research indicate that there is a lower perception of the Italian system respect to foreign countries because of insufficient career opportunities and an inadequate administrative and bureaucratic structure. This reveals dissatisfaction of Italian academic workers and low academic well-being. From the second analysis we learn that there are significant differences among the engagement scores obtained in different Italian macro-areas but, most importantly, the mean value of engagement in all the areas was only “average”. Low levels of engagement may be the result of low levels of well-being. This empirical analysis offers precious data and suggestions for the Italian policy maker and, in general, for policy makers of similar countries. Enhancing the satisfaction and the engagement of academic workers is fundamental to prevent detrimental outflows of skilled human capital and to attract foreign skilled human capital.

Keywords Academic well-being · Brain drain · Human capital · Job satisfaction · Territory · Work engagement

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1 Introduction

Well-being as expression of a beneficial condition for an individual is a complex phenomenon, largely theorized but difficult to be quantified. The definition of well-being can be broken up into two different concepts: *objective well-being* is made of observable and measurable factors such as richness, health, owned goods, etc., whereas *subjective well-being* is related to how well-being is psychologically experienced (Kahneman 1994; Easterlin 2001; Frey and Stutzer 2002; D'Acci 2011). Given the importance of the phenomenon, many indicators, estimates and variables have been proposed to quantify well-being, generally considering a macro-vision of the notion (Boarini et al. 2006; Stevenson and Wolfers 2008; Sacks et al. 2010). Well-being, in most cases, produces positive effects and creates added value not only for the individual, but also for the entire surrounding organization (De Neve et al. 2013). Well-being is the representation of many aspects of daily living; among several examples, the academia is a complex environment to study well-being because of intricate relationships, structures and visions of the interacting individuals. Nonetheless, studying adequately the well-being of scholars (from now on “academic well-being”) may represent the key feature to understand why some organizations perform much better than others.

The notion of organizational well-being identifies the set of cultural processes and organizational practices that characterize working environments promoting, maintaining and enhancing the quality of life, psychologically and physically (Avallone and Bonaretti 2003). This definition must be integrated with the engagement needed to individuals to comply with their duties. The measurement of the engagement of workers goes through the quantification of the propensity of individuals to be fully involved in the organization and of their willingness to act in the interest of the organization, without neglecting their satisfaction (Rutledge 2005).

The notion of well-being in academic environments for the Italian context has been investigated in two empirical works (Torrisi 2013, 2015) where the author studied the multidimensionality of the phenomenon in relation to four dimensions: physical, relational, personal and organizational. This work aims to fill a gap in those works: the quantification of well-being as a combination of the perception of the scholars of their workplace and their engagement, and the role of the territory in explaining the level of satisfaction and engagement as measures of academic well-being.

The purpose of the present work is to provide a quantitative analysis on organizational well-being in the universities using a survey on a sample of 2738 scholars of 26 different public Italian universities. The statistical results obtained are the product of the project entitled PIR “Productivity of Italian researchers”. The project aimed to obtain information regarding the following aspects of the academic life of the interviewees: A—Family and academic context (to discover the relationship between academic productivity and family influence); B—Academic work times and network relationships; C—Scientific production; D—Teaching productivity; E—Work environment satisfaction; F—Work & Well-being Survey (UWES—Utrecht Work Engagement Scale). In particular, here we tried to relate the elements of the items A, E and F of PIR.

2 Theoretical Framework

Job satisfaction is the emotive or affective reaction of an individual to the various aspects that characterize her work (Cranny et al. 1992; Locke 1969, 1976). Empirical researches were conducted after the process of industrialization that revolutionized the concept of

work, especially in the sector of services, formation and public research. Henry De Man identified factors promoting happiness in work and obstructing factors (De Man 1931). This is one of the first examples of a study conducted administering a test, albeit to a scarcely representative sample. The pioneering study of De Man, together with the discovery of the “human factor” by Elton Mayo, opened a period of studies based on the identification of job satisfaction (Accornero 2000, 2006; Accornero and Orioli 1999). Several studies were concerned with a multidimensional idea of job satisfaction declined as depending on *personal factors* (such as personality or ability), *social factors* (such as relationships with colleagues), *cultural factors* (such as beliefs and values), *environmental factors* (such as economic and political background) and, finally, *organizational factors* (Torrissi 2013).

The use of questionnaires to create measures of job satisfaction is a common practice in empirical works. For example, researchers at the University of Minnesota have identified 20 dimensions to assess the level of job satisfaction using the so-called Minnesota Satisfaction Questionnaire (MSQ) (Weiss et al. 1967). Each dimension generates an effect on the quality of life perceived by a worker. The mixture of all these factors creates several internal links that affect the life of the worker (Torrissi 2013, 2015). We can use five broad typologies of models to describe satisfaction. *Satisfaction of needs* (Maslow 1943), *discrepancies between what is expected* (retributions, promotions) *and what is obtained* (Herzberg 1966, 1968), *realization of the organizational values* (Belias and Koustelios 2014), *equity* (Adams 1963, 1965), and the *personal predisposition* towards satisfaction (Hackman and Oldham 1975).

