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Research Article

Public--Private Cooperation Funding Juxtaposed of University--Community Engagement in Europe: Systematic Review

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Abstract.
This article explores the utilization of public–private funding models in European universities and its implications for community empowerment initiatives, particularly University–Community Engagement (UCE) projects. A systematic literature review (SLR) was conducted using the Scopus database, screening 50 articles relating to public–private funding models in European universities. The study reveals that while public–private funding models have gained traction in the academic sphere, they primarily focus on supporting applied science research projects. In contrast, the funding of projects solely oriented toward community empowerment remains limited, with only one article addressing this potential. The findings highlight the challenges associated with employing public–private funding for UCE projects with a strong emphasis on community empowerment. Public–private funding, typically sourced from industry partners, tends to prioritize product innovations and productivity enhancements, posing a mismatch with the social justice-oriented nature of UCE. This discrepancy underscores a significant research gap in UCE and calls for innovative approaches to develop supportive funding frameworks that can effectively sustain UCE initiatives.

Keywords: public–private funding, university–community engagement, European University

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1. INTRODUCTION

In many university-community engagement (UCE) case studies, one of the most frequently encountered issues and challenges is related to financial matters . Financial problems are crucial because the sustainability and long-term viability of UCE initiatives are largely determined by financial factors. Although UCE is considered a voluntary activity for universities, most of its activities require operational funding [6], especially when carried out on a large scale and involving multiple individuals.

One way for universities to facilitate their activities, including the implementation of UCE initiatives, is to invite external involvement in financing university activities [7].

External funding can be obtained through grants, crowdfunding, scholarship funding, or even by proposing collaborations [8]. Grants and scholarships are usually provided without reciprocal obligations, typically requiring the submission of proposals and the fulfillment of specific targets, such as research implementation or publication [9]. On the other hand, collaborations with third parties, often private industries and businesses, typically require specific reciprocal benefits in the form of increased company profitability [10], [11]. In this study, we specifically address the issue of university collaboration with private industry as a third party, using the term "public-private" to refer to such funding collaborations.

When private businesses become stakeholders in university activities, one sharp criticism is that UCE activities will become business-oriented and too much outputs oriented [8]. In other words, university will become capitalism oriented [6]. From a social justice perspective, where universities are seen as places to humanize individuals and UCE is seen as a platform to provide access to academic knowledge and empowerment to marginalized communities [12], the involvement of business entities may undermine the noble goals of education and UCE itself. The ideal educational orientation, especially for social justice, appears to be incongruent with the idea of "public-private" cooperation funding.

Therefore, this study is conducted by analyzing UCE studies that utilize the "public-private" funding model in Europe. The study explores previous UCE cases published in the Scopus database. The main question to be answered in this research is whether UCE case studies in European universities that employ the public-private financing model can coexist with the concept of social justice in UCE.

The study begins by discussing the literature related to financial issues in UCE and how the "public-private" concept is incorporated into universities in Europe. Subsequently, the details of the systematic review method are outlined, followed by the results and reflections. The study concludes with limitations and conclusions.

2. METHODOLOGY/ MATERIALS

This study used Systematic Literature Review (in this study we simply use the term "systematic review" or SLR) to conduct a standalone study of literature review from the prior works of UCE cases in Europe that employ the public-private financing model. This study followed an inductive reasoning approach. In doing so, I organize a set of criteria to provide a well scoped on the concept of UCE.

Criteria of Screening Process

I used modified criteria [13] relies on the PRISMA protocol. By utilizing such criteria, this study enables to achieve a transparent and reproducible procedure of systematic review (see Figure 1).

Search Database: this study utilizing articles from Scopus database. Two studies found that there are some errors and limitations of the Scopus [14], [15]. However, many more studies strongly justify the advantages of Scopus [16]–[18], and is widely used for database literature review purposes [19]–[22]. Therefore, even though there are limitations – and that is common for all things in this world — this study agrees about the advantages of this giant database and stand on it. Also, Scopus can be provided on demand bibliographic data or records [21] which can be an advantage for this systematic review.

Search Keywords and Boolean Operators:

I retrieved the articles with search keywords: public-private cooperation funding on the university community engagement in Europe (25 May 2023). The system screened all the relevant articles relating the search keywords on the all fields of searching mechanism.

