

PhD holders through the eyes of non-academic employers: A state-of-the-art literature review

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PHD HOLDERS AND THE NON-ACADEMIC LABOUR MARKET

In line with the Europe 2020 strategy (see <https://ec.europa.eu/eurostat/web/europe-2020-indicators>), the Flemish region has increased its investments in research and development over the past decade (ECOOM, 2019). In 2019 the Flemish government for instance allotted an extra 280 million euros for research and development (Department EWI, 2018). The increase in funding for research and development has resulted in an increase in predoctoral positions, which is not proportional to the increase of academic positions and careers (VLIR staff statistics). As a result, the vast majority of PhD holders makes the transition towards the non-academic labor market. This on its own, is of course no new information: the Flemish universities are already fully aware of this intersectoral mobility and are fully committed towards career support for PhD candidates and postdoctoral researchers. This outgoing mobility, however, is a two-sided story. Often this other side, the employer-side, is overlooked: what do non-academic employers think about PhD holders? How do they perceive people who obtained a PhD? What stereotypes about PhD holders prevail among non-academic employers? To find out if answers to these questions exist and, if so, what these answers are, we conducted a literature review. This literature review focuses on studies conducted in Flanders and, to place it in the larger context, Europe. The current ECOOM-brief summarizes the perceptions and stereotypes of European and Flemish employers in the non-academic labour market concerning PhD holders.

WHAT DO EUROPEAN NON-ACADEMIC EMPLOYERS THINK OF PHD HOLDERS?

Overall, in Europe not much attention has been devoted to the perceptions and stereotypes of non-academic employers about PhD holders. An exception to this rule is the United Kingdom which had several initiatives aimed at mapping non-academic employers' thoughts related to PhD holders (CFE research, 2014; CIHE, 2010; Euraxind, 2016; Morgavi, McCarthy, & Metcalfe, 2007; Raddon & Sung, 2009; Rubio & Hooley, 2010; Souter, 2005). For what themes or topics do European employers in the non-academic labour market stereotype PhD holders? European non-academic employers appear to hold stereotypical ideas about PhD holders' knowledge, skills, abilities, and personal characteristics (see Table 1 for an overview). On a more specific level, stereotypes occur with regards to the management, commercial, interpersonal, communication, scientific/research, and work-organizational skills of PhD holders but also concerning their cognitive, innovating, adapting, learning, and information processing abilities. The theme 'Personal characteristics' entails perceptions regarding PhD holders' personality, motivation, experience, specialisation, and connection with the real world.

Are PhD holders negatively or positively stereotyped by European non-academic employers? It depends on the (sub)theme. For some of the (sub)themes PhD holders are clearly negatively stereotyped. European non-academic employers perceive PhD holders as lacking experience as well as management, commercial, and interpersonal skills (CFE research, 2014; CIHE, 2010; Euraxind, 2016; Germain-Alamartine & Moghadam-Saman, 2020; Morgavi et al., 2007; Souter, 2005). Also, non-academic employers think that PhD holders have difficulties to adapt (for instance to a commercial environment), are too specialised, and are too far removed from the real world (CFE research, 2014; CIHE, 2010; Euraxind, 2016; Germain-Alamartine & Moghadam-Saman, 2020; Morgavi et al. 2007; Raddon & Sung, 2009; Souter, 2005).

Table 1. European and Flemish non-academic employers' perceptions and stereotypes concerning PhD holders: Themes and examples

Themes	European employers' stereotypes	Flemish employers' stereotypes
Knowledge	"High level of subject/discipline specific knowledge"	"Deep scientific knowledge"
Skills		
Management	"Lack of business skills"	"Cannot manage teams"
Commercial	"Lack of commercial awareness"	"Focus on details without commercial value"
Scientific/Research	"Technical proficient"	"Sound methodological skills"
Communication	"Strengths in writing reports"	"Fluent English in writing and speaking"
Interpersonal	"Socially incompetent"	"Qualifications to work in team"
Work-organizational	"Take initiative"	"Self-disciplined"
Abilities		
Cognitive	"Intellectual capacities"	/
Adapting	"Difficulties to adapt to non-academic environment"	"Not flexible enough"
Innovating	"Expert innovators"	"Think out-of-the box"
Learning	"Quickly develop understanding in other areas than PhD subject"	"Strongly developed learning ability"
Information processing	"Ability to work with large amounts of information"	"Ability to process and analyse situations quickly"
Personal characteristics		
Personality	"Resilient"	"Perseverance"
Motivation	"Motivated"	/
Experience	"Limited experience"	"International experience"
Specialisation	"Too specialized"	"Larger specialisation"
Connection with the real world	"In an ivory tower"	"Otherworldly"

For other topics non-academic employers have positive thoughts about PhD holders. They perceive PhD holders as motivated, expert innovators, fast learners, and fast information processors with a high level of subject specific knowledge, cognitive abilities, and scientific/research, communication, and work-organizational skills (CFE research, 2014; CIHE, 2010; Euraxind, 2016; Morgavi et al., 2007; Rubio & Hooley, 2010; Souter, 2005). The positivity or negativity of stereotypes regarding PhD holders' personality is less evident. On the one hand European non-academic employers perceive PhD holders as enthusiastic, dedicated, and resilient (CFE research, 2014; Euraxind, 2016), but on the other hand also as not open and too independent (Germain-Alamartine & Moghadam-Saman, 2020; Raddon & Sung, 2009).