In particular, the Two-factor Model by Herzberg (1966) represented a step forward in the understanding of the phenomenon. Using a survey administered to 203 professionals, the author isolated two groups of factors: one group acting on satisfaction and one group on dissatisfaction. He believed that satisfaction and dissatisfaction are not two opposite ends of the same continuum, but instead are two separate and, at times, even unrelated concepts, influenced by different generating factors (*motivational factors* and *hygiene factors*). Motivational factors, when present, generate true satisfaction, but when they are absent, they do not necessarily generate dissatisfaction. However, in recent years, the paradigm has been shifted towards measurement of the engagement of workers as a proxy for the organizational well-being (Albrecht 2010; Shuck and Reio 2014). Engagement represents the propensity of the worker to be fully involved with the organization and to act in the interest of the organization (Rutledge 2005).

It should be noted that in the present work, we used job satisfaction and engagement as proxies for well-being. This choice is motivated by the fact that the definition of well-being considered in this work is similar to the notion of *hedonic well-being* (sometimes referred also as *subjective well-being*, Kahneman et al. 1999 and Di Fabio and Palazzeschi 2015) and intended as composed by happiness, pleasure, and life satisfaction; in other words well-being can be studied in terms of pleasure attainment and pain avoidance (Kahneman et al. 1999; Lyubomirsky et al. 2011; Di Fabio and Palazzeschi 2015; Straume and Vittersø 2015). Furthermore, in literature job satisfaction is commonly used as a measure of well-being (Green 2010; Taris and Schaufeli 2014; Medgyesi and Zólyomi 2016; Cerci and Dumludag 2019) and higher level of engagement are associated to higher levels of perceived well-being (Iverson et al. 1998; Schaufeli et al. 2008; Schaufeli 2012; Shuck and Reio 2014). Hence, we constructed measures of job satisfaction of Italian scholars to assess their level of academic well-being. The instrument used to gather the needed data was the Work Engagement Scale—UWES 17 (Schaufeli and Bakker 2003; see after for more information), which proved to be highly effective to gather data for the Italian context (as evidenced in the study of Torrissi 2015), whereas the statistical tools are tests to measure

association and to assess differences between variables. These tests have been used extensively and validated in several empirical studies regarding Italy and other countries (see, for example, Monteleone and Torrissi 2012; Torrissi 2013; Shuck and Reio 2014 or Torrissi 2015).

The novelty of this work is twofold: on one hand, we encourage other researcher to gather data and adopt the same framework to build measures of job satisfaction and engagement to better understand the determinants of academic well-being. On the other, we investigated the relations between engagement, academic well-being and the territory. We studied the role of territory using two different perspectives. One relates to the attractiveness of Italy respect to other countries, and consequently we tried to understand why Italian researchers tend to prefer foreign realities to the Italian academic environment. The other one relates to differences within Italy, hence we tried to understand how the level of engagement varies among macro-areas. These two research questions are fundamental in order to correctly evaluate the nature of the phenomenon and to adopt the adequate measures of economic policy. Regarding the first notion of territory, we can say that our results follows the stream of international research based on brain drain and inflows/outflows of highly qualified human capital (Portes 1976; Lien 2005; Gibson and McKenzie 2011; Salaran 2010; Biondo et al. 2012). Regarding the second notion of territory, given the peculiar socio-economic situations of Italian macro-areas, we can only refer to studies applied to the Italian context (Monteleone and Torrissi 2012; Torrissi 2013). Nonetheless, we should point out that, albeit there is a good number of papers on these issues, few works have studied extensively notions such as brain drain, well-being, job satisfaction, engagement and territoriality with respect to universities. Our work has the merit to fill this gap, at least for Italy.

3 Sample Design

The target population of the study was made by more than 71.000 scholars (Ph.D., researchers, associate professors and full professors); the respondents were 2738 and only over 1474 was possible to gather complete information. Data were gathered via a questionnaire administered to all Italian universities in the context of the PIR project via a form that each universities had to share online with the employees. The number of universities that agreed to participate was 26 over 83. The remaining 57 universities did not answer in the period established by the project. In 3 months of 2012, the PIR project gathered 2738 questionnaires, provided by scholars of different position and background. This ensured the randomness and representativeness of the sample.¹ The questionnaire aimed to gather data regarding socio-economic variables (such as the family, cultural and territorial context), and variables representative of the workplace, engagement and organizational aspects. The interested reader can find further information in the work of Torrissi (2015).

