

The million-dollar question: can internships boost employment?

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Abstract

Background: *Higher Education Institutions are increasingly concerned with the professional insertion of graduates and with the design of institutional mechanisms to facilitate students' transition from higher education to work, particularly given the context of scarcity of financial resources and rise of graduate unemployment. This has been achieved, inter alia, through the creation of study programmes with internships. Despite the public discourse encouraging the use of such strategies, there is a general consensus regarding the absence of empirical studies on the professional value of these strategies. Existing research tends to be largely based on the perceptions of the main stakeholders involved – students, HEIs, and employing institutions – rather than on actual post-graduation career outcomes. Research that attempts to fill this gap has been subjected to some criticism for measuring graduate success only in the short term (within the first six months after graduation).*

Purpose: *This article aims to assess two interrelated questions: the effect of internships in graduate unemployment levels before and after the introduction of internships, especially after the signing of the Bologna Declaration; and the extent to which this effect applies to the different institutions that comprise the Portuguese tertiary education landscape. It also seeks to contribute to the debate on the structure and nature of internships, which are factors frequently neglected in the literature. The impact of these dimensions is assessed both in the short run (within the 12 months after graduation) and in the long run (12 months after graduation). This article also aims to present a new methodology to estimate the impact of HEIs' strategies to produce skilled graduates, capable of responding to the ever changing and complex needs of the workplace.*

Sample/ Design/ methods: *Our empirical data consists of a unique database comprising 138 Portuguese first cycle degrees (FCDs) with study programmes approved in 2008 and 2009 and published in the Official Gazette. Study*

programmes were systematically and quantitatively analysed. A repeated-measures design was adopted to assess the impact of internships on graduate unemployment rates. Graduate unemployment rates were looked at before and after the introduction of internships in study programmes, both in 2007 and 2013.

Results: *Results demonstrate that study programmes that include internships tend to significantly reduce graduate unemployment rate. Expanding and undertaking several internships throughout First-cycle degrees can enhance the possibilities of being selected for a job. Similarly, mandatory internships require a close and (often) long-lasting relationship with employing institutions and tend to signal HEIs' commitment towards labour market demands.*

Conclusions: *Results are valuable for leading academics, particularly those involved in the evaluation and/or the design of internship programmes in higher education. Results also provide important insights to strategic policy-making in HEIs, as these are increasingly encouraged to assess and improve their employment performance, particularly in countries where this is linked to public funding.*

Key words: *graduate employability; employment; higher education; internships; first cycle degrees*

Introduction

Portugal has one of the highest youth unemployment rates in the European Union (EU), along with its Southern European counterparts¹. In 2013, the youth unemployment rate was above 30 per cent. Additionally, inactivity rates of youth in these countries are substantial², meaning that they are neither employed, nor registered as unemployed, in education or in training (NEET). Although it is generally acknowledged that more educated people are less likely to be neither in employment, nor in education, it is still a matter of concern that urges EU institutions, governments and Higher Education Institutions (HEIs) to address this problem. HEIs have invested considerable resources in the development and improvement of students' employability skills. These include, among other things, the creation of study programmes with internships, or several other forms of cooperative education between higher education and employing institutions (Teichler 2009).

One of the most repeated dictums about internships is that they enhance the professional insertion of graduates in the labour market, being generally acknowledged as an institutional mechanism that facilitates students' transition from higher education to work (Stiwne and Alves 2010; Teichler 2009). This received wisdom warrants further scrutiny. Indeed, four major caveats can be identified in the existing research. First, existing literature is relatively weak in considering the extent to which internships contribute to reduce graduate unemployment rates, without an in-depth examination of such rates before and after the inclusion of this curricular unit in study programmes.

¹ In http://ec.europa.eu/europe2020/pdf/themes/21_youth_unemployment.pdf.

² In <http://www.oecd.org/education/skills-beyond-school/EDIF%202013--N%C2%B013%20%28eng%29--FINAL.pdf>.

Evidence on the practical benefits of internships tend to be based on students' or employers' expectations and perceptions (Matthew, Taylor and Ellis 2012; Callanan and Benzing 2004; Gault, Leach and Duey 2010), rather than on the assessment of the impact of internships on early career employment. This remains an untested assumption.

Second, the assessment of internship outcomes has also been limited, both regarding the subject areas and the long-term impacts. As to the former, existing research tends to report findings mainly based on data from one specific subject area (see, for example, Alpert, Heaney and Kuhn 2009; Wilton 2012; Callanan and Benzing 2004) or from one particular HEI (Crebert et al. 2004). With regards to the latter, most researchers only sought to assess the impact of internships on graduates (un)employed six months after graduation (Bowes and Harvey 1999; Mason, Williams and Cranmer 2009). Studies assessing the longer-term impact of internships are, therefore, limited.

