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First among equals

A study on the representation of the academic disciplines among the vice-chancellors of Swedish higher education institutions, 1977–2025

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Abstract

This study explores the disciplinary background of Swedish vice-chancellors from 1977 to 2025. Based on a dataset of 334 individuals, the study examines the representation of academic disciplines among vice-chancellors and how these patterns have evolved over time. The analysis is situated within a theoretical framework that combines Pierre Bourdieu's concept of field with Lars Engwall's theories of marketisation in higher education governance.

The results reveal a complex yet stratified academic landscape in Sweden, where institutional profiles and research funding structures significantly influence the recruitment of vice-chancellors. Disciplines such as natural sciences, engineering and technology, and medical and health sciences are overrepresented among vice-chancellors at research-intensive higher education institutions. In contrast, social sciences dominate at the university colleges. The arts are almost exclusively represented at art universities. Over time, there has been a notable shift from humanities and social sciences toward STEM disciplines among vice-chancellors, particularly at older and more research-oriented higher education institutions. This trend is also true at the university colleges. Another notable trend is the increasing use of external recruitment for vice-chancellors, which has risen over time to higher levels. This is particularly evident at university colleges and the new universities. Older research-oriented higher education institutions are less affected by this and recruit internally to a greater extent.

The study argues that the recruitment of vice-chancellors reflects both traditional academic hierarchies and emerging market logics. While institutional alignment with disciplinary profiles remains strong, there is increasing evidence that other factors, such as strategic considerations, also influence leadership appointments. The study aims to contribute to the understanding of academic leadership by highlighting how capital shapes access to top positions in Sweden's higher education institutions and how this intersects with broader structural transformations within the higher education sector as a field.

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Introduction

What are the most essential institutions in a modern society? Besides the democratic governance structures, some might point to the courts, others to the media, or cultural institutions.¹ Each one plays a significant role in upholding the structures of democracy, justice, and public life. However, underpinning them all is the more fundamental resource of knowledge. To quote Francis Bacon from 1597, “knowledge is power” (“scientia potestas est”),² knowledge is needed to understand the world, humanity, and society. Knowledge can be viewed as driving the improvement of the current state and emerging in the light of increasing societal challenges with greater complexity, as an increasingly critical part of human life.

At the heart of knowledge infrastructure lie the universities. With roots dating back to a rich history, the universities are dedicated to both research and education, grounded in science and proven experience. Research drives advancements in knowledge, challenges established truths, explores the unknown, offers explanations, and deepens our understanding of the world. This part of the university can sometimes appear vague, but it has, of course, practical implications as well. Research enables the development of solutions to societal needs and challenges. Equally important is the universities’ role in offering higher education and educating the population. Higher education has traditionally had two key features: it supplies society with educated professionals and fosters critical thinking.³ Combining these two missions, research and education define the unique role of the universities in challenging the status quo while also preparing society for what comes next.

There is also an argument that these contributions are part of fostering a democratic society, as universities generally enhance citizens’ critical thinking and drive progress by advancing knowledge.⁴ However, universities have also been used for non-democratic purposes and by authoritarian regimes.⁵ Nevertheless, this proves that, independent of the motive, the role of the universities is crucial.

The weight of the universities is not only theoretical, but also material. In Sweden, the operational costs for universities in 2024 totalled over 90 billion kronor, corresponding to 1.5 percent of Sweden’s gross domestic product. Their direct funding from the government accounts for 3.8 percent of the total state budget.⁶ In 2024, the number of employees at Swedish universities was around 70,000, while over 400,000 students were registered.⁷ Considering these

¹ Tim Ekberg. *Akademisk frihet och institutionell autonomi*. Stockholm: Sveriges universitets- och högskoleförbund; 2023, p. 6.

² José María Rodríguez García. “Scientia Potestas Est – Knowledge is Power: Francis Bacon to Michel Foucault”. *Neohelicon*; 2001, p. 110.

³ Ingeborg Amnéus & Pam Fredman. *Styrningen av lärosätenas utbildningsutbud*. Stockholm: Sveriges universitets- och högskoleförbund; 2024, p. 9.

⁴ Styr- och resursutredningen (Strut). *SOU 2019:6 En långsiktig, samordnad och dialogbaserad styrning av högskolan*. Norstedts juridik; 2019, p. 102.

⁵ Dominic Detzen & Sebastian Hoffmann. “Accountability and ideology: The case of a German university under the Nazi regime”. *Accounting History*; 2020, p. 183–184.

⁶ Universitetskanslersämbetet 2025. *Universitet och högskolor Årsrapport 2025*. Universitetskanslersämbetet; 2025, p. 118.

⁷ *Ibid.* p. 22.

numbers, it is reasonable to assert that the universities are trusted with a prominent societal role and their operations affect a significant number of people.

To conclude, universities matter in society, and therefore, it matters who governs them.⁸ Although universities, with their traditions of collegial rule, generally differ from other organisations regarding governance, leadership is still influential in the life of the university. Analysing leadership is one way to understand universities as organisations.

Just like any other sector in society, there exists some differentiation among organisations in a particular space. This is also true in the higher education sector. Universities typically have distinct profiles, often stemming from their origin and history. The internal body of a university is primarily shaped by what scientific disciplines it houses. Understanding scientific disciplines, which will be discussed later in this paper, can be challenging, but a brief explanation is that they provide a way of categorising human knowledge and research. This division is interesting and highlights societal values and human perception of knowledge. Concerning the governance of universities, it is also interesting to study whether the internal disciplinary bodies of universities have implications for their organisation and leadership.

Given these circumstances, this study aims to expand the understanding of higher education institutions, their leaders, and, more specifically, the leaders' backgrounds in various scientific disciplines.

The history and definition of a university

The history of universities is long and complex. While disputed, the birth of the first university in the Western world is often attributed to the University of Bologna in 1088⁹. The concept of the university was initially to gather both students and teachers within one community.¹⁰ These ideas eventually spread and reached Sweden. However, the development took time, and it would not be until the 15th century that the concept of the university was materialised in Sweden. Founded in 1477, Uppsala University became the first Swedish university, following growing demands from the state and the church to meet threats from neighbouring countries, especially Denmark, which was the arch-rival of the time.¹¹ This was also the case with the establishment of Lund University in 1666,¹² marking the early expansion of higher education institutions in Sweden.¹³ Later, a small number of new universities were created, often with a specialised profile, such as Karolinska Institutet in 1810, Royal Institute of Technology in 1827, Chalmers University of Technology in 1829, and Stockholm School of Economics in 1909, but also broader institutions such as Stockholm

⁸ Amanda H Goodall. "Socrates in the Boardroom: Why Research Universities Should Be Led by Top Scholars". Princeton: *Princeton University Press*; 2009, p. 2.

⁹ Johan Östling. *Kunskapens stora hus: Huvudlinjer i universitetets historia*. Stockholm: Makadam förlag; 2024, p. 7.

¹⁰ Ibid. p. 13.

¹¹ Sten Lindroth. *Uppsala universitet 1477–1977*. Uppsala: Uppsala universitet; 1976, p. 12.

¹² During the territorial expansion of the Swedish Empire in the seventeenth century, Sweden founded or governed universities beyond its current borders, including Dorpat from 1632, Åbo from 1640, and Greifswald from 1648.

¹³ Östling. *Kunskapens stora hus: Huvudlinjer i universitetets historia*, p. 49.

University in 1878 and Gothenburg University in 1891.¹⁴ The landscape of Swedish universities remained largely unchanged until the post-war period in the 20th century, when three larger, newer institutions were established: Umeå University in 1965, Linköping University in 1970, and Luleå Technical University in 1971.

In general, the post-war era was crucial in shaping the Swedish landscape of higher education institutions. An extensive government report paved the way for the large university reform of 1977.¹⁵ A large number of university colleges were founded as a result of the reform, and more were to be established at the end of the 20th century.¹⁶ This expansion introduced a broader range of institutional types, which now coexist within a formally unified but internally differentiated system. The older universities tend to be strong regarding research, with a high concentration of professors and doctoral students. In comparison, newer universities and regional colleges tend to be more teaching-oriented, dominated by lecturers and adjuncts.¹⁷ Nowadays, 49 organisations currently have the right to provide higher education in Sweden.¹⁸

As mentioned earlier, the organisation of universities is the result of a long historical process and different doctrines over time. One of the most influential perspectives on the university is the Humboldtian one. Wilhelm von Humboldt, a Prussian philosopher and statesman during the late 18th and early 19th centuries, established several ideas on how knowledge institutions should function and their purpose. The crucial connection between research and teaching was one of his main ideas, and these two areas needed not to be separated, with students being given a scientific environment in which to learn new knowledge.¹⁹ Humboldt believed that universities differed from other knowledge institutions, such as schools, in that they were charged with the task of researching problems that humanity lacked answers to.²⁰ This has influenced the organisation of universities and remains a standard model of university structure.

Regarding the Swedish case, the Higher Education Act states that higher education shall be based on a scientific or artistic foundation and proven experience, implying that the Humboldtian idea has also been influential in the Swedish context. The definition of a modern university can therefore be seen as a knowledge institution that provides both research and higher education, with the aim that the two shall fuel and complement each other. Later in this study, the awareness of this definition shall be shown to be important in understanding the selection of data for the analysis.

¹⁴ Johan Gribbe. *Förändring och kontinuitet: Reformen inom högre utbildning och forskning 1940–2020*. Stockholm: Universitetskanslersämbetet; 2022, p. 6.

¹⁵ Gunnar Olofsson & Ola Agevall. "Lärare och forskare vid svenska lärosäten under 2000-talet". *Statsvetenskaplig tidskrift*, 124(1), 69–102; 2022, p. 72.

¹⁶ Lars Engwall & Thorsten Nybom. "The Visible Hand versus the Invisible Hand: The Allocation of Research Resources in Swedish Universities". In: Whitley, R., Gläser, J. (eds) *The Changing Governance of the Sciences. Sociology of the Sciences Yearbook*, vol 26. Springer; 2007, pp. 33–34.

¹⁷ Olofsson & Agevall. "Lärare och forskare vid svenska lärosäten under 2000-talet", p. 80.

¹⁸ Universitetskanslersämbetet, 2025-07-17.

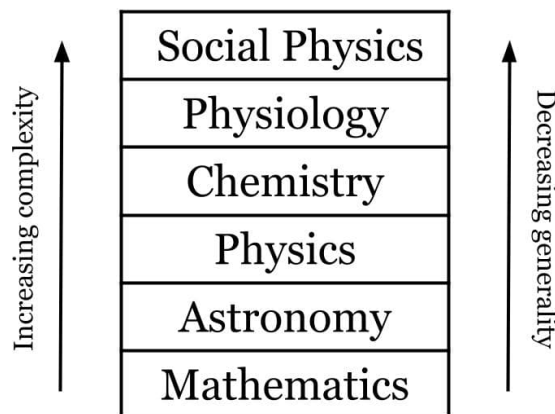
¹⁹ Thorsten Nybom. "A Rule-governed Community of Scholars: The Humboldt Vision in the History of the European University". In: Maassen, P., Olsen, J. (eds) *University Dynamics and European Integration. Higher Education Dynamics*, vol 19. Springer; 2007, p. 9.

²⁰ Östling. *Kunskapens stora hus: Huvudlinjer i universitetets historia*, p. 66.

An introduction to scientific disciplines

The landscape of scientific disciplines is a result of development in a far-reaching historical process, and forms a complex system marked by both internal differentiation and external interconnections.²¹ One way of approaching the classification of sciences is the one made by Auguste Comte. During the 19th century, Comte presented the theory called the “hierarchy of the sciences”, in which Comte tried to explain the development of knowledge.²² The word “hierarchy” implies the existence of a power pole between the different sciences, but that was not the intention of Comte. Instead, Comte argued that the sciences differ in the degree of precision of their knowledge.²³ The scale is a contrast between simple and general sciences on one end, and complex and specific sciences on the other. The hierarchy determines the level of abstraction and generality with which each science approaches the world. Comte’s studies on the sciences were immense, but in the hierarchy, he categorised six sciences: mathematics, astronomy, physics, chemistry, physiology, and social physics.²⁴ Comte argued that sciences such as mathematics and astronomy were the most fundamental and independent. They form a base for the rest of the sciences above them. At the other end, social physics is the most dependent and relies on the preceding sciences to advance its own understanding. However, it’s essential to note, as mentioned earlier, that Comte did not view the hierarchy as a means of evaluating the value of different sciences, but rather as a way of understanding knowledge and its development.

Figure 1. The Hierarchy of sciences according to August Comte.



One of the early works on the relationship between the sciences in their organisational state is Immanuel Kant's *The Conflict of the Faculties*. During his time in late 19th-century Prussia, Kant was highly critical of the standing of the disciplines and, in extension, the power of their respective faculties at universities, as well as the value placed on knowledge in society. Kant believed

²¹ Eli B. Cohen & Scott J. Lloyd, “Disciplinary evolution and the rise of the transdiscipline”. *Informing Science: The International Journal of an Emerging Transdiscipline*, 17; 2014, p. 189.

²² Stephen Cole. “The Hierarchy of the Sciences?”, *American Journal of Sociology*, 89:1; 1983, p. 121.

²³ Auguste Comte, *The Positive Philosophy of Auguste Comte*. Batoche Books; 2000, p. 48.

²⁴ Comte, *The Positive Philosophy of Auguste Comte*, p. 55.

that there were two groups of faculties: on one end, the higher faculties, consisting of theology, law, and medicine, and on the other end, the lower faculty, which was the philosophical faculty.²⁵ Kant argued that the higher faculties had greater societal status not because of their success and scientific achievement, but rather because of their status in the eyes of external parties.²⁶ Furthermore, Kant argued that the faculty of philosophy was the only faculty that relied on scientific principles, as it depended on its own findings rather than decrees from external partners, such as the church, courts, or state.²⁷ Kant was also critical of the fact that the higher faculties were dependent on non-scientific works provided by others. In the case of theology, these works included the Bible and other religious texts provided by the church. The faculty of law, meanwhile, was only interested in the current constitutional and juridical framework that politicians had created.²⁸ Although Kant had a more positive view of the faculty of medicine, he still believed that they had an unhealthy relationship with the state and enterprise.²⁹

With this work, Kant provides an early positioning of the different disciplines in their organisational form. Although one must consider that *The Conflict of the Faculties* is part of Kant's argument and campaign for a secular society, the ideas still highlight differences between the disciplines and how they operate within the academic space, as well as towards key players in society. Primarily, it appears that an instrumental scale exists, with some faculties having a more natural relationship to societal needs than to scientific principles. Regarding the aim of this paper, Kant clearly establishes, in contrast to Comte, a hierarchy of the disciplines and their faculties. In this hierarchy, disciplines with obvious solutions for social needs and use in society are regarded more favourably compared to others.

There have been several attempts to further understand the disciplines and their relationships to each other, often depending on their characteristics. Firstly, it's essential to note that the understanding of disciplines can be linked to the perception of knowledge within society. As societal views on knowledge evolve, the standing of the disciplines changes accordingly. Another perspective is that disciplines change, grow, die, or merge to form new stages, and sometimes even strive to expand their coverage to encompass more areas.³⁰

One theorisation by Biglan (1973) is based on how researchers perceived the fundamental differences between sciences and found three different dimensions: 1) hard-soft, 2) pure-applied, and 3) life systems.³¹ Regarding the first dimension, this deals with the question of whether there is a unifying paradigm, which echoes from Comte's reasoning. In this part of the argument, the disciplines traditionally linked to the sciences, such as physics and chemistry, operate under widely

²⁵ Kant, *Striden mellan fakulteterna*. Göteborg: Daidalos; 2020, p. 55.

For context, it's very important to note that at the time, the philosophical faculty included a wide range of disciplines such as natural science, social science, and humanities.

²⁶ Kant, *Striden mellan fakulteterna*, p. 56.

²⁷ *Ibid.* p. 28.

²⁸ *Ibid.* p. 61.

²⁹ *Ibid.* pp. 68–69.

³⁰ Tony Becher & Paul Trowler, "Academic Tribes and Territories: Intellectual Enquiry and the Culture of Disciplines", 2nd ed. *The Society for Research into Higher Education & Open University Press*; 2001, p. 43.

³¹ Anthony Biglan, "The Characteristics of Subject Matter in Different Academic Areas". *Journal of Applied Psychology*, 57:3; 1973, p. 202-203.

accepted theoretical frameworks. On the other hand, the soft sciences are those that lack consensus and have multiple ways of understanding and interpretation.³² Moving on to the second dimension, this relationship deals with the question of the extent to which they are practically applied. The argument is that disciplines are split into two separate groups, with subjects such as engineering, educational sciences, or agricultural sciences being more commonly used than the group representing the pure sciences, including the hard sciences, social sciences, and humanities.³³ Finally, the third dimension split the different disciplines into groups depending on whether they deal with living or non-living systems. In this dimension, disciplines such as biology, psychology, and sociology focus on living systems, whereas physics and mathematics are generally more concerned with non-living systems.³⁴

The characterisation of disciplines based on their level of hardness or softness is also found in other literature; for example, Snow (1959) argues that there is a division between two scientific cultures: the scientific pole and the traditional pole.³⁵ They generally represent the hard sciences and soft sciences, respectively.³⁶ According to Snow, the scientific pole has traits such as problem-solving, sharing methods, showing care for the material world, and improving human life.³⁷ The traditional pole is on the other side of the spectrum, characterised by scepticism towards science, a focus on existential themes, and a lack of interest in scientific advances.³⁸

Understanding scientific disciplines can be challenging. As the previous examples show, they risk falling victim to oversimplification of very complex systems, their relationships, and history.

Academic disciplines in the university organisation

Moving on to the relationship between the birth of disciplines and universities, the growth of the universities eventually resulted in more structured organisations. A critical part of this was the faculties, which divided the teachers and students into separate paths of knowledge and learning. In the early stages of Western universities, there were four faculties: philosophy, theology, law, and medicine. In the midst of the new power dynamics that were born with the division of sciences, the role of vice-chancellor was developed and eventually recognised as the supreme leader of the university and the highest-ranking member.³⁹ One perspective on disciplines is therefore the organisational one, in which the differential process is based on how universities have decided to set up their academic organisation with faculties and departments in specific fields.⁴⁰

Another notable development regarding the standing of the sciences was the creation of academies, which were scientific organisations that were established

³² Biglan, "The Characteristics of Subject Matter in Different Academic Areas", p. 198.

³³ Ibid.

³⁴ Ibid.

³⁵ Charles Percy Snow, "The Two Cultures and the Scientific Revolution: The Rede Lecture, 1959". *Cambridge University Press*; 1961.

³⁶ Snow, "The Two Cultures and the Scientific Revolution", pp. 10-11.

³⁷ Ibid. p. 10.

³⁸ Ibid. p. 15.

³⁹ Östling. *Kunskapens stora hus: Huvudlinjer i universitetets historia*, pp. 35–36.

⁴⁰ Becher & Trowler, "Academic Tribes and Territories", pp. 41-42.

in several European countries. They focused on specific sciences and created another layer of context for the different disciplines to operate within.⁴¹

Today, the disciplines are numerous and are constantly developing, merging into each other or disappearing. According to the official classification of research subjects used in Sweden, there are six main disciplines: 1) Natural sciences, 2) Engineering and Technology, 3) Medical and Health Sciences, 4) Agricultural and Veterinary sciences, 5) Social Sciences, and 6) Humanities and the Arts. Furthermore, the disciplines have forty-two different sub-categories, and a large number of specific subjects within the sub-categories.⁴²

Ultimately, one can conclude that the development of disciplines is a growing process under constant movement, but with a fundamental connection to their historical origin and under the influence of methodical classification systems.

The vice-chancellor

The term *vice-chancellor* is commonly used to describe the highest-ranking academic leader of a higher education institution. However, it's important to note that the title and scope of the role can vary between countries and institutions. Terms like *President*, *Rector*, or *Principal* are also frequently used. The leadership structure at higher education institutions also varies in different countries. In the United States, the vice-chancellor is often accompanied by a provost, who is generally responsible for internal academic and administrative issues, as the president usually has many external duties but also needs to allocate time to raise funding from outside sources.⁴³

Historically, especially in the Western world, the role of vice-chancellor was passed along among the professors.⁴⁴ The term of vice-chancellor was in many cases limited to short periods of time, for example, for one academic semester, and was viewed more as an administrative task, not necessarily a governing role.⁴⁵ It is important to note that traditionally, the higher education institutions have been governed by a type of governance called *collegiality*. This means that members of the academic community collectively share the responsibility for governing the institution. This takes its form in decision-making bodies where academic staff with scientific competence make decisions guided by scientific principles.⁴⁶ Collegial rule can be seen as a way for the higher education institution to uphold academic freedom, and not be influenced by others, such as political or religious interests, when making decisions on academic business, mainly research and higher education, but also the organisation of the higher education institution.⁴⁷ These principles also extend to how academia

⁴¹ Östling. *Kunskapens stora hus: Huvudlinjer i universitetets historia*, p. 54.

⁴² Universitetskanslersämbetet, *Standard för svensk indelning av forskningsämnen 2025*. Universitetskanslersämbetet, 2024.

⁴³ Lars Engwall, "Montesquieu på universitet: Styrelse, rektor och senat i samspel", in L. Wedlin & J. Pallas (eds.), *Det ostyrda universitetet? Perspektiv på styrning, autonomi och reform av svenska lärosäten*. Makadam; 2017, p. 175.

⁴⁴ Gribbe. *Förändring och kontinuitet: Reformen inom högre utbildning och forskning 1940–2020*. p. 14.

⁴⁵ Berit Askling, *In Search of New Models of Institutional Governance: Some Swedish Experiences, Tertiary Education and Management*, 7:2; 2001, p. 206.

⁴⁶ Kerstin Sahlin & Ulla Eriksson-Zetterquist, "Collegiality in Modern Universities – the Composition of Governance Ideals and Practices", *Nordic Journal of Studies in Educational Policy*, 2016:2–3; 2016, p. 3.

⁴⁷ Shirin Ahlbäck Öberg & Johan Boberg, "Avkollegialiseringen av svenska lärosäten: En analys av statliga universitet och högskolor", *Statsvetenskaplig Tidskrift*, 124:1; 2022, p. 160.

traditionally elects the leadership. One can therefore ask oneself how much power a vice-chancellor has, given that they, in principle, should follow the path set by the collegial organisation.

In the Swedish context, the vice-chancellor role is formally called *rektor*. It is regulated in the Higher Education Act, which states that all state higher education institutions should have a vice-chancellor, who is responsible for leading the organisation.⁴⁸ This position is distinct from that of a purely administrative leader, as the vice-chancellor is expected to have a scientific background. In contrast, the administrative responsibilities of the higher education institution management are often delegated to a university director, who is not an academic leader. In the Higher Education Ordinance, there are further regulations regarding the vice-chancellor. In the context of this paper, there are some essential regulations to acknowledge. Firstly, the term of the vice-chancellor is six years, with the possibility of an extension of up to three years, a maximum of two times.⁴⁹ The system of shorter terms was essentially abolished in 1876, when new regulation regarding Swedish higher education institutions was passed. The regulation introduced more structured terms for the vice-chancellor, thereby strengthening the position and enabling it to operate as vice-chancellor for extended periods.⁵⁰ Secondly, the vice-chancellor should also have a deputy vice-chancellor.⁵¹ Thirdly, and perhaps most importantly to this study, there are also requirements that must be met to become a vice-chancellor. The vice-chancellor has to meet the criteria for employment as a professor or associate professor.⁵² It is important to note that the law states that to be eligible to become an associate professor, one must have completed a doctoral degree or have equivalent scientific competence or other professional skills that are of importance concerning the subject content of the position and the tasks that will be included in the position.⁵³ In reality, this means that after the implementation of the Higher Education Act, a doctoral degree is an absolute baseline threshold for becoming a vice-chancellor at a Swedish higher education institution, with some exceptions at art universities, which have special legislation and a unique context in which they operate.

