

Collaboration strategies for publishing articles in international journals – A study of Polish scientists in economics



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ABSTRACT

This study investigates the importance of co-authorship ego-networks to scientific performance. In particular, the focus is on Polish researchers in economics, who need 'catch-up strategies' to aid them in publishing papers in international journals. Brokerage is identified as one of the most important correlates of publishing success. However, in many cases, the best performers are smart collaborators who take advantage of the benefits of both bridging and bonding social capital. In general, co-authorship itself does not provide an advantage. Instead, a proper collaboration strategy appears to be more important. Additionally, embeddedness of authors within their affiliations should be considered.

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1. Introduction

Collaboration in science is crucial to productivity (Wuchty et al., 2007) and appears to be on the increase (Acedo et al., 2006; De Stefano et al., 2013; Laband and Tollison, 2000; Moody, 2004). Furthermore, not only are there more collaborative papers, but there is an increase in the number of co-authors (Goyal et al., 2006; Wuchty et al., 2007) and in international collaborations (Adams et al., 2005). The growing complexity of science on the one hand, and its specialization on the other require that research be based on collaborations among scholars with different skills and backgrounds (De Stefano et al., 2013). However, collaboration may have both advantages and disadvantages. It provides opportunities to share knowledge and experience, use synergy effectively, and divide tasks. However, there are transaction costs in terms of finding and assessing co-authors in a situation of incomplete information, costs of organizing and coordinating cooperation, communication problems, required compromises, and risks connected with free-rider behavior (Ductor, 2014; Fox and Faver, 1984; McCarty et al., 2013).

A common approach to measuring collaboration among scientists is to analyze co-authorship in articles, although the method has its drawbacks. For example, sometimes fictional co-authors are included or important contributors are discounted (Benett and Taylor, 2003). Some studies analyze research collaboration using surveys on collaboration behavior (e.g., Lee and Bozeman, 2005),

but this approach is less popular, mainly because of data constraints. Numerous studies examine co-authorship networks in different science disciplines. Many focus on the overall network structure and how it evolves, and observe emerging collaboration patterns. Examples include a small world where the average distance decreases over time owing to interconnected stars in economics (Goyal et al., 2006), a growing, structurally cohesive core in sociology (Moody, 2004), and differences between scientific networks in biology, physics, and mathematics (Newman, 2004). These works also focus on the determinants of existing co-authorship patterns (Acedo et al., 2006; Fafchamps et al., 2010).

This study investigates the importance of collaboration to the performance of scholars by analyzing co-authorship structures and their impact on the quantity and quality of papers in academic journals. As such, this study corresponds with those that explore the effects of co-authorship egocentric networks on scientific performance (Abbasi et al., 2011, 2012; De Stefano et al., 2013; Kuzhabekova, 2011; Li et al., 2013; Liao, 2011; McCarty et al., 2013; McFadyen and Cannella, 2004; Rumsey-Wairepo, 2006). This research adds to these previous analyses by considering authors' ego-network measures, as well as several additional characteristics, at both the individual and the organizational level, that refer to resources available to scientists. Therefore, it connects social network analysis (SNA) literature and the broad scope of other analyses in order to show the role of collaboration among other determinants of scientists' performance (Lissoni et al., 2011; Kelchtermans and Veugelers, 2011; Hesli and Lee, 2011; Fox and Mohapatra, 2007).

This work is inspired by the multilevel network research of Bellotti (2012) and Lazega et al. (2008), but refers to a different

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social network (co-authorship) and a different context (publications by Poles in economics). In order to cover various productivity correlatives and their interdependencies, multilevel modeling is applied (Hox, 2002; Rabe-Hesketh and Skrondal, 2008; Snijders and Bosker, 1999). This approach is useful both to control and explore the embeddedness of individuals in organizations. The aim is to show that scientists' strategies and results are influenced by their organizational surrounding. The first level of analysis enables the tracking of differences in productivity between individuals. The second level refers to research units (faculties) that employ scientists and that can be a source of different resources.

The choice to focus on Polish scientists in the discipline of economics is justified for several reasons. First of all, the area of economics is well analyzed (e.g., Goyal et al., 2006; Acedo et al., 2006; Fafchamps et al., 2010). Thus, there is a good background for studying co-authorship patterns and their meanings in this field. In contrast to some laboratory sciences, collaboration in economics is not the only option. Therefore, economists are free to choose different collaboration strategies when preparing their publications, including choosing to be a single author. At the same time collaboration in economics matters, especially because of the dominance of quantitative approaches, where the division of skills seems to be especially important (Moody, 2004).

