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Gender equality, gender balance and diversity in research and innovation



Over the past ten years, gender equality and gender balance in the research sector, particularly in higher education institutions, have become a significant research field in Norway. In the same period, the Norwegian research sector has become more international and more ethnically diverse as a result of an increasing amount of foreign-born researchers. Nevertheless, few studies of the research sector analyse the intersection between gender equality and ethnic diversity. In innovation research, only a small number of Norwegian studies include the gender dimension.

Why is gender equality and diversity in research and innovation important?

To ensure a just and well-functioning democratic society, gender equality and diversity in research and innovation is essential. Women and men, regardless of their ethnic background, must have equal opportunities to impact and participate in higher education, research and innovation. The fact that the diversity of

the population is reflected in the research communities, increases the credibility and relevance of research and innovation in society, and strengthens the quality of research.

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In order to succeed in developing more world-leading academic communities, we need to make use of the entire population. Leaders at all institutional levels are responsible for working to improve the gender balance and more diversity among employees.

(The Government's Long-term plan for research and higher education 2019–2028)

This policy brief is based on the Norwegian literature review 'What do we know about gender equality, gender balance and diversity in research and innovation? A mapping of Norwegian research 2010—2021' published by Kilden genderresearch.no (2022).

What does research say about gender equality, gender balance and diversity in the research sector?

The research literature about gender equality and gender balance in the Norwegian research sector is rich in terms of the number of empirical studies, the methods used and the theoretical frameworks.

Statistics on gender balance and diversity – a crucial foundation for knowledge:

- Throughout several decades, Norwegian higher education institutions have collected extensive statistical data on the gender distribution among faculty. Gender is also a focal variable in questionnaires among faculty.
- Since 2016, the so-called diversity statistics has provided an overview of the proportion of researchers with an immigrant background in different faculty positions and disciplines, and is divided into gender and national background

Changes in research perspectives:

- Over the last few years, the research perspectives have shifted from focusing on the individual women to more complex analyses of cultural and structural conditions in the research sector.
- Also, questions concerning research policy, including effects of the internationalisation of the academic labour market and of criteria for excellence in research have become more prominent in Norwegian studies of gender equality and diversity in research.

The intersection between gender and ethnic diversity

- There are few qualitative studies of the Norwegian research sector analysing the intersection between gender and ethnic diversity.
- However, internationalisation of the academic labour market and an increasing number of foreign-born researchers have resulted in enhanced research interest. In recent years, statistics have been compiled of occupational categories and academic disciplines aggregated by gender and national background.

Requirements for action plans for gender equality

All research institutions applying for grants from the European Commission's research programme Horizon Europe are required to include action plans for gender equality, so-called Gender Equality Plans (GEPs), in order to receive funding from Horizon Europe. The Research Council of Norway has introduced a similar-sounding national requirement.

Source:
Kifinfo, 2021.

Did you know ...?

In 1989, only seven per cent of all Norwegian professors were women, and the proportion of men remained more than ninety per cent until far into the 1990s. In 2020, the proportion of female professors had risen to thirty-three per cent.

Gender balance and equality in academia – what is needed?

There is a significant imbalance between women and men in Norwegian research. Although there are differences between the disciplines, the biggest problem is that women are still underrepresented in higher positions within virtually all disciplines. There are far more male than female professors, while there are more female than male students.

In order to reach the goal to achieve gender balance among professors at Norwegian universities and university colleges within 2027, approximately 3150 women must be employed in full professor positions within the period 2016–2026, according to [a simulation of gender equality from NIFU](#).

Gender equality and gender balance

Gender equality researchers often distinguish between the terms *equality of opportunity* and *equality of outcome*. Equality of opportunity refers to equal opportunities and conditions for economic, political and social participation for women and men, whereas equality of outcome is ‘the consequence of active facilitation and equalisation’ in order to obtain equal participation in these areas. Gender balance, referring to numerical equality between women and men, may thus be said to be a result of facilitating equal opportunities for participation.

Source:
Holst, Cathrine, 2013.
Project group for technical terms in gender research, 2017.

Gender and ethnic diversity in academia – what do we know?