In Sweden, there are a few exceptions, particularly among private higher education institutions, where the vice-chancellor also serves as the Chief Executive Officer of the company that provides the institutional framework for the higher education institution.⁵⁴ For the sake of clarity and easier analysis, this thesis treats the role of the vice-chancellor and vice-chancellor/Chief Executive Officer as the same.

⁴⁸ SFS 1992:1434 *Högskolelag*. 2 kap. 3 §.

⁴⁹ SFS 1993:100 *Högskoleförordning*. 2 kap. 8 §.

⁵⁰ Gribbe. *Förändring och kontinuitet: Reformen inom högre utbildning och forskning 1940–2020*. p. 14.

⁵¹ SFS 1993:100. 2 kap. 10 §.

⁵² SFS 1993:100. 2 kap. 11 §.

⁵³ SFS 1993:100. 4 kap. 4 §.

⁵⁴ See for example Chalmers University of Technology or Sophiahemmet University.

Previous research

The international field

The international research on universities and their leaders is both extensive and wide-ranging. One of the most interesting works on vice-chancellors is Goodall's *Socrates in the Boardroom*, which focuses on the connection between academic leaders and the success rate of the higher education institutions.⁵⁵ Goodall's findings and main argument are that top scholars should lead research universities, and that the view that values management skills as the most desirable skill of a vice-chancellor is not justifiable. The argument for skilled researchers also being suitable candidates for vice-chancellors is that they are more credible and possess expert knowledge, but also that they have symbolic value as standard bearers, signalling to faculties and departments that research success is essential.⁵⁶ Although the primary focus of Goodall is not on studying the relationship between academic disciplines and vice-chancellors, her work still provides relevant information about the background of the vice-chancellors. In a study of the top 100 universities' vice-chancellors, Goodall found that all the vice-chancellors held a doctoral degree, and almost all of them had a long career in academia. Still, she also presented results regarding their disciplinary backgrounds.⁵⁷ Out of one hundred vice-chancellors, fifty-two of them had a background in the sciences, with life science dominating at 50 percent, followed by engineering, physics, chemistry, and computer science⁵⁸. The rest of the vice-chancellors had backgrounds in the humanities and arts, as well as social sciences, with distributions of 11 and 37, respectively. The social sciences were mainly represented by vice-chancellors with a background in law, followed by an even mix of educational sciences, political science, sociology, and other policy studies.⁵⁹

As Goodall is not focused on the question of academic disciplines and the vice-chancellors, she has just presented some minor explanations for the dominance of the sciences. Goodall argues that there is a connection between science and technology, including a strong research establishment and, more importantly funding, and the frequency of vice-chancellors with a background in those subjects. However, this does not explain the somewhat significant frequency of vice-chancellors with a background in social sciences. Still, Goodall points out that there is generally a strong student demand for social sciences, and that this might provide a more substantial base for the social sciences compared to the humanities and arts. She also believes that the heads of the universities reflect all these different institutional circumstances.⁶⁰

In analysing the vice-chancellors, Goodall notes a decline in the proportion of scientists among the vice-chancellors over time, with the sciences having had a strong dominance in the 1980s but then falling from around 75 percent to 43 percent in the 2000s. She concludes that the social sciences have strengthened

⁵⁵ Amanda H Goodall. "Socrates in the Boardroom: Why Research Universities Should Be Led by Top Scholars". *Princeton University Press*, 2009.

⁵⁶ *Ibid*, p. 8.

⁵⁷ *Ibid*, p. 32.

⁵⁸ *Ibid*, p. 33.

⁵⁹ *Ibid*.

⁶⁰ *Ibid*, p. 34.

their position in the top hundred universities. The humanities and arts have also increased, but at a much lower level. Goodall's explanation is that this reflects the downturn of sciences as an academic subject in Anglo-Saxon academia and the decline of engineering industries.⁶¹ Later in the book, when discussing the results of interviews with different vice-chancellors, Goodall presents another explanation for the disciplinary distribution when analysing the possibility for vice-chancellors to conduct research during their term. Goodall argues that social sciences, humanities, and arts are a kind of research that is easier to perform practically, as they generally do not rely on vast research infrastructures. Sciences, on the other hand, is often reliant on large labs, expensive research facilities, and research funding to support ongoing research. One of Goodall's interviewees, a vice-chancellor with a background in chemistry, presents this state as a crossroad, where there is no going back when a scientist researcher abandons their research environment to commit to high-level leadership positions.⁶²

Most research on vice-chancellors focuses on universities in the Western world. There are several studies on the vice-chancellors of Australian universities, with Soh (2004) being highly relevant to this study.⁶³ By studying the educational backgrounds of Australian university vice-chancellors from 1995 to 2002, a notable result is that individuals from the natural and physical sciences, or society and culture, are overrepresented among Australian vice-chancellors compared to their share of degrees completed nationally in these areas, with the natural and physical sciences being significantly overrepresented.⁶⁴ In interviews with these individuals, several believed that their background helped them to become more pragmatic, which was viewed as necessary for the role of vice-chancellor. Furthermore, the vice-chancellors with a background in science argued that they benefited from their field of study in their leadership role because the sciences emphasize finding solutions, investigating, dealing with data, analysing, providing conclusions, and managing complex theories.⁶⁵ Another interesting finding by Soh is that there was a significant underrepresentation of individuals with a background in management studies.⁶⁶ In addition, the study of Australian vice-chancellors showed that the individuals were often in their 50s when entering the term, with a median age of 54⁶⁷, and that their term was generally around six years long.⁶⁸

There are also studies of the vice-chancellors at the British universities. One study that focuses on vice-chancellors appointed from 1997 to 2006 found that during this period, there was a shift from a heavy dominance of the sciences to the introduction of vice-chancellors with a background in the social sciences. Almost 40 percent of the vice-chancellors were social scientists. However, the results indicate that this is more common in newer universities, with the older

⁶¹ Ibid, p. 63.

⁶² Ibid, p. 94.

⁶³ Lisa H. C. Soh, "The Market for Australian Vice-Chancellors". *Australian Journal of Management*, 32:1; 2007, p. 35.

⁶⁴ Ibid, p. 14.

⁶⁵ Ibid, p. 15.

⁶⁶ Ibid.

⁶⁷ Ibid, p. 18.

⁶⁸ Ibid, p. 17.

universities, to a greater extent, having vice-chancellors with a background in science, engineering, technology, or medicine.⁶⁹

There is also a study that focuses on earlier periods of time in the British case. By sampling the leadership of British universities in 1935, 1965, and 1967, the results show that arts dominated among vice-chancellors, with 68 percent, while scientists stood at 19 percent, social scientists at 13 percent, and technologists were absent. By 1965, scientists had risen to 23 percent, technologists appeared for the first time, and arts had declined significantly. In 1967, arts fell further to 48 percent, sciences increased sharply to 41 percent, social sciences dropped to 9 percent, and technologists tripled their share to 3 percent.⁷⁰ The authors believe that it's unreasonable that the sciences and engineering were not more prominent among the vice-chancellors of the 1930s, given the importance of the Industrial Revolution to British society. Still, they argue that the shift towards the sciences in modern times is a sign of confirmation of importance by the general society, and in extension, academia.⁷¹

The Swedish case

Regarding the research on Swedish vice-chancellors, the contributions of Lars Engwall are most notable. Engwall's research addresses the issue of university leadership and governance. The overarching philosophy of Engwall is that Swedish higher education institutions are increasingly influenced by modern market ideas, in which they should be governed like private companies, adopt corporate practices, adapt their strategies, and enhance their marketing efforts. This new thinking approach will ultimately influence the selection of leaders for higher education institutions.⁷² Engwall also argues that the market powers have increased their influence compared to other traditional players, such as the state and the profession, which also results in new ways of recruiting vice-chancellors and how the process is conducted.⁷³

One of Engwall's approaches is unconventional, as it analyses the diary entries of a Swedish vice-chancellor, offering unique insights into the everyday dilemmas and conditions in academic leadership.⁷⁴ This study does provide valuable information about the role of the vice-chancellor. Still, it does not address the relationship between academic disciplines and leadership in academia, except for some reflections on career steps in academia as an individual with a background in law. Additionally, his series of interviews with four former vice-chancellors at Uppsala University provides a more personal view on the experiences and challenges of serving as vice-chancellor.⁷⁵ Like the

⁶⁹ Glynis Breakwell & Michelle Tytherleigh. "UK university leaders at the turn of the 21st century: Changing patterns in their socio-demographic characteristics". *Higher Education*; 2008, p. 119.

⁷⁰ Peter Collison & James Millen. "UNIVERSITY CHANCELLORS, VICE-CHANCELLORS AND COLLEGE PRINCIPALS: A SOCIAL PROFILE". *Sociology* 3, no. 1, 77–109; 1969, p. 88.

⁷¹ *Ibid*, p. 89.

⁷² Lars Engwall. "Universities, the State and the Market: Changing Patterns of University Governance in Sweden and Beyond". *Higher Education Management and Policy*, OECD Publishing, vol. 19(3), pages 1-18; 2007, p. 101.

⁷³ Lars Engwall. "Universitet: vadan och varthän?" In: *Årsbok 2021, Stockholm: Kungl. Vitterhets Historie och Antikvitets Akademien*, p. 103–120; 2021, pp. 108–111.

⁷⁴ Lars Engwall. "A Vice-Chancellor in Action". In *Studia Oeconomiae Negotiorum: Vol. 53. An Ecology of Ideas Permeating Science, Higher Education and Society: Essays for Kerstin Sahlin*, pp. 169–184; 2024, p. 181.

⁷⁵ MedfarmDoIT Uppsala University, 2011-01-12.

previous study mentioned, the vice-chancellors do not reflect on their academic disciplinary background to any greater extent. One exception is Bo Sundqvist, professor in ion physics and former vice-chancellor of Uppsala University from 1997 to 2006, who in the interview spoke briefly about the administrative experience and interest that came early in his research career as a result of having significant external funding, leading a larger research group, and being responsible for research infrastructure.⁷⁶

Engwall also has more traditional research on the role of the vice-chancellors. For example, regarding the recruitment of Swedish vice-chancellors, Engwall presents seven hypotheses. The hypotheses are shortly summarised as the following; 1) younger higher education institutions are more likely to recruit external vice-chancellors because of the lack of time to build up a base of scholars internally to select from, 2) over time older higher education institutions will adapt to the market for vice-chancellors and also recruit external candidates, 3) the academic standard of newer higher education institutions are likely to be lower than the older ones, 4) over time older higher education institutions will once again adapt to the newer ones and put more emphasis on administrative skills rather than scientific, 5) given the competitiveness in the research field of the sciences and life sciences, higher education institutions will over time be more likely to recruit from these fields, 6) given the increase of women in both higher education and academic staff, higher education institutions are more likely to recruit women for the vice-chancellor position, and finally 7) strong market influences on both the higher education institutions themselves but also the market for vice-chancellors, will result in shorter terms of the vice-chancellors, as they are either pressured out due to lack of performance or moving on to other higher education institutions.⁷⁷

Generally, Engwall finds results that support his hypotheses, and his explanation and general philosophy are that there has been an increase in market orientation with a larger emphasis on management skills rather than academic credentials.⁷⁸ The result from Engwall that is of most considerable importance to this study is the one regarding hypothesis 5, which indicates that over time, Swedish higher education institutions have increasingly appointed vice-chancellors with a background in the sciences and life sciences. For the older higher education institutions, this was particularly strong, exceeding 50 percent and approaching 100 percent, especially during the 2000s. The newer higher education institutions followed the same pattern, but with higher levels. Engwall explains the difference between the two groups by pointing to the fact that the newer, higher education institutions were more focused on the humanities and social sciences, but they recruited candidates with backgrounds in the sciences to strengthen their development as institutions and gain more funding and areas of research and education.⁷⁹ Additionally, Engwall explains the high levels of vice-chancellors with a background in the sciences and life sciences, in light of the

⁷⁶ MedfarmDoIT Uppsala University, 2009-03-06.

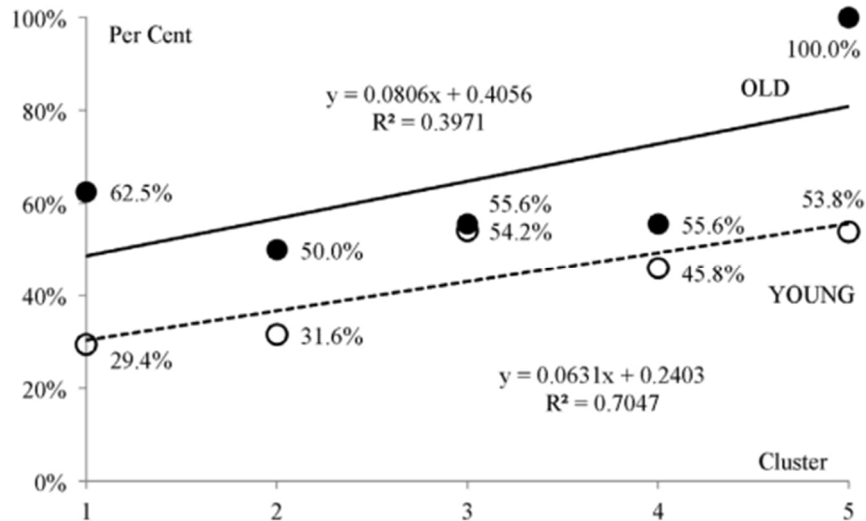
⁷⁷ Lars Engwall. "The recruitment of university top leaders: Politics, communities and markets in interaction". *Scandinavian Journal of Management*. 30:3, 332–343; 2014, pp. 335–336.

⁷⁸ Engwall. "The recruitment of university top leaders: Politics, communities and markets in interaction", p. 340.

⁷⁹ *Ibid.* p. 339.

increasing market orientation, and notes that these disciplines are believed to reflect innovation, which is more valuable in the market.⁸⁰

Figure 2. Results by Engwall (2014) on the distribution of vice-chancellors with backgrounds in the natural and life sciences at the Swedish higher education institutions during 1960s–2011, by Institutional age group and Appointment cluster.



Source: Lars Engwall, "The Recruitment of University Top Leaders: Politics, Communities and Markets in Interaction", *Scandinavian Journal of Management*, 30.3 (2014), 332–343. s. 339, figure 5.

One drawback of Engwall's study is that the operationalisation of the different academic disciplines is relatively narrow, with only two categories of *hard* and *soft sciences*.⁸¹ Another drawback is that the categorisation of higher education institutions is divided into old and new institutions, which does not reflect their entire character and position in the higher education landscape. However, among the previous research which have been identified, this article by Engwall appears to be the most relevant to this study, as it most closely aligns with the type of empirical material and research questions addressed further in this thesis.

After reviewing relevant literature, one conclusion is that there is room for contribution regarding the knowledge of the academic backgrounds of vice-chancellors, how these vary over time, and how they are represented at different categories of Swedish higher education institutions in modern times. While there is a considerable amount of research on vice-chancellors, their recruitment, leadership, and organisational value, there is a notable lack of studies specifically mapping the relationship between vice-chancellors and academic disciplines. Although the Engwall article addresses this matter, a gap remains regarding the position of different academic disciplines among the background of Swedish vice-

⁸⁰ Ibid. p. 340.

⁸¹ The *hard sciences* include natural science, technology, medicine and pharmacy. The *soft sciences* include humanities, law, social sciences and theology.

chancellors. Additionally, there are no significant results or studies available for the period after 2010. This gap motivates further investigation, especially given the importance of the vice-chancellor in the Swedish research and higher education system.

Theoretical framework

Two different sources of theory will be used to assist in understanding and explaining the academic disciplines of the vice-chancellors. The results from earlier research are also used to support the theoretical framework.

Vice-chancellors and the academic field

The first part of the theoretical framework is rooted in Pierre Bourdieu's concept of capital and field. One starting point for approaching Bourdieuan theory is to understand the world through the lens of accumulated history, the relationship between different types of capital, their accumulation, and their impact on society.⁸² Before moving on to the application to the vice-chancellors of the Swedish higher education institutions, some simple explanations of the terms are needed. Bourdieu argued for the existence of three different types of capital: 1), economic, 2) cultural, and 3) social.⁸³ Economic capital is the kind of capital that can be directly converted to monetary resources or property rights. Cultural capital, on the other hand, can be viewed as the knowledge, skills, education, and cultural competencies that individuals accumulate over time. The cultural capital may appear in three different states: embodied, objectified, or institutionalised.⁸⁴ In comparison, social capital is made up of social connections, which under certain conditions can be converted into economic capital and take the shape of institutionalisation. Examples of social capital include networks, relationships, mutual recognition, memberships, and similar structures that strengthen the individual through collective capital.⁸⁵ However, there can be more specific capitals linked to particular fields.

Bourdieu addressed the academic environment directly in the famous work *Homo Academicus*, published in 1984. While the book primarily focuses on the French example and is heavily influenced by changes in French academia following the events of 1968, it still provides a theoretical framework to explain power dynamics within academia in general.

Just like the rest of the world, Bourdieu argued that academia has its own field or space of power. The members of academia occupy a space, but are differentiated by their distinct properties, traits, and relationships to one another.⁸⁶ Bourdieu also meant that positions in the field are distributed by economic, political, and cultural capital, and that the structure of the field reflects the field of power.⁸⁷ Similar to Kant's work on the faculties, Bourdieu observed that the faculties had separate standings in French academia, and that there was a division between faculties that were both scientifically strong and socially subordinate, and on the other side, faculties that were both scientifically weak and socially strong.⁸⁸ The two faculties of science and arts are examples of the former category, and the faculties of law and medicine are represented in the

⁸² Pierre Bourdieu. "The Forms of Capital". In *Handbook of Theory and Research for the Sociology of Education*, edited by J. G. Richardson. Greenwood Press; 1986, p. 15.

⁸³ Bourdieu. "The Forms of Capital", p. 16.

⁸⁴ Ibid. p. 17.

⁸⁵ Ibid. p. 21.

⁸⁶ Bourdieu. *Homo Academicus*. Stanford: Stanford University Press; 1988, pp. 22-23.

⁸⁷ Ibid. p. 40.

⁸⁸ Ibid. p. 54.

latter.⁸⁹ Bourdieu also emphasized the importance of age and social background in determining one's position within the field.⁹⁰ Again, like Kant's ideas on the connection between faculties and the state, Bourdieu argued that the faculties and academic disciplines are also affected by how they are valued by society, and that the science faculties are more true to science. The law and medicine faculties are more dependent on societal perception. Another essential part of Bourdieu's theory is the accumulation of academic capital, and how this is strengthened by the positioning and actions of individuals occupying the field.⁹¹ Furthermore, Bourdieu summarised academic power as the capacity to 1) influence expectations, meaning how well one handles academic investments, and 2) objective probabilities and how successful one is in limiting competitors in the field.⁹²

This final observation leads us to one of Bourdieu's important points, which is that those who fail in gaining academic power, or more precisely, fail with their scientific investments, are more likely to seek administrative positions of upholding a similar position in academia, but with other means.⁹³ This part is key to this study, and implies that due to the growing size of academia and the number of people competing for power, there should be a significant movement from scientific investments to administrative investments.

The most central concept in this study is Bourdieu's theory of the field. While capital provides the tools for understanding individual positioning, it is within the field that these tools gain meaning. In the context of higher education, the vice-chancellor serves as an embodiment of the higher education institution's position within the academic field. The background of the vice-chancellor reflects the higher education institutions' alignment with specific regions of the field. This makes the field theory a robust explanatory model, allowing us to understand how institutions position themselves, how they are perceived, and how they reproduce or challenge existing structures. Therefore, understanding which part of the field a higher education institution belongs to is crucial for interpreting its leadership and strategic orientation.

To summarise, applying Bourdieu's theory to the case of Swedish vice-chancellors reveals a structured field within Swedish academia. In this field, capital is not only personal but also shaped by history and social values. The field theory helps us understand how higher education institutions position themselves and how their leaders reflect those positions. A vice-chancellor's background and discipline tell us something about the institution's place in the academic field. This means that leadership is partly an individual merit, but also an indication of how the institution is seen and valued within the broader academic field. By studying the vice-chancellors, we can learn more about how Swedish higher education institutions are organised and how different parts of the system relate to each other.

⁸⁹ Ibid. p. 41.

⁹⁰ Ibid. pp. 58–59.

⁹¹ Ibid. pp. 73–74.

⁹² Ibid. p. 89.

⁹³ Ibid. p. 99.

The marketisation of the vice-chancellor

One of the key points made by Engwall is that, in recent decades, there has been a shift in the governance of Swedish higher education institutions. This transformation is characterised by a move from collegial and state-centered control toward market-oriented mechanisms. This process can be referred to as marketisation, and has implications for university governance, how leadership is recruited, and the overarching ideas of academic leadership. According to Engwall, the argument is that state regulations and professional norms are no longer the most dominant steering principle; instead, the market, with its actors and logics, has taken on the most active role.⁹⁴ The earlier described traditional model of collegial rule, where vice-chancellors were elected by their academic peers, has in this context been weakened. Instead, higher education institution now strives to resemble recruitment processes of executives in the private sector, often involving headhunting firms and open advertisements.⁹⁵

This shift has created what Engwall describes as an open market for academic leadership, where individuals can apply for the position of vice-chancellor across institutions, and where mobility between universities has become more popular.⁹⁶ Once again, the collegial principle of selecting leaders from within the academic community has thus been supplanted by a managerial logic. This shift also results in new priorities regarding leadership, which often focus on leadership experience, strategies, and external legitimacy, instead of traditional academic values.

Theoretically, there exists a market for vice-chancellors to operate within freely. However, it's important to note that this market is not entirely free. As Engwall also points out, the number of available vice-chancellor positions is limited, and appointments do not occur frequently. Furthermore, there has been a trend towards the use of recruitment firms when searching for vice-chancellor candidates, which, in their working process, act as gatekeepers, filtering candidates and thereby shaping the supply of potential vice-chancellors.⁹⁷ To summarise, constraints such as these introduce what we can call market failures in the market for vice-chancellors. Not everyone can become a vice-chancellor, and several factors influence the selection process.

To conclude, the marketisation of the governance of higher education institutions has created a market for vice-chancellors, and this market should, to some extent, reflect the circumstances surrounding it, such as historical traditions, institutional culture, streams of funding, and other vital factors.

Theoretical contributions from earlier results and proven experience

The empirical findings described in the chapter on previous research, such as Goodall or Breakwell & Tytherleigh, can also add to the theoretical framework.

⁹⁴ Engwall. "Universitet: vadan och varthän?", p. 107–110.

⁹⁵ *Ibid.* pp. 114–115.

⁹⁶ Engwall. "Universities, the State and the Market: Changing Patterns of University Governance in Sweden and Beyond", p. 97–99.

⁹⁷ Engwall. "The recruitment of university top leaders: Politics, communities and markets in interaction", p. 336–337.

Although national systems for higher education and study differ in terms of governance, tradition, history, and practices, there is an overlap in the general trends regarding the recruitment of vice-chancellors, which allows for a specific analytical comparison. If we assume that Sweden shares core characteristics with other national systems, particularly those in the Western world, we should expect to see similar patterns in the relationship of disciplinary distribution and vice-chancellors.

Aim of the study and research questions

This study aims to expand earlier research on vice-chancellors and contribute new knowledge about the Swedish case. By systematically examining the academic backgrounds of Swedish vice-chancellors over time and across different types of institutions, the study aims to highlight patterns of disciplinary representation and explore whether these align with trends located by earlier research.

Given the aim of this study, the research question primarily focuses on highlighting the academic backgrounds of the vice-chancellors. This quest will be divided into separate questions to capture the topic.

Firstly, the field of Swedish higher education institutions needs to be explored to contextualise the vice-chancellors and the higher education institutions. This will serve as a template for the rest of the question. Thus, the following research question:

- How can the field of Swedish higher education institutions be understood in terms of resource allocation, heterogeneity, and hierarchy?