Secondly, Polish academics are interesting because their achievements thus far in international journals have been limited, as the incentives for such publications are relatively new. Therefore, they need strategies to help them succeed in this area. In many countries, a scientist's promotion is based on being published in reputable journals, with high indexes of citations, and a high ratio of papers being rejected rather than accepted. Internationally, the prestige of academic institutions and, thus, their ability to raise funds depends on such publications by their employees. However, the international publishing achievements of Poles have historically been lower than academics in countries where the leading economics schools are located. Moreover, their achievements have been lower than those of their neighbors in Central and Eastern Europe (Charemza, 2007). Charemza proposes that this can be explained by a lack of motivation to publish in these journals, because publication was not a condition for professional advancement and recognition in the academic environment. However, recent changes in legislation have made publishing in international journals increasingly important. The system of funding for research units in Poland has become increasingly selective and competitive, which has affected how individuals are evaluated by their universities (Bukowska and Lopaciuk-Gonczyrk, 2013).

In line with the new incentives, Polish scientists need strategies to help them increase both the quantity and the quality of publications in international journals. Preferences for types of collaboration may have a cultural background, but they are also the result of research strategies that follow incentives created by rules of funding. These strategies may be based on solitary attempts, or they may involve decisions to collaborate. Furthermore, within co-authorship patterns, strategies may differ.

In order to investigate the various possible strategies, it is important to understand the nature of the data being analyzed and the institutional surrounding within which they arise. The co-authorship network analyzed here is based on aggregated data from articles by Polish authors in international economics journals over 14 years (1999–2012, obtained from SCOPUS and Web of Science). Nevertheless, the network is sparse and low in terms of connectedness, because of the low average number of articles per Polish author, and the low number of authors per article during the study period. Most collaborations took place between 2006 and 2012, which corresponds with the significant increase in the number of authors and papers in this period. This might be influenced by Poland joining the European Union in 2004,

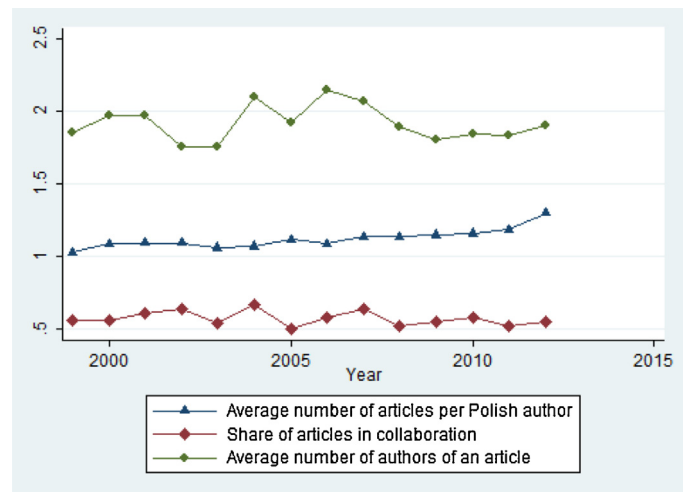


Fig. 1. Trends in collaboration and scientific performance.

which helped Poles to collaborate with colleagues from European universities.

The trends over time are illustrated in Fig. 1. Note that the average number of articles per Polish author increases slightly. However, what is surprising is that neither the average number of authors per article nor the share of articles written in collaboration increase, which is opposite to the world trends (De Stefano et al., 2013; Moody, 2004; Acedo et al., 2006; Laband and Tollison, 2000).

Fig. 2 shows that the number of authors and articles in the overall database (including single-authored papers) increase rapidly from 2006. Then, the question is why collaboration does not rise before or after a peak in productivity. It seems there are some constraints on collaborative development. For some reason, the overall cost of increased collaboration for Polish economists seems to be higher than the benefits accrued. This may be connected with a lack of experience in collaborating, which makes it less effective. However, the answer may also lie in the popularity of strategies based on solitary attempts in order to gain individual recognition and build individual positions, which corresponds with the promotion systems. For example, until 2011, promotion to the position of “doktor habilitowany” (assistant/associate professor) in Poland was based on a monograph, which was, by custom, single authored. Since 2011, it has been possible to base this promotion

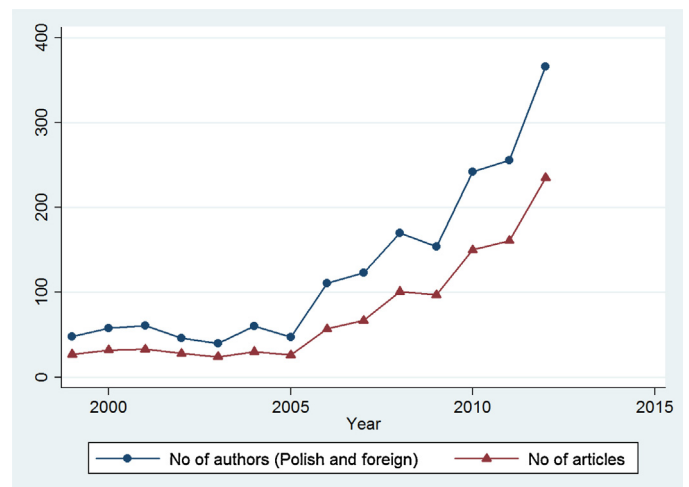


Fig. 2. Increasing trend in number of authors and articles.

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