Third, prior research presents empirical evidence focused on a timeframe preceding Bologna reforms (Bowes and Harvey 1999; Mason et al. 2009). Considering that there are already graduates with a 'Bologna-Bachelor's degree', it seems to be the perfect timing to investigate whether the curricular changes introduced actually fostered graduates' employability or, on contrary, were a 'stumbling block' (Teichler 2011).

Finally, the majority of studies are mainly focused on the internship experience *per se*, rather than on its relation to the study programme. It has been fairly acknowledged that the efficiency of a learning experience may be related to the way those experiences are organized and the time they are experienced by the student considering his/her personal development. Wilton (2012), for example, asserts that research on these mediating factors is required; arguing that more needs to be understood about the characteristics of internships.

This research seeks to address these gaps, by exploring the relationships between internships and graduate unemployment rates, after Bologna reforms. In specific, we address two interrelated questions: the effect of internships in graduate unemployment levels before and after Bologna reforms; and the extent to which this effect applies to the institutions that integrate the Portuguese tertiary education landscape. It also seeks to contribute to the debate on the structure and nature of internships (Wilton 2012).

The impact of internships on the graduate unemployment rate has been assessed by creating a new variable – labelled 'unemployment rate difference' (URD) – which compares graduate unemployment rates within each first cycle degree (FCD) with the national graduate unemployment rate (for individuals aged 15-24). This comparison was used as a threshold to assess whether people who completed internships are better protected against unemployment. This new variable allows us to control the significantly changing conditions that affected the labour market within the timeframe selected for analysis (2007-2013).

This article begins by discussing the role of internships in higher education and the extent to which they promote graduates' work readiness. Then, it discusses the operationalization of the central variables and outlines the methodology that was used.

The findings section presents an assessment of both the effectiveness and the different nature and structure of internships in reducing graduate unemployment rates. In the concluding remarks, some policy implications are discussed and future research is presented.

Internships and graduate employability

The high unemployment rates across Europe, which have hit young people especially hard, suggest the need for structural changes aimed at redefining the way HEIs position themselves towards the surrounding industrial and governmental tissue. As a result, HEIs are increasingly pressured to respond to labour market needs, contributing to the employability and activity of graduate labour supply (Wilton 2012).

Research on work-related experiences has grown like Topsy, reflecting an increased interest in the design of cooperative forms of education and in their consequences for individuals and organisations. A number of favourable outcomes have been linked to internships. Many researchers regard internships as a catalyst for graduates' employment (Crebert et al. 2004) due to its potential to enhance graduates' learning outcomes and contribute to graduates' professional growth (Teichler 2009; Weible 2009).

Prior research has regarded internships as a first work experience, which allow students to reinforce and clarify the theoretical content of specific study programmes (Knemeyer and Murphy 2002), giving undergraduates the first sense of professional activity (Yorke and Knight 2006). As to career outcomes, it has been generally acknowledged that internships allow future graduates to integrate the informal network of employers, enhancing the opportunity to find references which may be crucial for future career moves (Alpert et al. 2009). Moreover, the integration of internship experiences in the resume, or as a diploma supplement, is often regarded as an important advantage in first job seeking (Weible 2009).

The learning experience that derives from internships has been found to improve graduates' professional growth (Teichler 2009; Weible 2009), by promoting the acquisition and development of several abilities considered to be relevant for accessing and maintaining a job (Wilton 2012; Yorke and Knight 2006). The acquisition of a large array of personal qualities and skills has been estimated to determine the successful conversion of interns into regular employees, and hence the functioning of internships in a recruitment and selection capacity³.

Besides the acquisition of such personal qualities and skills, prior research has estimated a significant impact of internships on post-graduation outcomes. Internships provide students with a unique opportunity to improve their perception of job fit in early career, being a helpful experience in making informed career choices (Allen 2011). Students tend to express reduced feelings of entry shock on real world full-time

³ For a complete list job relevant capabilities that, according to empirical evidence, can be developed during work-based learning experiences of these abilities see, for example, Daniels and Brooker 2014.

employment (Paulson and Baker, 1999), higher job satisfaction (Gault et al. 2010) and greater degree of ambition (Callahan and Benzing 2004).

Overall, by providing real-world context to theoretical subject matters, internships seem to provide knowledge, skills and abilities that better prepare students for the challenges that they will face as they move from the classroom to the workplace.

Given these expectations and the unprecedented challenges presented by the economic constraints and its associated problem of unemployment, HEIs embraced the challenge of designing curricula and course contents that meet society's evolving needs and minimize the gap between theory and practice (Teichler 2009). This became particularly evident with the Bologna Declaration, in June 1999. It encouraged the convergence of the European higher education systems. The signatories agreed to adopt a common architecture of degrees in tertiary education, as a strategy to increase cooperation between universities; to foster border crossing mobility and successful professional careers of graduates; and enhance the international competitiveness of the European higher education (van der Wende 2000). It also put a focus on student-driven pedagogical approaches, which ensure students' acquisition of industry-validated competences, by providing them with collaborative learning environments, such as internships⁴ (Rico 2010). Hence, these reforms constituted a unique opportunity to improve the quality and professional relevance of the degrees offered by HEIs at a national and international scale (Teichler 2009; 2011).

