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## The distribution of partnership returns: Evidence from co-authorships in economics journals



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#### ABSTRACT

Partnerships can be found in many areas of social and economic life. These arrangements have become particularly prevalent in research and development activities where organizations increasingly seek partners to complement their own technological capabilities. R&D partnerships, however, are fraught with challenges because the conditions for optimum effectiveness and efficiency of cooperation are still not fully understood. Academic partnerships are also very common and offer a fertile ground for investigation.

Academic cooperation takes many different forms and results in a wide range of outcomes (Laband and Tollison, 2000). One of the most visible outcomes is co-authored publications (Melin and Persson, 1996). Nowadays, there are extensive data available about both the context of these partnerships and the quality of their outcome. This paper explores the distribution of benefits and losses of co-authorship between scholars with asymmetric background, who cooperate through co-authorship in the publication of academic articles. We distinguish between short-term relative returns (i.e. the increase/decrease in citations of a co-authored article relative to the authors' previous publications) and the long-term ones (i.e. the increase/decrease in citations of articles subsequent to the co-authored piece). While the same variables drive the returns (benefits or losses) of both the junior and the senior co-authors, their long-term returns are driven by markedly different, and somewhat opposing, factors. The effect of the co-authors' resources matters more for the senior than for the junior academic partner.

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#### 1. Introduction

Partnerships can be found in all sectors of economic and social life: in business, in arts, in science, in politics, etc. They have also become prominent in research, be it industrial or academic (Wuchty et al., 2007). They come in various forms of collaboration (Laband and Tollison, 2000), such as joint research projects, scientific discussions, publications and many others that are less formal. They have grown substantially over the past few decades in all fields of published research, especially in the last part of the 20th century (Glänzel and Schubert, 2004; Wuchty et al., 2007; Lermarchand, 2012). This trend touches most disciplines and can also be observed in management and organizational studies (Acedo et al., 2006), accounting (Fleischman and Schuele, 2009), and finance (Chung et al., 2009). McDowell and Melvin (1983) find evidence of a similar trend in economics, and they predict a continuous expansion of this phenomenon. According to Laband and Tollison (2000), the proportion of co-authored articles in economics grew from less than 20% in the 1960s, to over 60% in the 1990s.

Several drivers have been identified as playing a role in this sustained growth. They include increasing specialization (McDowell and Melvin, 1983), the search for efficiency (Katz and Martin, 1997), proximity (Mairesse and Turner, 2005) but also "preferential attachment", i.e. "the self-interest of researchers to link together in search of rewards, reputation and resource offered by a collaborative network" (Wagner and Leydesdorff, 2005). There is abundant literature on this question.

Many aspects of co-authorship have been investigated, including the reasons why it has been developing so significantly over the past 50 years, as well as the costs and benefits of co-authorships (e.g., Hudson, 1996; Hollis, 2001). Yet much less is known about the effect of asymmetry between co-authors on the benefits or losses that accrue to each "partner" of an article. Asymmetry is defined as the difference between co-authors regarding research competence, experience, influence, or reputation. It is rather frequent in academic publication and has been advocated as an effective approach for junior colleagues to acquire skills, competence and experience (Reed et al., 2002). Therefore, it would be valuable to develop a better understanding of the factors affecting the benefits obtained (and the losses suffered) by asymmetric co-authors from their cooperation. This article provides evidence about this question. We investigate the drivers affecting the distribution of

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co-authorship returns in economics, given that collaboration in this discipline presents certain characteristics (e.g. the high proportion of "duos"), which makes a statistical analysis particularly meaningful.

Our paper is structured as follows: In the next section, we provide an overview of the literature on co-authorship, highlighting the key findings in this research domain, as well as some pending questions. In Section 3, we present our research question and the theoretical background to our investigation. Our model and hypotheses are presented in Section 4. Section 5 is devoted to presenting our data collection and the statistical analysis techniques we used. Finally, in Section 6, we discuss the results and elaborate on the key implications of our research and future investigation.

### 2. Cooperation and partners' benefits: the case of academic research

Cooperation between academics and researchers is not new; it has been a tradition for decades, but has now become the dominant mode of "production" such that individual research is becoming the exception in most disciplines. In this section, we define coauthorship as a form of academic cooperation. We discuss the reasons why it has become so widespread, the methods to measure its output, and the returns (positive or negative) that it entails for the co-authors.