Secondly, a key aspect is how the disciplinary backgrounds of the vice-chancellors between 1977 and 2025 reflect the structure and dynamics of the field of Swedish higher education institutions. By examining which disciplines dominate, the study can identify patterns. Furthermore, changes in disciplinary backgrounds over time may signal shifts in the field itself, which can result from various internal and external actions. These shifts help us understand how the field develops.

- How has the disciplinary background of vice-chancellors changed over time, and what does this suggest about shifts in the academic field?
- To what extent, and in what ways, do the disciplinary backgrounds of Swedish vice-chancellors during 1977 and 2025 reflect the structure and dynamics of the academic field in Sweden?

Thirdly, the study considers whether the recruitment of vice-chancellors reflects a market logic. This tension between market-oriented mechanisms and academic values reveals how higher education institutions navigate both internal values and external pressures, and how these forces reshape academic leadership within the field.

- To what extent does the recruitment of vice-chancellors reflect a market logic, and how does this interact with traditional academic hierarchies?

Data and method

Data collection

One of the primary tasks in this study is data collection, approached through a collective biographical method aimed at quantifying the characteristics of the population under investigation. The point of analysis has already been determined and described earlier, and the variables of interest have been selected in accordance with the study's focus. Coding involves interpretative choices, and the codebook is based on existing categorisations relevant to the material.⁹⁸ These are described in the data chapter below. The data are primarily quantitative, allowing for categorisation and measurement based on the frequency of different attributes.⁹⁹

Ethical considerations during the data collection

The data collection for this study has been based on the guidelines from Uppsala University regarding the processing of personal data in degree projects.¹⁰⁰ The dataset contains some personal data, primarily names, age, legal gender, and other information that could be used to identify individuals, such as their doctoral degree subject. However, no sensitive personal data has been collected or processed in this study. Since the data is publicly accessible and not sensitive, no consent was required.

The personal data has been used solely to identify individuals relevant to the study and to analyse their weight in relation to the total population of the dataset. The personal data is key for the research and mapping of the population of vice-chancellors in Swedish higher education institutions from 1977 to 2025.

All data has been handled securely and in accordance with the guidelines. Only the author of the study has had access to the complete data set. Upon completion of the study, the personal data will be deleted in accordance with the guidelines, and no personal data will be retained beyond what is necessary.

Choice of research object

One of the most critical parts of the paper is selecting which higher education institutions to analyse. According to the Swedish Higher Education Authority (UKÄ), 49 organisations currently have the right to provide higher education in Sweden. They are divided into four categories by UKÄ: 1) universities (*universitet*), 2) university colleges (*högskolor*), 3) university college of fine, applied and performing arts (*konstnärlig högskola*), and 4) independent higher education providers (*enskilda utbildningsanordnare*).

However, this categorisation does not reflect the differences between the individual institutions, and the fourth category may not require separate

⁹⁸ Peter Esaiasson, Mikael Gilljam, Henrik Oscarsson, Ann E. Towns & Lena Wängnerud. *Metodpraktikan: konsten att studera samhälle, individ och marknad*. Femte upplagan. Wolters Kluwer, Stockholm; 2017, p. 201.

⁹⁹ Ann Kristin Larsen. *Metod helt enkelt: en introduktion till samhällsvetenskaplig metod*. 1. upplagan. Gleerups, Malmö; 2009, p. 22.

¹⁰⁰ Uppsala University, 2024-04-05.

consideration. Therefore, using inspiration from the categories used by Ahlbäck Öberg and Boberg,¹⁰¹ the categorisation of the higher education institutions will consist of five categories: 1) Old University, 2) Specialised Higher Education Institution, 3) New University, 4) University College, and 5) Art University. However, this study involves more institutions than the previously mentioned publication.

Before proceeding, there is a need to choose which institutions to study. A fundamental aspect of the paper is the limitation to the period from 1977 to February 2025. The reasoning behind the limit consists of several components. Firstly, 1977 marks the launch of one of the most significant higher education and research reforms in Swedish history.¹⁰² The reform resulted in a wide range of changes. One of the most critical aspects of this reform was the creation of new institutions, mainly to expand the supply of higher education regionally.¹⁰³ Secondly, the reform also marked a more well-defined definition of higher education, resulting in several educational institutions being moved formally to the higher education sector.¹⁰⁴

Several organisations provide higher education and research in Sweden. To begin with, all research institutes are excluded from this study, mainly because they primarily conduct research and do not provide higher education to any considerable extent. Therefore, they cannot be compared to traditional universities in an organisational sense. Secondly, research institutes lack vice-chancellors and collegial governance, unlike higher education institutions. Another category of institution that will be excluded is the nursing schools (*vårdhögskola*). Although these institutions have played an essential role in the Swedish higher education system, they lack the traditional organisation of a higher education institution. There is also a shortage of information about their history, organisation, and staff.

Generally, higher education institutions with fewer than 150 full-time equivalent students (HST) in 2024, according to UKÄ, will be excluded from the study. This is often because they are highly specialised and are not traditional higher education institutions that conduct both research and education. Higher education institutions that meet the threshold will be included in the analysis.

Higher education institutions that have merged into existing institutions will be included, as they represented a part of the share during the period. The previously mentioned rule of at least 150 HST will not apply to these institutions.

Another rule is *primus inter pares*, meaning that only one vice-chancellor per higher education institution will be included. This means that facilities or campuses that use the term vice-chancellor, rector, or similar titles for functions equivalent to deans or heads of operations at a faculty or local part of the higher education institution will not be included.

There is also one crucial rule regarding the form of higher educational institutions. Their internal organisation has undergone several changes over time. In cases where the institution has undergone fundamental changes, it is divided into two categories. This also affected the vice-chancellors. For example,

¹⁰¹ Ahlbäck Öberg & Boberg. "Avkollegialiseringen av svenska lärosäten: En analys av statliga universitet och högskolor", p. 165.

¹⁰² Gribbe. *Förändring och kontinuitet: Reformen inom högre utbildning och forskning 1940–2020*. p. 63.

¹⁰³ Ibid, p. 67.

¹⁰⁴ Ibid, p. 75.

suppose a vice-chancellor's term coincides with an institution's transition from a university college to a university. In that case, the individual is divided into two, as the conditions for the institutions are so dramatically different. This is also the case if an institution has changed ownership, as private ownership offers vastly different organisational possibilities than state-owned institutions. However, more minor changes, such as name changes, will not result in a new categorisation of the institution or the vice-chancellor. The rule can therefore be summarised in that unless the higher education institution undergoes a change that dramatically impacts its organisation, the status will remain unchanged during the transmission.

Table 3 shows the categorisation of the higher education institutions, their name, abbreviations, and period of analysis. The University colleges are the largest group at 21 institutions, followed by Specialised Higher Education Institutions at 17, Art universities at 11, New universities at 7, and 6 Old universities.

Table 1. The selected higher education institutions for the study.

| Name of institution | Abbreviation | Period of analysis |
|---|--------------|--------------------|
| Old University | | |
| Uppsala University (1477) | UU | 1977-2025 |
| Lund University (1666) | LU | 1977-2025 |
| University of Gothenburg (1891) | GU | 1977-2025 |
| Stockholm University (1878) | SU | 1977-2025 |
| Umeå University (1965) | UmU | 1977-2025 |
| Linköping University (1969) | LiU | 1977-2025 |
| Specialised Higher Education Institution | | |
| University College of Luleå (1977) | LTH | 1977-1996 |
| Luleå University of Technology (1997) | LTU | 1997-2025 |
| Karolinska Institutet (1810) | KI | 1977-2025 |
| Royal Institute of Technology (1827) | KTH | 1977-2025 |
| Chalmers University of Technology (1829) | CTU | 1977-1994 |
| Chalmers University of Technology Foundation (1994) | CTUs | 1994-2025 |
| Swedish University of Agricultural Sciences (1977) | SLU | 1977-2025 |
| Stockholm School of Economics (1909) | HHS | 1909-2025 |
| Swedish Defence University (1997) | FHS | 1997-2025 |
| The University College of Institute for Higher Advertising and Communication Education and the Graphic Institute (1973) | GI-IHR | 1977-1994 |
| University College Stockholm (1994) | EHS | 1994-2025 |
| Swedish Red Cross University (1867) | RKH | 2007-2025 |
| The Swedish School of Sport and Health Sciences (1813) | GIH | 1992-2025 |
| University College of Teacher Education in Stockholm (1977) | HLS | 1977-1993 |
| Stockholm Institute of Education (1993) | LHS | 1993-2007 |
| Marie Cederschiöld University (1996) | MCHS | 1996-2025 |
| Sophiahemmet University (1884) | SHH | 1977-2025 |
| New University | | |
| Örebro University (1999) | OrU | 1999-2025 |

| | | |
|--|-------|-----------|
| Växjö University (1999) | VaU | 1999-2009 |
| Linnaeus University (2010) | LnU | 2010-2025 |
| Karlstad University (1999) | KaU | 1999-2025 |
| Malmö University (2018) | MaU | 2018-2025 |
| Mälardalen University (2022) | MDU | 2022-2025 |
| Mid Sweden University (2005) | MiU | 2005-2025 |
| University College | | |
| University of Skövde (1983) | HS | 1983-2025 |
| Blekinge Institute of Technology (1989) | BTH | 1989-2025 |
| University of Borås (1977) | HB | 1977-2025 |
| Dalarna University (1977) | HDa | 1977-2025 |
| Jönköping University (1977) | JH | 1977-1994 |
| Jönköping University Foundation (1994) | JHs | 1994-2025 |
| Södertörn University (1997) | SH | 1997-2025 |
| University West (1990) | HV | 1990-2025 |
| Halmstad University (1983) | HH | 1983-2025 |
| University of Gävle (1977) | HiG | 1977-2025 |
| Kristianstad University (1977) | HKr | 1977-2025 |
| University of Kalmar (1977) | HK | 1977-2009 |
| Gotland University College (1998) | HGo | 1998-2013 |
| Östersund University (1977) | HiÖ | 1977-1993 |
| Örebro University College (1977) | OrH | 1977-1999 |
| Växjö University College (1977) | VaH | 1977-1999 |
| Karlstad University College (1977) | KaH | 1977-1999 |
| Malmö University College (1998) | MaH | 1998-2017 |
| Mälardalen University College (1977) | MDH | 1977-2022 |
| Mid Sweden University College (1993) | MiH | 1993-2005 |
| University College of Sundsvall/Härnösand (1977) | HiS/H | 1977-1993 |
| Art University | | |
| Royal Institute of Art (1735) | KKH | 1978-2025 |
| Royal College of Music (1771) | KMH | 1977-2025 |
| University of Arts, Crafts and Design (1844) | KF | 1977-2025 |
| Stockholm University of the Arts (2014) | SKH | 2014-2025 |
| Beckman College of Design in Stockholm (1939) | BDH | 2000-2025 |
| University College of Dance and Circus (2010) | DOCH | 2010-2014 |
| Institute of Dramatic Art (1970) | DI | 1970-2010 |
| National Academy of Mime and Acting (1977) | THSt | 1977-2010 |
| Stockholm Academy of Dramatic Arts (2011) | StDH | 2011-2013 |
| University College of Opera (1968) | OHSt | 1977-2014 |
| Ingesund School of Music (1978) | MHI | 1978-2002 |

Comments on some exceptional cases within the group of higher education institutions

Chalmers University of Technology is split into two, reflecting the change of ownership in 1994. Therefore, *Chalmers University of Technology* represented the period from 1977 to 1994, and *Chalmers University of Technology Foundation*, from 1994 to 2025. This applies to *Jönköping University*, which represented the state-owned institution from 1977 to 1994, and *Jönköping University Foundation*, the private foundation created in 1994.

The limitation on the period from 1997 to 2025 for the Swedish Defence University is derived from organisational changes, with 1997 representing the year when the institution was formally created in its current form following a merger of earlier institutions. This higher education institution represents a unique environment, and many vice-chancellors during significant parts of the 20th century did not have a traditional academic background.

The leading institution for teacher education in Stockholm, commonly referred to as *Lärarhögskolan i Stockholm* in Swedish, was divided into two: University College of Teacher Education in Stockholm, from 1977 to 1993, and Stockholm Institute of Education, from 1993 to 2007. The reasoning is that the earlier organisation also housed The Swedish School of Sport and Health Sciences, which changed the characteristics of the institution.

As a result, and given the rule of *primus inter pares*, *The Swedish School of Sport and Health Sciences*, is excluded from the analysis during 1977 to 1992, as the institution was part of a larger organisation. In 1992, the separation process began with the appointment of an interim vice-chancellor.

The Royal Institute of Art has its starting point in 1978, rather than 1977, as the year 1978 marks an organisational change to become an independent institution.

Source of information

The data was collected through various sources. A substantial part of the data is derived from *Sveriges statskalender*, which is a kind of encyclopaedia of people employed in governmental agencies, other public institutions, or larger organisations.¹⁰⁵ However, the publishing of this encyclopaedia ended in the mid-2010s, which created an information shortage when collecting the data. Because of this, websites of higher education institutions, news articles, personal webpages, academic publications, and other digital archives have been used to complete the information. In cases where publicly available information was incomplete or inconsistent, direct contact was made with the relevant higher education institution. In one case, a former vice-chancellor was contacted by phone to clarify missing information.

The data and operationalisation of the variables

In the data set, there are 21 different variables, which are explained below.

ID is given to every individual to create an easier way of analysing and removing their name from the data software.

¹⁰⁵ University of Gothenburg, 2016.

VC name is the first and last name of the vice-chancellor holding the position during the relevant term.

Lärosäte (Swedish name) is determined by the official Swedish name of the higher education institution.

HEI is determined by the English translation of the name of the higher education institution. Most current-day higher education institutions have official names in English. However, some of the older institutions that no longer exist do not have an English name, and an English name has been created for them.

HEI abbreviation is the short title of the institution, and is created to ease the analysis, as some of the higher education institutions have very long and complicated names. Most of the institutions have official abbreviations; however, as in the case of the category *HEI*, several non-existent institutions lack an abbreviation. In those cases, an abbreviation has been created.

HEI category is defined by the categorisation mentioned earlier: 1) Old University, 2) Specialised Higher Education Institution, 3) New University, 4) University College, and 5) Art University. Most of the institutions have been given the same categorisation as in the study by Ahlbäck and Boberg,¹⁰⁶ but given that this study includes more institutions, naturally, the number of institutions within the categories has increased. Old university is defined as universities created before the extensive university reform in 1977. Specialised Higher Education Institution is defined as institutions that specialises in a specific field or have a clear scientific profile. Ahlbäck and Boberg only include universities in this category, but in this study, the category is expanded also to include institutions without university status. This has both gains and drawbacks. The gain is that very specialised institutions are recognised as such. For example, Ahlbäck and Boberg categorise the Swedish Defence University as a university college. Still, this institution is highly specialised, maybe one of the most specialised institutions in the whole system. One drawback is that the category becomes broad in terms of the types of institutions included. For example, there are vast differences between Karolinska Institutet and the University College of Stockholm. However, the differences can be dealt with in the analysis in other ways than categorisation, preferably by considering different aspects or making a qualitative analysis of the results. New universities are defined as universities created after 1977. University colleges are defined as institutions with university college as an official legal status. The last definition is Art university, and is for institutions that primarily focus on research and education within the field of art.

Ownership is determined by the organisational ownership of the higher education institutions. The two forms of ownership are state and private. In cases where there has been a reform to make a state-owned institution private, for example, Chalmers University of Technology, the individual has been divided into two separate IDs, as the nature of the higher education institution changes dramatically.

Term of office is defined as the period during which a person holds the position of Vice-Chancellor. Some of the individuals started their terms before

¹⁰⁶ Ahlbäck Öberg & Boberg. "Avkollegialiseringen av svenska lärosäten: En analys av statliga universitet och högskolor", p. 165.

1977. In those cases, the entire term, including the period before 1977, was included.

The length of term is defined as the number of years between the start and end of each appointment, rounded up. Regarding the vice-chancellors currently in office, the end of the year refers to when their current term is scheduled to conclude.¹⁰⁷ This approach may slightly underestimate the term for those who are later re-elected. However, there are cases when vice-chancellors end their term early, so these variations are likely to balance each other out and should not introduce any significant bias.

Period of term is determined by the decade in which the individual spent the most significant part of their term as vice-chancellor. The levels are sixfold: 1970-1979, 1980-1989, 1990-1999, 2000-2009, 2010-2019, and 2020-2029.

Status of term is divided into two levels: either acting or substitute. Some individuals served as acting vice-chancellor. In some instances, the term lasted during more extended periods, in which it would be unwise to exclude the acting vice-chancellors.

Multiple HEI terms are used to indicate whether the individual has served as a vice-chancellor in multiple terms at different higher education institutions.

The year of birth is a category with numeric variables that *record* the calendar year in which the individual was born. It is represented as a four-digit number and is used for calculating age and support analysis.

Age start of term is a numeric variable calculated by subtracting the respondent's year of birth from the starting year of the mandate period. It represents the individual's age at the beginning of their term.

Subject of doctoral degree refers to the academic discipline in which the individual obtained their doctoral degree. The subject is typically recorded according to the field officially recognised at the time of graduation and reflects the individual's area of research specialisation. In instances where the individual lacked a doctoral degree, this has been noted as missing and commented on their highest completed level of education or other occupation.

Subject of professorship refers to the academic field in which the individual holds a professorial position. It is a categorical variable that corresponds to the subject area formally assigned to the professorship, as defined by the appointment from the higher education institutions. In instances when the individual had other academic positions, such as docent or associate senior lecturer, this has been recorded. Some individuals lacked a general academic title, often those with a background outside academia, and this has been noted.

The two categories of *Subject of doctoral degree* and *Subject of professorship* are crucial, as they are combined to determine the following two categories. The idea is that combining two sources of academic affiliation will yield a more accurate variable compared to using only one of them.

Research subject area is determined by examining the results from *Subject of doctoral degree* and *Subject of professorship* and applying them to Swedish Standard Classification of Research Subjects 2025. The classification consists of six main disciplines: 1) Natural sciences, 2) Engineering and Technology, 3)

¹⁰⁷ As described earlier, most vice-chancellors follow the terms set by the government, which is six years with the possibility of extension in two periods of three years.

Medical and Health Sciences, 4) Agricultural and Veterinary sciences, 5) Social Sciences, and 6) Humanities and the Arts.

Research subject group is just as the previous category, determined by a judgment of the individual's results in the Subject of doctoral degree and the Subject of professorship, and extends the categorization from the six main disciplines to one of forty-two different subcategories.

HEI doctoral degree is determined by the higher education institution where the individual earned their doctoral or licentiate degree. In cases where the individual lacked such a degree but had experience of first- or second-level education, this was used instead.

HEI career is determined by where the individual spends most of their career. This is one of the most challenging variables, as academics, like other professionals in society, often change employers. In cases where the individual had spent the majority of their career outside academia, the label "Other" was assigned to them.

Legal gender refers to the gender assigned to an individual. In Sweden, legal gender is a categorical variable limited to two options: male and female.¹⁰⁸

Missing data

There was a lack of data regarding the academic background of five individuals. These were the four vice-chancellors at the Swedish Red Cross University during the periods of 1970-1979, 1979-1984, 1984-1997, and 1997-2006. In this case, the higher education institution is unique in that it primarily focuses on research and education in nursing and health sciences. This institution has historically appointed vice-chancellors with a background in these subjects. Therefore, it's likely that they also had a similar background, but as there were no available sources, the four vice-chancellors were excluded from the analysis. There was also a lack of information available for one of the vice-chancellors at Sophiahemmet University during the period of 1999-2000. This individual was also excluded. Besides these five individuals, no further missing data was located.

Regarding the data on two variables related to the individual's origin of doctoral degree and career, there was some missing data, with 9 and 13, respectively.

Considering this removal, the final number of individuals with correct data and availability for analysis was 334 individuals.

Methodical approach

This paper will mainly rely on the use of quantitative methods to approach the research questions. The choice of method is motivated by the desire to explore patterns in the disciplinary backgrounds of vice-chancellors in Swedish higher education institutions, as well as their relationship to other variables, such as institutional categories and periods of time. The overarching goal is to identify distributions, concentrations, and trends.¹⁰⁹ To achieve this, there needs to be a simplification of the data that summarises the results well.¹¹⁰

¹⁰⁸ Skatteverket, 2025.

¹⁰⁹ Larsen. *Metod helt enkelt: en introduktion till samhällsvetenskaplig metod*, p 59.

¹¹⁰ Esaiasson; Gilljam; Oscarsson; Towns; Wängnerud. *Metodpraktikan: konsten att studera samhälle, individ och marknad*, p. 151.

The analysis primarily involves univariate, bivariate, and multivariate methods. Univariate analysis is used to examine the distribution of a single variable at a time, for example, the total number of individuals per research subject group or per higher education institution category. This is one of the easiest ways to visualize the distribution in the data.¹¹¹ Bivariate analysis is used to explore the relationships between two categorical variables. For example, how different research subject groups are distributed across various higher education institution categories.¹¹² Easier forms of multivariate analysis are used for cases when there are more than two variables. This is useful to examine how the relationship between two variables varies across a third.¹¹³

The data was processed in Microsoft Excel, primarily using pivot tables, which automatically or semi-automatically perform various calculations, such as counts, row and column totals, or time series.

Finally, based on the analysis of the data, an attempt will be made to draw conclusions related to the research questions.¹¹⁴

Reflection of methods

One of the strengths of using univariate, bivariate, and multivariate analysis is that it allows for a clear and systematic presentation of the results. However, there are obvious weaknesses, such as the limitation of depth when studying the interactions between the variables. However, this is a general issue when dealing with quantitative methods; it's hard not to simplify the data.¹¹⁵ Furthermore, the multivariate analysis tends to become more demanding to present pedagogically. Moreover, the limitations in Excel also make the analysis difficult to visualize and communicate clearly. Considering this, the descriptive nature of this study makes the methods well-suited for the aim and the research questions.

¹¹¹ Ibid. p, 59.

¹¹² Ibid. p, 63.

¹¹³ Ibid. p, 66.

¹¹⁴ Alan Bryman, Alan, *Social research methods*. Fifth edition, Oxford University Press, Oxford; 2016, p. 150-151.

¹¹⁵ Esaiasson; Gilljam; Oscarsson; Towns; Wängnerud. *Metodpraktikan: konsten att studera samhälle, individ och marknad*, p. 151.

Results

Mapping the complex yet simple field of Swedish higher education institutions

At first glance, the landscape of Swedish higher education institutions can appear simple, at least from a formal perspective. The same laws and frameworks formally regulate higher education institutions. Both the Higher Education Act and the Higher Education Ordinance make sparse formal distinctions between a university (*universitet*) and a university college (*högskola*). The most significant difference in the legislation is the possibility to award doctoral degrees, which is automatically granted to universities, but must be applied for by university colleges.¹¹⁶ However, this difference between the two has weakened over time, especially since 2010 when the university colleges were allowed to apply for doctoral degree rights in self-defined areas. As of today, most state-owned university colleges offer education in third-cycle courses and study programs.¹¹⁷ Several university colleges have also been granted university status in recent decades¹¹⁸, and the formal differences between the two types of institutions have narrowed considerably.

In the Scandinavian context, this structure of a formally unified system is somewhat unique. For example, in Finland, the system is dual, consisting of universities that focus on scientific research and academic higher education, and universities of applied sciences that offer vocational-oriented education aligned with labour market needs.¹¹⁹ Denmark also has a differentiated system. It includes universities, which provide research and higher education on all three levels, as well as university colleges and business academies, which primarily offer education at the bachelor's level and applied programs.¹²⁰ In Sweden, higher education institutions are not seen as providers of vocational education, as this is traditionally the responsibility of the Higher Vocational Education providers (*yrkeshögskola*).¹²¹

Another vital key to understanding Swedish higher education institutions is that most of them are state-owned. This means that the majority have the governmental status of government authorities.¹²² However, there are a few exceptions, with some institutions being privately owned. These institutions are few in number. Private institutions have greater formal freedom than state-owned institutions, as they are less regulated as private entities. However, they must apply to the government to provide higher education.¹²³ This also has implications for the recruitment of vice-chancellors at the private institutions, as the process is not as regulated. On the other hand, research has shown that the

¹¹⁶ SFS 1992:1434. 1 kap. 11 § and 1 kap 12 §.

