

## **The relationship between intangible assets and firm productivity – still myth or is there new evidence?**

We have titled the special issue in a way that partly questions the relationship between intangible assets and firm productivity. What urged us to do so? While it is hard to find clear evidence that developing intangible assets lead to higher productivity, yet, much wishful thinking and even myths still exist in this field. Looking back on existing academic research, the relevance of productivity as a topic has long been acknowledged. Indeed, some evidence does exist supporting a positive relationship between intangible assets and productivity; but the picture remains rather eclectic. On the other hand, there are also many studies that show no causal relationships between the two phenomena. However, the topic is still vital and of interest to scholars.

To illustrate this, we conducted a search in the Scopus database (retrieve “productivity” in the title, subject areas business, management, accounting and economics, econometrics and finance) for the years 2016–2019. As a result of this search, 317, 320 and 336 papers were found in 2016, 2017 and 2018, respectively, and by the first half of 2019, more than 100 articles have been published. In the most recent papers in 2019, productivity is explored with the following intangibles: engagement and involvement, human and intellectual capital, various manifestations of knowledge management, working practices and standards, stress, organizational spirituality and others. The studies rely on data from different regions of the world: the most represented are Asia (47 articles), Europe (28 articles) and North America (8 articles), but very little research has been conducted in this field in South America, Africa, Central America and Oceania (altogether, only eight studies)[1]. The vast majority of these articles (107) employ quantitative analysis; only one paper uses qualitative, and one an experimental, approach. The focal sectors in these studies included manufacturing (25 articles), agriculture, finance and business (18 articles)[2]. This brief overview demonstrates that considerable research has been conducted, but the studies suffer from focusing on a single, albeit interesting, aspect of intangibles and thus generalizing the findings is quite complicated. Another issue is the geographical and sectorial spread of the studies. While country and sector-based studies are valuable, cross-sector research is also to be welcomed, as it facilitates a more profound and reliable picture of the mutual relationships between the phenomena under study.

Nevertheless, a number of papers published in recent years illustrate that the question of the relationship between intangibles and productivity is still topical, both from an academic and a practical, managerial perspective. To open up this agenda, the approach by Syverson (2011) can be mentioned – certain types of capital may themselves be invisible; in other words, intangible capital. He names such elements as a firm’s reputation, know-how, or its loyal customer base. This broad approach can be paired with the notion that no common understanding or agreed definition of productivity exists in the academic debate thus far. Bloom and Van Reenen (2010, p. 204) open their seminal article by stating: “Economists have long puzzled over the astounding differences in productivity between firms and countries.”

In many business sectors, the quantification of output is not easy, and therefore the classical approach to productivity as a ratio of outputs and inputs does not apply. Complexity in this regard reflects much academic research, where the alternative term

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This study was partly supported by the Project IUT20-49 Structural Change as the Factor of Productivity Growth in the Case of Catching up Economies.



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performance is often used (the latter is true also for some of the papers in this special issue). In such cases, performance is understood as an “umbrella term for all concepts that consider the success of an organization and its activities” (Tangen, 2005, p. 40). Furthermore, intangible assets also lack a common definition. The field of inquiry usually considers human capital (knowledge, skills and abilities) and structural capital (structures, processes, culture and relationships with external stakeholders) as part of intangible assets (Kristandl and Bontis, 2007; Brynjolfsson *et al.*, 2002; Youndt *et al.*, 2004; Coff, 2002). The spectrum of factors illustrating human and organizational capital is wide and the role of each of these factors individually, and all of them together, in terms of organizational performance remains vague and requires further study. Since empirical studies typically analyze the effect of a single element on productivity (e.g. Mathew *et al.*, 2012; FitzRoy and Kraft, 2005; Grafton *et al.*, 2010) thus far, there is no agreement about the relative importance of these elements for productivity.

Technological optimism and hopes for growth have not led to an increase in productivity in all countries and sectors. Although developed and developing countries benefit from landline and cell technologies, there is a productivity dispersion between developing and developed countries; the latter countries gain significantly more from computing power than their counterparts in developing countries (Stanley *et al.*, 2018). One of the issues in considering intangible assets is that traditional management systems have been designed for tangible assets; however, the role of intangible assets has grown significantly. Syverson (2011, p. 360) writes: “If one really could measure intangible capital (which, alas, is inherently difficult given its nature), the productivity differences arising from such sources could be explained.” Attempts to boost productivity, and to define and measure intangible assets, is a major concern for different stakeholders in order to improve and make future strategies and operations easier. That said, the questions regarding the relationships between intangible assets and productivity are not only of interest within academia, but are important for world of the business too. Questions such as:

- How is it possible to reach higher productivity, especially in knowledge intensive companies or in creative industries where “production” and “productivity” are sometimes fuzzy concepts and hard to measure?
- What measures should be taken in aging societies and in a situation of a decreasing qualified workforce, in order to sustain acceptable productivity levels? are critical ones for businesses.