- Descriptive statistics on academic positions and disciplines aggregated by gender and national background provide important data for further analyses.
- Several surveys have explored whether discrimination of researchers with an immigrant background takes place in academia. Research provides no clear answers but finds that discrimination is primarily experienced in informal processes (such as lack of inclusion or discriminating comments), which may have consequences for the researchers’ career opportunities.
- The few studies analysing the interaction between gender and ethnic minority background emphasise that gender – and not ethnicity – is the most significant variable with regard to barriers or discrimination in Norwegian academia.
- The term ethnic diversity in research and innovation involves very different groups, such as internationally mobile researchers from Europe, immigrants living in Norway and their descendants.

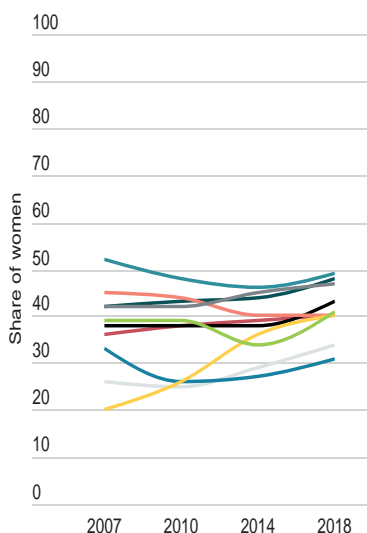
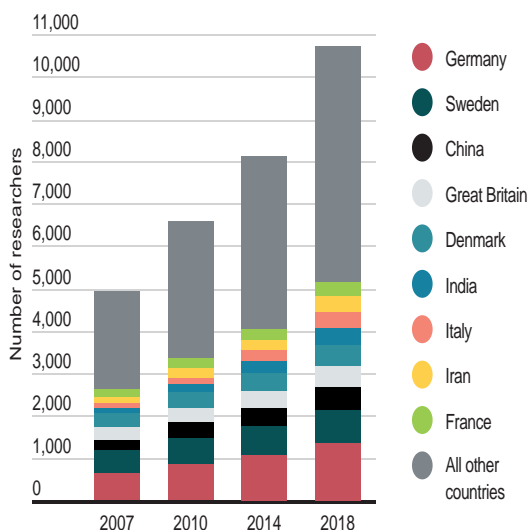
“Descendants of immigrants do not face the same obstacles as internationally recruited researchers. For the international researchers, the main problem is normally to get a permanent position following a temporary post. The challenges come earlier for Norwegians with immigrant background: should they venture at an academic career at all?” asks Julia Orupabo, a senior research fellow at the Norwegian Institute for Social Research in the interview: [“We recruit a uniform group of international researchers” \(2021\)](#)

*In research policy papers, (ethnic) diversity normally refers to researchers with an immigrant background, which includes both people who have immigrated to Norway themselves and Norwegian-born people with immigrant parents (Meld. 4 (2018–2019))

Statistics on gender and immigrant background of researchers:

- Almost one in three researchers in Norway have immigrant background today. Researchers from Germany, Sweden and China represent the largest groups.
- There are few descendants of immigrants among faculty members. In 2018, they made up only 0.5 per cent of the researchers. Of 190 descendants of immigrants among the researchers in 2018, approximately 40 were employed in permanent scientific and academic positions.
- Among the researchers with immigrant background and descendants of immigrants, the proportion of women was 44 per cent in 2018. Among researchers without immigrant background, the proportion of women was 50 per cent. There are still major differences in gender balance and ethnic diversity across disciplines and institutions:
 - In STEM (science, technology engineering and mathematics), the proportion of researchers with immigrant background is higher among women than among men. Similarly, the proportion of male researchers with immigrant background is higher in traditionally female-dominated disciplines such as medicine and health sciences.
 - In STEM the proportion of women has decreased simultaneously as more male researchers from abroad have been employed.

Kilde: Gunnes, Hebe og Frøydis Sæbø Steine, 2020.



Researchers by country of birth, nine largest countries. Number of researchers and share of women. (Source: [NIFU/SSB, Statistics on diversity in research](#))

Diversity in academia – who are we talking about?