¹¹⁷ Stella Annani, Andrea Amft & Nils Olsson. *Kvalitetskriterier för benämningen universitet – ett regeringsuppdrag*. Stockholm: Universitetskanslersämbetet, 2021, p. 12.

¹¹⁸ Ibid. p. 16.

¹¹⁹ Undervisnings- och kulturministeriet, 2025.

¹²⁰ Uddannelses- og Forskningsministeriet, 2024-06-23.

¹²¹ Myndigheten för yrkeshögskolan, 2025.

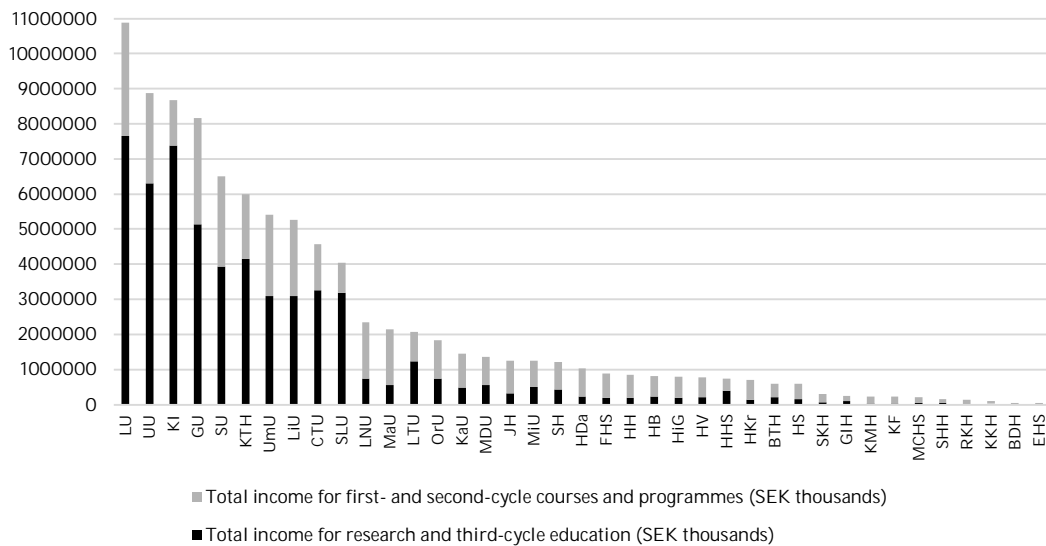
¹²² Shirin Ahlbäck Öberg. "Om akademisk frihet". Stockholm: Sveriges universitetslärare och forskare, 2023, p. 19.

¹²³ Universitetskanslersämbetet, 2022-12-12.

private institutions often have far-reaching agreements with the government that regulate them almost to the same extent as the relation between the government and state-owned institutions.¹²⁴

With this formal structure established, the difference in the Swedish higher education landscape is nonetheless institutional, but may not be immediately apparent. The fundamental difference between institutions in the Swedish case is the funding of the two core objectives, research and higher education. All institutions strive to provide them both, but have vastly different economic conditions in doing so.

Figure 3. Total income per higher education institution in 2024, sorted by volume, and divided into income from first- and second-cycle education and income from research and third-cycle education.



Source: Data from the Swedish Higher Education Authority (2025).

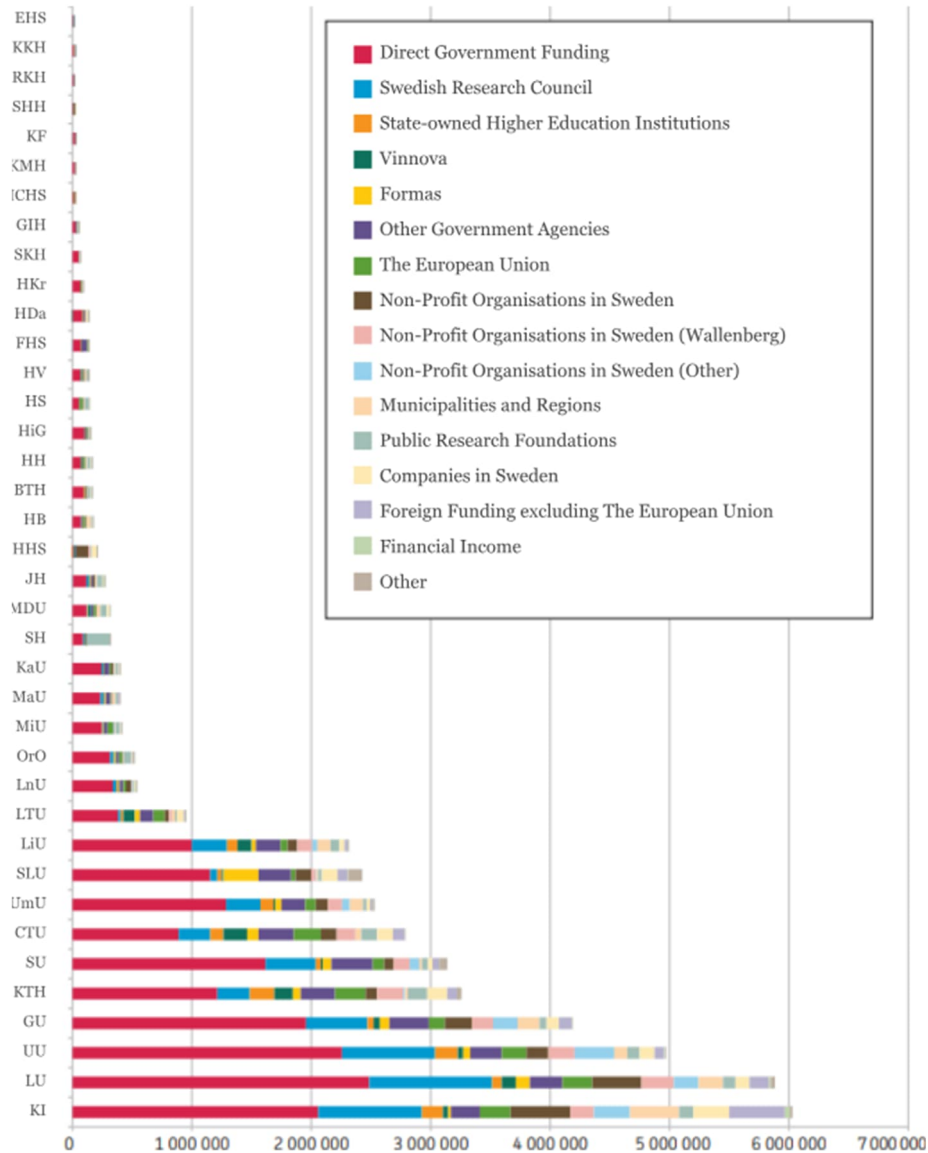
Figure 3 illustrates the major disparities in funding among the Swedish higher education institutions. At certain institutions, often older ones, such as Karolinska Institutet, Lund University, and Uppsala University, funding for research exceeds funding for education by a large margin. Arguably, Karolinska Institutet represents the most extreme case, as it receives more than five times as much income for research as for education, with research funding accounting for 85 percent of the total income. The income for research at Karolinska Institutet matches the combined total of the 28 institutions ranked lowest in terms of research funding. In contrast, many other institutions, such as Linnaeus University and Malmö University, as well as several university colleges, rely more heavily on income from education than from research.

Additionally, there is a difference in the source of research funding. Several streams contribute to the accumulated income for research at the higher education institutions. The streams vary depending on the institution. As shown

¹²⁴ Shirin Ahlbäck Öberg & Johan Boberg. *Ökad kontroll och ökad byråkratisering: En kartläggning av statens styrning av universitet och högskolor*. Sveriges universitets- och högskoleförbund; 2024, p. 71.

in Figure 4, some higher education institutions rely heavily on direct government funding for research, while others primarily rely on external funding for research. Once again, Karolinska Institutet stands out with a diverse funding profile for research, receiving substantial amounts from various streams of funding, including both state and private sources. This relation is also important to understand and consider, as it reflects broader structural differences in institutional profiles, research capacity, and historical positioning within the Swedish higher education landscape. Consequently, this relationship also affects the demands on leadership within the institution. In the context of this study, the vice-chancellor, as the head of the institution, needs to navigate a market of research funding sources.

Figure 4. The volume and source of research funding for the Swedish higher education institutions in 2018, sorted by volume, and divided by different sources of research funding (SEK thousands).



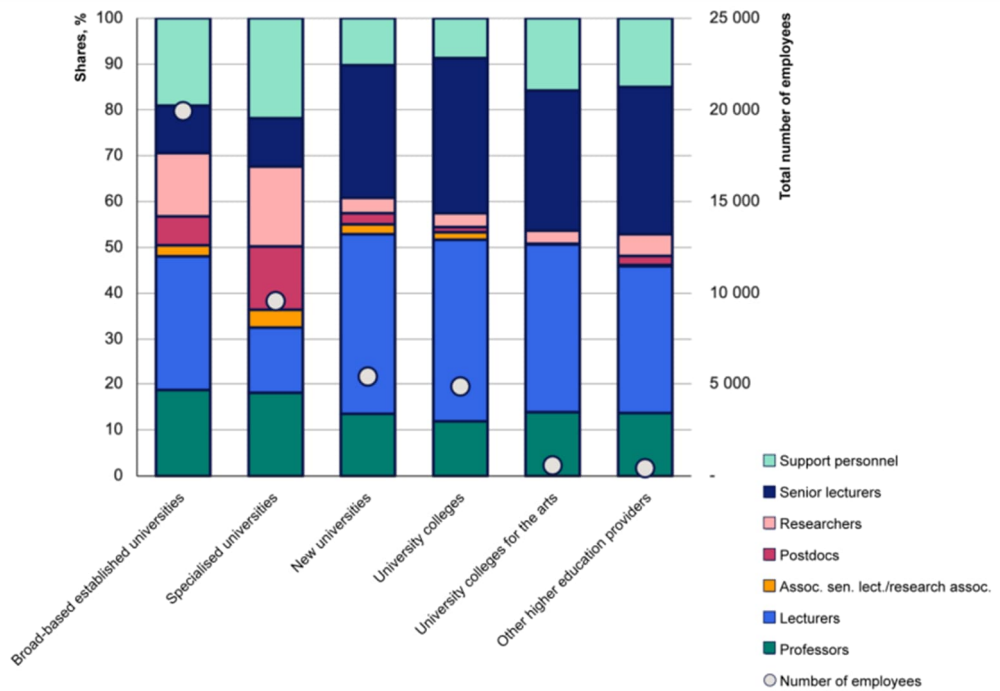
Source: Mikael Börjesson, "Lärosäten och forskningsfinansierare", *Statsvetenskaplig tidskrift*, årg. 124, nr 1 (2022), s. 132, Figur 3. Translations have been made regarding the different sources of funding and the names of the higher education institutions.

This imbalance, in contrast to the formal description, reveals a highly differentiated higher education landscape in Sweden. A small number of large and established institutions concentrate the majority of research resources, with substantial contributions from external funding. This has significant implications and is also relevant to consider when understanding the recruitment of vice-chancellors.

The structure and distribution of funding for research and education also have a direct impact on the composition of academic staff at higher education institutions. As shown in Figure 5, older universities with many faculties, as well

as the specialised universities, tend to employ a larger share of academic staff in research positions. In these two categories, approximately 70 percent of academic staff hold positions that typically require a doctoral degree, such as professors, senior lecturers, postdoctoral researchers, and researchers. They also have a comparatively high proportion of postdoctoral researchers and research associates, which can be seen as a reflection of their strong research position. In contrast, new universities and university colleges, which receive a greater proportion of their funding for education, tend to employ more academic staff in teaching-focused roles. These institutions have fewer professors and researchers, and a higher proportion of lecturers and senior lecturers, positions more oriented toward undergraduate and master's level teaching. This pattern is essential. Firstly, it strengthens the argument that the Swedish system is not unified, as the formal distinction suggests, but rather stratified. Secondly, the composition of the staff at different types of higher education institutions will affect the supply of candidates for the role of vice-chancellor. It should help in understanding their academic background.

Figure 5. Number of employees and proportion of employed individuals for different employee categories among teaching and research personnel at Swedish higher education institutions in 2022, by category.



Source: Swedish Research Council, *The Swedish Research Barometer 2023: Swedish Research in International Comparison* (Stockholm: Swedish Research Council, 2023), p. 54, figure 20.

The standing of the disciplines in the Swedish case

Generally, Swedish research tends to perform well in international comparisons and has a relatively strong international impact for a country of its size.¹²⁵ Some disciplines and research areas that are generally recognized as particularly strong include biomedicine and health sciences, as well as engineering and materials sciences.¹²⁶ However, the standing of the disciplines is complex to understand, which the following part of the paper aims to explain further in the Swedish context.

Uneven distribution across the categories of institutions

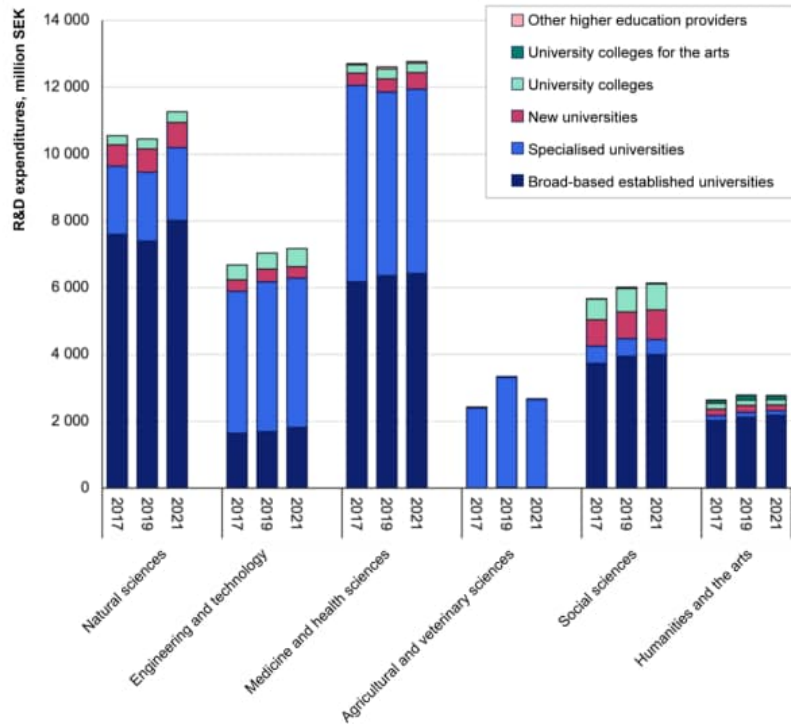
As displayed in the earlier part of the thesis, the disciplines and their standing at higher education institutions are part of a historical development, which eventually led to the formation of internal organisations to gather the different sciences, most famously the faculties. This is also the case in Sweden, with the early universities having a traditional and broad faculty-based organisation. However, many changes have occurred since the first university was established in Sweden, and these have also affected the different profiles of the universities and the academic disciplines they host within their organisations.

In Figure 22 in the appendix, the educational profiles of the Swedish higher education institutions are displayed. One evident pattern is that the specialised universities in the technical field dominate in education regarding engineering and technology. The same scheme occurs at Karolinska Institutet and other institutions with a focus on healthcare-related profiles, which predominantly focus on education in medicine and healthcare. In contrast, larger and older universities offer a diverse educational mix. The differentiation reflects both historical developments, strategic choices, societal views on higher education, local context, and student demand.

¹²⁵ Regeringen, *Forskning och innovation för framtid, nyfikenhet och nytta*, Prop. 2024/25:60 (Regeringskansliet, 2024), p. 43.

¹²⁶ Dag Aksnes, Mats Benner, Siri Brorstad Borlaug, Hanne Foss Hansen, Egil Kallerud, Ernst Kristiansen, Liv Langfeldt, Antti Pelkonen & Gunnar Sivertsen, "Centres of Excellence in the Nordic Countries: A Comparative Study of Research Excellence Policy and Excellence Centre Schemes in Denmark, Finland, Norway and Sweden". *Nordic Institute for Studies in Innovation, Research and Education*; 2012, p. 60.

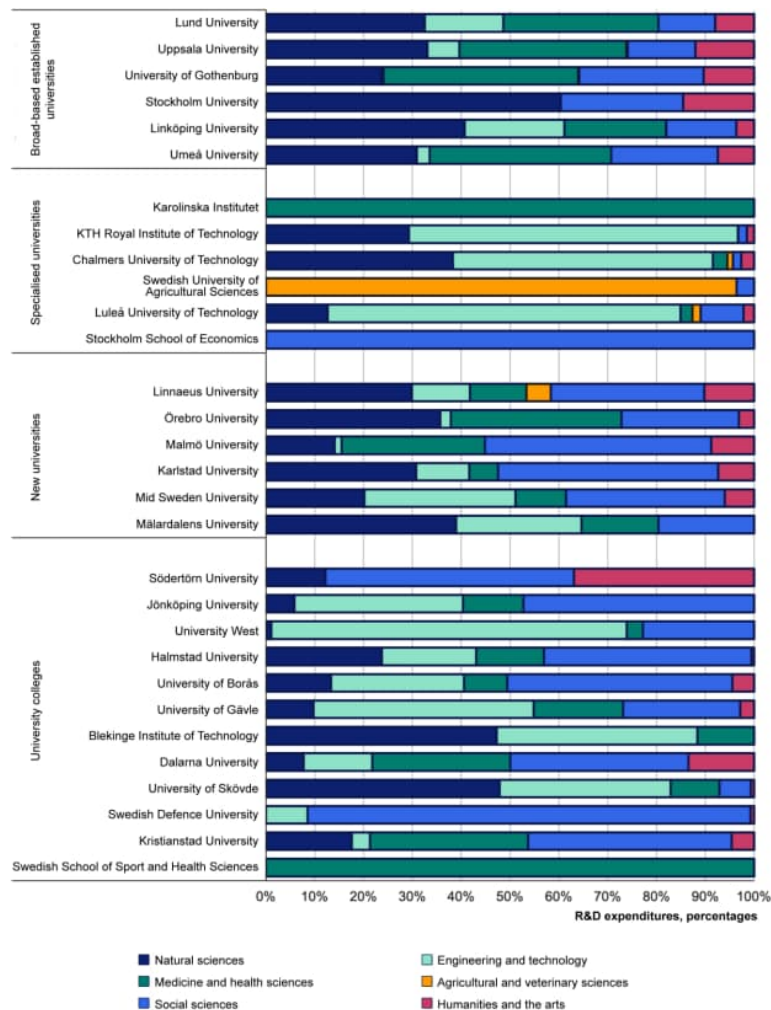
Figure 6. Spending on research and development between 2017 and 2021, divided by field and higher education institution type.



Source: Swedish Research Council, *The Swedish Research Barometer 2023: Swedish Research in International Comparison* (Stockholm: Swedish Research Council, 2023), p. 37, figure 14.

Figure 6 illustrates the distribution of expenditures on research and development by higher education institutions. Several different conclusions can be drawn from these results. Firstly, the broad-based established universities and the specialised universities dominate in several fields. Secondly, the subjects traditionally linked to the sciences, including natural sciences, engineering and technology, and medicine and health sciences, are primarily conducted at broad-based established universities and specialised universities. Thirdly, the broad-based established universities also dominate in social sciences and humanities. Fourthly, the new universities are primarily present in the areas of social sciences and natural sciences. Fifthly, the university colleges are focused on social sciences as well as engineering and technology, but not to the same extent as the other categories of institutions mentioned earlier. Finally, one can note that agricultural and veterinary sciences are almost solely carried out at the specialised universities, in this case, the Swedish University of Agricultural Sciences. Logically, the subject of art is mainly taught at university colleges for the arts.

Figure 7. Expenditure on research and development as a percentage of the Swedish higher education institutions and fields of research. Categories group the institutions.



Source: Swedish Research Council, *The Swedish Research Barometer 2023: Swedish Research in International Comparison* (Stockholm: Swedish Research Council, 2023), p. 41, figure 15.

Figure 7, on the other hand, presents a more detailed breakdown of the expenditure on research and development by higher education institutions, expressed as percentages per research subject. The first point of interest is that the broad-based established universities are active in several fields, but do a somewhat smaller share of engineering and technology research compared to other institutional categories. They also have a similar profile and distribution of subjects, to a certain extent, but with some deviations. Another noteworthy observation, and somewhat obvious, is that the specialised universities have a clear research focus. Regarding the university colleges, the distribution indicates a wide variation in research profiles. This also applies to the new universities.

Research funding flow primarily to medicine and STEM

Another way to reflect the status of the disciplines is to examine their level of research funding. In one way, the research funding can be seen as an indicator of

the status of the disciplines and how society values them. It can also reflect nationally dominant industries and their need for specific science and knowledge.

In the Swedish case, higher education institutions receive research funding from both direct government budget allocations and external sources, including research councils, foundations, and private sources.¹²⁷ While all disciplines benefit from both streams to some extent, the distribution of the total research funding is far from even.

Table 2. The income of Swedish higher education institutions from research and third-cycle education in 2021. By field of research, total and divided into direct government funding and external funding, SEK billion, and the percentage of external funding.

| Field of research | Direct government funding | External funding | Total revenue | Percentage of total |
|--------------------------------------|---------------------------|------------------|---------------|---------------------|
| All | 21.6 | 25.8 | 47.6 | 100.0 |
| Natural sciences | 5.2 | 6.7 | 11.9 | 25.0 |
| Engineering and technology | 3.1 | 4.6 | 7.7 | 16.2 |
| Medical and health sciences | 6.5 | 9.0 | 15.5 | 32.6 |
| Agricultural and veterinary sciences | 1.4 | 1.5 | 2.9 | 6.0 |
| Social sciences | 3.6 | 3.0 | 6.6 | 13.9 |
| Humanities and the arts | 2 | 1.0 | 3.0 | 6.3 |

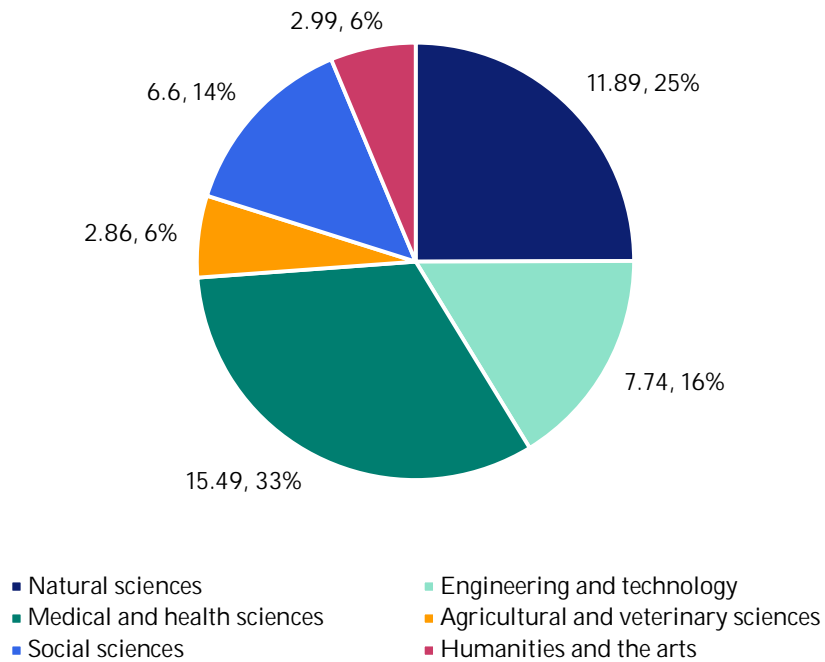
Source: Swedish Higher Education Authority (UKÄ), *An Overview of Swedish Higher Education and Research 2023* (Stockholm: UKÄ, 2023), p. 81, table 8.1.