In the process of (re)designing curricula, academics were given the opportunity to rethink the nature and structure of internships. Regarding the nature of internships, these can be either mandatory or facultative. Internships are facultative when students are given the possibility to choose between facing a work-related experience; select other curricular units; write a theoretical report; or do a work simulation. Virtually, mandatory internships can be expected to be negatively associated with graduate unemployment rates. Indeed, research has concluded that strong ties between HEIs and industries (enhanced by internships) can be a mechanism for employers to provide inputs into curricular development (Thiel and Hartley 1997). Moreover, mandatory internships can be regarded as mechanisms for HEIs to learn more about the labour-market expectations towards graduate skills, allowing them to design study programmes accordingly.

Concerning their structure, internships can be classified as *thin sandwich courses*, when degrees include multiple, shorter internships, usually distributed throughout the three-year period of FCDs; or *thick sandwich courses*, when FCDs integrate a single internship, frequently longer and at the end of the degree (Harvey, Moon and Geall 1997; Ryan, Toohey and Hughes 1996; Santiago, 2009; Smithers 1971).

Course design is one among the many factors that influence graduates' transition from education to work. Naturally, graduate (un)employment does not merely depend on the type and specificities of the higher education they receive. Many other

⁴ As Heitmann (2005) concludes, the Bologna process and its pledge for the reduction of the duration of studies may have threatened those parts of the curricula which ensure their application oriented profiles, like internships. Some HEIs included it in the second cycle degree.

extraneous socio-economic variables may influence graduate employment, such as the general state of the economy and of the labour market (Stiwne and Alves 2010; Yorke and Knight 2006). The complexity of this phenomenon justifies the abundant research, both of conceptual and empirical nature. Despite the popularity of this research area, there are many aspects that still need to be unfolded considering the instrumental value of internships towards employment. In the following section, the data and methods used to assess the impact of internships on graduates' unemployment rates are discussed.

Data and methods

Data was collected through the analysis of all study programmes approved and published in the Official Gazette from 2008 to 2009. This timeframe was selected, because Portuguese HEIs were expected to fully implement reforms according to the Bologna process until 2009⁵. By using it, we are able to capture study programmes that have already been adapted according to the Bologna rules. Moreover, it is possible to separate the study programmes that already included internships at the time from those that only introduced internships after Bologna reforms.

This timeframe chosen also corresponds to the available data on graduate unemployment. Considering the purpose of this research, the database had to include data on the graduate unemployment rate before and after the introduction of internships in FCDs study programmes. The systematic and periodic publication of unemployment reports concerning higher education graduates only started in 2007⁶, being this data used to estimate unemployment graduate rate before internships were introduced. Data on the number of unemployed graduates registered in the Employment and Vocational Training Institute (IEFP) in June 2013⁷ was used to estimate the impact of the introduction of internships on graduate unemployment. As such, this research is based on a non-probability sampling technique, as first cycle degrees that were included were selected according to a convenient timeframe for which there is readily available data on the rates of unemployed graduates. Being an unavoidable pitfall of a research that seeks to use an innovative research methodology, we are aware of its limitations in terms of generalisation and inference making. Nevertheless, results can provide a good grasp of the effect of internships in graduates' employment.

As aforementioned, this article seeks to explore the extent to which internships are a valuable asset to enhance youth employability in Portugal. As it is fairly acknowledged, when running a repeated measures design, researchers should keep in mind that there are effects that arise over the course of the experiment, particularly

⁵ Decree-law 74/2006, 24th of March.

⁶ Law 38/2007 of 16th August.

⁷ Official data is subjected to the usual caveats. It does not account for the fact that many graduates may not be employed in an occupation for which they have been trained for. Also, it is questionable to assume that those not registered in the employment centre are employed, as there might be other reasons for not being registered, namely the prosecution of studies. In fact, many Portuguese students may opt to continue their studies, as full time students, enrolling directly in a second cycle study programme (Stiwne and Alves 2010), a similar pattern found in many other European countries (Bowes and Harvey 1999).

when we are dealing with such a large time-span. When dealing with (graduate) unemployment rates, one must recognize that economic crisis has severely affected Portugal. Since the onset of the crisis, there has been a marked increase in the unemployment rate for all young people, regardless of their educational level. As we intend to compare two different time periods (2007 and 2013), we had to control for the potential effect of the economic crisis on overall unemployment rates. One way to control for this effect was through the estimation of the difference between the graduate unemployment rate in each FCD and the national unemployment rate of individuals with tertiary education (aged 15 to 24)⁸. As such, the dependent variable corresponds to the difference between these two measures. According to the National Statistics Institute (INE), the national graduate unemployment rate was 25.7 per cent in 2007 and 37.5 per cent in 2013. For the sake of simplicity, this variable is, henceforth, referred to as “*unemployment rate difference*” (URD). In this research we are interested in the extent to which internships boost “unemployment rate difference”, estimated as follows⁹:

$$URD_i = \left(\frac{\# FCD_i \text{ unemployed graduates}}{\sum FCD_i \text{ graduates}} * 100 \right) - \left(\frac{\# \text{ unemployed with tertiary education (15 - 24)}}{\# \text{ Total labour force (15 - 24)}} * 100 \right)$$