#### 2.1. Defining intellectual collaboration and co-authorship

Academic collaboration materializes into a broad range of artifacts such as co-publications, joint presentations of research papers at conferences, research seminars, working papers, research reports, and many more. Co-authorship of scientific articles, however, is one of the most convenient activities to measure the outcome of collaboration because there is a definite "output" (i.e. a publication) whose "quality" can be assessed by numerous methods. Yet, co-authorship does not always reflect actual collaboration (Melin and Persson, 1996), especially when it comes to publications with many authors, as is the case in certain disciplines characterized by heavy empirical research. On the one hand, the real number of co-authors may be higher than the number declared, if the lead writers omit some contributions that they consider marginal (Glänzel and Schubert, 2004). On the other hand, there can be fewer effective contributors to an article if the name of a particular person is included to acknowledge some kind of non-scientific support (financial, institutional or otherwise), as is sometimes the case in large research organizations. Another bias comes in the form of "abusive" authorship when a senior academic imposes his/her name on a junior colleague's work (Kwok, 2005). Mistreatment of this sort has been reported in natural sciences and medicine, but much less in economics, which is the field of research under consideration in this article.

In theory, there can be an unlimited number of authors to a copublished article. In certain fields of research, it is not rare to find over six different names attached to a paper due to certain traditions to mention as authors, persons whose contribution has been relatively peripheral. This can make the study of co-authorship particularly difficult, as data must be collected on a large number of co-authors. Other disciplines, however, have experienced a relatively high level of one-on-one co-authorship. This is particularly the case in economics where these "duo" authorships represent close to 50% (Sutter and Kocher, 2004), also reducing the likelihood of abuse compared to multi-author publications.

#### 2.2. Assessing the "value" of an academic article

Authors of academic papers benefit from the quality of their articles because universities typically reward good scientific production in the form of career promotion or research grants. The quality of an academic article is typically assessed on the basis of the number of citations that it receives, sometimes weighted by the scientific standing of the journal in which the article is published. This approach has a long history. It has been used, and is still extensively used (Simonton, 1988, 2008; Azoulay et al., 2010a,b; Azoulay et al., 2011; Jones, 2010) as a measure of an article's "creativity". Yet, there are well-known methodological biases (Strumpf, 1995), because the number of citations is influenced by several factors such as the journal's reputation, the language, the topic (methodological contribution vs. literature review, theoretical vs. empirical approach), and the authors' productivity (prolific scholars are quoted more often). Quantity can be associated with perceived quality since the "distinguishing characteristic of a genius, scientific or otherwise, is immense productivity" (Simonton, 1988, cited by Strumpf, 1995). In this respect, Strumpf (1995) writes: "Despite their limitations, citation counts have become very popular and will certainly continue to be an important tool to evaluate the scientific impact of publications and scientists".

Citations in journals therefore have been considered as the "harvest" scholars receive from their scientific production. Laband and Piette (1994) actually consider citations as the remuneration of authors: "Our position is that citations are the scientific community's version of dollar voting by consumers for goods and services." Hilmer and Hilmer (2005) bring tangible support to this concept when they find that journal quality affects economists' salaries, even in co-authored papers, although less than for single-authored papers, but independent of the authors' order (i.e. there is no wage premium for being the lead author of a non-alphabetic list). They also find that citation counts are widely used as an incentive and enter into decisions regarding recruitment, promotion and remuneration of research personnel. In the same vein, Chung et al. (2009) express the same position: "It is also reflective of a market measure of quality as the entire academic community can decide whether or not a paper is worth citing". This would explain why authors "seek to maximize their 'score' on one or more bibliometrics indicators" (Martin, 2011).

There is an on-going debate regarding the rewarding of coauthored papers. Some researchers, like Hudson (1996), suggest employers give a discount proportional to the number of coauthors. Sauer (1988) actually finds evidence of positive individual returns on co-authored papers and estimates, based on salary evolution, that the return from a co-authored paper is approximately 1/n that of a single-authored paper, where n is the number of coauthors. Yet, Bruno (2010) shows that the evaluation of co-authored papers should depend on what the university (the employer) seeks: motivating all scholars vs. identifying the best ones. In any case, co-authoring is likely to stay attractive since the benefits from citations are not purely financial, but include also scientific reputation, standing in the academic community and evidence of networking capabilities (Ductor et al., 2014).

#### 2.3. The benefits and costs of co-authorship

#### 2.3.1. Does co-authoring bring benefits?

At the individual level, the question is posed: does collaboration lead to "better" publications? Clearly, there is no agreement on this yet. Wuchty et al. (2007) find that teams produce articles that are more highly cited than those of individual scholars. Avkiran (1997) finds that co-authored papers in finance are not significantly better rated than single-authored ones. Hollis (2001), on the other hand, finds that co-authored papers tend to be more easily accepted

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