Do stereotypes and their positivity or negativity differ between different types of European non-academic employers? Conducted investigations suggest that experience with PhD holders may influence how non-academic employers think about PhD holders. European non-academic employers would have more positive thoughts and less negative stereotypes about PhD holders when they have more experience with hiring and employing PhD holders (CFE research, 2014; Morgavi et al., 2007; Rubio & Hooley, 2010).

How do European non-academic employers perceive PhD holders compared to masters, another group of highly educated profiles? European non-academic employers have more positive perceptions about PhD holders than masters regarding subthemes that PhD holders are positively stereotyped for by these employers. PhD holders are better evaluated than masters on scientific/research skills and new ideas/help to innovate (CIHE, 2010). However, PhD holders are perceived to perform less well than masters on commercial skills, ability to adapt, specialisation, and work experience (CIHE, 2010), subthemese for which European non-academic employers hold negative stereotypes concerning PhD holders.

WHAT DO FLEMISH NON-ACADEMIC EMPLOYERS THINK OF PHD HOLDERS?

Various newspapers and magazines in Flanders report negative perceptions and stereotypical ideas about PhD holders among employers in the non-academic labour market. According to these outlets, non-academic employers think of PhD holders as too specialised, otherworldly nerds with a nine-to-five mentality, having a lack of work experience, and not suited for leadership/managerial positions (De Standaard, 2015a,b; Jobat, 2019; Knack, 2017). The very little Flemish research on this topic, however, points out that this picture of how non-academic employers look at PhD holders should be nuanced in (at least) two ways. First, aside the negative stereotypes, Flemish non-academic employers also hold positive stereotypes about PhD holders. In 2016, ECOOM-UGent has conducted a series of interviews with 30 key stake holders in Flanders about the value of a PhD in the non-academic labour market (Stassen, Levecque, & Anseel, 2016). From these interviews negative stereotypes emerged like PhD holders lack several management and commercial skills. Also, it was mentioned that PhD holders aren't flexible enough and are otherworldly nerds with difficulties to translate their knowledge to the world outside academia. These interviews also demonstrated Flemish non-academic employers' positive thoughts about PhD holders. They applauded PhD holders for their extensive scientific/research skills and knowledge, strong written and spoken communication skills, abilities to innovate and learn, as well as their self-disciplined way of working and perseverant nature.

The second nuance is that perceptions and stereotypical ideas may depend on the science cluster and whose ideas about PhD holders are studied. Some interviews in Stassen et al. (2016) acknowledged that the value of a PhD in the exact sciences is different from that in social sciences. Also, research and development/innovation managers perceived a PhD as an added value, but HR managers did not (Smit, 2010).

CONCLUSION

The literature presented in this ECOOM-brief shows that European and Flemish non-academic employers hold positive and negative stereotypes concerning PhD holders' knowledge, skills, abilities, and personal characteristics. Negative stereotypical ideas are that PhD holders have a lack of management skills, a low ability to adapt, and little connection with the real world. On the other hand PhD holders are positively characterized as having sound scientific/research and work-organizational skills, being fast learners, and being expert innovators. Despite differences between Flanders and European countries (in terms of for instance the labour market), largely the same pattern of stereotypes among employers concerning PhD holders emerges. Notable differences are that European employers hold negative stereotypes regarding PhD holders' interpersonal skills and specialisation, whereas Flemish employers seem to have positive thoughts about the interpersonal skills and both positive and negative stereotypical ideas regarding specialisation. For the Flemish employers however only one or two mentioned their thoughts about these subthemes. So, more research is definitely needed to clarify Flemish employers' stereotypes regarding PhD holders' interpersonal skills and specialisation.

This literature review also shows that the negativity or positivity of non-academic employers' thoughts about PhD holders may depend on employer characteristics (e.g., amount of experience with hiring and employing PhD holders), the science cluster in which the PhD is obtained (e.g., exact or social sciences), and whose perceptions and stereotypes are studied (e.g., HR managers or research and development/innovation managers). Research in Flanders should in the future address how the perceptions and stereotypes exactly look like for the different types of employers, science clusters, and persons of interest.

One of the action points in the Flemish government agreement 2019-2024 is to better prepare PhD holders for a career outside academia and smoothen the intersectoral mobility to a non-academic career. In this regard, it is not only important to get insights into the non-academic career opportunities (see ECOOM-brief number 25 about the career paths of PhD holders), but also into the perceptions and stereotypes about PhD holders among Flemish non-academic employers that may facilitate or hinder the transition. However, till today not much attention in Flanders has been given to this topic (exceptions: see Smit, 2010, and Stassen et al., 2016). Flemish research has thus barely scratched the surface, leaving many questions unanswered. For instance, are the stereotypes identified in the interviews of Stassen et al. (2016) widely supported by Flemish non-academic employers? Do stereotypes differ depending on the gender of the PhD holder and, if so, what are the specific perceptions and stereotypes concerning male and female PhD holders? But also, what perceptions and stereotypes play a role in selection procedures? Additional data collections are required to answer these and other questions. Only in this way the intersectoral mobility of PhD holders can be perpetuated and consolidated.

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