TABLE 1: Data extracted from the general procedure based on PRISMA.

Database	Total
Scopus: ALL FIELDS: public-private cooperation funding on the university community engagement in Europe Date: 25 May 2023	There are 50 found on the first result.

Source: Author(s), 2023

Search period: I captured all papers without limiting time. However, the papers that were successfully captured through database is in the 2004-2023.

Subject area: all subject relating to public-private funding cooperation in UCE in European university.

Publication and Source type: Our selection process for articles only included those from peer-reviewed journals, as we aimed to ensure the highest standards of research and academic rigor. Other types of publications, such as book review, editor note, proceeding, book series, and non-original field research were not considered for inclusion in our study. While this approach may introduce a potential bias towards a specific type of document [23], we based our decision on the widely accepted notion that articles published in top-indexed journals undergo rigorous peer-review processes, thereby ensuring the validity and reliability of the research presented [13].

Language: English. There is a possibility of English-language bias" or "Tower of Babel bias" [20], [24] based on this criteria. However, the majority of journals indexed by

Scopus are English-language text. Previous study agree that using English language criteria could be acceptable and common in a systematic literature review study [24]

Document relevant: this study focusing on public-private cooperation funding on the university community engagement in Europe. We excluded articles mentioned public-private cooperation funding on the university community engagement but are not are not part of in European case.

Screening process: the process begins with the first screening using abstract screening to exclude unrelevant studies (n=33). The second screening conducted using the full text of the remaining documents (n=8).

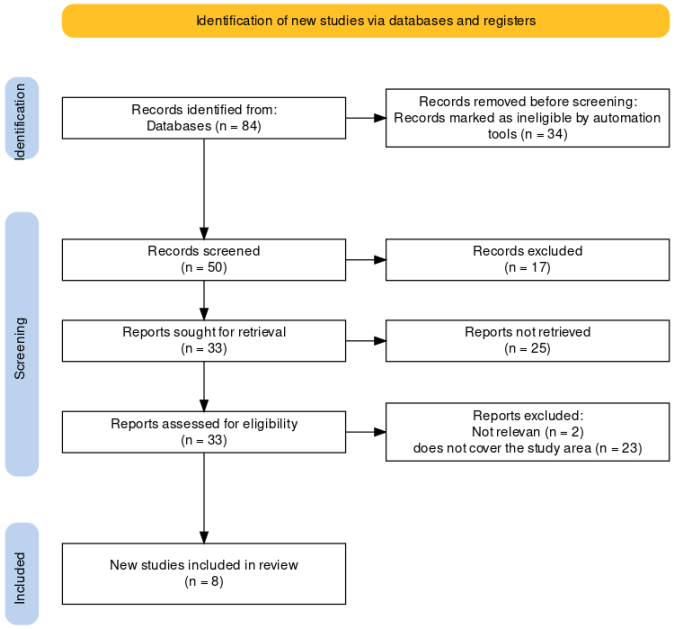

Figure 1: PRISMA Flow Diagram.

Template Source: PRISMA Flow Diagram (shinyapps.io) [25], tabulated by Author(s), 2023.

Quality Assessment

The first screening articles are 50. We exclude 17 articles due to wrong publication type. The second phase of screening resulted 25 articles were not relevant. Then I read 8 articles in depth, read the sentence one by one.

3. RESULTS AND DISCUSSIONS

Table 2 demonstrates that the effectiveness of the public-private funding model is contingent upon the specific context in which universities implement it. The public-private funding model proves successful in two circumstances: firstly, in the field of

Table 2: Public-Private Funding in Relation with University Community Engagement.