With this special issue we aim to open up a re-examination (and if necessary a questioning) of the concepts and relationships between intangible assets and performance, and especially productivity. This special issue aspires to provide a step forward in achieving a better understanding of how intangible assets affect productivity and how to measure these processes. The latter has been seen as an important factor for achieving sustainable growth and competitive advantage in a company. The special issue presents seven papers which approach productivity and intangible assets from different angles, including gossip, CEO characteristics, employee age and wages.

The first paper by Ben-Hador adopts a unique and under-studied perspective on productivity, exploring how gossip is associated with social capital and productivity. The paper analyses how gossip is related to social capital and performance in the aviation and shipping industry in Israel. The author distinguishes between two types of social capital: personal and intra-organizational. Contrary to the hypothesis set, the study shows that gossip does not have a negative impact on individual performance – gossip is not the villain one would expect. Surprisingly, the study demonstrated that gossip reinforced personal social capital, and therefore mediated higher levels of performance via intra-organizational social capital. The findings are more surprising when we consider the cultural context of the study – Israeli culture

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traditionally condemns gossip. The author argues that gossip includes many positive aspects including faster data transfers, solidarity and strengthening of social ties among organizational members and that these characteristics facilitate performance.

The second paper, by Kengatharan, takes the reader to banking, insurance, telecom and tourism sectors in Sri Lanka. The author focuses on three types of intellectual capital: human, social and organizational. The study shows that these three types of intellectual capital have a positive impact on productivity and performance. An attempt to analyze both productivity and performance within the scope of one study is quite rare, but it reveals new insights. The study reports a strong connection between productivity and different facets of intellectual capital, but the link between performance and intellectual capital is mediated by productivity. Consequently, the study illustrates the importance of all levels of intellectual capital in organizations. Organizations aiming to increase productivity and performance should focus on developing individuals (knowledge, skills and expertise), work groups (networks, ties and mutual learning in teams) and elements of the organization (culture, processes facilitating learning).

The third paper, by Garcés-Galdeano and García Olaverri, is based on high-tech companies in Spain. While the sample and region differ from Kengatharan's study, the conclusions are somewhat similar. Analyzing data from 1,500 CEO's, the study demonstrated the crucial role of constant learning in organizational performance. The study used both objective and subjective indicators (e.g. market share, employment growth, new knowledge applicability and success) to measure performance, thus making a valuable contribution to the field of inquiry. Another unique aspect of the study is its combination of a set of objectively measured CEO characteristics. Performance increased when the CEO has a good education both general and in the field of business. Concerning tenure, both in the same firm or elsewhere, and experience in the same industry and as an entrepreneur in general, the results are mixed. The study also revealed few significant differences in respect to the profiles of younger and older CEO's and the impact these profiles may have on performance.

While the previous paper showed the importance of the CEO's education, experience and tenure as accumulated knowledge, the fourth paper focuses on the question of whether investments in formal training pay off in terms of the firm's financial performance. Kwon analyses data from 312 manufacturing, banking and other service sector companies in Korea. The study confirms that investments in training and development predict enhanced financial performance of the firm. The paper focuses on the long-term effects of investments on training and provided evidence that the Korean companies studied did not decrease investments in training during the Great Recession or the subsequent recovery period. The study revealed that an increase in the training and development budget over time improved the financial performance of companies.

The fifth paper, by Jaakson, Aljaste and Uusi-Kakkuri, concentrates on different facets of innovativeness and financial performance in Estonian and Finnish biotechnology companies. In total, 26 companies from this innovative business sector were studied, applying both quantitative and qualitative methods. As the majority of studies on social capital and productivity rely on quantitative methods, this paper is of particular interest from the methodological perspective. The study showed that different dimensions of innovativeness are not necessarily related to each other. For example, strategic clarity is often considered a pre-requisite for innovativeness; yet a flexible structure was not necessarily in use in these companies nor a system of personalized rewards for innovative ideas. Interestingly, the strategic dimension of organizational innovativeness did not significantly improve performance indicators; instead, dimensions that were related to human resource policies had more potential to positively affect the company's financial performance. The study also showed that certain combinations of organizational innovativeness are quite effective for improving performance indicators. For example, the study revealed that a higher earnings before interest and taxes) per

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employee in biotechnology companies was achieved by implementing either a loose structure and personalized rewards or strategic clarity, but not both. Another interesting conclusion was that high financial performance can also be achieved without being highly innovative; however, an optimal level of organizational innovativeness can be very advantageous in this respect.