In order to assess the impact of internships, content analysis of study programmes was conducted to assess the existence of this curricular unit and analyse its nature and structure. However, assessing the existence of internships through content analysis is not a straightforward exercise, as there are several different designations used to label work experience in employment institutions, and often the same label is used even when we are not dealing with a curricular unit designed to promote work-related experiences in employment institutions outside the academic context. Therefore, for the purpose of this research, we have looked at study programmes which included one or more curricular unit(s) with designations that are typically associated with learning at-the-job-experiences. Whenever in doubt, the information available in the official study programmes published in the Official Gazette was crosschecked with the information available on the institutional web page or with the information provided by the degree coordinator or the institutional administrative services of the study programmes under analysis.

During the timeframe selected for analysis, only 190 study programmes were adapted according to the Bologna reforms, being the large majority of FCDs adapted into the new framework during the academic year 2006-2007. From the 190 study programmes that were approved within this period, 138 include internships, as depicted in Table 1.

[Table 1 here]

⁸ The official INE figures regarding graduate unemployment rate (aged 15-24) are highly correlated to the Eurostat NEET rate ($r=0.85$ for the period 2005-2013).

⁹ $\sum FCD i \text{ graduates}$ pertains to the total amount of graduated individuals from each FCD from 2003/2004 to 2005/2006 for an estimation of the graduate unemployment rate before the introduction of internships; 2010/2011 to 2012/2013 for an estimation of the graduate unemployment rate after the introduction of internships. Data available at <http://www.dgeec.mec.pt/np4/92/>.

Our sample tends to reflect the national landscape regarding the inclusion of internships, already identified in other studies that surveyed all existing Portuguese FCDs¹⁰. Indeed, internships seem to be mostly visible in polytechnic institutions, potentially due to their vocational orientation. These institutions are expectedly more engaged with the labour market, seeming natural to have hands-on experiences as part of their study programmes. Likewise, FCDs with internships tend to be most common in public institutions. As such, despite dealing with a convenience sampling procedure, the structure/composition of the sample does not seem to significantly depart from the national scenery.

How are FCDs with internships distributed according to the subject areas in our sample? As demonstrated in Table 2, the majority of the FCDs analysed already included internships. This value is inflated by the exceptional number of FCDs in the areas of health and welfare, which have a strong tradition of including internships in their study programmes. Other areas are social sciences, business, administration and law; education; and services.

[Table 2 here]

Overall, the methodology and data used in this article seek to address the major criticisms associated with the measurement of employability outcomes. Harvey et al. (2002), for example, criticize current methods based on the proportion of graduates who achieve a full-time job within the first six months after graduation. In this article, we assess the impact of internships by measuring graduate success not only in the short run (graduates looking for a job for less than 12 months), but also in the long run (graduates looking for a job for more than 12 months).

The million-dollar question

Does the introduction of internships enhance graduate youth employability? Has it caused changes in graduate unemployment rates from 2007 to 2013? As aforementioned, the graphs presented in this section report to the variable labelled “*unemployment rate difference*” or URD. This variable measures the difference between each FCD graduate unemployment rate and the national graduate unemployment rate (individuals aged from 15 to 24). Negative values indicate that the mean value of FCDs’ unemployment rate is below the national youth unemployment rate with tertiary education. Large values point towards greater URD. If the mean value in 2013 is more negative than the value registered in 2007 it means that the introduction of internships considering our sample is associated with a better performance of the variable unemployment rate difference.

¹⁰ Data gathered by the project “Impact of internships on graduates’ employability”, funded by the National Strategic Reference Framework (NSRF) and co-financed by the European Social Fund (ESF).

As mentioned above, existing research tends to be limited in its capability to assess the impact of internships in the long run. This section seeks not only to assess the impact of internships in FCDs' unemployment rate difference, but also to estimate this impact both in the short and in the long run. Overall, as represented in Figure 1, graduates from FCDs with internships seem to be best protected against unemployment. That is reflected in graduate unemployment rates consistently below the national rate threshold.

[Figure 1 here]

That is reflected in graduate unemployment rates consistently below the national rate threshold. Also, internships significantly increase URD in 2013. Wilcoxon signed-rank test showed that introducing internships in 2008/2009 elicits a statistically significant change in the URD variable, even if we consider different periods after graduation. The magnitude of the effect¹¹ of internships is large, although it tends to be slightly higher if we consider the unemployment rate of graduates looking for a job for more than 12 months ($r=-0.9$, compared to $r=-0.8$ for unemployed graduates looking for a job for less than 12 months)¹².

