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Exploring the Outcomes of a University Merger: The Case of Finland's Tampere University

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Abstract

Policy makers and university leaders are increasingly relying on university mergers to increase efficiencies, reduce costs, and leverage strengths to be more competitive. While research on university mergers is increasing, few studies employ methods that permit drawing causal inferences about the effects of mergers. This study uses a difference-in-differences approach to examine the effects of the Tampere University merger on staffing and finances. We also examine the effect of the merger on Times Higher Education (THE) university ranking data, including measures of the teaching environment, research outputs and reputation, citations, international outlook, and industry income (knowledge transfer). We find that the merger does not create staffing or financial efficiencies but is positively associated with measures that make up THE rankings.

Keywords: university mergers, higher education finance, university rankings

1 Introduction

As policymakers contend with budget constraints and simultaneously seek to improve postsecondary education, they increasingly look to merge universities in efforts to gain efficiencies and build capacity. Mergers have become widespread across Asia and Europe and have become increasingly popular among policymakers in the US [1]. Surprisingly, we know relatively little about the effects of university mergers and the ways in which they transform universities and how they function [2][3].

Finland has used mergers to reshape its system of higher education in recent years. Since 2010, Finland alone has experienced four mergers in the university sector [4][5](see Ursin & Aittola, 2021; Ursin et al., 2010). The most recent merger occurred in 2019 and created Tampere University, a consolidation of the University of Tampere and Tampere University of Technology. The two universities had a history of collaboration, and the merger was seen as an opportunity to create a more comprehensive university with a broader range of academic offerings and research capabilities [6].

The new university, known as Tampere University, is one of the largest universities in Finland, with over 30,000 students and 4,000 staff members. It offers a wide range of academic programs

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in fields such as social sciences, humanities, engineering, and technology. The merger was seen as an opportunity to combine the strengths of the two institutions and create a more diverse and innovative academic community.

One of the main goals of the merger was to enhance research capabilities and increase funding opportunities [6]. The new university has a strong focus on multidisciplinary research, with a particular emphasis on sustainable development and digitalization. It also has several research centers and institutes dedicated to specific areas of research. Likewise, the merger was expected to reduce costs by removing duplication and leveraging the strengths of the two merged universities.

The purpose of this paper is to examine the effects of the Tampere University merger on University finances and outputs. We utilize a difference-in-differences approach to analyze the ways in which the merger affected staffing, financing, and teaching and research outputs.

2 Previous Research

University mergers have become an increasingly common occurrence in higher education in recent years. These mergers involve two or more universities combining to form a single institution. Research suggests a several reasons for merging colleges and universities, including increasing efficiency and reducing costs, increasing competitiveness, and enhancing research capabilities [7].

One of the main benefits of university mergers is increased efficiency and reduced costs. Some [8] found that university mergers can lead to a reduction in administrative and management costs. Others [9] suggest that mergers can result in savings through shared administrative services and reduced duplication of effort. Similarly, a one study found that mergers can result in a more efficient use of resources [10]. Mergers can also be a strategy to address financial challenges such as declining enrollment, decreased government funding, or rising costs. Still others [11] found that mergers can help universities address financial challenges by reducing costs through economies of scale and increasing revenue streams.

Merging also may allow universities to pool their research resources and expertise, resulting in a stronger research profile and increased funding opportunities. This can lead to more innovative research and better opportunities for students to engage in research activities. Others have found that university mergers can lead to a stronger research profile and increased funding opportunities [12]. The study also found that mergers can result in a more diverse range of research activities.

In addition to strengthening outputs, some suggest that merging can allow universities to better compete with other institutions, particularly in terms of attracting top faculty and students. This can enhance the reputation and brand of the merged institution, leading to more opportunities for collaborations and partnerships with other organizations and perhaps elevate institutional reputations.

While the body of research on university mergers is growing, it is relatively limited in several ways. First, most of the research is dated and does not explore contemporary mergers. This study utilizes current data on a recent, 2019, merger. Two, most of the research to date is descriptive in nature or qualitative. While this work is valuable, it does not allow us to determine the effect of mergers on a range of outcomes.

With the continued increase in university mergers around the globe, it is important to understand the effects of these mergers on higher education, such as changes in finances, reputation, and staffing. This can inform policy decisions and help universities make informed choices about whether or not to merge.

3 Methods

We use a difference-in-differences (DiD) approach, which treats the Tampere University merger as a plausible source of exogenous variation allowing us to estimate the impact of the merger and various outcomes. We run a series of models, comparing Tampere University to other Finnish universities before and after the merger on a range of outcomes.

The logic behind our DiD approach is that we first identify the differences in outcomes within universities before and after the merger. This allows us to observe changes in outcomes for the merged institution pre- and post-merger, but it does not allow us to determine if these changes in outcomes are to other Finnish university changes. When we employ DiD, we also estimate the differences in outcomes between the Tampere and other Finnish Universities over time and examine the differences between "treatment" and "control" groups.

We use a series of panel models to isolate the association between merging (treatment variable), and output measures, such as expenditures, staffing, and research and teaching capacity. Guided by previous research, one would expect that Tampere University would experience efficiencies as well as increase various research and teaching outputs after merging. Our models explore the relationship between the Tampere University merger and our dependent measures, and are represented with the following equation.

$$Y_i = \alpha + \beta_1(merger * post) + \delta_i + \eta_t + u_{it}$$

where Y_i is our dependent measure (e.g., expenditures, reputation scores, staffing) for each Finnish University. We estimate the effects of the Tampere merger by setting all non-merged universities 0 and Tampere to 1 (i) before and after the merger. β_1 then is the coefficient for the effect of merger on our outcome variables.

