



# **From a PhD to What? The Importance of the education-employment transition: Lessons from the Netherlands**

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The number of PhD graduates is on the rise. With the exception of Poland, all of the OECD countries experienced an increase in PhD graduates in the past decade (OECD, 2013). The increase in PhD graduates attests to a growth in knowledge and innovation, a growth that can be advantageous for academia, government and industry alike. But realizing the full potential of this growth requires knowledge and understanding about the transition from doctoral education to employment. Where do PhD graduates end up after completion of their studies? What barriers do they face in successfully completing their studies and moving on to employment? Which graduates are less successful in transitioning into employment? Driven by questions such as these, we undertook a survey of PhD candidates in the Netherlands from February 2008 to June 2009 at four universities (response rate 50.7%; for more details see Sonneveld et al., 2011) and a further survey of all PhD candidates registered at Utrecht University in 2010 (for more details see Sonneveld et al., 2011). Here we briefly present and discuss some of the most important findings from this research in relation to the transition from doctoral education to employment. Three findings have been particularly salient: 1) that it is possible to predict potential factors leading to delays in PhD completion; 2) that while women are increasingly taking part in doctoral education, significant differences in initial employment outcomes after graduation remain; and 3) that candidates less successful in transitioning from their PhD into paid employment share certain characteristics.

We start by looking at one of the most dreaded outcomes of the time and energy invested in PhD education: delay in completion. Delays can be detrimental for PhD candidates, supervisors and universities more broadly. In van de Schoot et al. (2013), we investigated whether it is possible to predict which PhD candidates will experience delays in completing their PhD. We found that the factors associated with delay differ for men and women. For women, having the opportunity to establish international contacts through their supervisors and a change in marital status are associated with a delay in completing the PhD. For men, factors associated with a delay in completing the PhD include having children under the age of 18 in the household and experiencing a change in supervisor or thesis topic. Using supplemental qualitative data, we also highlighted the ways in which practical and/or personal setbacks, such as illness or poor supervision, can lead to delays during the PhD trajectory. Ensuring effective PhD planning and effective communication between supervisors and PhD candidates are just some of the steps that can be taken to reduce these delays.

Second, the differences noted between male and female candidates in van de Schoot et al. (2013) are not the only significant differences between men and women in doctoral education. In the report detailing our initial study (Sonneveld et al., 2010), we note the strong feminization of doctoral education in the Netherlands. The percentage of female PhD candidates increased from 22 per cent in 1995 to 47 per cent in our study in 2009. The OECD notes that the overall increase in PhD graduates is due, in part, to the increase in female doctorates globally, growing from 43 per cent in 2006 to 47 per cent in 2011 (OECD, 2013). While the number of female doctorates is growing, our research demonstrates significant differences in the initial employment outcomes of male and female PhD candidates (van de Schoot et al, 2012). Female PhD candidates are more likely than men to be employed in academia following graduation. In addition, gender also matters in relation to the type of contract (permanent or fixed-term/temporary) following graduation. Male PhD graduates working outside academia in their initial job post-graduation are more likely than female graduates outside academia to have a permanent contract. These findings, while salient for understanding a cross-section of initial employment outcomes for PhD graduates in the Netherlands, deserve further attention in future research to understand the mechanisms driving these continued gender differences.

Third, our findings point to interesting patterns in the unemployment of recent doctoral graduates. Educational attainment is strongly related to employment patterns and conversely, to patterns of unemployment. It is not surprising, therefore, that unemployment levels among PhD graduates are often significantly lower than levels among the general working population. But as we argued in Yerkes et al. (2012), the lack of attention given to this topic means important patterns can be overlooked. As the number of PhD graduates continues to rise, such patterns will become increasingly salient for understanding the transition from education to employment. National data from the Netherlands (Statistics Netherlands, 2011) confirm the international image of low unemployment levels among doctoral recipients within the working population. Our data (Yerkes et al., 2012) reflect this pattern as well. But when we took a closer look at the 44 unemployed PhD graduates in our study, this is what we found: that PhD status, field of study and performance during the PhD trajectory matter for employment chances after graduation. Graduates with the most secure employment position during their PhD (employed by the university) are more likely to be unemployed than graduates who were on a scholarship or completed their dissertation as an external candidate. We also found a significantly higher proportion of unemployed graduates in the Natural Sciences, a finding which is in line with national statistics (Statistics Netherlands, 2011). But most importantly, our findings suggest that the number of papers and articles produced during the PhD trajectory are a crucial factor in the likelihood of unemployment following completion of a doctoral degree in the Netherlands. Given the publication pressures in the current academic climate, this finding suggests a growing importance of such publication efforts at the earliest stages of an academic career.

Taken together, these three findings illustrate the variation in outcomes in the education – employment transition at the doctoral level. We have naturally been selective in the findings presented here. This brief commentary and our findings in general, while important, also have limitations, for example, the focus on a single country context or the absence of representative data on recent doctoral graduates. Unfortunately, data such as these are often lacking. Yet our findings underscore the need for robust data sources for investigating these issues. Given the rise in PhD

graduates worldwide, this variation is only likely to increase and we would be remiss to not make research in this area a priority.

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