Looking at Table 2, the largest recipient of research funding is clearly the Medical and Health Sciences, which dominates the funding landscape and accounts for 32.6 percent of the total research funding. This includes 6.45 billion SEK in direct government funding, as well as substantial external grants of 8.96 billion SEK. The natural sciences hold a strong second position, accounting for 24.9 percent of the total funding. In comparison, Engineering and technology receive 16.3 percent, and therefore are the third-largest discipline in terms of research funding. These three disciplines alone account for nearly three-quarters of all research funding in Sweden.

In contrast, the social sciences, the Humanities and the arts receive significantly less research funding. The social sciences receive 13.9 percent of the total research funding, with a relatively balanced split between direct governmental funding and external funding. The Humanities and arts account for just 6.3 percent of the total, with 2.99 billion SEK in research funding.

¹²⁷ Universitetskanslersämbetet, *Universitet och högskolor: Årsrapport 2025*, p. 127.

Figure 8. Distribution of the Swedish higher education institutions' total income for research and third-cycle education by field in 2021, shown in 1) SEK billion, and 2) percentage.



Source: Based on data from Swedish Higher Education Authority (UKÄ), *An Overview of Swedish Higher Education and Research 2023* (Stockholm: UKÄ, 2023), p. 81, table 8.1.

Figure 8 illustrates the unequal distribution of research funding, highlighting broader priorities within Swedish research policy, where disciplines associated with health, technology, and the natural sciences are perceived as more strategically essential or economically relevant to society. As a result, disciplines outside this core cluster often face greater challenges in securing resources. One could argue that this dynamic reflects one type of hierarchy between the sciences in the Swedish context.

Publications

One frequently used method for examining the production of research is by using different measures related to publications. Although the subject of bibliometric measures in the evaluation of research is debated, it can nevertheless be used further to understand the standing of the academic disciplines in Sweden.

Table 3. Total number of research publications by type and field of research at the Swedish higher education institutions in 2022.

| Subject Area | Academic Theses | Journal Articles | Books | Book Chapters | Conference Papers | Other Publications | Total | Percentage of total |
|--------------------------------------|-----------------|------------------|-------|---------------|-------------------|--------------------|--------|---------------------|
| Total | 2 950 | 39 090 | 1 220 | 5 110 | 8 610 | 7 660 | 64 630 | 100 |
| Natural sciences | 900 | 11 630 | 70 | 360 | 1 980 | 940 | 15 880 | 22 |
| Engineering and technology | 640 | 5 260 | 30 | 210 | 2 290 | 470 | 8 900 | 12 |
| Medical and health sciences | 990 | 17 730 | 70 | 380 | 1 810 | 1 690 | 22 670 | 31 |
| Agricultural and veterinary sciences | 80 | 1 500 | 20 | 110 | 200 | 300 | 2 190 | 3 |
| Social sciences | 460 | 6 260 | 640 | 2 820 | 2 460 | 2 830 | 15 470 | 21 |
| Humanities and the arts | 170 | 1 700 | 550 | 1 850 | 950 | 2 280 | 7 500 | 10 |

Source: Universitetskanslersämbetet (UKÄ), *Årsrapport 2024* (Stockholm: Universitetskanslersämbetet, 2024), p. 124, table 8.2.

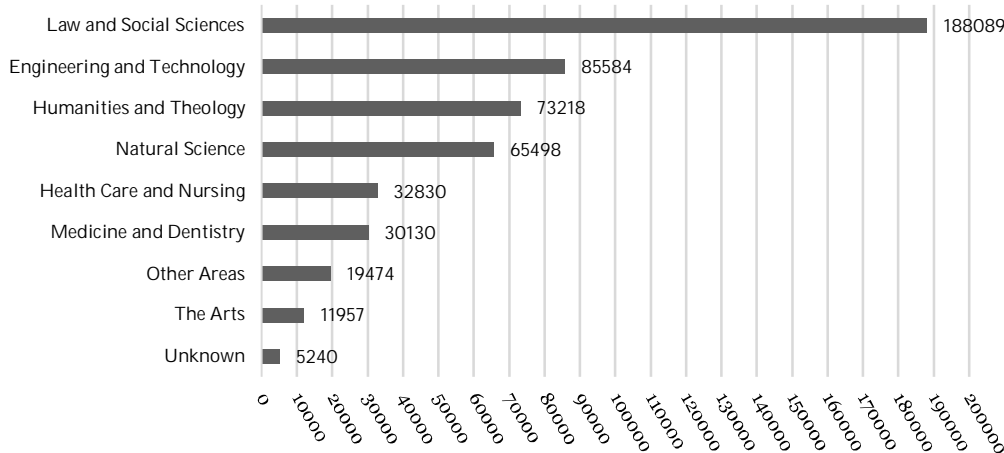
According to Table 3, it is notable that Medical and health sciences dominate Swedish research output, accounting for 31 percent of the total number of publications. This aligns closely with the subject's 32.6 percent share of research funding. Natural sciences, and Engineering and technology also show a strong research output; however, their correlation between funding and production is somewhat weaker. In contrast, the Social sciences and the Humanities and the arts produce a significant share of publications, at 21 percent and 10 percent, respectively, despite receiving smaller amounts of research funding.

Many Swedish students are enrolled in social sciences or humanities

Another way to examine the standing of academic disciplines is to look at the number of students enrolled in higher education and in which areas. Although understanding all aspects affecting the dimensioning of higher education in Sweden is difficult, the formal framework is that it must respond to student demand and the needs of the labour market. However, the higher education institutions have a significant degree of freedom in setting their educational profile and offerings, and studies have shown that the student demand is not as powerful in affecting the supply of education.¹²⁸

¹²⁸ Mats Bergman. "Dimensionering av högre utbildning – vem är det egentligen som styr?". *Studieförbundet Näringsliv och Samhälle*; 2023, p. 57.

Figure 9. Total number of students enrolled in first- and second-cycle courses and programmes at the Swedish higher education institutions in the autumn semester 2024. Divided by subject area.



Source: Data from the Swedish Higher Education Authority (2024).

The distribution of students across the different subject areas is shown in Figure 9. The most significant subject area by far is Law and Social Sciences. In combination with the Humanities and Theology, the two subject areas account for about half of the total share. The second-largest area is Engineering and Technology, which accounts for approximately 17 percent. Natural Science accounts for roughly 13 percent, and the health care-related areas in Medicine and Dentistry, plus Health Care and Nursing, add up to 12 percent. The Arts is the smallest area of the traditional subjects, with only two percent of the total.

The students are obviously not candidates for the position of vice-chancellors, but the distribution of students across different subject areas can add a layer of understanding to the recruitment of vice-chancellors, as students can reflect priorities, resource allocation, and the organisation of higher education institutions.

Basic results on the vice-chancellors

Below are some fundamental results regarding the vice-chancellor and the higher education institutions.

Distribution between decades

By measuring the number of vice-chancellors per decade, this allows for analysis of the development over time. The results are displayed in Table 4. This results in six distinct clusters that can be used in the upcoming analysis.

Table 4. The distribution of vice-chancellors at the Swedish higher education institutions over the decades.

| Period of term | Vice-chancellors |
|----------------|------------------|
| 1970–1979 | 23 |
| 1980–1989 | 42 |
| 1990–1999 | 67 |
| 2000–2009 | 80 |
| 2010–2019 | 67 |
| 2020–2029 | 55 |
| Total | 334 |

Number of vice-chancellors and average length of terms

Table 8 in the appendix presents the number of vice-chancellors and the average length of their terms at the higher education institution. The distribution shows that university colleges have the most significant number of vice-chancellors, with 118, and an average of 5.6 per higher education institution. Specialised higher education institutions have the second-highest number of vice-chancellors, with 85, and an average of 5 per institution. The art universities have 61 vice-chancellors with an average of 5.5 per institution. In comparison, the old universities have 46 vice-chancellors and an average of 7.7 per institution. Finally, the new universities have the fewest number of vice-chancellors with 24, and an average of 3.4 per institution. This result mirrors the number of institutions per category relatively well, except that the old universities have more vice-chancellors than the new universities, which is logical, as the older ones have existed for longer periods.

The average term length is relatively even across the different categories of higher education institutions. The longest tenures are found at the old universities, with an average of 7.3 years, followed by 6.6 years at the specialised higher education institutions, 6.4 years at the art universities, 5.7 years at the university colleges, and 5.2 years at the new universities.

Age and gender

The average age of the vice-chancellors when entering office is 52,9 years. There are no larger differences in age when comparing the five categories of institutions. The same result appears when comparing age and gender; there is almost no significant difference between men and women.

Table 5 illustrates the development of gender balance among vice-chancellors over time. There has been an increase in the number of women in the vice-chancellor position over the period of analysis. In the later parts of the 1970s, there was only one woman vice-chancellor out of a total of 23. The gender balance among vice-chancellors has become more representative, especially since the turn of the millennium, but there is still a male majority among vice-chancellors. This trend somewhat aligns with the general development in gender balance among professors at Swedish higher education institutions. In 2024, men made up 67 percent of all professors.¹²⁹ This is a relevant connection, as the professors are usually the largest share of possible vice-chancellor candidates. Although the

¹²⁹ Universitetskanslersämbetet. *Universitet och högskolor Årsrapport 2025*, p. 103.

gender balance is improving, for example, in the other employment categories and doctoral education, it has, in large part, reached an equal gender balance.¹³⁰ In first- and second-cycle education, women make up 58 percent of the total share; however, these results do not yet appear to have significantly impacted the gender balance among vice-chancellors. However, note that the gender balance breaks the trend between 2010–2019 and 2020–2029, with an increase in the share of male vice-chancellors.

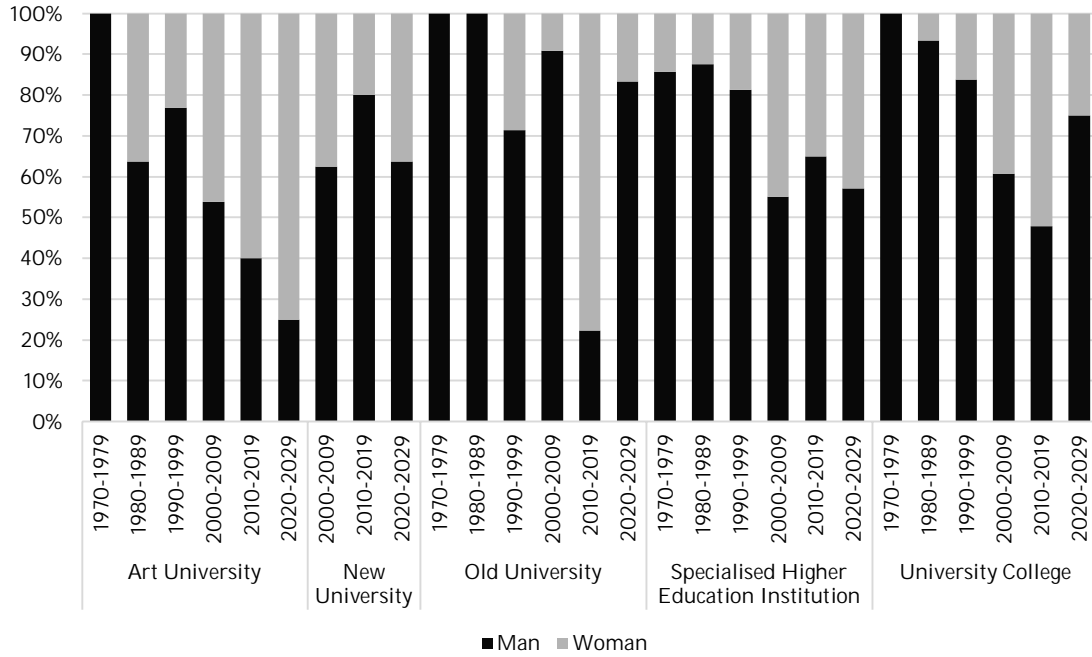
Table 5. Gender balance of the vice-chancellors by decade (rounded percentages).

| Period of term | Man | Woman | Total | Distribution Man/Woman (percentage) |
|----------------|-----|-------|-------|-------------------------------------|
| 1970–1979 | 22 | 1 | 23 | 96/4 |
| 1980–1989 | 36 | 6 | 42 | 86/14 |
| 1990–1999 | 54 | 13 | 67 | 81/19 |
| 2000–2009 | 50 | 30 | 80 | 62/38 |
| 2010–2019 | 34 | 33 | 67 | 51/49 |
| 2020–2029 | 34 | 21 | 55 | 62/38 |
| Total | 230 | 104 | 334 | 69/31 |

Figure 10 presents a more detailed view of the gender balance across decades and the different categories of higher education institutions. Firstly, the art universities have been more open to female vice-chancellors at an early stage. Starting in the 2000s, there was a marked increase in the number of female vice-chancellors in general, but particularly at university colleges and specialised higher education institutions. The old universities also had mostly female vice-chancellors during the 2010s. However, the old universities lacked female vice-chancellors for two of the first decades.

¹³⁰ Ibid, p. 102.

Figure 10. Gender distribution of the vice-chancellors by decade and higher education institution category.

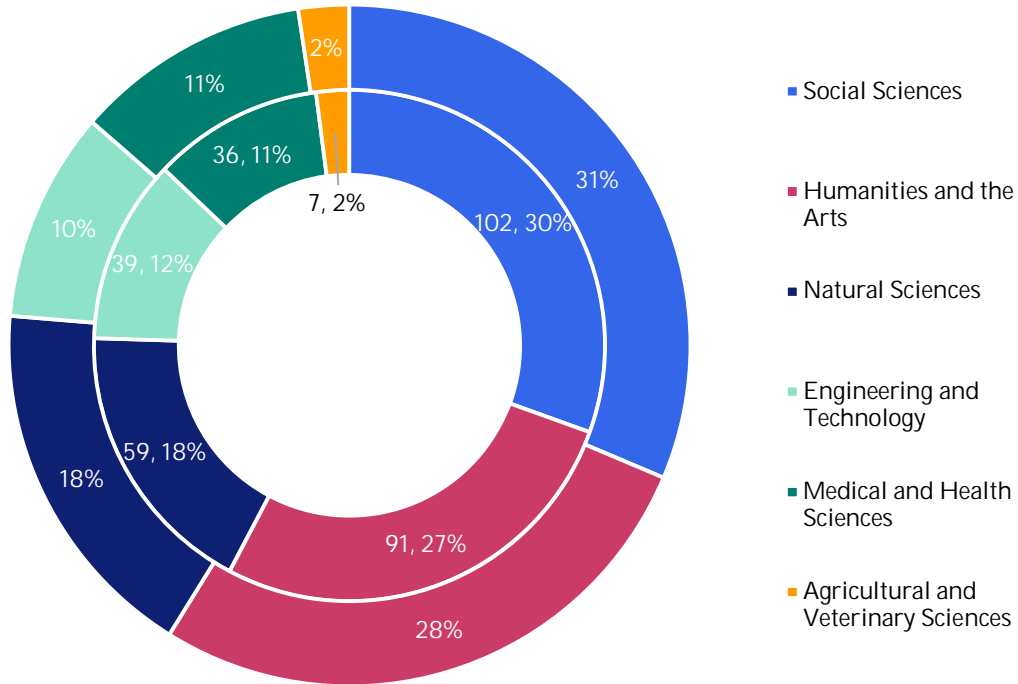


Results on academic disciplines

Distribution between academic disciplines

The early results of the analysis are presented in Figure 11, which measures the distribution of vice-chancellors towards the six different research subject groups. Results show that social sciences are the most common with 102 (30 percent), followed by humanities and the arts with 91 (27 percent), natural sciences with 59 (18 percent), engineering and technology with 39 (12 percent), medical and health sciences with 36 (11 percent), and agricultural and veterinary sciences only having 7 (2 percent).

Figure 11. Results on academic disciplines among the vice-chancellors of the Swedish higher education institutions. The inner circle shows 1) the number of vice-chancellors, and 2) the percentage of the total. The outer circle illustrates the total length in years for each discipline as a percentage.

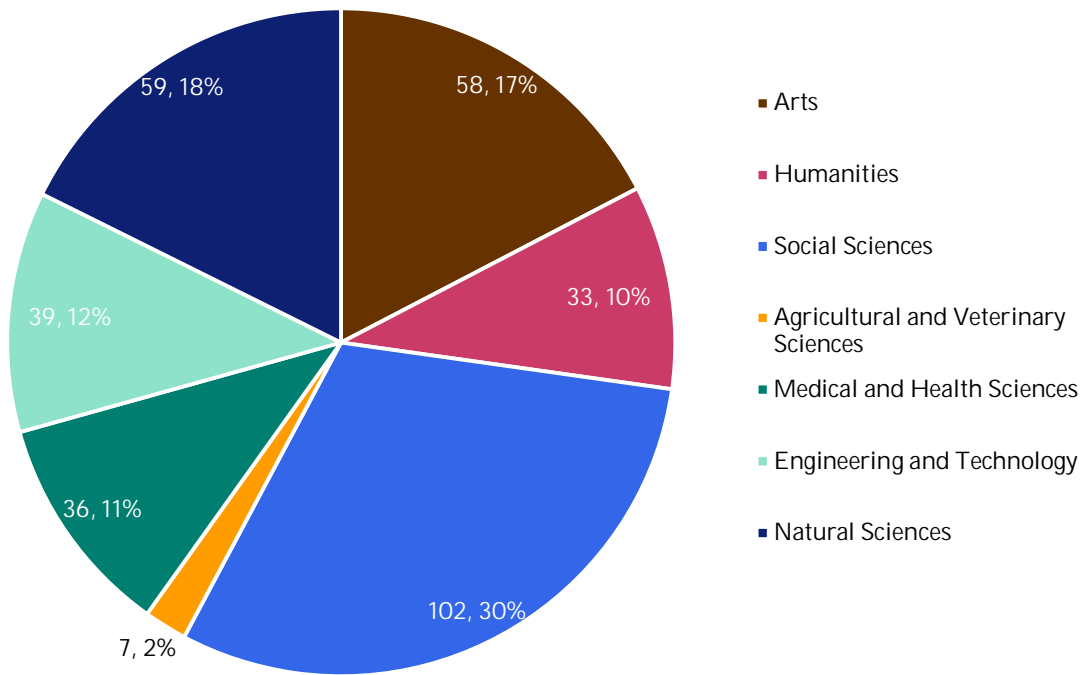


One striking result at first sight is the large portion of vice-chancellors with a background in the humanities and the arts. This is not in line with earlier research. However, upon closer examination of the research subject group in Table 6, it is clear that Artistic Basis represents an overwhelmingly large portion of the total, at nearly 64 percent. Given these results, the categorisation of the humanities and the arts might not be fully useful in this situation. Following this discovery, the category will be divided into two: 1) Humanities, and 2) Arts, in which the latter includes Artistic Basis, and the former includes the rest of the area. This is also logical as the Artistic Basis is very special and unique in comparison to the other sciences. Updated results based on this new categorisation are displayed in Figure 12.

Table 6. Distribution of the vice-chancellors' results regarding the Research subject group within the Research subject area category Humanities and the Arts.

| Research subject group | Number of vice-chancellors |
|---------------------------------|----------------------------|
| Artistic Basis | 58 |
| Arts Scientific Basis | 3 |
| History and Archaeology | 8 |
| Languages and Literature | 11 |
| Other Humanities | 2 |
| Philosophy, Ethics and Religion | 9 |
| Total | 91 |

Figure 12. Adjusted results on academic disciplines among the vice-chancellors of the Swedish higher education institutions by separating Humanities and the Arts into two categories. The figure shows the number of vice-chancellors, and 2) the percentage of the total.



After adjusting the results for the new category Arts, the distribution is more precise. The arts represent 17 percent of the total population of vice-chancellors. These results are somewhat shocking, given the small size of the research and education sector. However, the 11 art universities represent 17.7 percent of the total higher education institutions included in the study, which makes the results more logical.

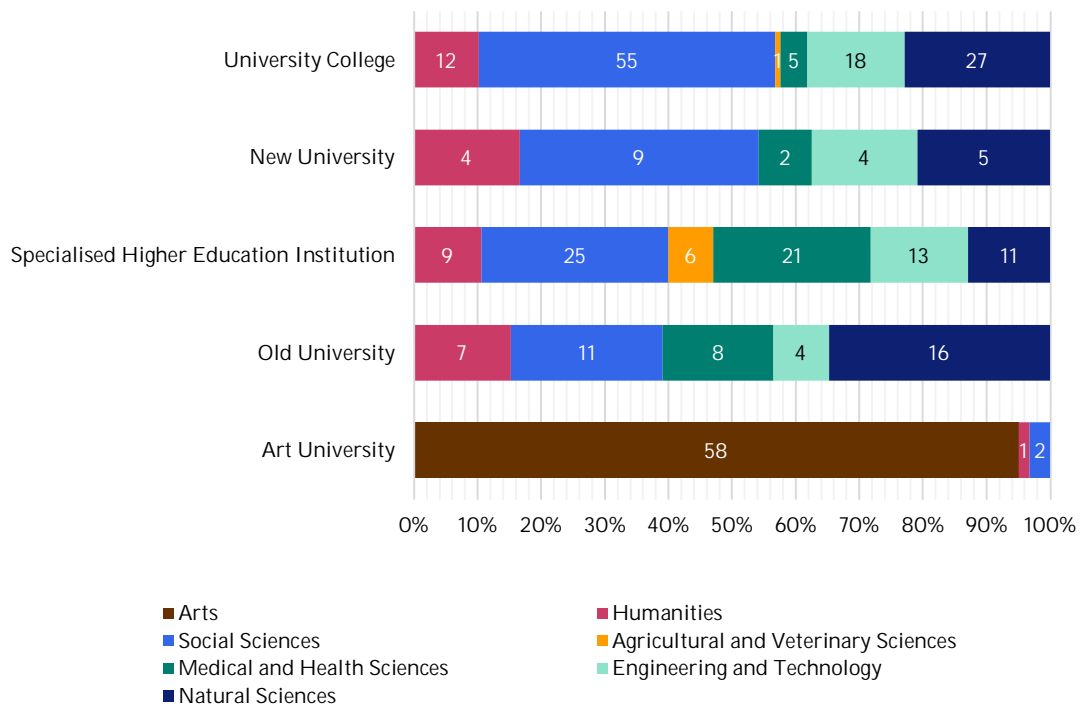
Another interesting result is the low number of vice-chancellors with a background in medical and health sciences, given that this area accounts for a significant portion of the total research funding.

Distribution between higher education institutions

Moving on to the distribution of academic disciplines between different categories of higher education institutions, Figure 13 shows the overarching results.

Firstly, one result is that vice-chancellors with a background in the arts are exclusively at the arts universities. These results once again underscore the special and unique image and role that art universities have in the Swedish context. Although other higher education institutions, such as Lund University or the University of Gothenburg, have art faculties or departments, this is not reflected in the vice-chancellor's position, which might suggest that other disciplines hold a stronger position at these institutions. Furthermore, the low percentage of vice-chancellors at art universities with a background in other subjects suggests that art universities value a disciplinary connection in leadership.

Figure 13. Results on the distribution of the vice-chancellors based on research subject area and category of higher education institution. The bars are divided by share of the total and show the number of vice-chancellors within each category.



The results show that the old universities have a relatively equal distribution of disciplines, which matches their broad-based organisation with many faculties and may be a product of their tradition and history. However, the old universities have a large share of vice-chancellors with a background in disciplines linked to natural and life sciences, as well as engineering and technology. The total of these three disciplines adds up to more than 60 percent at the old universities.

The specialised higher education institutions are arguably the most challenging category to analyse, as they gather a diverse range of institutions.

However, around 60 percent have a background in the typical science disciplines such as natural sciences, medical and health sciences, engineering and technology, and agricultural sciences. This result is, in a way, expected, as the category includes larger technical universities, Karolinska Institutet, and other focused institutions within the health sciences. This category also comprises the majority of vice-chancellors with a background in agricultural and veterinary sciences, which is logical given the inclusion of the Swedish University of Agricultural Sciences in this category.