The sixth paper aims to answer the question: does a greater complexity of products contribute to the productivity of exporting manufacturing firms. Varblane and Bormann's study related to Estonian companies, over the period 2008–2014. The authors presume that production of complex products requires more capabilities and the development of employees and in that sense the complexity of products is approached as one indication of learning and enhanced intellectual capital. The paper combines three firm-level datasets: first, The Atlas of Economic Complexity; second, Statistics Estonia, which contains the full population of exporting firms in Estonia; and third, Estonia's Commercial Registry, which collects the annual reports of all companies registered in Estonia. This is a unique combined data set and the study includes 3,056 companies. Contrary to expectations, the study showed that the production of more complex products did not lead to greater productivity in the companies studied. This finding resembles the results from the study by Jaakson, Aljaste and Uusi-Kakkuri discussed above. Namely, increasing innovativeness either in the form of organizational structures and processes, or in terms of the development and improvement of products, does not necessarily give better results in terms of productivity.

The final paper in this collection relates employee age to productivity, comparing high-wage and low-wage employees in manufacturing and service sectors in Estonia. Roosaar, Masso and Varblane combine two large datasets – the Estonian Tax and Customs Board and the Estonian Commercial Register resulting in 43,783 firm-level observations. As discussed in the paper by Garcés-Galdeano and García Olaverri (third paper in this issue), older employees have more experience which, under certain circumstances, is a potential source for better performance. The authors showed that the most productive employees are middle-aged, outperforming both younger and older colleagues. No significant difference in the productivity levels of old and young employees was found. The study also indicated that the high-wage employee group showed greater productivity, compared to the low-wage group. The study emphasizes the point the role of older employees in the organization should not be underestimated. While new generations in the workplace have gained significant attention, the current study demonstrates that older employees perform at least at the same level of productivity as young employees and that both age-groups merit opportunities for training and development in order to realize their full potential.

Overall, this special issue opens up several new perspectives on intangible assets and productivity in diverse organizational settings, including biotechnology, aviation and shipping – business sectors that have thus far been under-studied. Asia and Europe are regions where the majority of research on productivity is being conducted; thus the guest editors welcomed papers from these two regions. Also, the manufacturing sector is traditionally a popular object of study; three papers in this study aspects of intangible assets and productivity in manufacturing. From a methodological point of view, the special issue includes papers that employ traditional, quantitative or qualitative research methods; while most of the studies are quantitative, one study combined quantitative with qualitative methods.

Did we find new evidence that productivity benefits from intangible assets? To a certain extent this was the case, but many questions remain unanswered, indicating the need for further studies in the field. The papers in this special issue indicate that several aspects of intangible assets do have a direct or indirect effect on productivity. Learning and training are indicated as key factors leading to higher productivity. While this finding is not surprising, the collection did reveal some important nuances in this respect. For example, not all kinds of education and experience necessarily lead to higher productivity. Interestingly one of the papers found that employee age does not set any limits on the capacity and ability for learning

and productivity – a finding that should encourage organizations to invest in the development of both young and old employees. However, one study indicated that expecting higher productivity through producing more complex products (and, thus, investing in human capital), may not be realistic. This finding, at least partly, resembles the conclusion from another paper – that it is not enough to develop employees and raise their competences; organizations must also focus on forms of learning at the team and organizational level.

A factor mitigating against making generalizations on the issues under scrutiny in this special issue, is that much research focusing on the measurement of intangible assets and employee productivity in new businesses and in new employment and working modes, is currently underway and the results still emerging. We invite scholars to join this research stream. The special issue showed relationships between elements of intangible assets and firm productivity, adding sector and country-specific perspectives to the field of inquiry. But more studies are also required in order to broaden academic knowledge and provide new insights for managers. In designing the special issue, we called for papers presenting detailed case studies both as success stories and failures. Unfortunately, no research analyzing failed attempts by organizations to increase productivity through intangible assets were forthcoming. We still believe that the positive relationship between intangibles and productivity is, to a certain extent, a matter of wishful thinking and myth; in this respect, detailed case studies with a different methodological perspective would be of utmost value in adding new knowledge to the field.

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## Notes

1. In total, 34 studies did not specify region.
2. In total, 75 studies did not specify sector.

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