The role of career services in sustaining students' perceived employability: a quasi-experimental approach

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Abstract

This study analyses the impact of career advancement and industrial networking initiatives (CAIN) provided by the University's career services on students' perceived employability (PE). Furthermore, the study analyse whether the effectiveness of these kind of career services is shaped by students' gender and degree type. The study employ a quasi-experiment method based on pre-post-test questionnaire, collecting data on 277 students at University of Milano-Bicocca, before and after their participation in career services. The results of non-parametric and parametric analysis show that the career advancement and industrial networking initiatives are effective in developing students' perceived employment chances in the labour market). The results also show that CAIN services are more effective for males than for females, and for students enrolled in no-STEM degrees. In doing this, the study expands research on the role of university in supporting students' PE and university-to-work transitions.

Keywords: perceived employability; higher education; career services; quasi-experiment

1. Introduction

Providing employment and sustainable careers for university students is at the heart of EU and national employment strategies, with expectations that higher education should contribute to national economic growth and prepare graduates for a successful transition into the labour market (Anderson &Tomlinson, 2021). Growing attention has focused on the role of perceived employability (PE), so on the perception that students have about their chances of obtaining and maintaining employment after graduation (Quenani et al, 2014). PE represents a critical resource for students, especially in turbulent times, to gain or retain employment and to develop a sustainable career over time (Monteiro et al., 2020; Van Harten et al., 2022). Indeed, students

who perceive themselves to be more employable in the labour market have proven to make more effective decisions about their development and career perspectives during both studies and work experience, that finally can help them to reach higher professional success (Forrier et al., 2015).

The literature does not sufficiently investigate the role that universities can play in supporting the PE of their students, although recent empirical works highlighted the importance of "work-integrated learning" and extracurricular activities (see, e.g., Jackson & Wilton, 2017), university career and placement services (Padgett & Donald, 2022), and the support received from the teaching staff (Petruziello et al., 2022), in developing skills, abilities and personal resources which could be critical for students' prospective employability and employment chances.

The present study considers co-curricular (or parallel) activities (Jackson & Bridgstock, 2021) which are delivered by the central career services as optional awards. In addition, the study focuses on career advancement and industrial networking (CAIN) initiatives, which are considered particularly promising in supporting university students' perceived employability as they enhance the ecosystem for employability fostering the development of networks of interdependent individuals (students) and organisations (universities and employers) (Snell et al, 2023). Indeed, CAIN differ from other employability activities, as they are designed to give students a chance to directly interact with the employers, get their insights on the expectation of employable graduates and continuously learn through sharing knowledge. However, there appears to be little empirical exploration of the relative effectiveness of CAIN in enhancing students' perceived employability. Furthermore, in addition, studies using quantitative methods have highlighted the limitations of the cross-sectional approach, which cannot explain causal relationships between career services and students' perceived employability. This study adopted a pre-post experimental quantitative approach to experimentally test whether providing CAIN services can enhance students' perceived employability. Moreover, we expecte that gender and the field of the study moderate the effect that CAIN services have on PE.

2. Theoretical Framework

COR theory (Hobfoll et al., 2018) conceptualized PE as a critical resource for university students in managing their transitions and career growth in the labour market. More specifically, students with greater degrees of PE could make more effective decisions about their professional development, be more satisfied and more likely to succeed. Scholars are increasingly interested in understanding the determinants of university students' PE. Researchers usually distinguish between personal and context-related factors (see, e.g. Ergun and Sesen, 2021), where the latter are less commonly investigated. With regard to context-related factors, previous research suggests that universities can play a key role in sustaining PE through initiatives that are embedded in the official degree programs or through parallel and optional award services aimed

at preparing students to enter the labour market. Career services may include programs aimed at developing soft and transversal skills, training sessions on CV writing and how to handle job interviews, career guidance, and numerous initiatives designed to bring together students and employers (Donald et al., 2019). Thus, universities may stimulate students' PE by promoting employability-oriented services that foster the perception of professional preparedness. More specifically, providing career advancement and industrial networking through the cooperation between universities and employers - such as via internships, industry, project units, career fairs, career talks, building networks and job application support - improves students' understanding of the labour market and their confidence regarding their future employment (Donald et al, 2019).

The literature on HE and employability underlines that the effectiveness of career advance and industrial networking may differs according to specific student personal characteristics (e.g. Donald et al, 2019). First, career literature is somewhat divided on the moderation role of gender on self-perceived employability. Although some studies report significant gender differences in PE among university students, with greater PE among males (Donald et al., 2019), similar studies report that gender does not affect students' PE (Jackson and Wilton, 2017). Thus, we starts from a position of awareness that gender may moderate the impact of career advance and industrial networking on students' PE.