NORDICORE – Nordic Centre for Research on Gender Equality in Research and Innovation distinguish between three main groups.

- **International researchers** – Need to be integrated linguistically and culturally and to be included in the workplace.
- **Refugees with an academic background** – Need to have their qualifications quickly clarified and get relevant work.
- **Descendants of immigrants in Norway** – Need motivation to pursue an academic career.

Source: CORE – Centre for Research on Gender Equality, 2018

"Diversity has become a positive buzzword. However, the concept often masks ambiguities in terms of who we are talking about, what we are trying to achieve and how we are going to achieve it."

(Arnfinn H. Midtbøen. CORE, 2019)

Research on barriers in academia

A notable topic in the literature on gender equality, gender balance and diversity in academia is how features of the organisational culture may constitute informal barriers to the career development for women and people with immigrant background. Also, structural conditions are highlighted as barriers to gender balance and gender equality in academia:

- **The fact that the academic culture favours a male research norm** is emphasised in several qualitative studies. These studies also analyse how structural conditions may constitute barriers to gender balance and gender equality in academia. Structural conditions include the frequent use of temporary positions and thus the increased competition for permanent positions and research funding, as well as requirements for international mobility and excellence in order to succeed with an academic career.
- **Women having the primary care responsibility in the family** face challenges in terms of having enough time for research and publications, according to qualitative research. This constitutes a problem for female researchers in temporary positions who want to qualify for permanent posts and for female associate professors wishing to qualify for promotion to full professor.
- **Sexual harassment in academia** is a problem particularly affecting younger women in temporary positions, according to questionnaire surveys carried out after the #metoo campaign in 2017–2018.
- **Linguistic challenges, lack of networks and discrimination in informal processes** constitute possible barriers for the inclusion of people with immigrant background at the workplace.
- **Non-Western applicants for permanent scientific positions from African and Asian institutions** are more often sorted out of the recruitment processes before their work is assessed. This is not necessarily because the applicants are assessed negatively because of their origin, but because they have their academic competence from non-Western educational institutions with lower prestige than Western educational institutions.
- **Members of recruitment committees state that they aim for gender balance and diversity among faculty staff**, but later in the hiring process this aim is trumped by the requirement for excellence, defined as the number of publications in high-ranking English-language journals over the past five years. Unintentional consequences of such a narrow understanding of excellence may be that women who have published less due to parental leave are sorted out of the recruitment process for permanent scientific positions.



Julia Orupabo, researcher at ISF. (Photo: Eirin Konstad Nilsen)

“One of our conclusions is that the gatekeepers of academia are indeed concerned with gender equality and diversity in addition to recruiting the best candidate – but this focus lasts only through the stages where it matters least. In the later stages, these considerations dissipate. Going forward, a vital task in policy development will be to also integrate these considerations into the most pivotal stages.” says Julia Orupabo, researcher at Institute for Social Research (2021).

Gender stereotypical ideas that women are not enough ambitious, not sufficiently ‘hungry’, ‘too nice’ and ‘too conscientious’ may conceal structures restraining women’s career development in academia. (Kilden’s literature review, 2022).

Gender equality measures in the research sector

In recent years, researchers have studied the effects of various gender equality measures in Norwegian universities and colleges. The research literature often distinguishes between individual and structural gender equality measures, although such a distinction may fluctuate.

Individual measures directed at women can be mentoring systems, skills development measures and network building.

Structural measures are directed towards recruitment processes and may be quota systems, gender sensitive job advertisements, recruitment committees to find suitable female candidates and gender balanced assessment committees.

The gender equality measures have been criticised for being implemented in order to compensate for women's 'shortcomings' rather than to change the structural and cultural conditions for pursuing an academic career, such as temporary positions and informal power hierarchies. Nevertheless, the measures have contributed to increasing gender balance at all position levels in the research sector.

Management's significance for work on gender equality, gender balance and diversity

In order to succeed with organisational changes in the research sector, the top management is crucial, but research shows that the goal to achieve gender balance is difficult to accomplish unless financial and administrative resources are provided at the mid-level management.