One similar pattern can be observed between the two categories of new universities and the university colleges, which is logical given their position in the Swedish higher education landscape. One notable result is that nearly half of the vice-chancellors at the university colleges have a background in the social sciences. Another interesting discovery is that the university colleges have a large number of vice-chancellors with a background in the natural sciences, with 27 (23 percent), despite the university colleges' relatively low amount of research and education in this subject.

Some initial conclusions can be drawn at a general level at this stage. Firstly, there exists an alignment between the institutional profile and the disciplinary background of the vice-chancellor. This is to be expected, as it affects the supply of candidates, but somewhat contradicts the theory of marketisation presented by Engwall earlier. Secondly, the social sciences are heavily represented across almost all categories, except in art universities, especially at university colleges. This confirms the earlier conclusions by Engwall.¹³¹ This is despite social sciences having just 14 percent of the total research funding. Thirdly, natural and life sciences are more prominent at older and specialised institutions. This is likely a result of their historical development, their heavy focus on research, and the fact that they generally have faculties of medicine, which in turn are connected to university hospitals.

Figure 14 shows the distribution of the disciplines of the vice-chancellor per higher education institution. Once again, it's clear that art universities, which are almost exclusively led by vice-chancellors with a background in the arts, represent a unique position within the landscape of Swedish higher education institutions, and that they are difficult to compare to other categories of institutions.

By examining Figure 14, the analysis of specialised higher education institutions becomes clearer, as it clearly shows that the disciplinary background is highly connected to the profile of the higher education institution. For example, Swedish University of Agricultural Sciences have six vice-chancellors with background in agricultural and veterinary sciences, Karolinska Institutet and Sophiahemmet University only have vice-chancellors with background in medical and health sciences, Royal Institute of Technology have six vice-chancellors in engineering and technology, and the same trend is visible at the other large engineering university in Chalmers University of Technology, but with a more substantial presence of the natural sciences. Finally, the Stockholm School of Economics has exclusively vice-chancellors in the social sciences.

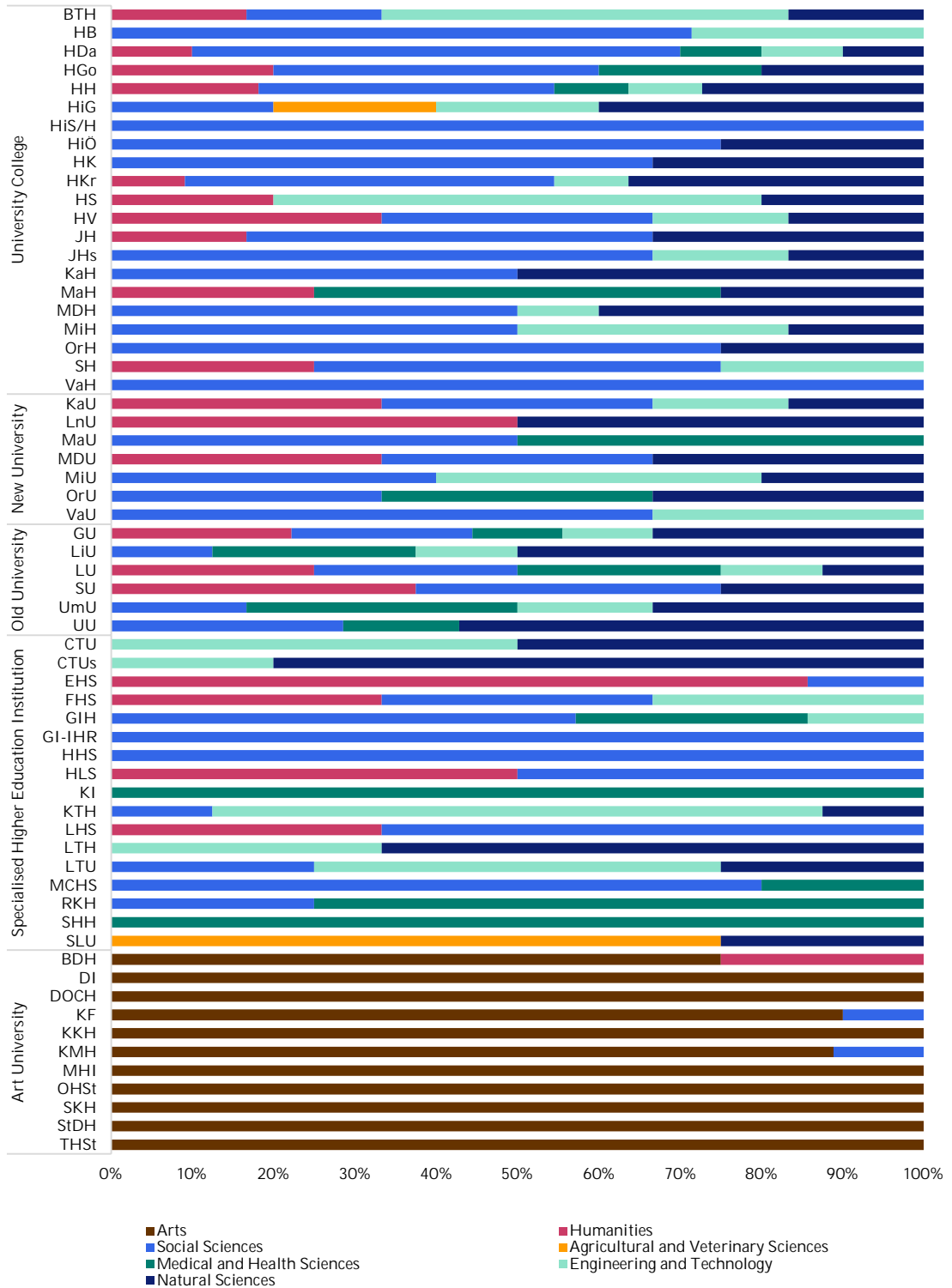
¹³¹ Engwall. "The recruitment of university top leaders: Politics, communities and markets in interaction", pp. 338–339.

Returning to the old universities, they display a broad mix of disciplines within their vice-chancellors, which also matches their profile fairly well. Lund University, the University of Gothenburg, and Stockholm University distribute their resources quite evenly across their overarching institutional profile. Uppsala University stands out among the group, as it leans more heavily towards natural sciences and medical and health sciences.

Regarding the new universities, the social sciences are dominating, and represent a significant share at Växjö University, Örebro University, Malmö University, and Karlstad University. However, they are still relatively young and therefore have a low number of total vice-chancellors, which makes it harder to draw definitive conclusions. However, their pattern could indicate that new universities recruit vice-chancellors from a broad pool of academic disciplines, and may reflect their youth and new culture, as the institutions have yet to have the time to form relatively long-lasting research and education environments.

The university colleges are the largest category of institutions, and are therefore more challenging to conclude. As established earlier, the social sciences are particularly dominant within this category, and a cluster of institutions appears to exist where this is more evident.

Figure 14. The distribution of the disciplines of the vice-chancellor per higher education institution.



This first cluster consists of Dalarna University, with six vice-chancellors who have backgrounds in the social sciences; Kristianstad University, Mälardalen University College, and the University of Borås, each with five; Halmstad University and Jönköping University Foundation, with four each; Mid Sweden

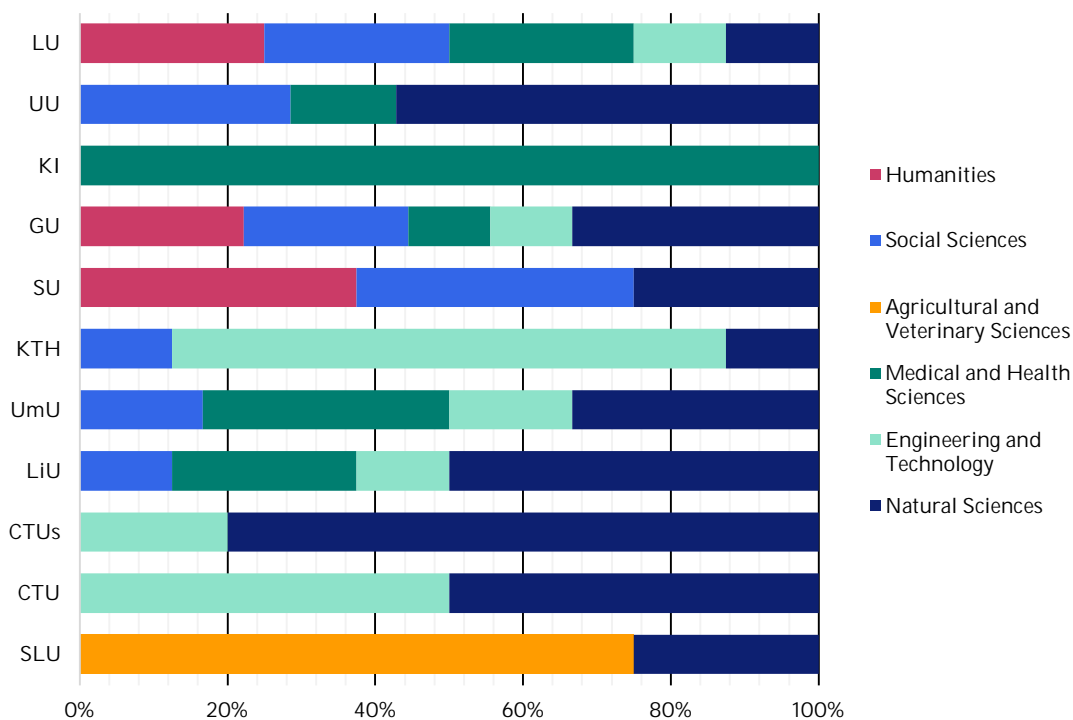
University College, Örebro University College, and Östersund University, with three each. One explanation could be that these institutions have profiles that focus on contributing to regional labour needs and providing programs leading to professional qualifications, which might mirror their value of strategic management skills.

However, there is another cluster, which is somewhat overlapping, comprising university colleges that lean more towards engineering and technology, as well as natural sciences. This cluster consists of Mälardalen University College, with one vice-chancellor with a background in engineering and technology, and four in the natural sciences. Mid Sweden University College has two in engineering and technology and one in natural sciences. Blekinge Institute of Technology has three in engineering and technology and one in natural sciences. The University of Gävle has one in engineering and technology, and two in natural sciences, while the University of Borås has two in engineering and technology. This cluster represents a greater focus on engineering and connection to regional business development. For example, Mälardalen University College is located in the cities of Västerås and Eskilstuna, which is also the home to Allmänna Svenska Elektriska Aktiebolaget (ASEA), one of the largest and most influential industrial companies in Sweden during the 20th century, as well as the VME Group, Alfa Laval, and Assa. The same case applies to Blekinge Institute of Technology and its connections to various engineering companies in Karlskrona, such as Ericsson and Kockums.

To summarize, university colleges often have roots in teaching seminars, nursing schools, or other professional schools, which means that they operate within a regionally dependent environment that places a special focus on understanding systems and the various local sources of power. This might explain the high percentage of vice-chancellors with a background in the social sciences, which theoretically should provide a good organisational understanding. This might also explain the relatively high frequency of vice-chancellors with a background in engineering and technology, as this discipline is valued higher by businesses and local society.

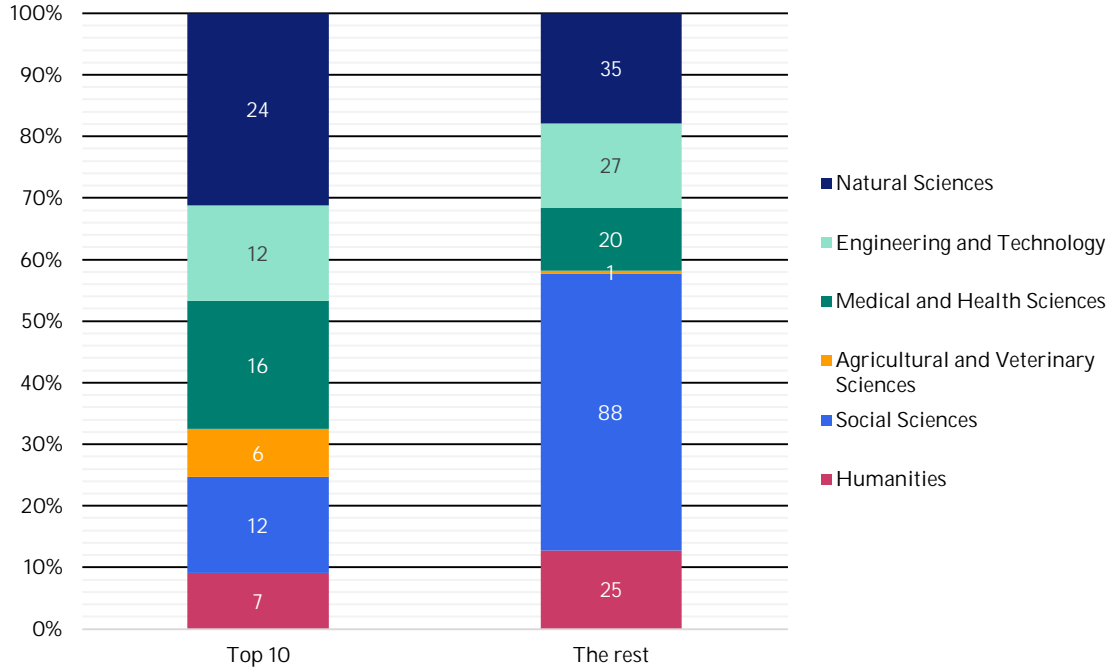
In the earlier description of the Swedish higher education landscape, one conclusion was that research funding is the biggest differentiator within the system. Figure 15 shows the distribution of disciplinary backgrounds of vice-chancellors at the ten higher education institutions with the highest research and development revenues in 2024. This reveals a dominance of natural sciences, engineering and technology, and medical and health sciences, which represent 67,5 percent of the total. The humanities and social sciences account for 25 percent, indicating a weaker status for the vice-chancellors of these higher education institutions.

Figure 15. Disciplinary background of the total number of vice-chancellors at the ten (Chalmers University of Technology and Chalmers University of Technology Foundation are combined to one) higher education institutions with the highest research and development revenues in 2024.



These results are interesting in their own right, but comparing them to those of the rest of the Swedish higher education institutions might highlight the implications of research funding on the recruitment of vice-chancellors. Figure 16 compares the ten higher education institutions with the highest research and development revenues in 2024 with the rest of the higher education institutions, excluding the art universities. This figure clearly shows that institutions with substantial research funding recruit vice-chancellors with backgrounds in natural sciences, engineering and technology, as well as medical and health sciences, to a much greater extent. The other higher education institutions are led mainly by vice-chancellors from the social sciences, which reflects their broader educational profile rather than a focus on research. This suggests that a research-oriented logic plays a more significant role in the recruitment of vice-chancellors at top research institutions. In contrast, a governance- and education-oriented logic is more prominent at other higher education institutions.

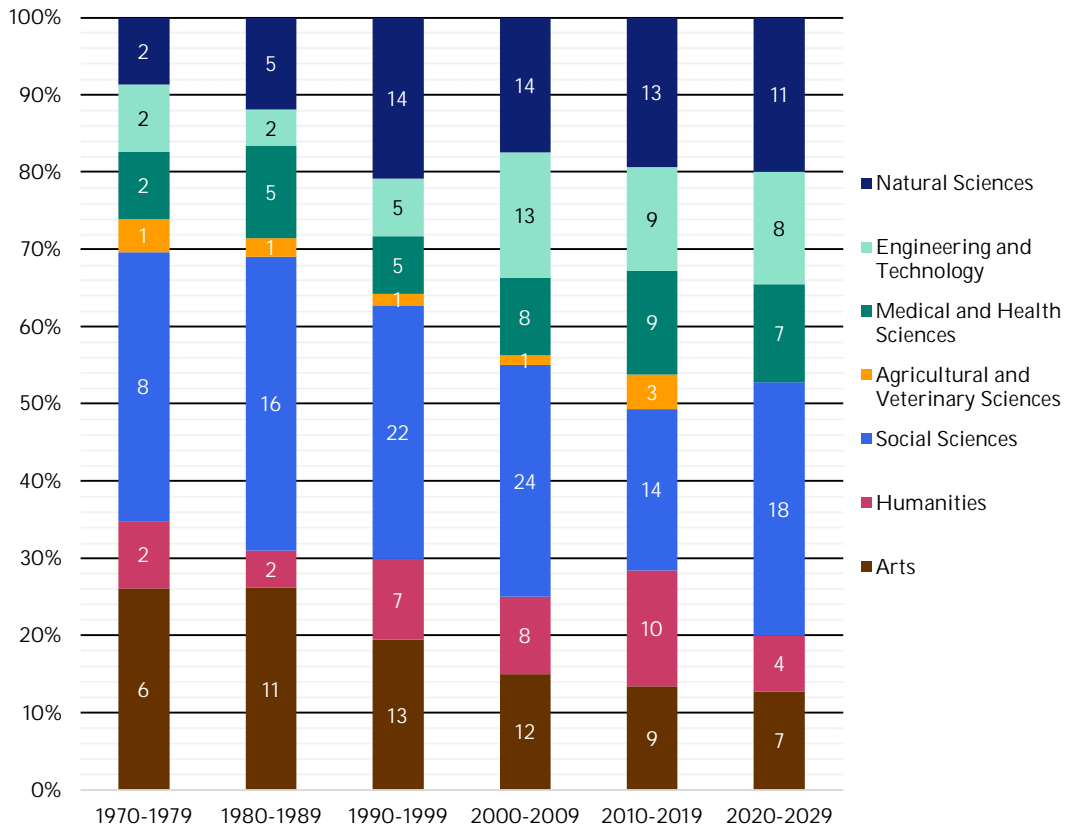
Figure 16. Disciplinary backgrounds of vice-chancellors at the ten higher education institutions with the highest research and development funding compared to the rest of the group of higher education institutions (excluding art universities).



The increase in STEM disciplines over time

Another point of interest is to pin trends over time. Figure 17 displays the distribution of the disciplinary background of the vice-chancellors between higher education institutions by decade. Firstly, the arts have seen a decline in their share over time. This is logical given that the total number of art universities has decreased. Secondly, humanities have held a somewhat steady level, although low, but are decreasing to just 7 percent in the 2020s. Thirdly, the social sciences have dominated across all decades, and on average, over time, almost every third vice-chancellor has been a social scientist. Fourthly, and perhaps the most interesting result, is the increase in the natural sciences, as well as engineering and technology. In the 1970s and 1980s, their share of the total vice-chancellors was, on average, around 17 percent. In the 2020s, more than one-third of the vice-chancellors have a background in these two disciplines. Medical and health sciences have also seen a slight increase over time. It’s challenging to draw any conclusions about agricultural and veterinary sciences, as they are primarily housed at one higher education institution.

Figure 17. Results on the distribution of the vice-chancellors based on research subject over time.



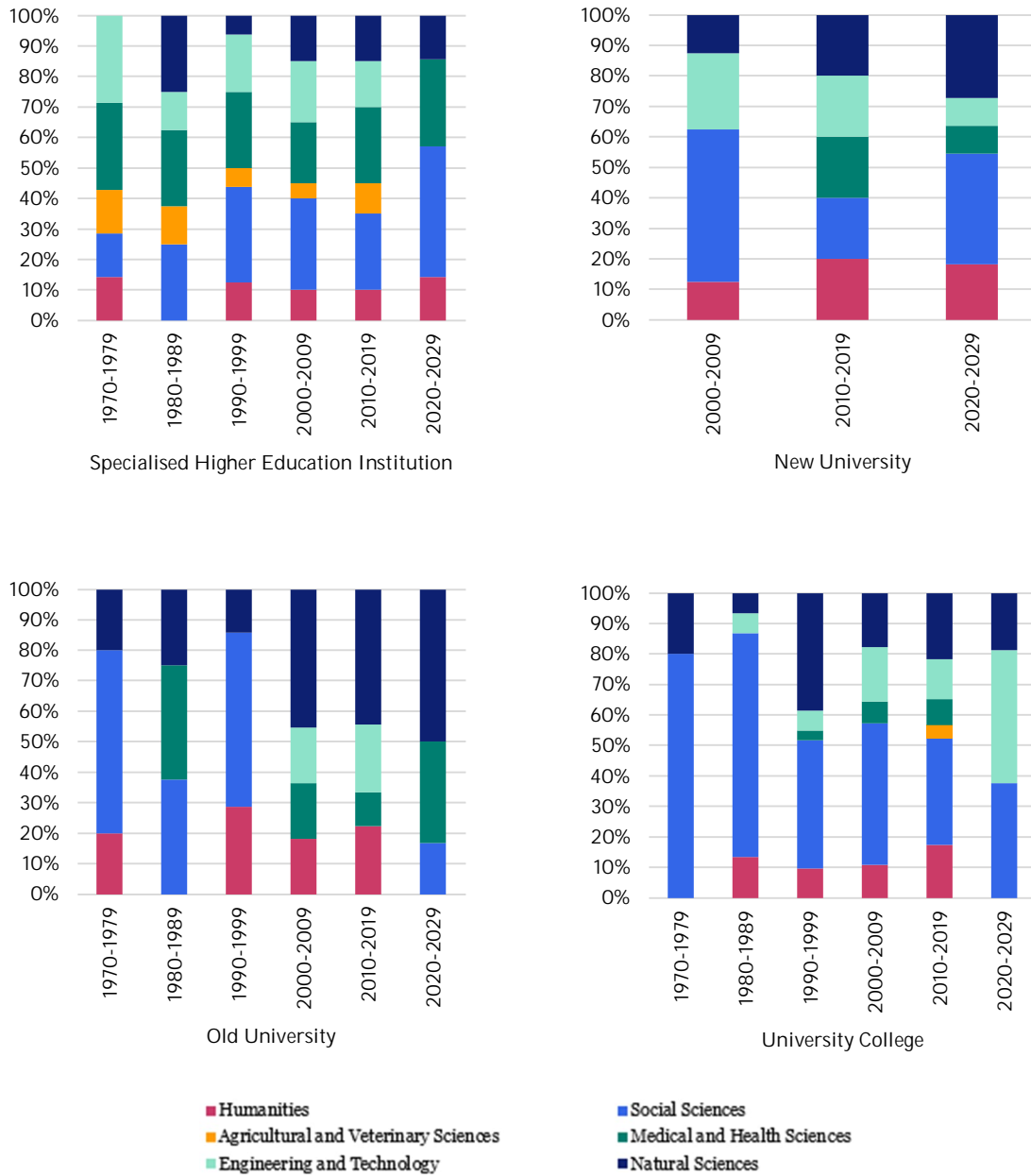
However, as established earlier, the Swedish higher education landscape is complex, and the disciplines on their own might not explain the development over time. Figure 18 illustrates the development over time across different higher education categories. The art universities have been excluded, as earlier results showed that this group was extremely homogeneous compared to the others, and the development over time is unlikely to yield any interesting results.

As the results previously showed, specialised higher education institutions are unique in that they are dependent on their profile, which makes it difficult to draw any conclusions from their development over time.

Regarding the new universities, the results are somewhat limited because of the relatively short lifespan of these institutions. The most significant observation is the increase in natural sciences, which has almost doubled.

Instead, it is the results from the university colleges and the older universities that are the most interesting. Regarding the university colleges, one of the most striking results is the decrease in social sciences over time, which has almost halved in size. In the 1980s, 73.3 percent of the vice-chancellors were social scientists. In the 2020s, this number has decreased to 37.5 percent. Instead, the natural sciences, particularly engineering and technology, have gained ground, and a large proportion of the vice-chancellors at university colleges in the 2020s have a background in these disciplines. Another interesting result is that despite the fact that a large part of the university colleges provide education and research within the health sciences, this does not seem to have an implication for the vice-chancellors.

Figure 18. The disciplinary backgrounds of vice-chancellors over time, by higher education institution (excluding art universities).