Previous studies also reveal that graduating in non-professional fields or generalist subjects (e.g., humanities, arts, social sciences) is negatively associated with PE, whereas students in professional fields are usually more optimistic and self-confident about their employment chances in the labour market (Donald et al., 2019). Accordingly, we expect that the type of degree course may influence the overall effectiveness of career advice in supporting the PE of university students.

3. Methodology

The present study employed a quasi-experimental pre-test-post-test non-equivalent control group design (Hoyle et al. 2002) to assess the effectiveness of career advice implemented by the employers and provided as optional awards by the central career services of University of Milano-Bicocca.

The study focuses on students who voluntary took part in different career service initiatives provided by the University between 2021 and 2022. "Control group" is composed by 207 students who participated to short professional development workshops delivered by personnel of job placement services and aimed at learning how to apply for a job, writing resumes, preparing for interview, open a LinkedIn profile, etc. "Treated group" includes 70 students who took part in career advancement and industrial networking initiatives, and then workshops where students directly interact with prospective employers, where HR managers present their

organizations, the open positions and the overall selection process and students had also the chance to hand one's CV and hold real job interviews.

Our decision to focus exclusively on students who took part in career services during the period, and not to consider those who did not (as a control group), is dictated by the possibility of significantly reducing selection bias. Indeed, the whole sample of the study only includes students that freely and voluntary decide to invest time and resources for developing their employability and preparing for the labour market.

In order to test the effectiveness of CAIN services we observe their contribution in enhancing students' PE components. PE was measured through a two-wave survey administered online between January/February 2021 (time 1) and January/February 2022 (time 2), before (t1) and after (t2) students' participation in career services. The final sample is represented by 277 students, of which 70 participated in CAIN, while 207 participated in career development workshops.

3.1. Variables

PE was measured at t1 and a t2 by a well-established self-perceived employability scale for graduate students (SPES) (Rothwell & Arnold, 2007). The SPES scale contains 16 items measured on a seven-point Likert scale (1=completely disagree and 7=completely agree). Based on the relative literature, internal and external factors can influences employability (Rothweel & Arnold, 2007). Internal factors refers to: work's knowledge and skills; job search mastery, learning potential. External factors include the state of the labour market in term of employment possibilities for people with certain skills or employment possibilities for people with a certain type of degree. Starting from these internal and external factors, Rothwell et al. have identify eight components, and for each of these eight components the authors produced two items.

The eight components are the following:

PE_1: "My engagement with my studies and academic performance".
PE_2: "My perception of the strength of the university brand". It is related to student's perception of their university's reputation, contextualised in employment terms.
PE_3: "The reputation my university has within my field of study".
PE_4: "The status and credibility of my field of study".
PE_5: "The external labour market's demand for people in my subject field".
PE_6: "My perception of the state of the external labour market".
PE_7: "My awareness of opportunities in the external labour market".
PE_8: "My confidence in my skills and abilities".

Our dependent variables are the differences between each single PE components at time 2 and each single PE at time 1, which represent the increases (or decreases) of the student's PE components between time 1 and 2.

A set of control variables was included in the pre-test questionnaire to assess the sample's basic demographic characteristics, human and social capital, personality traits (Big Five) and other individual factors inherent to the university career that could affect PE and the outcomes of career services. For human capital, we include the variable high school graduation mark, as a proxy of performance in previous studies. For social capital, we consider parental education level. Since, personality traits can affect both students' PE and their decision to participate in CAIN services, we consider also the Big Five dimensions. With regard to the university career, we included whether a student worked during the university stuedies, the "grade average point" over the last 12 months, and the year of study. Finally, to control for the degree type, "STEM degree" is a binary dummy variable that equals 1 if the student is enrolled in a degree in science or mathematics, and 0 otherwise.

4. Findings

4.1. Preliminary Analysis

The whole sample looks as follows: 32% are men, 17% of the total have had previous work experience during their university studies, but none of them at the time of the of the survey was employed. The average number of examinations taken during the year under investigation is 27.7 (a continuous variable ranges between 18 and 31, according to the grading scale adopted by the Italian universities), 50% are enrolled in their final year of study, and finally, 23% graduated in the last 12 months. As regards the disciplines of study, we used a binary division. STEM area that includes all scientific disciplines and whose acronym identifies four areas: Science, Technology, Engineering, and Mathematics. No-STEM area, which identifies the disciplines with non-science. The latter category includes all humanities disciplines as well as economics. In particular, of the final sample, 30% were enrolled in Economics, 6% in Educational Sciences, 5% in Law, 14% in Psychology, 35% in Sciences, and 6% in Sociology.