¹ Given that ex ante it was not possible to predict how many subjects would have answered the survey, we could not establish a precise sample size. However, the answers gathered were sufficiently heterogenous and representative of the target population, whereas the randomness was ensured by the fact that the questionnaire was sent to all the Italian universities so that the scholars that answered could be considered as a random extraction from the population. Further information can be found in Torrissi (2015).

3.1 PIR Part A: Socio-economic Characteristics

In order to gather information about the socio-economic characteristics of the interviewees, several items were administered to investigate the following aspects. First, the evaluation of the ability to conciliate private life with professional life. In particular, the “family burden” (here intended as a broader term) was defined by the question “If you have dependent family members, provide a number for your commitment for the family”, with possible answer on a scale from 0 (zero commitment) to 5 (maximum commitment, all the time is devolved to the family). The *spare time* was measured on a scale from 0 (no spare time, only work) to 5 (if you take all the spare time you want) and the question was “how much spare time do you have”.

The perception of the *economic condition* of the interviewees was measured via the item “give a grade to your current economic condition” using, again, a scale from 0 (poverty) to 5 (wealth, work is superfluous). The dimension of *job stability* was measured with the item “give a grade to your current degree of job stability” expressing a number on a scale from 0 (great job insecurity) to 5 (great job stability). Second, it was carried out the evaluation of the agreement between personal aspiration and workplace. In particular, in another section of the PIR it was also asked to measure the *propensity to work in Italy* expressing a number from 0 (no propensity) to 4 (high propensity) and also the *propensity to work in a foreign country* expressed on the same scale. We should note that the previous items were measured on a scale 0–5 instead of 0–4 to allow more flexibility in the answers of interviewees. Indeed, questions relatively to the family or economic conditions are very personal, so we decided to offer more choices.

3.2 PIR Part E: Satisfaction and Working Environment

Another crucial aspect is the *assessment of the satisfaction with the work environment* which was measured, on a scale 0–4, by the following items: Overall organization; Assessment of the appropriateness of the workplace; Satisfaction about policies supporting research; Satisfaction with the administrative system supporting your activities; Career prospects; Evaluation of working hours; Relations with senior colleagues; Relations with peers; Assessment on the availability of scientific equipment; Similarities among teams; Satisfaction with the academic bureaucracy; Safety on the workplace; Satisfaction with salary and distribution of research funds.

3.3 PIR Part F: Engagement

Finally, the other aspect relevant for the present research is the work engagement measured by the *Work Engagement Scale—UWES 17* (Schaufeli and Bakker 2003). UWES is a questionnaire composed of 17 items (UWES-17) that measure the three basic dimensions of work commitment: Vigour (VI), Dedication (DE), and Absorption (AB). The three dimensions are measured by six items for VI, five for DE and six for AB. The α scores (Cronbach's α in Koufteros 1999 and Schaufeli and Bakker 2003) of the three factors are 0.93 (VI), 0.94 (DE) and 0.92 (AB). The items can be synthesized as it follows (Schaufeli and Bakker 2003) and the answers could be expressed on a scale 0–6 (see, for example, the Appendix in Seppälä et al. 2009):

Table 1 Norm scores for the UWES-17

	Vigor	Dedication	Absorption	Total score
Very low	≤2.17	≤1.60	≤1.60	≤1.93
Low	2.18–3.20	1.61–3.00	1.61–2.75	1.94–3.06
Average	3.21–4.80	3.01–4.90	2.76–4.40	3.07–4.66
High	4.81–5.60	4.91–5.79	4.41–5.35	4.67–5.53
Very high	≥5.61	≥5.80	≥5.36	≥5.54
Alpha	0.93	0.94	0.92	

For further information on the scores see Schaufeli and Bakker (2003)

Source: Adapted from Schaufeli and Bakker (2003) (Table 33, p. 37). The row “Alpha” was not in the original table

- VI 1: At my work, I feel full of energy
- DE 2: I find my work full of meaning and objectives
- AB 3: Time flies when I'm working
- VI 4: At my job, I feel strong and vigorous
- DE 5: I am enthusiastic about my job
- AB 6: When I'm working, I forget everything else
- DE 7: My work inspires me
- VI 8: When I get up in the morning, I want to go to work
- AB 9: I'm happy when I work intensively
- DE 10: I am very proud of my work
- AB 11: I am immersed in my work
- VI 12: I can continue working for very long periods
- DE 13: To me, my job is challenging
- AB 14: I get carried away when I'm working
- VI 15: At my job, I am very resilient, mentally
- AB 16: It is hard to detach myself from my job
- VI 17: At my work I always persevere, even when things do not go well.

The interpretation of these dimensions follows a specific scale of evaluation which is showed in Table 1.