Figure 2 elicits the behaviour of the variable URD in those FCDs that maintained internships. As depicted, FCDs that introduced internships registered a slightly worse performance on URD in 2007, when compared to FCDs that already had internships. Thus, arguably, study programmes' reforms seem to reflect HEIs awareness of their role with regards to the labour market, with these institutions designing institutional mechanisms to facilitate students' transition from higher education to work. In fact, the variation in terms of URD in 2007 and 2013 is larger in nominal terms in the case of FCDs that introduced internships. This is also a reflection of employers' awareness towards the competences and skills developed in FCDs, which results in a greater absorption of graduates, sometimes accompanied by significant changes in the structure of employing institutions so as to accommodate and take advantage of such competences¹³.

[Figure 2 here]

Already exhibiting a better performance with regards to URD, FCDs that maintained internships are capable of improving their URD, but to a lesser extent than the improvement identified in those FCDs that introduced internships. This comes with little surprise, as it is always difficult to improve what is already running on wheels.

¹¹ Because *p-values* do not provide information about how substantive the results are, effect sizes are required to evaluate the importance and specific contributions of the findings. The calculation of the effect size of Wilcoxon Signed-rank test is: $r = \frac{z}{\sqrt{N}}$ where N is the sample size. For example, an effect size of 0.8 means that the score of the average graduate unemployment rate in 2013 is 0.8 standard deviations above the average graduate unemployment rate in 2007.

¹² $z = -5.777$ and $z = -5.590$, respectively.

¹³ This perception was confirmed in preliminary focus groups with some coordinators of study programmes and students. This perception merits further scrutiny, as it seems to be largely neglected in research.

Again, the magnitude of the effect of maintaining internships is higher in the cohort of graduates looking for a job for more than 12 months¹⁴ ($r=0.9$). Why is this so? One could argue that this may be due to the potential effect of a mutual reinforcement mechanism, as the effect of curricular internships may interact with national government's policies to address the issue of youth employability. Specifically, in 1997, the Portuguese Ministry for Qualification and Employment launched a cooperative education programme¹⁵ aimed at assisting (under)graduate students in the development of employment skills and in the attainment of work-related experiences. This programme is partially funded by the European Social Fund and presents itself as a mechanism available to industries to recruit individuals, without any monetary counterpart. Although no official statistics are available regarding the percentage of graduates that have benefitted from this programme, it is estimated that more than 20 thousand people aged under 25 have participated in these internships¹⁶. Some employers choose to use curricular internships as a selection mechanism to proceed to a professional internship, being this even sometimes recognised in job advertisements (Hursta and Good 2010, 177). As a consequence, both these mechanisms improve the category "experience" in the *Curriculum Vitae*, which is one of the most valued recruitment criteria, as it may be perceived as an indicator of reduced uncertainty on the productivity of the candidate (Hursta and Good 2010; Tomlinson 2008).

One should also look at the distinct effect of internships according to the Portuguese higher education divide. As depicted in Figure 3, introducing internships in study programmes significantly enhances URD, regardless of the higher education subsystem.

[Figure 3 here]

The introduction of internships boosts URD in both universities and polytechnic institutions. Graduates that completed internships in universities tend to be slightly more absorbed by the labour market, although the differences with regards to those coming from polytechnic institutions is not significant in the short run (< 12 months). Conversely, work-based experiences in universities tend to generate significantly higher URD in the long run (> 12 months).

While internships *per se* tend to have a negative and significant impact on graduate unemployment rates, we do find relevant differences concerning the nature of internships. As illustrated in Figure 4, both facultative and mandatory internships tend to increase URD, with no significant differences between these internship experiences. Nevertheless, the magnitude of the effect is considerably higher when we consider

¹⁴ $z=-8.416$.

¹⁵ "Medida Estágios Profissionais", created by the ordinance (Portaria) 268/97, 18th of April.

¹⁶ In "Programa "Estágios Emprego" prolongado até ao final de 2014", *Público*, (available at <http://www.publico.pt/economia/noticia/programa-estagios-emprego-prolongado-ate-ao-final-de-2014-1617691>).

mandatory internships ($r=-0.7$) for the three different cohorts analysed, compared to $r=-0.6$ with regards to facultative internships¹⁷.

[Figure 4 here]

These results potentially stem from the fact that employers tend to consider that if study programmes do not include mandatory internships, this may signal less commitment of HEIs towards on-the-job learning, reducing the possibilities for employers to provide inputs into curricular development (Thiel and Hartley 1997). On the contrary, facultative internships do not allow this systematic interaction with the labour market, which can have potential effects on graduates' employment.

In relation to the internships' format, there is an absence of research on the impact of the length and structure of internships in employability. As explained before, internships can be classified as *thin sandwich courses* or *thick sandwich courses* (Harvey et al. 1997). As demonstrated in Figure 5, thin sandwich courses tend to outperform thick sandwich courses, although these differences are not statistically significant.