Inter-group pre-test and comparisons were carried out, in order to check whether socio-demographic differences and other students' characteristics allow for an appropriate intergroup comparative base. More specifically, the Mann Whitney test were conducted for testing difference between groups in terms of socio-demographic and university career characteristics. Results show that the experimental and control group did not differ in terms of gender, high school grade. parent education level, and family income level. When we look at the personal traits, no significant differences emerge between groups. Finally, none of the factors related to the university career are significantly different between groups. Also when considering the

student's area of study no differences are recorded. Overall, the analysis reduces the possibility of selection bias and that systematic pre-existing group differences could confound our examination of treatment effects in the data.

4.2. Non-parametric analysis

In order to test whether the participation in the CAIN services affect students' PE, the Mann Whitney test was performed for difference-in-difference pre-test/post-test comparisons in the experimental and control group (Table 1). Table 1 presents results considering the variation of PE dimensions from time 1 to time 2 considering the whole sample, the control group, and the treated group. As can be noted, significant variations in the PE dimensions are detected from the third to the seventh PE dimension. Those regarding the reputation of the university within the field of the study contextualised in employment terms; those regarding the demand and the state of the external labour market; and those concerning the awareness of opportunities in the external labour market. In summury, the analysis show significant improvements in the PE dimensions that are linked to the university reputation and to the labour market only for students attending the CAIN services.

Table 1. Perceived employability: means difference between the treatemnet and the control group

Variables	Whole Sample n. 277	Control Group n. 207	Treated Group n. 70	P value
Δ PE	-0.02	-0.07	0.13	0.0160
Δ PE_1	-0.04	-0.03	-0.06	0.8735
Δ PE_2	0.01	0.02	0.01	0.9498
Δ PE_3	-0.05	-0.12	0.16	0.0774
Δ PE_4	-0.20	-0.30	0.09	0.0392
Δ PE_5	-0.20	-0.27	0.01	0.0813
Δ PE_6	0.22	0.14	0.46	0.0765
Δ PE_7	-0.05	-0.13	0.19	0.0556
Δ PE_8	0.13	0.11	0.19	0.4478

In order to test whether the effectiveness of CAIN services varies by gender, we perform the analysis separately for male and female. 146 students in the control group and 42 in the treated group compose the female sample. No significant differences in the PE variation is detected between control and treated group. When we look at the male sample, 61 male compose the control group and 28 the treated one. The total PE variation (mean of the 16 items) is statistically significant between the treated and the control group (p<.05). In particular, treated males

experience a significant increase of PE. When focus on PE components we note that variations in PE_5 and PE_6 for male are statistically significant (p<.10). These components of the PE regards the perception of the demand and the state of the general and subject specific labour market. Overall, results suggest that the OLA services are more effective for male students then for female in sustaining their external perceived employability.

Finally, in order to test whether the effectiveness of career services varies by degree type, we perform the analysis separately for STEM and no-STEM degrees. 179 students (130 No-STEM students in the control group and 49 No-STEM in the treated group) compose the whole No-STEM sample. There are a significant difference in the PE_3, PE_4, and PE_7 variation between control and treated group (p<.10). These components tells us the role of the university reputation within the field of study, the status and credibility of the field of study, and the awareness of opportunities in the external labour market. These PE' dimentions significantly increase in the No-STEM group only for students attending the CAIN services. When considering only STEM students, we not detect any significant difference in the PE variation. Overall, these results indicate that the CAIN services are more effective for students enrolled in humanistic studies (No-STEM area).

5. Discussion

The research's contribution is manifold. First, it expands research on the role of university in supporting students' PE and university-to-work transitions. The study demonstrates that by providing career advance and industrial networking HEs contribute to develop students' self-perceived employability. In particular, the initiative designed by the career services and implemented with employers allow students to improve awareness about their employment chances in the labour market.

Results also support the idea that an employability ecosystem, than the contribution and participation of various (first and foremost, universities and employers), is indispensable to effectively support graduate employability (Donald et al, 2019). Indeed, the study demonstrates that career advices implemented with the employers not only increase PE but also contribute to reverse the common trend where students perceived themselves less employable in terms of market factors as they progress through their years of university study

The empirical findings also indicate the need for additional and tailored support to be provided to females to promote gender equality. Finally, the paper advance existing employability literature, which has focused predominantly on students from specialist degree subjects, by comparing the perceptions of students from STEM and no-STEM degree subjects to explore for which students career services are most effective (Donald et al, 2019).

In the light of this study results, some policies and managerial implications can be draft that concern the design of career service in Higher Education institutions.

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