4 Results

4.1 General Aspects

Interviewees covered different academic roles: 33.6% researchers, 33.4% post-doc, 17.6% associate professors, 15.3% full professors. The 14% of interviewees were in the range 24–30 years old, 20% in the range 30–35, 17% in the range 35–40, 13% in the range 40–45, 13% in the range 45–50, 9% in the range 50–55, 5% in the range 55–60, finally, 8% of interviewees were over 60 years old. Respondents were classified by International Scientific Disciplinary Sector SSD (Table 2) using *Scopus* classification made by the four categories: Life Sciences (LS) such as biology or neurosciences; Health Sciences (HS) such as medicine; Physical Sciences (PS) such as physics; Social Sciences, Arts and Humanities (SSH) such as economics or statistics.

Table 2 Distribution (%) of the interviewees along the features “academic role” and “Scopus sector”

Academic role	Scopus sectors				Total (%)
	HS (%)	LS (%)	PS (%)	SSH (%)	
Post doc	9.90	18.70	46.20	25.20	100.00
Researcher	8.50	18.50	43.30	29.60	100.00
Associate professor	10.40	11.20	44.40	34.00	100.00
Full professor	11.90	14.20	37.20	36.70	100.00
Total	9.80	16.60	43.60	30.00	100.00

Note on how to read this type of tables: each entry indicates the percentage ratio with respect to the row total; the last row “Total” indicates the percentage ratio between the sum of the column elements and the total number of respondents

Table 3 Distribution (%) of the three dimensions of engagement

	Vigor	Dedication	Absorption
Very low	8.7	8.1	7.2
Low	7.9	5.2	5.2
Average	52.9	47.1	41.5
High	22.4	27.5	32.7
Very high	8.1	12.1	13.5
Total	100	100	100

A first important result of the survey is that the mean score for Vigor was 3.1 (SD= 1), so a “low” score (see Table 1), whereas Dedication and Absorption mean values were 3.3 and 3.4 respectively (for both SD=1) which means an “average” score. The percentage of scores registered for each dimension is showed in Table 3.

At a level of significance of 5%, the scores for Vigor and Absorption were independent from the academic role covered by the respondent (Tables 4, 6). On the other hand, the Chi square test evidences a significant relationship between Dedication and the academic role covered by the respondent (Table 5). However, the results of the Chi square test should not be completely trusted because one variable is ordinal. We therefore provided alternative measures for ordinal association. Both Kendall’s Tau-b and Somers’D evidence a scarce (ordinal) association between the three dimensions and academic roles (Tables 4, 5, 6).

Table 7 shows that for the three dimensions the highest mean scores were registered for associate professors, whereas post doc fellows registered the lowest scores. The ANOVA test highlights significant (at 5%) differences among the four academic roles for each dimension. Regarding Part A of the PIR, we can see in Table 8 how the answers relatively to the measurement of the level of conciliation between private life and work are distributed and whether they are significantly different among roles. This last point was tested via an ANOVA comparing the answers of each respondents to the four items in Table 8 considering their academic role. Perception of family burden, economic condition and job stability vary significantly among different roles, whereas answers to spare time result non-significant. This result seems reasonable since it may indicate that the dimension of “time” is perceived, more or less, in the same way by the respondents, whereas the other dimensions investigated are more influenced by personal factors. We also tested if there is a significant association between the score reported for each of the

Table 4 Distribution (%) of respondents by academic role and measure for Vigor

	Very low (%)	Low (%)	Average (%)	High (%)	Very high (%)	Total (%)
Post doc	11.20	7.90	52.30	20.50	8.10	100.00
Researcher	7.50	9.50	55.60	20.60	6.90	100.00
Associate professor	5.00	6.20	52.10	27.40	9.30	100.00
Full professor	10.20	6.20	49.10	24.80	9.70	100.00
Total	8.70	7.90	52.90	22.40	8.10	100.00

Chi square = 20.811; *p* value = 0.053

Kendall's Tau-b = 0.059

Somers' D *yx* = 0.0620; Somers' D *xy* = 0.056

Table 5 Distribution (%) of respondents by academic role and measure for Dedication

	Very low (%)	Low (%)	Average (%)	High (%)	Very high (%)	Total (%)
Post doc	10.30	4.30	47.70	26.80	11.00	100.00
Researcher	7.30	5.80	49.60	25.80	11.50	100.00
Associate professor	4.60	5.40	50.60	25.90	13.50	100.00
Full professor	8.80	5.30	36.30	35.00	14.60	100.00
Total	8.10	5.20	47.10	27.50	12.10	100.00

Chi square = 23.460; *p* value = 0.024

Kendall's Tau-b = 0.054

Somers' D *yx* = 0.056; Somers' D *xy* = 0.052

Table 6 Distribution (%) of respondents by academic role and measure for Absorption