The other interesting results are regarding the development at the old universities. During the periods of 1970–1979 and 1990–1999, the vice-chancellors with backgrounds in the humanities and the social sciences were at 80 percent and 85.7 percent, respectively. In the 21st century, there appears to have been a significant decline, and the two disciplines have only reached levels of around 20 percent. Instead, modern vice-chancellors at the old universities generally have a background in the natural sciences, engineering and technology, as well as medical and health sciences. The natural sciences are particularly dominant, with around half of the vice-chancellors. This further confirms the

earlier conclusions regarding the connection between research funding, disciplines, and different higher education institutions.

Distribution between research subject group

The dataset also provides more detailed information on the disciplinary background of the vice-chancellors in the variable research subject group. The results are presented in Table 9 in the appendices. Once again, artistic basis stands out as the most dominant group with 58 vice-chancellors. This skews the results, so to create a more understandable picture, the artistic basis is removed from the results.

Table 7. Adjusted results on the distribution of the vice-chancellors based on research subject group with $n \geq 5$, artistic basis removed.

| Research Subject Group | n |
|---|-----|
| Educational Sciences | 28 |
| Economics and Business | 27 |
| Physical Sciences | 24 |
| Mechanical Engineering | 15 |
| Chemical Sciences | 14 |
| Clinical Medicine | 13 |
| Health Sciences | 13 |
| Political Science | 13 |
| Sociology | 12 |
| Languages and Literature | 11 |
| Basic Medicine | 10 |
| Philosophy, Ethics and Religion | 9 |
| Mathematical Sciences | 9 |
| Chemical Engineering | 9 |
| History and Archaeology | 8 |
| Biological Sciences | 7 |
| Psychology | 7 |
| Computer and Information Sciences | 6 |
| Electrical Engineering, Electronic Engineering, Information Engineering | 6 |
| Law | 5 |
| Agriculture, Forestry and Fisheries | 5 |
| Total | 251 |

Table 7 shows the 21 most frequent research subject groups within the total number of vice-chancellors. These 21 subject groups represent more than 90 percent of the total number of vice-chancellors in the adjusted group. Firstly, educational sciences, as well as economics and business stand out as the most frequent subjects among the vice-chancellors. Secondly, after the initial two, a

dominant cluster of subjects emerges based on natural sciences and engineering and technology, encompassing various fields of physics, chemistry, and engineering. Although within this cluster, physical sciences appear particularly strong. Thirdly, the subjects linked to medical and health sciences also appear fairly strong.

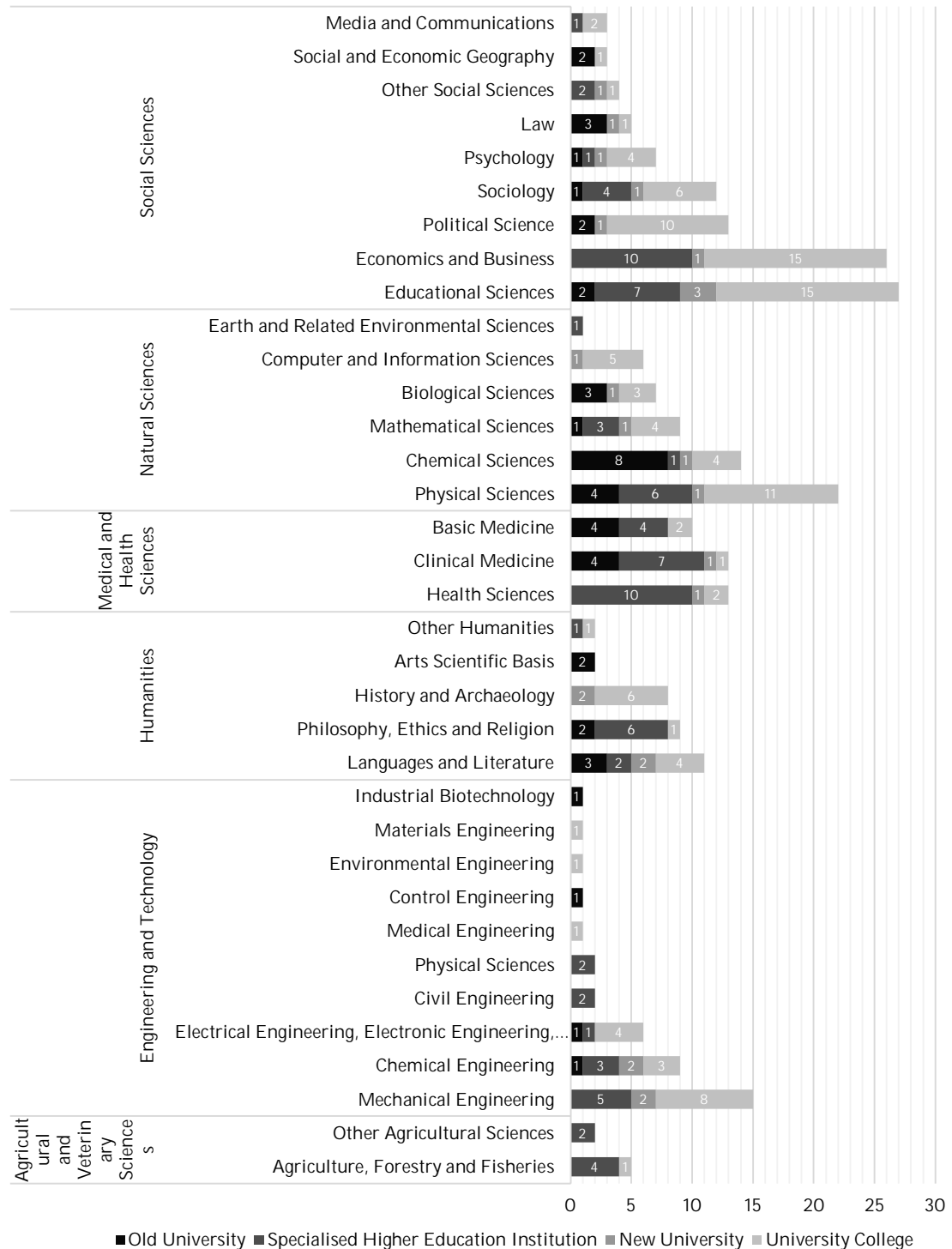
Figure 19 shows the distribution of the vice-chancellors and research subject groups. As established earlier, one of the most striking results is the dominance of educational sciences, as well as economics and business. Political science and sociology are also strong within this group. All of these are the most common among the vice-chancellors at university colleges, which confirms the results of previous research and those obtained earlier based on the research subject group.

The research subject groups within the medical and health sciences appear to be relatively strong and are mainly found at old universities and specialised higher education institutions. However, health sciences do not appear to be particularly strong among the vice-chancellors at the old universities, which might be logical, as the old universities often have strong medical faculties, resulting in an environment where health sciences need to compete for position against strong subjects such as clinical medicine and basic medicine. The large medical and health university in Karolinska Institutet only has vice-chancellors with a background in either clinical medicine (6) or basic medicine (2), and no vice-chancellor from the health sciences.

Another interesting result is the STEM cluster of vice-chancellors, which encompasses research subject groups from the natural sciences, and engineering and technology. These add up to 98 individuals, more than a third of the total number of vice-chancellors. The physical sciences are the strongest within this group, but various engineering applications of physics are also strong. The same is true for chemistry; when combined with engineering applications, it accounts for 24 individuals. The STEM cluster is dominant primarily at the university colleges, but is also strong at the specialised higher education institutions. The cluster is also found at the old universities, although not as strong as the others. The new universities generally don't house the STEM cluster to the same extent. Regarding the two strong subjects of physics and chemistry, the former is more common at university colleges, while the latter is found more frequently at universities.

Regarding the humanities, the research subject group of languages and literature stands out as the most interesting. Partly because it's the largest research subject group within the research subject group, but the spread between different categories of higher education institutions is relatively even. This suggests that the subject is quite strong and suitable for leaders across various institutions.

Figure 19. Adjusted results on the number of research subject groups distributed across different types of higher education institutions, artistic basis, and art universities were removed.

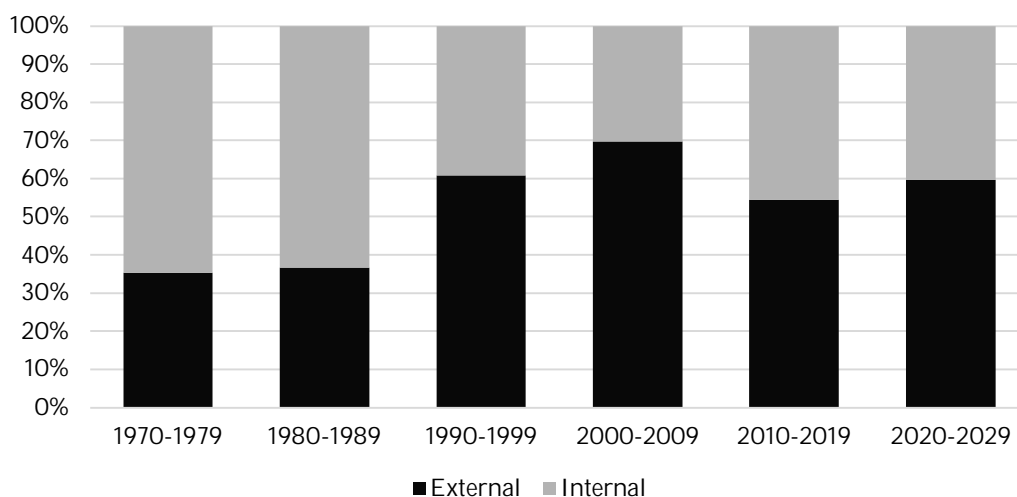


Results on the source of recruitment

Evidence for increasing market logic in recruitment

The data also provides information about the number of vice-chancellors, which can help conclude the source of recruitment. Although there is some loss in data, the results still display some interesting facts. The art universities are once again, because of their unique and special position, removed from the analysis. Firstly, the data displayed in Figure 20 shows a steady increase in the number of vice-chancellors recruited externally. In the 1970s and 1980s, the percentage of externally recruited vice-chancellors was around 35 percent. This increased to levels above 60 percent in the 1990s and spiked in the 2000s, reaching almost 70 percent. However, the percentage of internally recruited vice-chancellors has increased somewhat over the last two decades. Nevertheless, the rate of vice-chancellors who are recruited externally has almost doubled during the entire time period.

Figure 20. Source of vice-chancellor recruitment over time (excluding art universities).



The spread is uneven across the different categories of higher education institutions. Regarding the totals, the university colleges and the new universities have the most significant shares of externally recruited vice-chancellors, with 75 percent and 70 percent, respectively. The specialised higher education institutions are split between internal and external recruitment, as 47 percent of their vice-chancellors are recruited externally. The old universities represented the extreme case compared to the first categories, as they have only 22 percent of their vice-chancellors recruited externally.

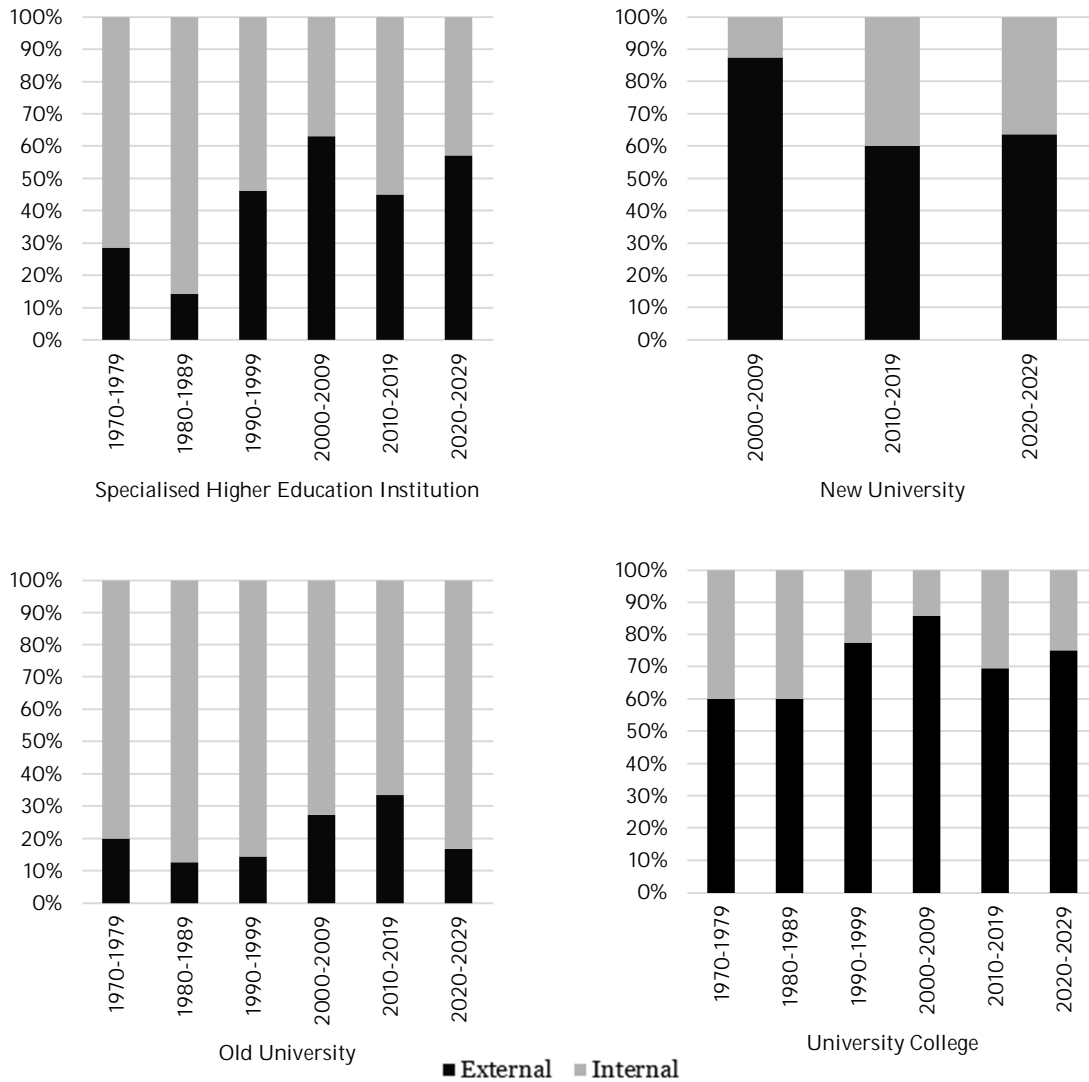
Large differences in sources of recruitment between categories of higher education institutions

Figure 21 illustrates the development over time by category of higher education institution regarding the source of recruitment of vice-chancellors. The specialised higher education institutions have seen an increase in the share of externally recruited vice-chancellors. However, as this category includes the most

diverse set of higher education institutions, it's challenging to draw far-reaching conclusions. Although the older specialised higher education institutions with significant research funding appear to have high levels of internal vice-chancellors, for example, Karolinska Institutet, 87 percent, Royal Institute of Technology, 87 percent, Stockholm School of Economics, 75 percent, Swedish University of Agricultural Sciences, 75 percent, and Chalmers University of Technology, 71 percent. At the smaller ones, with less research-intensive and more educational focus, the situation is generally reversed. They have a higher share of externally recruited vice-chancellors, who account for 75 percent of this group overall.

The new universities began with a large share of externally recruited vice-chancellors, at nearly 90 percent. This share decreased in the following two decades, but was still at high levels. The low number of internal vice-chancellors is somewhat surprising, as the university status should create better circumstances for the new universities to build a relatively strong internal environment for research. As established earlier, the old universities remain at relatively low levels of externally recruited vice-chancellors. However, there was a spike in the 2010s, as levels of external recruitment reached over 30 percent. The university colleges represent the most extreme case at the other end, with the share of externally recruited vice-chancellors being the highest in the 2000s, at around 85 percent.

Figure 21. Source of vice-chancellor recruitment over time by category of higher education institution (excluding art universities).



Figures 23 and 24 provide more details about the recruitment streams between different higher education institutions. Figure 23 presents the first conclusion, which is that research-intensive higher education institutions are the primary source of doctoral degrees among vice-chancellors. This may not be surprising, as these different types of higher education have existed the longest, have historically been the leading providers of third-cycle education, and attract the largest amounts of funding for research.

Additionally, Figure 24 provides a more detailed understanding of the recruitment streams. The larger and research-intensive higher education institutions produce a lot of vice-chancellors, both for themselves and by exporting them to other higher education institutions. Lund University represents the most extreme case, as it only recruits vice-chancellors with a career background at the university, but also exports many vice-chancellors to other higher education institutions. They have also exported vice-chancellors to other old and research-intensive universities such as Uppsala University and the

University of Gothenburg. Regarding the other categories of higher education institutions, Blekinge Institute of Technology represents another side of the spectrum, as they have relied on external recruitment and rarely produces its own vice-chancellors. The same is the case at Karlstad University.

To summarise, there is evidence that the external recruitment of vice-chancellors is a substantial part of the top-level leadership in Swedish higher education institutions, particularly at university colleges. This phenomenon has also increased over time. These results also align with those of previous research.

Discussion and theoretical analysis

At this point, the results present a possibility to reflect on the research questions. Before making any conclusions, it's important to acknowledge that the 2020s are still ongoing, and new appointments of vice-chancellors may occur before the end of the decade. The findings presented here reflect the state of academic leadership as of the time of writing and may be subject to change as new data become available. However, the data is still showing some precise results.

The Swedish academic field

Firstly, regarding the connection between the disciplinary backgrounds of Swedish vice-chancellors during the period and the structure and dynamics of the academic field, the results indicate that a relation exists between these two. As presented earlier, the field of Swedish academia is complex, both in regard to the different higher education institutions and also the standings of the other disciplines. One of the most glaring differences is the allocation of resources, which appears to have implications for several aspects, including the conditions for research and education, as well as the profiles of higher education institutions. Research funding can therefore be seen as a high-value commodity and a strong force in positioning in the Swedish academic field. Following this pattern, the disciplines with the most research funding, such as the natural sciences, engineering, and medical health sciences, are heavily represented in the group of vice-chancellors, especially at higher education institutions that are also research-intensive institutions with substantial research funding. The university colleges' recruitment of vice-chancellors within these areas can also be viewed as an effort to position themselves to reach similar results as the old universities and the specialised higher education institutions.

Bourdieu's separation of scientific and social capital when comparing professors appears more challenging to apply in the Swedish case. This may be natural, given that more than 40 years have passed and the coding was used in the French academic field. Nevertheless, regarding the backgrounds of the vice-chancellors of the Swedish higher education institutions, the natural sciences, engineering and technology, and medical health sciences appear to occupy both a position as scientifically strong in terms of research output and funding, but also socially strong, given that they seem to hold strong positions in academia regardless of the situation. On the other hand, disciplines such as the humanities and social sciences appear to be weaker in both dimensions. They have lower representation overall over time and are more frequent at higher education institutions with lower amounts of research funding.

One of Bourdieu's arguments was that individuals within the field who fail to accumulate sufficient scientific capital may redirect their investments toward administrative roles to maintain influence within the field. This trend is evident in the results. Disciplines with lower research funding, and therefore less capital in the field, such as educational sciences, economics and business, and sociology, are nonetheless well represented among the vice-chancellors, particularly at higher education institutions with weaker streams of research funding. This suggests that administrative roles, in this case, the highest-ranking ones, can serve as an alternative route to stay relevant and competitive in the academic field.

Regarding the shift in disciplinary backgrounds of vice-chancellors from 1977 to 2025, the results clearly indicate a notable transformation. In the earlier parts of this time period, the vice-chancellors were predominantly drawn from the humanities and social sciences. However, after the new millennium, there has been a shift towards vice-chancellors in natural sciences, engineering and technology, and medical health sciences. This shift is likely dependent on broader trends in the academic field. Some notable developments that have co-occurred are increased marketisation, performance-based research funding, and internationalisation. All of these processes are likely to contribute to a redistribution of capital within the field. One conclusion could be that today, the recruitment of vice-chancellors might not solely depend on the disciplines being scientifically and socially strong, but rather on the extent to which they are scientifically productive and socially legitimised.

The vice-chancellors and the market logic

One of the theoretical approaches examined the existence of a market logic and how this doctrine interacts with the academic field and the vice-chancellors. As Engwall argues, the governance of universities has undergone a shift from collegial and state-centred models toward models based on market-oriented mechanisms. The results indicate that the recruitment of vice-chancellors at the Swedish higher education institutions increasingly reflects a market logic. The results on the source of recruitment strongly support the theory of increasing marketisation. The results align with Engwall's earlier findings and his theory that there is a market for vice-chancellors, indicating that recruitment is no longer limited to internal candidates. Academics who strive for the vice-chancellor position need to, to a larger extent compared to previously, face not only internal competitors, but also external ones. This is especially true at the university colleges and the new universities. However, at the old universities, the market logic appears not to have as strong a power, and one explanation can be that the collegial tradition upholds traditional academic values, which have pushed marketisation away to a certain degree, even though the old universities have also had externally recruited vice-chancellors.

Results on the disciplinary background of the vice-chancellors also support the notion of a market logic in the recruitment of the vice-chancellors to a certain extent. This is particularly visible at the university colleges, which often have weaker research funding and have increasingly recruited vice-chancellors from disciplines with high levels of capital, such as natural sciences, engineering, and technology. The shift towards high-capital disciplines could be a way for the university colleges to attempt to elevate their status as institutions and attract more research funding. Again, this confirms the earlier results from Engwall, which show that such institutions adapt to survive competitive pressure by selecting leaders from disciplines perceived as prestigious.

However, the data also reveal that the disciplinary background of the vice-chancellor often aligns with the profile of the higher education institution. Specialised higher education institutions exemplify this connection, particularly those that are dominant in medicine and health sciences, larger engineering universities, or even the arts universities, which consistently appoint vice-chancellors from corresponding disciplines. Notwithstanding, the Royal Institute of Technology elected a vice-chancellor with a background in business

administration in 2022, and the Swedish University of Agricultural Sciences elected a physicist in 2019. The University of Arts, Crafts and Design had a vice-chancellor with a doctoral degree in business administration from 2003 until 2012. Nevertheless, the general development suggests that while market logic influences recruitment, it does not entirely override the internal logic of the academic field. Instead, recruitment decisions regarding vice-chancellors reflect a balance between external demands and internal structures. The results are not dramatic enough to prove that market logic has entirely replaced traditional academic hierarchies; instead, the two interact with each other in complex ways. And this power struggle depends on the profile of the higher education institutions.

In summary, Sweden appears to have a hybrid logic that combines both strong market-oriented strategies and traditional academic structures, but while the former appear to be on the offensive.

The vice-chancellorship as a career strategy

The connection between the academic disciplines and vice-chancellors can be further problematized. The disciplinary background of the vice-chancellors can indicate other aspects rather than their dominant within the academic field. In support of Bourdieu's argument regarding capital in academia, the vice-chancellorship can be viewed as an alternative way of gaining power for those who, for various reasons, do not succeed in accumulating sufficient scientific capital through research and education alone, or are more interested in academic leadership. It could also be a result of competitive battles for scientific capital, in which the amount of research funding and research positions is limited, and the losers of these battles might seek opportunities in governance instead. As the example from Goodall showed earlier, the demands of a successful research career might be so high that it is nearly impossible to simultaneously pursue a leadership position in academia without compromising one or the other. Becoming a vice-chancellor can be a career strategy, and is not necessarily dependent on a disciplinary background; however, it can be viewed as a strategic shift in investment from scientific production to academic governance. However, the shifting natures of the disciplines are likely to influence the different career pathways.