Our model also includes university (δ_i) and year fixed effects (η_t), along with an error term (u_{it}). University fixed effects reduce bias by capturing the effect of unobserved heterogeneity that is relatively stable over time (e.g., region). Year fixed effects reduce omitted variable bias by accounting for changes that occur over time to all Universities.

We use several outcome variables from two data sources to develop a comprehensive understanding of the Tampere University merger. Our first set of panel models use Times Higher Education (THE) data from 2013-2023, giving us five years of outcome data after the merger. These data include Tampere University and with nine other Finnish universities, which are used as the “control” group.

The THE data used in this study are the teaching environment, research outputs and reputation, citations, international outlook, and industry income (knowledge transfer). Teaching is assessed through a reputation survey of academic experts, student-to-faculty ratio, and the institution's ratio of PhD to bachelor's degrees awarded. Research (volume, income, and reputation) is measured by the number of papers published in high-impact journals, the reputation of research work among peers, and the amount of external funding secured. Citations are the number of times research papers from the university are cited by other researchers. Industry income is the amount of funding the university receives from industry partners for research and other activities. Finally, international outlook measures the university's international diversity, including the percentage of international staff and students, as well as the amount of international collaboration and research conducted. This set of models includes total staff as a control variable to account for any changes in overall staffing that may have occurred in the time of the study.

The second set of data focuses on staffing and finances and comes from Education Statistics Finland. For this set of panel models, we examine data from 13 Finnish universities from 2011-2021. For these analyses, the data from the University of Tampere and Tampere University of Technology are aggregated prior to the merger to allow us to assess cost savings and efficiencies gained when the two universities are officially merged in 2019. From these data we use three staffing numbers – non-instructional staff, lecturers, and professors - as outcomes. We also examine overall expenditures and total research and development funding. The second set of models compares Tampere University with the other 12 universities in Finland.

4 Results

Table 1 presents the findings from our models examining outputs that make up the THE rankings. Our results suggest the Tampere merger had a statistically significant positive effect on the outcomes measured. Relative to other Finnish universities in the rankings, Tampere University saw significantly greater gains in measures of teaching environment, research outputs and reputation, citations, international outlook, and industry income (knowledge transfer).

Table 1: The effects of the Tampere University merger on outputs

	Teaching	Research	Citations	Industry income	International outlook
Tampere merger	1.797 *	3.399 **	9.743 ***	10.064 ***	2.518 *
	(0.717)	(1.161)	(1.652)	(1.281)	(1.032)

Notes: *p<.05, **p<.01, ***p<.001

While the merger made Tampere University more competitive and increased research capacity, it did not accomplish any efficiencies or cost savings (See table 2). We observed no statistically significant effect of the merger on the numbers of non-instructional staff or lecturers and professors. The merger also did not affect finances. Relative to other Finnish universities, the merger did not statistically significantly affect total expenditures or external research and development funding.

Table 2: The effects of the Tampere University merger on staffing and finances

	Staff	Lecturers	Professors	Expenditures	External R&D funding
Tampere merger	-2.172	37.601	-43.280	606,007.02	2336.580
	(2.620)	(87.317)	(41.099)	(911,252.093)	(5227.311)

Notes: *p<.05, **p<.01, ***p<.001

5 Discussion

In recent years we have seen a growing number on college and university merge in the hopes to increase efficiencies, reduce costs, and leverage strengths to be more competitive. While research on university mergers is also expanding, few studies employ methods that permit drawing causal inferences about the effects of mergers. This study fills an important gap in our understanding of university mergers by examining the effects of mergers on a range of financial measures and postsecondary outputs.

The 2019 Tampere University merger offered a unique opportunity to evaluate whether the merger met the aims of reducing costs and enhancing research opportunities and teaching environments. While the merger did not reduce costs or staffing, the Tampere merger positively affected teaching environment, research efforts, citations, industry income, and internationalization. Because these measures are taken directly from the THE rankings, it would seem plausible that a merger of this kind could boost a university in the rankings.

Taken together, these findings offer some surprising yet promising findings for policy makers and university leaders seeking to increase teaching and research capacity and enhancing their university's reputation without increasing costs in significant ways. However, if the aim is to reduce costs, we see no evidence, at least a few short years after the merger, that merging a university will result in savings or a reduction in staffing.

We believe it is important to offer some caution regarding the interpretation and application of our findings. We offer some evidence that mergers can have positive results under certain conditions. Yet we do not know what the merger's outcomes would have been if Tampere University had been more strident in their efforts to reduce costs, or if the Finnish government had reduced allocations to the University because of the merger and expected resulting efficiencies. Perhaps maintaining government support and working to minimize cuts will allow a merged university to maximize their newly created capacities. Even more compelling, yet unlikely, would be to allow mergers that maximize efforts and provide additional funding to incentivize working to capitalize on new opportunities and strengths.

It also is important to note that the two universities who merged into one had a long-established relationship and were near one another. This increased the likelihood of the successes observed here. Without these relationships, it seems unlikely that we would have observed positive outcomes.

Nevertheless, this study does extend previous research and provides some important insight into the effects of university mergers. Policy makers should proceed with caution if they expect to find cost savings through institutional mergers. The findings of this study suggest that, at least in the short run, these savings may be hard to come by. However, if policymakers and university leaders want to capitalize on already strong relationships between nearby colleges and universities, perhaps supporting a merger can create a single university that leverages the strengths of each merger participant.

While this study extends our understanding of university mergers in meaningful ways, there is much work to be done. We focused on short-term outcomes of a recent merger, but much could be learned from a study that examined long-term merger outcomes. Likewise, it would be useful to look at other outcomes, such as graduation rates and other student success measures, along with shifts in student enrollments in different major fields of study because of merging two institutions with different disciplinary foci.

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