	Very low (%)	Low (%)	Average (%)	High (%)	Very high (%)	Total (%)
Post doc	9.70	5.50	42.00	31.20	11.60	100.00
Researcher	6.00	6.00	42.70	30.20	14.90	100.00
Associate professor	3.90	3.50	40.90	35.90	15.80	100.00
Full professor	8.00	4.40	38.10	37.60	11.90	100.00
Total	7.20	5.20	41.50	32.70	13.50	100.00

Chi square = 20.200; *p* value = 0.063

Kendall's Tau-b = 0.058

Somers' D *yx* = 0.059; Somers' D *xy* = 0.057

item in Table 8 and the academic role, once again proposing a dual view using a Chi square test and both Kendall's Tau-b and Somers' D. The results can be synthesized as it follows:

- Family burden: the Chi square signals a significant association between the perception of the variable “family burden” (expressed on a scale 0–5) and the academic

Table 7 Mean values for each dimension of engagement and ANOVA test on the mean score by academic role

		N	Mean	SD
VI (ANOVA test $F=4.608$, p value= 0.003)	Post doc	493	3.984	1.519
	Researcher	496	4.104	1.317
	Associate professor	259	4.381	1.188
	Full professor	226	4.131	1.480
	Total	1474	4.117	1.398
DE (ANOVA test $F=3.161$, p value= 0.024)	Post doc	493	4.139	1.603
	Researcher	496	4.244	1.444
	Associate professor	259	4.464	1.274
	Full professor	226	4.377	1.585
	Total	1474	4.268	1.497
AB (ANOVA test $F=5.013$, p value= 0.002)	Post doc	493	3.897	1.536
	Researcher	496	4.097	1.384
	Associate professor	259	4.314	1.230
	Full professor	226	4.094	1.478
	Total	1474	4.068	1.432

Table 8 Descriptive statistics of the items to evaluate the level of conciliation between private life and work and ANOVA to test if there are significant differences among different roles

Items to evaluate the level of conciliation between private life and work	Mean	Median	SD	ANOVA test F	p value
Family burden	2.395	2	1.0236	13.656	0.000
Spare time	2.0601	2	1.0322	0.920	0.430
Economic condition	2.4039	2	0.7779	70.920	0.000
Job stability	2.8262	3	1.4047	490.01	0.000

role (Chi square= 59.09 ; p value= 0.000), however the measures of ordinal association are also in this case low (Kendall's Tau-b= 0.079 ; Somers' D $yx=0.080$; Somers' D $xy=0.079$).

- Spare time: the Chi square signals a significant association between the perception of the variable "spare time" (expressed on a scale 0–5) and the academic role (Chi square= 28.06 ; p value= 0.021), however the measures of ordinal association are also in this case low (Kendall's Tau-b= -0.019 ; Somers' D $yx=-0.019$; Somers' D $xy=-0.020$).
- Economic condition: the Chi square signals a significant association between the perception of the variable "economic condition" (expressed on a scale 0–5) and the academic role (Chi square= 228.41 ; p value= 0.000), in this case the measures of ordinal association are slightly higher and positive (Kendall's Tau-b= 0.129 ; Somers' D $yx=0.138$; Somers' D $xy=0.121$).
- Job stability: the Chi square signals a significant association between the perception of the variable "job stability" (expressed on a scale 0–5) and the academic role (Chi square= 904.39 ; p value= 0.000), in this case the measures of ordinal association

Table 9 Distribution (%) of respondents by academic role and propensity to work in Italy (on a scale 0–4)

	0 (Very low) (%)	1 (%)	2 (%)	3 (%)	4 (Very high) (%)	Total (%)
Post doc	31.6	42.8	18.5	6.3	0.8	100.00
Researcher	10.8	37.8	35.5	13.5	2.3	100.00
Associate professor	13.3	26.5	34.1	22.1	4.0	100.00
Full professor	14.3	38.9	32.5	12.7	1.6	100.00
Total	19.3	38.1	28.6	12.1	1.8	100.00

Chi square = 138.98; p value = 0.000

Kendall's Tau-b = 0.174

Somers' D y_x = 0.174; Somers' D xy = 0.174

indicate a moderate-high level of positive association for the two variables (Kendall's Tau-b = 0.384; Somers' D y_x = 0.367; Somers' D xy = 0.400). The perception of job stability resulted to be the variable more influenced by the "seniority" of the respondent. This is an interesting result because it describes well the Italian academic situation, where many workers are precarious, and few workers have a stable occupation.