Public-Private Funding Case Study	Relation with University-Community Engagement
[11]	The findings show a negative relationship between the academic activity, specifically in research, of basic sciences academic departments and the extent of involvement in public private funding collaboration—measured by the volume of private funding injected into University–Industry research partnerships during the period 2001–2007. On the contrary, a positive link holds in applied sciences departments. A positive link between the quality profile of applied sciences academic departments and their engagement in research activity with industrial partners is mostly due to the high match between research objectives and, especially, motivations for interaction between academia and firms.
[26]	The findings show there exists a positive association between the utilization of public-private funding, specifically through University-Industry collaborations, and the enhancement of firms' innovation efficiency.
[27]	The findings of this study underscore the capacity of financially limited universities to seek supplementary funding options. Nevertheless, the process of acquiring funds from external university entities can impose substantial burdens on both faculty members and students.
[28]	The results of this study demonstrate that the full potential of university-private funding collaborations can be realized when accompanied by a supportive environment.
[29]	This study have discovered that the development of proximity necessitates a mutual commitment from both industry and university partners, who should actively participate in the process. Consequently, these findings indicate that the mere formalization of University-Industry Collaboration (UIC) through a research center does not automatically result in increased interaction. As a result, research partners should be motivated to involve industry partners from the early stages and maintain their involvement throughout the collaboration. To foster the necessary proximity for supporting academic research and fostering innovation, industry and university partners should recognize the value of building relationships and developing mutual understanding, which can be accomplished through repeated interaction and a shared commitment from both parties.
[8]	This study identified several contextual micro-level Key Performance Indicators (KPIs) that contribute to the effectiveness of university-industry collaborations. These KPIs include the involvement of young researchers, the alignment between collaboration and organizational strategy, the number of joint publications, and the enhancement of enterprise image.
[30]	This study demonstrates that the involvement of representatives from marginalized communities is crucial in facilitating the utilization of university knowledge and technology for the benefit of the community, particularly those who are marginalized. Therefore, alongside public-private funding collaborations, it is imperative to foster active engagement and collaboration among relevant stakeholders.
[10]	This study demonstrates that the collaboration between public-private partnerships and medium-sized academic institutions has a significant impact on university stakeholders. Furthermore, the study also indicates that universities with a practical and applied approach to teaching and research, such as polytechnic institutions, are more relevant in this context.

Source: Author, 2023

applied science [10], [11], and secondly, in universities with limited financial resources [10], [27].

The positive result from public-private funding in the domain of applied science can be attributed to the alignment with the orientation of private entities or product-oriented industries[10], [11]. Conversely, securing funding from private parties for the field of basic science becomes challenging as the outputs may not appear to directly align with the immediate requirements of industries [10], [11]. This perspective appears to diverge from the previously established expert opinions suggesting that companies experience positive impacts from basic research endeavors [31].

The positive relationship between applied science and the needs of the private industry appears to originate from the need for industrial innovation. Involving external stakeholders in university funding can enhance the innovation capabilities of the participating companies [26]. This can be attributed to the merging of research-oriented university cultures that continuously foster innovative solutions, which ultimately benefits the companies.

However, this finding raises concerns that the public-private model is more suitable for collaborations between profit-oriented companies and universities, rather than activities aimed at empowering marginalized communities, such as UCE. The results of this systematic literature review indicate that among the numerous articles addressing public-private funding models in European universities, only one case study explores the use of the public-private funding model to finance activities focused on marginalized societies [30].

Furthermore, the optimal outcomes of public-private funding collaborations are contingent upon a supportive university environment that facilitates active participation and commitment from both the university and the funded community [8], [28], [29].

Alongside the positive aspects of public-private funding, there are also negative repercussions that burden university actors due to the involvement of external funding. The influx of external funding introduces additional responsibilities for faculty members and students to meet the targets set by external funders [30].

4. CONCLUSION AND RECOMMENDATION

The utilization of public-private funding models within European universities has gained substantial traction within the academic sphere. However, the projects funded through this approach predominantly focus on applied science research endeavors. The utilization of public-private funding for projects purely oriented towards community empowerment, such as UCE (University-Community Engagement), remains infrequent, with only one article exploring this potential.

These findings indicate that employing public-private funding to finance UCE projects with a sole focus on community empowerment poses inherent challenges. Additionally, public-private funding sourced from industry partners tends to prioritize product innovations aimed at enhancing productivity. Consequently, the orientation of UCE, which is rooted in social justice, may not align harmoniously with the product industry-oriented nature of public-private funding, which primarily pursues profitability.

This discrepancy highlights a significant gap in UCE research and necessitates innovative approaches to model supportive funding frameworks that can effectively sustain UCE initiatives. It is important to acknowledge that this research is limited by the constraints inherent in the covered articles and accessible case studies within the scope of the SLR methodology employed.

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