[Figure 5 here]

If we estimate the effect of internships' format, we find that the magnitude of the effect of thin sandwich courses is significantly higher, particularly if we consider the rate of unemployed graduates looking for a job for more than 12 months and the overall category ($r=-0.7$)¹⁸. Thus, it can be estimated that expanding and diversifying the opportunities available for students to experience work related activities increases URD. These tend to allow graduate students to progressively develop competencies by participating in a range of practical experiences. Students are provided with the opportunity to increase their contacts with the main employers interested in the competences acquired during the degree. Also, such diversity may allow students to surpass the major caveats associated with a single internship, namely the lack of success in integrating theory and practice; and the fact that a unique internship can lead students to focus on a narrower range of technical skills at the expense of a wider understanding of systems and organisations (Ryan et al., 1996).

In order to test the impact of internships, controlling for mediating factors, namely those associated to the nature and structure of internships, a regression model was devised¹⁹. The regression model presented in Table 3 intends to determine whether internships are positively and significantly related to greater URD. The dependent variable corresponds to the difference between URD in 2007 and 2013. Larger differences correspond to a better URD.

¹⁷ $z=-3.258$, for <12 months; $z=-3.516$, for >12 months; $z=-3.309$ for overall graduate unemployment rates; compared to the results obtained for facultative internships: $z=-4.532$, for <12 months; $z=-4.624$, for >12 months; $z=-4.554$ for overall graduate unemployment rates.

¹⁸ $z=-4.304$, for <12 months; $z=-4.623$, for >12 months; $z=-4.418$ for overall graduate unemployment rates; compared to the results obtained for thick sandwich courses: $z=-3.517$, for <12 months; $z=-3.517$, for >12 months; $z=-3.516$ for overall graduate unemployment rates.

¹⁹ Despite the low number of observations included in the regression model, it is higher than the most conservative rule of thumb of a minimum of 10 outcome events per predictor variable.

To sort out which factors play the strongest role in creating a valuable internship experience that may function as a route to early career employment, four independent variables were included: the nature and format of internships; and whether internships are provided by private or public HEIs; or by universities or polytechnic institutions. These were coded as dummy variables, as stated in the model.

[Table 3 here]

Results depicted in Table 3 suggest that none of the variables on the institutional divide or on the nature and structure of internships explain URD in the short run. Arguably, this model fails to account for other individual variables, as it claims to assess employment as an institutional achievement rather than an individual one. Results tend to suggest that the effects of work-related activities increase over time as graduates engage in work-based training, gain experience and acquire more job and occupationally skills.

This regression model also demonstrates that the introduction of internships in universities tends to generate greater URD in the long run. Likewise, thin sandwich courses tend to be associated with higher URD. This is congruent both with the descriptive results presented earlier, and with theoretical expectations. Indeed, Ryan et al. (1996) claim that “integrating theoretical components with spaced but relatively short block teaching practices may be superior to a single protracted block of teaching practice” (Ryan et al. 2006: 368). It can, thus, be estimated that performing different functions and roles in diverse workplaces can constitute an advantage in terms of early labour market integration.

Concluding remarks

Research on internships has blossomed recently, echoing a phenomenon that can be currently found on the political agendas of many governments and higher education institutions. This is particularly due to the fact that employability has become a performance indicator within higher education. Notwithstanding, the existing literature is relatively weak in considering the extent to which cooperative forms of education contribute to reduce graduate unemployment rates, without an in-depth examination of such rates before and after the inclusion of these curricular units in study programmes. Evidence is also lacking in what concerns a thorough analysis of the nature and structure of internships and their impact on youth employment.

The extent to which internships help graduates through the complicated transitions from education to employment in a changing world is, indeed, a million-dollar question. This research presents evidence that supports the need to increase employment-based training and experience and employer involvement in degrees. Indeed, results demonstrate that study programmes that include internships tend to significantly enhance graduate employment. The apparent theoretical advantage of sandwich courses and mandatory internships was empirically tested. Expanding and undertaking several internships throughout FCDs can significantly enhance the possibilities of being selected for a job.

The identified results are valuable for leading academics, namely those involved in curriculum design, and in policy-making. Results suggest that it is not (only) the internship learning experience *per se* that makes the difference considering graduates employment, but (also) the way those internship experiences are organized along study programmes. This information can be used as an initial primer for reflection on what has been already achieved in higher education and what has still to be done in order to reduce the unemployment rate of recent graduates. Moreover, HEIs are now encouraged to assess and improve their employment performance, as in many countries this is linked to public funding. Therefore internships and improved internship design can be a valuable asset for HEIs' marketing.

Future research has to deal with the major pitfalls of this article. Our research may be subject to some criticism, particularly associated with the research design used. More specifically, a large-scale study with a probability sampling procedure is required to ensure external validity, that is, to guarantee that these results can be extrapolated to the entire landscape of FCDs. A comparative study would also be an important avenue for research, since HEIs across Europe have designed different approaches to enhance employability. In spite of the pitfalls, this research still raises some awareness on the effectiveness of work-related experiences, being thus considered relevant and innovative.