4.2 The Territorial Factor

As anticipated in the introduction and in Sect. 2, in this work we declined the notion of territoriality along two levels: differences among countries and differences within a country (reference country is Italy). Regarding the first point, the PIR project aimed to measure the satisfaction/dissatisfaction of Italian scholars with respect to the Italian system. The relevant output are the answers to the *propensity to work in Italy*, (expressed on a scale 0–4) and the *propensity to work in a foreign country* (expressed on the same scale). Table 9 shows low levels of maximum satisfaction (score 4) for all the categories. For example, among post doc, only the 0.8% expressed a high propensity to work in Italy, whereas the 31.6% expressed dissatisfaction with this scenario. The association, as evidenced by the Chi square, is significant, however the measures of ordinal association are low but positive. On the other hand, in Table 10 we learn that the propensity of leaving Italy to work in a foreign country decreases as the level of seniority increases (columns 3 and 4), which is reasonable since senior workers are less inclined to change radically their environment. The measures of ordinal association are weak but, coherently with our interpretation, negative. To sum up, the Italian academic environment resulted to be more attractive for workers with stable positions rather than young researcher. Nevertheless, also associate professors and full professors expressed a good inclination to work in another country. Finally, we applied an ANOVA to test significant differences among academic roles with respect to the propensity to work in Italy or abroad. In both cases, the ANOVA suggested that the answers of the respondents are significantly different in each case (p value, respectively, 0.000 and 0.001).

At this point we should provide consistent reasons on why Italian scholars expressed a low willingness to work in Italy, and the answer should be searched in the relation between scholars' satisfaction and propensity to emigrate, as enlightened in an empirical

Table 10 Distribution (%) of respondents by academic role and propensity to work in a foreign country (on a scale 0–4)

	0 (Very low) (%)	1 (%)	2 (%)	3 (%)	4 (Very high) (%)	Total (%)
Post doc	14.0	18.1	24.1	23.7	20.1	100.00
Researcher	11.6	20.8	30.9	23.6	13.1	100.00
Associate professor	19.9	23.9	23.0	23.5	9.7	100.00
Full professor	10.9	23.8	33.3	22.8	9.3	100.00
Total	13.4	21.4	28.2	23.3	13.6	100.00

Chi square = 49.66; p value = 0.000

Kendall's Tau-b = -0.069

Somers' D y_x = -0.066; Somers' D x_y = -0.071

work regarding the Italian context (Torrìsi 2013). Table 11 synthesizes the answers provided by the interviewees regarding various aspects of their satisfaction with the organization. It is important to note that the principal factors related to dissatisfaction seem to be policies supporting research, administrative system, career prospects, bureaucracy and research funds. All these factors are, on average, perceived as insufficient by the respondents, and their mean score significantly differ among the groups (as evidenced by the ANOVA test). Interestingly, for the question on salary, only the categories associate professors and full professors expressed as judgement “sufficient”, whereas the other groups of scholars perceive their salary as too low. The answers to the questionnaire appear to confirm two major flaws in the Italian academic system: low economic return from the academic job at early stages (in terms of future opportunities and retribution) and an inadequate administrative structure. Nonetheless, all the considered categories expressed a sufficient judgement with the satisfaction with their work. The first “moral” of our research is the following: if the policy maker wants to make attractive Italy, limiting outflows of human capital and favouring inflows of foreign scholars, it should simplify and enhance the administrative structure of universities, favouring meritocracy and creating adequate opportunities for researchers. This suggestion seems generalizable also to other countries affected by important outflows of highly qualified human capital.

Finally, we develop the second argumentation of our research, i.e. analysing the relation between well-being and territoriality within a country, Italy in our case. In the work of Monteleone and Torrìsi (2012) this dimension was investigated with respect to Italian scholars' satisfaction with several factors concerning the Italian academic system and comparing these results within Italian areas and with foreign systems. In that work the authors thoroughly investigated the level of several aspects of job satisfaction relatively to Italian researchers by macro-area. In this study we have enlarged the results provided in that work evaluating how the engagement of Italian scholars varies among areas. As discussed, the level of engagement is a way of quantifying academic well-being, consequently studying the reasons of the differences in engagement between areas is very important to understand the bigger picture. At this point the reader may ask why we did not consider engagement also when comparing Italy to other countries. The reason is simple: the questionnaire on which we estimated engagement was administered only to Italian researchers, and alternative data for foreign countries were not available at the time.