The pro-vice-chancellors

Although this study is directed at the vice-chancellors of Swedish higher education institutions, the results do not reflect another vital part of the leadership, namely the pro-vice-chancellors. As explained earlier, all state-owned Swedish higher education institutions are required to have a pro-vice-chancellor, who can be seen as the second-highest-ranking academic leader. They are often key players in the leadership of higher education institutions and occupy crucial positions within the organisation. They are regularly trusted to lead different committees or governing boards. As the pro-vice-chancellors are so important, the higher education institutions sometimes prioritise making the combined leadership of the vice-chancellor and the pro-vice-chancellor to reflect the whole university, and therefore elect a representative duo of individuals to the two roles. This also has implications for the academic disciplines, as the election of the pro-vice-chancellor can be used to balance the leadership to reflect the standing of

academic disciplines within the higher education institution. For example, when Uppsala University elected a new vice-chancellor with a background in natural sciences in 2020, the recruitment team only presented candidates for the pro-vice-chancellor position with backgrounds in the humanities and medicine.¹³² A similar situation arose after Lund University chose to elect a new vice-chancellor with a background in medicine in 2020, and the three candidates for pro-vice-chancellor presented to the electoral college all had backgrounds in non-medical disciplines.¹³³ The pro-vice-chancellor can therefore be viewed as one way of keeping a power balance between different forces within the higher education institution. This dynamic is not captured in this paper, and could be interesting to study in future research.

Final comments

It's hard to picture a society without higher education institutions. These organisations have been a central part of human civilisation for thousands of years. They serve as sources of knowledge and contribute in numerous ways. This study has shown that the leadership of the higher education institutions, the vice-chancellors, embodies their institution and is deeply connected to the Swedish academic field and its internal structures. The analysis of the disciplinary backgrounds of the vice-chancellors over time displays that knowledge is valued, both by society and academia. It also highlights that historical traits matter and are reproduced, as well as how higher education institutions attempt to position themselves within a changing landscape. We can't view high-level leadership at the higher education institutions as an isolated or random phenomenon. It is, instead, a reflection of the institution's orientation within the field and its response to various kinds of influences.

As of this writing, knowledge appears to be more important and challenged than ever. Understanding who governs higher education institutions and from which disciplinary traditions they originate is essential for understanding how society organizes, prioritizes, and protects one of its most vital resources: knowledge.

¹³² Tidningen Ergo, 2020-10-06.

¹³³ Lundagård, 2020-12-01

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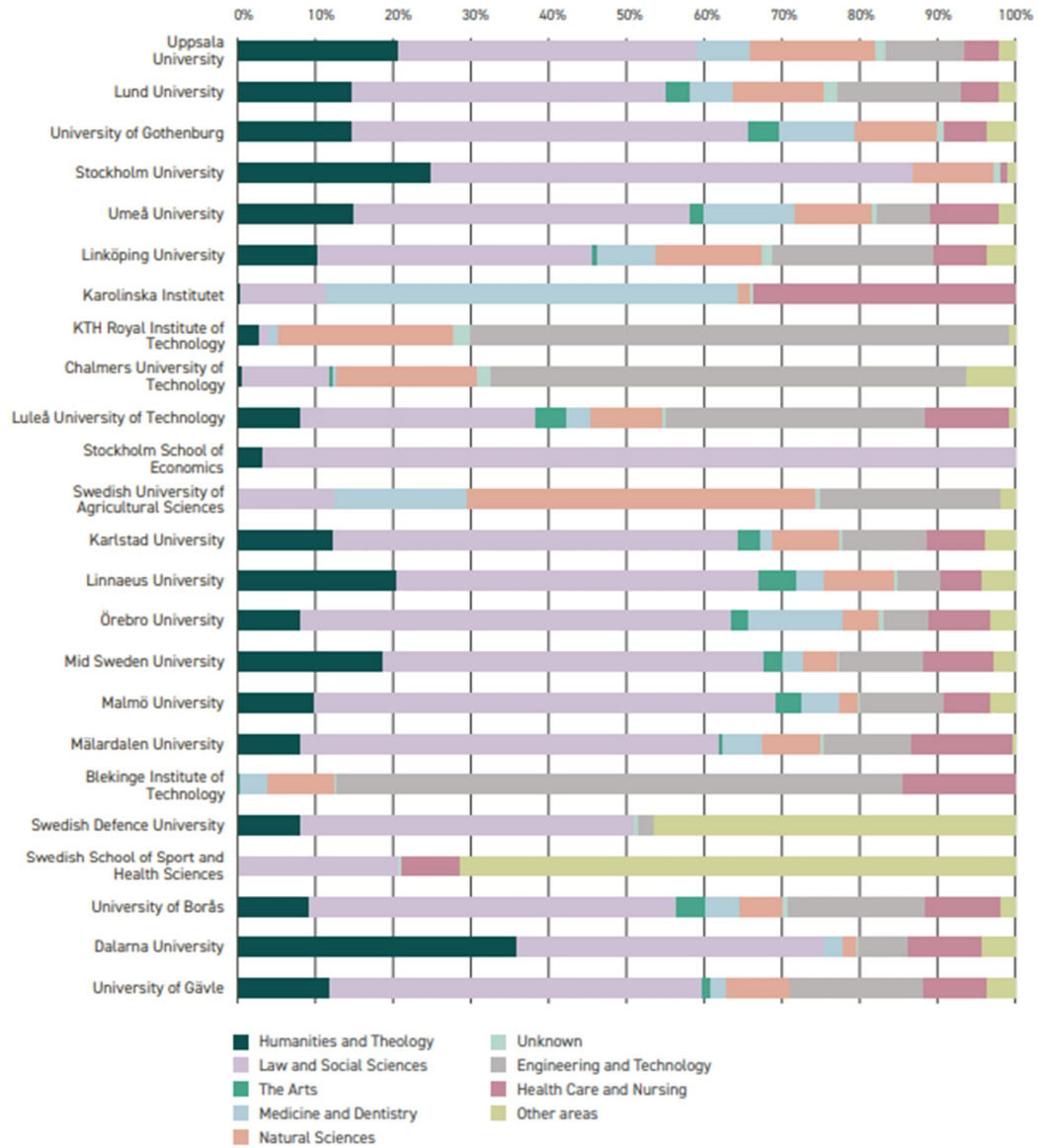
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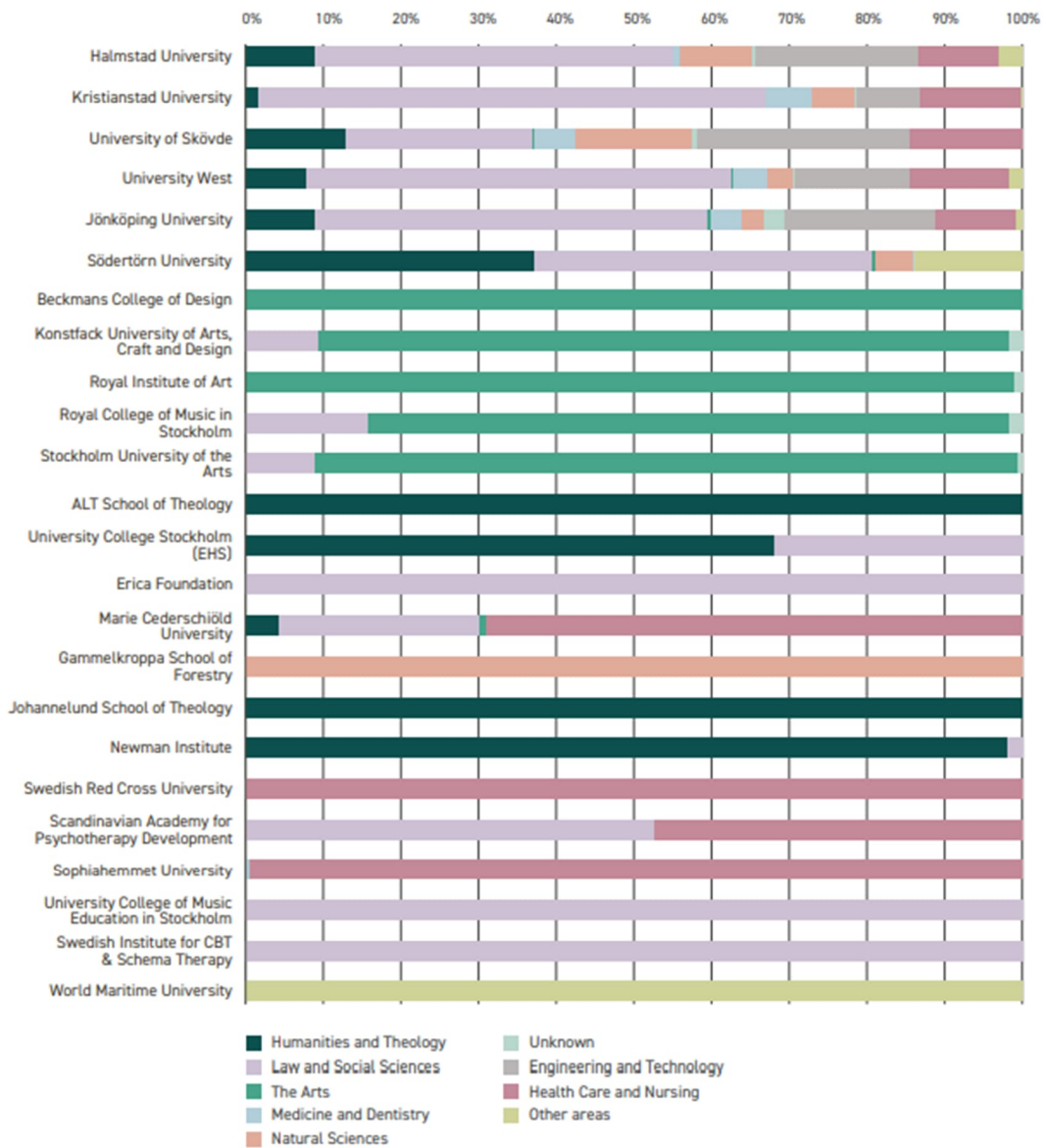
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Appendix: figures and tables

Figure 22. The educational profiles of Swedish higher education institutions based on the distribution of students (in full-time equivalents) in first- and second-cycle education, per subject, in the academic year of 2021/22 and per institution.





Source: Swedish Higher Education Authority (UKÄ), *An Overview of Swedish Higher Education and Research 2023* (Stockholm: UKÄ, 2023), pp. 93-94, table 3.

Table 8. Vice-chancellors at the Swedish higher education institutions in numbers, average length of term in years (mean), and by HEI category.

| HEI | HEI category | Number of vice-chancellors | Average length of term in years (mean) |
|---|--|----------------------------|--|
| Halmstad University | University College | 11 | 4,2 |
| Kristianstad University | University College | 11 | 4,4 |
| Dalarna University | University College | 10 | 4,9 |
| Mälardalen University College | University College | 10 | 4,6 |
| University of Arts, Crafts and Design | Art University | 10 | 6,5 |
| Royal College of Music | Art University | 9 | 6,8 |
| Royal Institute of Art | Art University | 9 | 5,6 |
| University of Gothenburg | Old University | 9 | 6,3 |
| Karolinska Institutet | Specialised Higher Education Institution | 8 | 6,5 |
| Linköping University | Old University | 8 | 7 |
| Lund University | Old University | 8 | 5,9 |
| Royal Institute of Technology | Specialised Higher Education Institution | 8 | 6,9 |
| Stockholm School of Economics | Specialised Higher Education Institution | 8 | 6,6 |
| Stockholm University | Old University | 8 | 7,1 |
| Swedish University of Agricultural Sciences | Specialised Higher Education Institution | 8 | 6,4 |
| National Academy of Mime and Acting | Art University | 7 | 4,6 |
| Sophiahemmet University | Specialised Higher Education Institution | 7 | 8,3 |
| The Swedish School of Sport and Health Sciences | Specialised Higher Education Institution | 7 | 5,3 |
| University College Stockholm | Specialised Higher Education Institution | 7 | 4,3 |
| University College of Opera | Art University | 7 | 4,9 |
| University of Borås | University College | 7 | 7 |
| Uppsala University | Old University | 7 | 10 |
| Blekinge Institute of Technology | University College | 6 | 6,7 |
| Institute of Dramatic Art | Art University | 6 | 6 |
| Jönköping University | University College | 6 | 3,3 |
| Jönköping University Foundation | University College | 6 | 6,1 |
| Karlstad University | New University | 6 | 4,8 |
| Mid Sweden University College | University College | 6 | 2,3 |
| Umeå University | Old University | 6 | 8,5 |
| University West | University College | 6 | 6,3 |
| Chalmers University of Technology Foundation | Specialised Higher Education Institution | 5 | 7 |
| Gotland University College | University College | 5 | 3 |
| Marie Cederschiöld University | Specialised Higher Education Institution | 5 | 5,4 |
| Mid Sweden University | New University | 5 | 4,4 |
| University of Gävle | University College | 5 | 9,4 |
| University of Skövde | University College | 5 | 8,8 |

| | | | |
|--|--|---|------|
| Beckman College of Design in Stockholm | Art University | 4 | 6,2 |
| Luleå University of Technology | Specialised Higher Education Institution | 4 | 7,2 |
| Malmö University College | University College | 4 | 4,7 |
| Swedish Red Cross University | Specialised Higher Education Institution | 4 | 4,2 |
| Södertörn University | University College | 4 | 6,7 |
| Örebro University College | University College | 4 | 5 |
| Östersund University | University College | 4 | 4,5 |
| Ingesund School of Music | Art University | 3 | 11,3 |
| Mälardalen University | New University | 3 | 2,7 |
| Stockholm Institute of Education | Specialised Higher Education Institution | 3 | 5,7 |
| Swedish Defence University | Specialised Higher Education Institution | 3 | 6,3 |
| University College of Dance and Circus | Art University | 3 | 12 |
| University College of Luleå | University College | 3 | 6 |
| University of Kalmar | University College | 3 | 10,3 |
| Växjö University | New University | 3 | 3,6 |
| Örebro University | New University | 3 | 8,6 |
| Chalmers University of Technology | Specialised Higher Education Institution | 2 | 10 |
| Karlstad University College | University College | 2 | 10,5 |
| Linnaeus University | New University | 2 | 8 |
| Malmö University | New University | 2 | 6 |
| Stockholm University of the Arts | Art University | 2 | 8 |
| University College of Teacher Education in Stockholm | Specialised Higher Education Institution | 2 | 12 |
| Växjö University College | University College | 2 | 11 |
| Stockholm Academy of Dramatic Arts | Art University | 1 | 2 |
| The University College of Institute for Higher Advertising and Communication Education and the Graphic Institute | Specialised Higher Education Institution | 1 | 21 |
| University College of Sundsvall/Härnösand | University College | 1 | 16 |

Table 9. The number of vice-chancellors at the Swedish higher education institutions based on research subject area and research subject group.

| Research subject area and Research subject group | Number of vice-chancellors |
|---|----------------------------|
| Social Sciences | 102 |
| Educational Sciences | 28 |
| Economics and Business | 27 |
| Political Science | 13 |
| Sociology | 12 |
| Psychology | 7 |
| Law | 5 |
| Other Social Sciences | 4 |
| Social and Economic Geography | 3 |
| Media and Communications | 3 |
| Natural Sciences | 59 |
| Physical Sciences | 22 |
| Chemical Sciences | 14 |
| Mathematical Sciences | 9 |
| Biological Sciences | 7 |
| Computer and Information Sciences | 6 |
| Earth and Related Environmental Sciences | 1 |
| Arts | 58 |
| Artistic Basis | 58 |
| Engineering and Technology | 39 |
| Mechanical Engineering | 15 |
| Chemical Engineering | 9 |
| Electrical Engineering, Electronic Engineering, Information Engineering | 6 |
| Civil Engineering | 2 |
| Physical Sciences | 2 |
| Medical Engineering | 1 |
| Control Engineering | 1 |
| Environmental Engineering | 1 |
| Materials Engineering | 1 |
| Industrial Biotechnology | 1 |
| Medical and Health Sciences | 36 |
| Health Sciences | 13 |
| Clinical Medicine | 13 |
| Basic Medicine | 10 |
| Humanities | 33 |
| Languages and Literature | 11 |
| Philosophy, Ethics and Religion | 9 |
| History and Archaeology | 8 |
| Arts Scientific Basis | 3 |
| Other Humanities | 2 |
| Agricultural and Veterinary Sciences | 7 |

| | |
|-------------------------------------|-----|
| Agriculture, Forestry and Fisheries | 5 |
| Other Agricultural Sciences | 2 |
| Total | 334 |

Figure 23. The flow between the vice-chancellor's doctoral degree and career (excluding art universities).

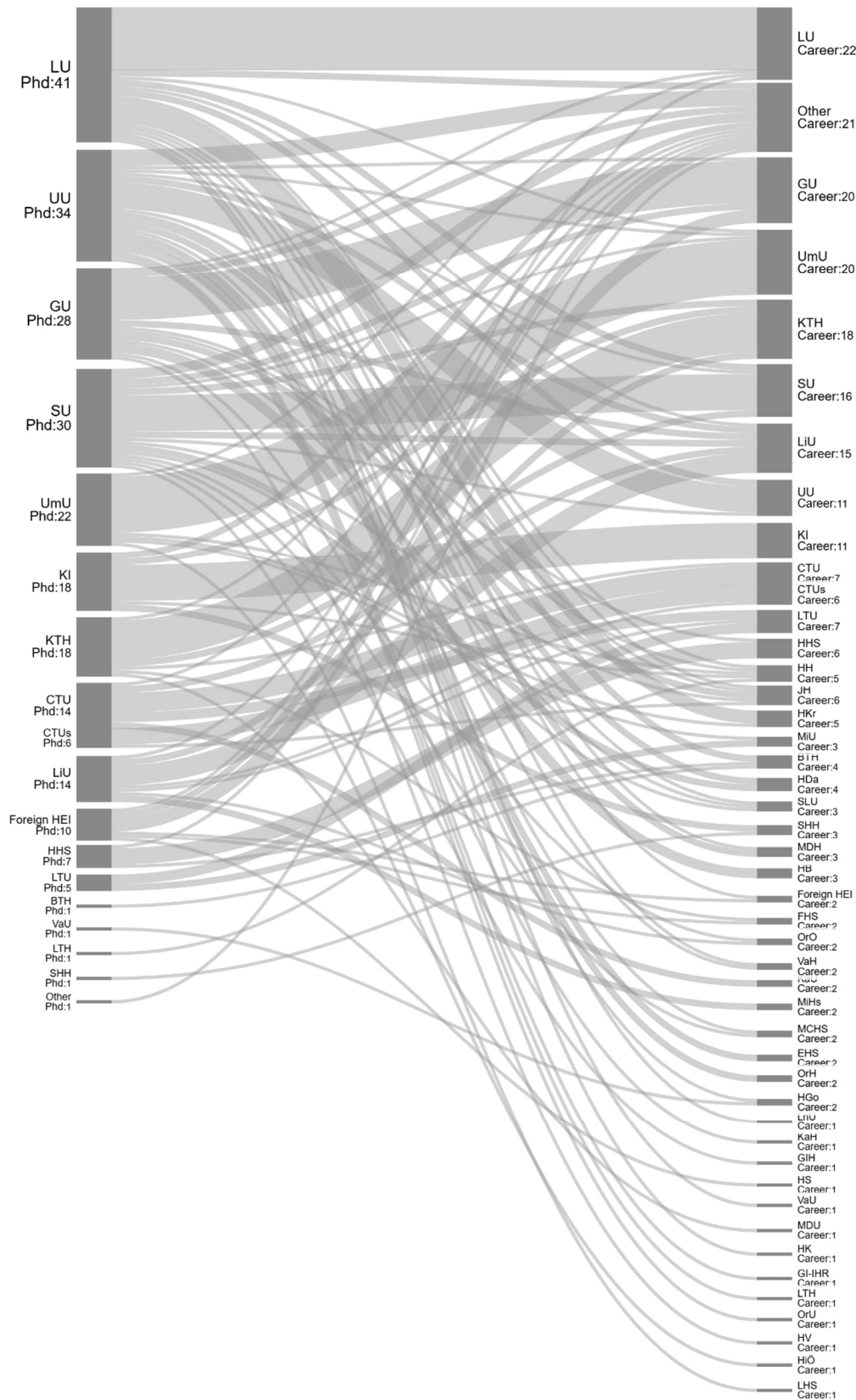
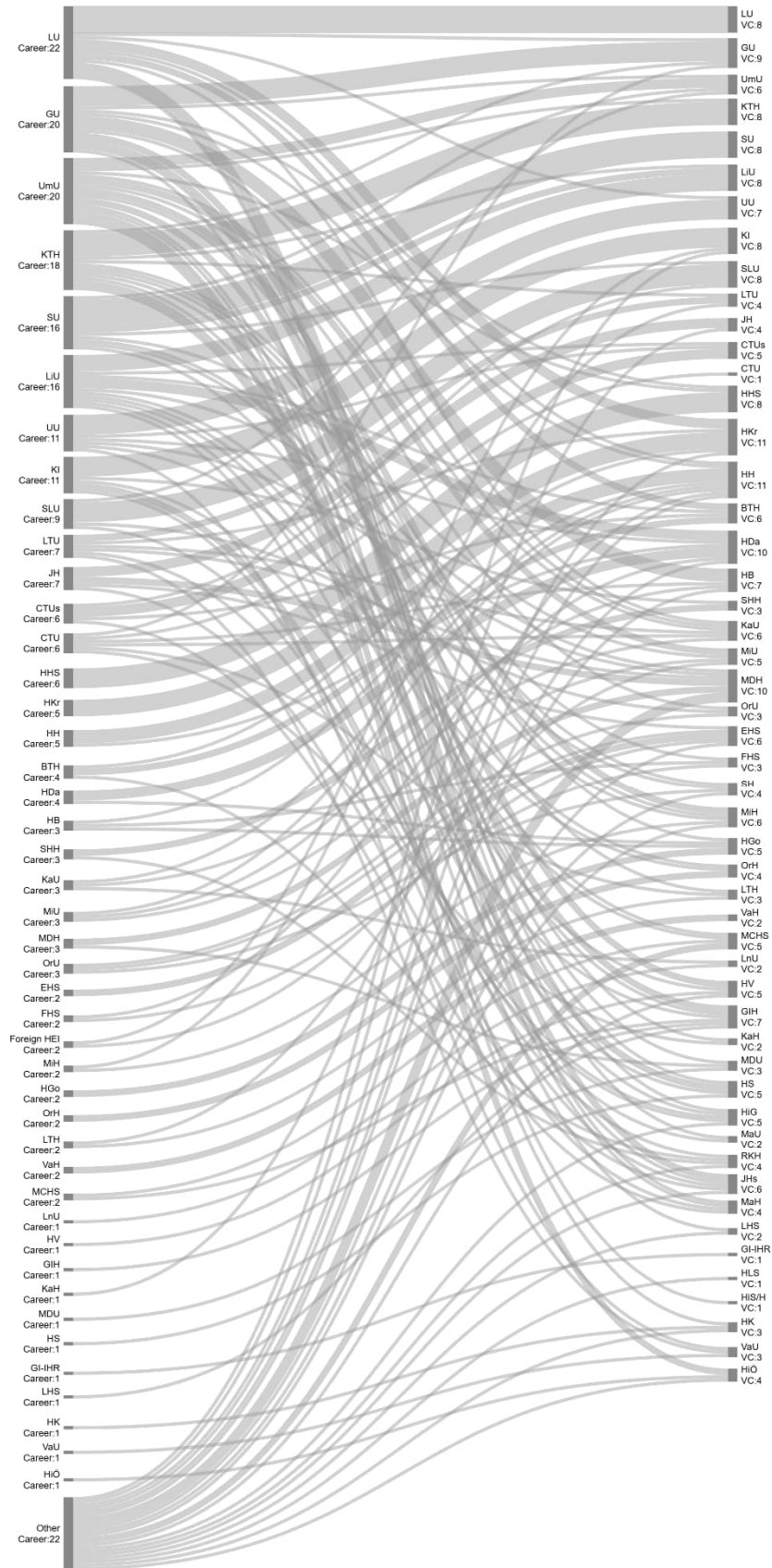


Figure 24. The flow between the vice-chancellor's career and vice-chancellorship (excluding art universities).



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