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Table 1 – First-cycle degrees with internships, according to the Portuguese higher education binary divide

		Public institutions	Private institutions	<i>Total</i>
Universities	<i>Included internships with Bologna reforms</i>	11	10	21
	<i>Maintained internships with Bologna reforms</i>	5	4	9
Polytechnic institutions	<i>Included internships with Bologna reforms</i>	8	15	23
	<i>Maintained internships with Bologna reforms</i>	49	36	85
	<i>Total</i>	73	65	138

Table 2 - First-cycle degrees with internships, according to subject areas

Subject areas	<i>Included internships with Bologna reforms</i>	<i>Maintained internships with Bologna reforms</i>	<i>Total</i>
Education	8	2	10
Arts and humanities	3	0	3
Social sciences, business, administration and law	12	1	13
Natural sciences, mathematics, information and communication technologies	5	0	5
Engineering, manufacturing and construction	3	4	7
Health and welfare	6	77	83
Services	7	10	17
<i>Total</i>	<i>44</i>	<i>94</i>	<i>138</i>

Table 3 - Determinants of unemployment rate difference: regression estimates (standard coefficients)

Variables	< 12 months	> 12 months	Overall
Higher education system (0: university; 1: polytechnic institutions)...	n.s.	-.530**	-.438**
Type of institution (0: public; 1: private).....	n.s.	n.s.	n.s.
Nature of internships (0: optional; 1: mandatory).....	n.s.	n.s.	-.284*
Internship format (0: thick courses; 1: thin courses).....	n.s.	.389*	.326*
<i>R</i>	.251	.502	.442
<i>Adjusted R²</i>	-.033	.175	.113
<i>N</i>	44	44	44

Significance levels: *** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$

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Figure 1 – Unemployment rate difference before (2007) and after the introduction of internships (2013)

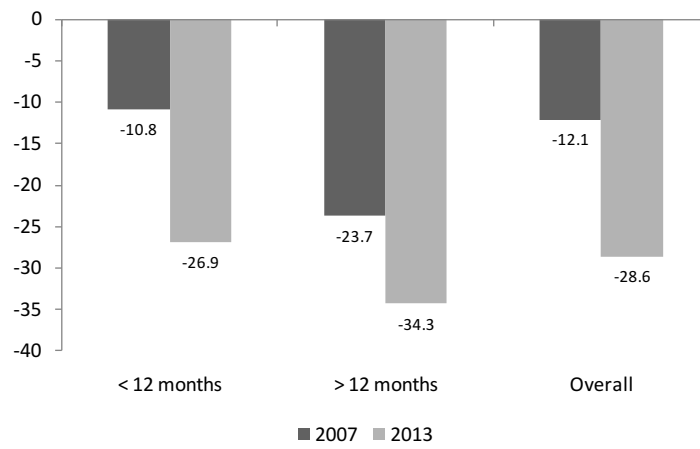
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Figure 4 - Average difference between unemployment rate difference before (2007) and after the introduction of internships (2013), according to the nature of internships

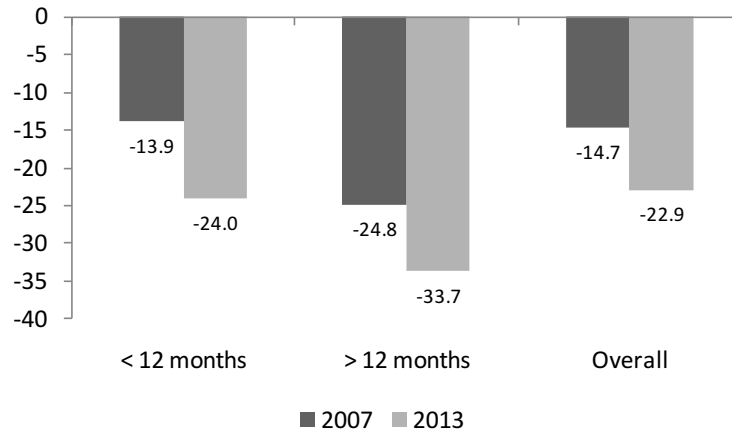
Figure 5 - Average difference between unemployment rate difference before (2007) and after the introduction of internships (2013), according to the structure of internships

Figure 1 – Unemployment rate difference before (2007) and after the introduction of internships (2013)