Table 11 Summary of the responses relative to workers' satisfaction with their organization

	Academic role	Mean answer	SD	ANOVA test
Overall satisfaction with the organization	Post doc	1.95 (sufficient)	0.93	Anova F
	Researcher	1.86 (sufficient)	0.96	1.885
	Associate professor	1.78 (sufficient)	0.90	<i>p</i> value
	Full professor	1.92 (sufficient)	0.89	0.130
	Total	1.88 (sufficient)	0.93	
Satisfaction with the workplace	Post doc	1.92 (sufficient)	1.14	Anova F
	Researcher	1.89 (sufficient)	1.09	2.270
	Associate professor	1.95 (sufficient)	1.04	<i>p</i> value
	Full professor	2.12 (sufficient)	0.99	0.079
	Total	1.95 (sufficient)	1.08	
Satisfaction with policies supporting research	Post doc	0.96 (low)	0.99	Anova F
	Researcher	0.75 (low)	0.83	5.062
	Associate professor	0.75 (low)	0.82	<i>p</i> value
	Full professor	0.77 (low)	0.86	0.002
	Total	0.82 (low)	0.89	
Satisfaction with the administrative system supporting your activities	Post doc	1.40 (low)	1.02	Anova F
	Researcher	1.19 (low)	0.95	4.941
	Associate professor	1.16 (low)	0.90	<i>p</i> value
	Full professor	1.30 (low)	0.96	0.002
	Total	1.27 (low)	0.97	
Work satisfaction: How much are you satisfied with your work?	Post doc	2.42 (sufficient)	0.99	Anova F
	Researcher	2.57 (good)	0.95	7.894
	Associate professor	2.67 (good)	0.94	<i>p</i> value
	Full professor	2.78 (good)	0.91	0.000
	Total	2.57 (good)	0.96	

Table 11 (continued)

	Academic role	Mean answer	SD	ANOVA test
Career prospects	Post doc	0.70 (low)	0.90	Anova F
	Researcher	0.86 (low)	0.84	35.183
	Associate professor	1.08 (low)	0.94	<i>p</i> value
	Full professor	1.47 (low)	1.17	0.000
Satisfaction with work hours	Total	0.94 (low)	0.97	
	Post doc	2.21 (sufficient)	1.08	Anova F
	Researcher	2.30 (sufficient)	1.11	12.140
	Associate professor	2.54 (good)	0.96	<i>p</i> value
Relations with senior colleagues	Full professor	2.67 (good)	0.94	0.000
	Total	2.37 (sufficient)	1.07	
	Post doc	2.46 (sufficient)	1.14	Anova F
	Researcher	2.30 (sufficient)	1.16	1.614
Relations with your peers	Associate professor	2.39 (sufficient)	1.08	<i>p</i> value
	Full professor	2.39 (sufficient)	1.14	0.184
	Total	2.38 (sufficient)	1.14	
	Post doc	2.84 (good)	1.03	Anova F
Relations with your peers	Researcher	2.68 (good)	0.98	4.056
	Associate professor	2.71 (good)	0.97	<i>p</i> value
	Full professor	2.56 (good)	0.95	0.007
	Total	2.72 (good)	0.99	

Table 11 (continued)

	Academic role	Mean answer	SD	ANOVA test
Satisfaction with your salary	Post doc	1.21 (low)	1.05	Anova F
	Researcher	1.42 (low)	0.97	35.153
	Associate professor	1.64 (sufficient)	0.97	<i>p</i> value
	Full professor	2.03 (sufficient)	1.00	0.000
	Total	1.49 (low)	1.04	
Satisfaction with research equipment	Post doc	1.72 (sufficient)	1.09	Anova F
	Researcher	1.61 (sufficient)	1.04	2.173
	Associate professor	1.59 (sufficient)	0.93	<i>p</i> value
	Full professor	1.78 (sufficient)	0.96	0.089
	Total	1.67 (sufficient)	1.03	
Similarities among teams	Post doc	2.20 (sufficient)	1.10	Anova F
	Researcher	2.13 (sufficient)	1.07	1.643
	Associate professor	2.20 (sufficient)	1.01	<i>p</i> value
	Full professor	2.33 (sufficient)	0.99	0.177
	Total	2.20 (sufficient)	1.06	
Satisfaction with university bureaucracy	Post doc	1.07 (low)	1.04	Anova F
	Researcher	0.89 (low)	0.99	3.989
	Associate professor	0.87 (low)	0.89	<i>p</i> value
	Full professor	1.06 (low)	1.09	0.008
	Total	0.97 (low)	1.01	

Table 11 (continued)

	Academic role	Mean answer	SD	ANOVA test
Satisfaction with security of the workplace	Post doc	2.13 (sufficient)	1.23	Anova F
	Researcher	2.09 (sufficient)	1.12	2.786
	Associate professor	2.32 (sufficient)	1.13	<i>p</i> value
	Full professor	2.26 (sufficient)	1.03	0.040
	Total	2.17 (sufficient)	1.15	
Satisfaction with the distribution of research funds	Post doc	0.81 (low)	0.88	Anova F
	Researcher	0.72 (low)	0.80	1.935
	Associate professor	0.69 (low)	0.80	<i>p</i> value
	Full professor	0.82 (low)	0.86	0.122
	Total	0.76 (low)	0.84	

The column "Mean answer" reports in parentheses the answer associated to the number: 0 = "very low", 1 = "low", 2 = "sufficient", 3 = "good", 4 = "very good"