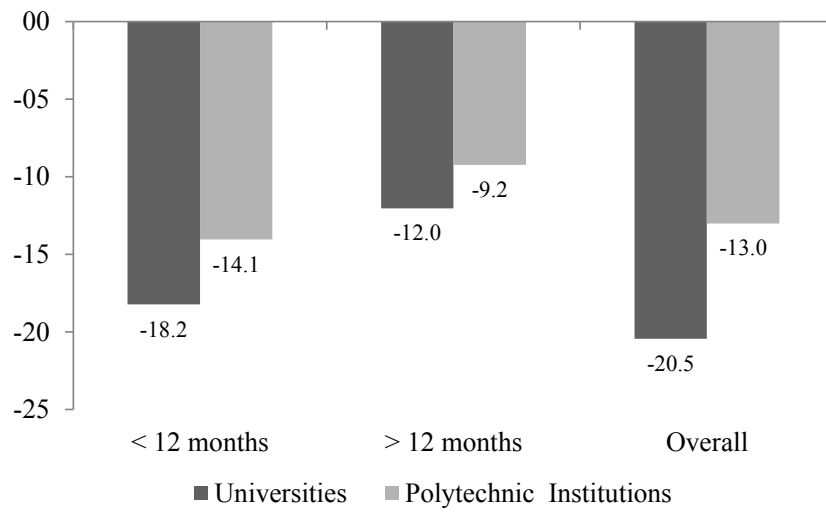
Notes: values represent the average difference between the percentage of graduate unemployment rate per FCDs and the national graduate unemployment rate in 2007 and 2013. 44 FCDs with internships are included in the analysis. All differences are statistically significant at the level .000 (Wilcoxon Signed-rank test)

Figure 2 – Unemployment rate difference of FCDs that maintained internships, (2007-2013)



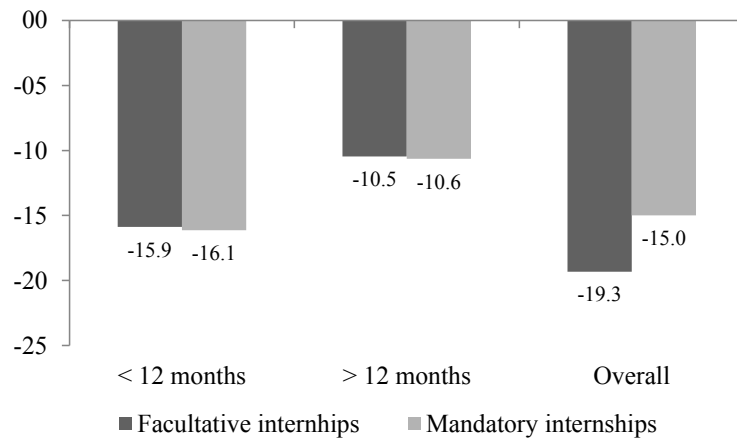
Notes: values represent the average difference between the percentage of graduate unemployment rate per FCDs and the national graduate unemployment rate in 2007 and 2013. 94 FCDs with internships are included in the analysis. All differences are statistically significant at the level .000 (Wilcoxon Signed-rank test)

Figure 3 - Average difference between unemployment rate difference before (2007) and after the introduction of internships (2013), according to the Portuguese higher education divide



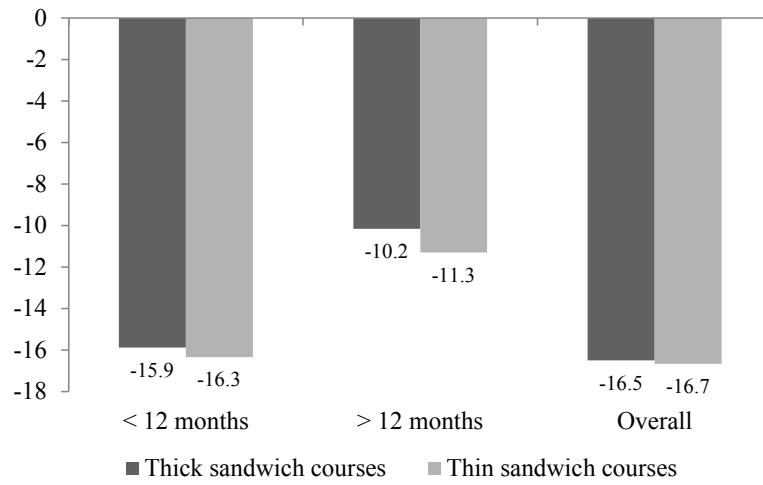
Notes: values represent the average difference between the percentage of graduate unemployment rate per FCDs and the national graduate unemployment rate in 2007 and 2013. 44 FCDs with internships are included in the analysis. Differences are statistically significant at the level .088 for > 12 months; and at the level .039 for overall (Mann-Whitney Test).

Figure 4 - Average difference between unemployment rate difference before (2007) and after the introduction of internships (2013), according to the nature of internships



Notes: values represent the average difference between the percentage of graduate unemployment rate per FCDs and the national graduate unemployment rate in 2007 and 2013. 44 FCDs with internships are included in the analysis. Differences are not statistically significant (Mann-Whitney Test).

Figure 5 - Average difference between unemployment rate difference in before (2007) and after introducing internships (2013), according to the structure of internships



Notes: values represent the average difference from the % of graduate unemployment rate per FCDs to the national graduate unemployment rate in 2007 and 2013. 44 FCDs with internships are included in the analysis. Differences are not statistically significant (Mann-Whitney Test).