Table 12 UWES classification of the three dimensions of engagement by academic role

Dimensions of engagement according to UWES	Academic role	Classification based on Table 1	Mean	SD
VI ANOVA $F=4.608$ p value = 0.003	Post doc	Average	3.984	1.519
	Researcher	Average	4.104	1.316
	Associate professor	Average	4.381	1.188
	Full professor	Average	4.131	1.479
	Total	Average	4.117	1.397
DE ANOVA $F=3.161$ p value = 0.024	Post doc	Average	4.139	1.603
	Researcher	Average	4.244	1.444
	Associate professor	Average	4.464	1.273
	Full professor	Average	4.377	1.584
	Total	Average	4.268	1.497
AB ANOVA $F=5.013$ p value = 0.002	Post doc	Average	3.897	1.535
	Researcher	Average	4.097	1.384
	Associate professor	Average	4.314	1.230
	Full professor	Average	4.094	1.478
	Total	Average	4.068	1.432

We synthesized how the three dimensions vary among academic roles of the respondents in Table 12. The results show that for all the academic roles considered and for all the dimensions, the score registered is “average” (based on Table 1), and the average scores obtained are significantly different from each other, as evidenced by the ANOVA test. Finally, in Table 13 we learn about differences in the dimensions of engagement among the three Italian macro-areas. First, the mean score for each area in each of the considered dimension is “average” according to UWES classification (Table 1). Second, we note that the highest scores were registered in the Centre area. Third, we have significant differences among macro-areas for each dimension, as showed by the ANOVA test. Finally, the same comments apply to the UWES total score. So, the indication for the policy maker is the following. There are significant differences among macro-areas and among academic roles for each dimension of engagement considered, this means that the level of engagement is (trivially) different based on the seniority of the scholar but also significantly different based on the geographical location of the university. This may mean that there are different structures in Italy based on the considered region, however, the three areas have in common the same mean score. This is probably the most important datum, because an “average” score for all the dimensions of engagement and in every area is symptom of low levels of perceived academic well-being.

5 Conclusions

The aim of this work was clear but complex: providing a link between territoriality and measures of well-being is a hard task. Academic well-being cannot be directly observed, and we can only quantify it based on the opinion of workers. In this paper we used job satisfaction and work engagement as measures of the level of academic well-being of Italian scholars. These measures were obtained thanks to the data gathered through the

Table 13 UWES classification of the three dimensions of engagement by macro-area (South, Centre and North)

Dimension of engagement	Area	Classification based on Table 1	Mean	SD
VI Anova F= 1.701 p value = 0.183	South	Average	4.156	1.408
	Centre	Average	4.249	1.323
	North	Average	4.059	1.407
	Total	Average	4.117	1.398
DE Anova F= 3.796 p value = 0.022	South	Average	4.202	1.525
	Centre	Average	4.544	1.357
	North	Average	4.244	1.506
	Total	Average	4.268	1.497
AB Anova F= 3.349 p value = 0.035	South	Average	4.079	1.452
	Centre	Average	4.303	1.352
	North	Average	4.003	1.434
	Total	Average	4.068	1.432
Total_UWES Anova F= 2.743 p value = 0.065	South	Average	4.145	1.389
	Centre	Average	4.361	1.274
	North	Average	4.101	1.376
	Total	Average	4.149	1.370

PIR project and administering a questionnaire based on the UWES method (Schaufeli and Bakker 2003). The territorial element appeared to be an important element to analyse properly the answers of the respondents; in particular, we used two notions of territoriality. One aimed to gather information relatively to the perception of the Italian academic system with respect to foreign systems and was mainly concerned with job satisfaction. The other aimed to gather information at the regional level, comparing the three dimensions of engagement by macro-areas. The results of our research indicate that there is a lower perception of the Italian system respect to foreign countries because of insufficient career opportunities and an inadequate administrative and bureaucratic structure. This reveals dissatisfaction of Italian academic workers and low academic well-being. From the second analysis we learn that there are significant differences among the scores obtained in different Italian macro-areas, but most importantly, the mean value of engagement in all the areas was only “average”. Low levels of engagement may be the result of low levels of well-being.

The present analysis can be extended in several directions. Our data include also other important information such as the gender and the age of the respondent and the academic position. These factors could be object of a future investigation. This empirical analysis offers precious data and suggestions for the Italian policy maker and, in general, for policy makers of similar countries. Enhancing the satisfaction and the engagement of academic workers is fundamental to prevent detrimental outflows of skilled human capital and to attract foreign skilled human capital. Future works should be concerned with enlarging the available data, providing new measures of academic well-being and trying to build models, both descriptive and normative, to deal with the problem of brain drain and job dissatisfaction.

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