Instead of top-down processes with goal-oriented management and reporting requirements, researchers from the Norwegian University of Science and Technology (NTNU) recommend 'local knowledging'. This means that faculty members, including heads of departments, participate in developing measures and tools to improve gender balance at a local level. To actively engage heads of departments in implementing gender balance measures, they need to see how gender balance may be beneficial for their own department, also in order to achieve other goals.

Gender balance measures, often referred to as 'fix the women', have been criticised for not challenging power relations and not changing structural and cultural conditions within the research sector. (Kilden's literature review, 2022)

What does research say about two common gender equality measures?

1. Mentoring system for female researchers

A number of Norwegian universities have implemented mentoring systems for female researchers. Studies assessing the effect of mentoring programmes have indicated that they have been useful for the women who have participated. At the same time, research shows that the mentoring system does not solve the most essential problems encountered by employees, which are connected to temporary positions over long periods.

2. Qualification scholarships and trainings for female associate professors

Studies on the effects of measures dedicated to support female associate professors to promote to full professors show that they have led to an increased proportion of female professors in Norwegian higher education institutions. However, critical questions have been raised concerning the fact that these types of individual measures do not alter the structural conditions in academia. Could they, on the contrary, result in already privileged female researchers being favoured and that non-meriting tasks are left to women in temporary positions? Could the desire to become a full professor as quickly as possible result in the neglect of other important social responsibilities, such as participating in public debates and giving students the necessary follow-up?

Measures for gender balance and ethnic diversity

So far, there have been few measures aiming to both improve gender balance and strengthen ethnic diversity in the research sector. However, several studies emphasise the need for better diversity management, that refers to institutional actions aiming to promote greater inclusion of employees from different backgrounds.

An example from NORDICORE, although from the US, shows that strong control regimes seem to work contrary to the desired effect. This is probably because leaders are negative when it comes to losing their autonomy. Neither does so-called diversity training of leaders seem to have any effect for the increase of women and ethnic minorities.

“Predetermined criteria for what is required for a position and transparency in recruitment processes is an example of a measure with positive effect. Another is a top-level management genuinely engaged in recruiting underrepresented groups. Without having the management on board, few changes will take place,” according to [NORDICORE-researcher Midtbøen](#).



Arnfinn Haagensen Midtbøen.
(Photo: University of Oslo)



(Photo: iStockphoto)

Gender and diversity in innovation

Innovation is often associated with technology and engineering, and something resulting in patents, licences and business establishments in the private market. However, the definition of innovation is broader today than previously, and also includes new or improved products and processes clearly distinct from preceding products or processes. This definition, which is forwarded by the OECD, opens for more activities being considered as innovation, including more activities where women are involved.

Today, it is recognised that innovation is not something that only takes place within technological businesses and the private sector, but also in the public sector and in the form of social innovation, which may involve new ways of organising society. One example from the health sector is how a new rota system and new organisation of nurses' working hours turned out to improve the quality of the care work. This is an example of organisational innovation in the public sector.

Research about gender, diversity and innovation

There are few Norwegian studies about innovation and innovation processes that include the gender dimension. The present research on gender and

innovation is mainly theoretical and criticises the traditional and narrow definition of the term innovation. A narrow definition of innovation has unfortunate consequences for research and policy-making, including the implementation of innovation measures and procedures. For instance, innovation studies have often emphasised male-dominated businesses, and innovation has often been measured through patenting. This emphasis has resulted in men appearing more innovative than women.

Empirical case studies investigating the connection between gender and innovation indicate a positive connection between innovation ability and inclusion of women in the innovation processes. The diversity perspective is scarcely explored when it comes to gender and innovation.

Did you know ...?

Women are underrepresented as innovators

Women are only represented in one in ten innovation projects in the European Union. For innovation teams, Norway is behind the EU average, in which almost half of all innovation teams consist of men only.

Women constitute six per cent of the share of patent applications in Norway

In 2019, women constituted only six per cent of all patent applications in Norway. The proportion of women is lowest in the field of engineering, with less than three per cent, and highest among solutions related to agriculture, aquaculture, nutriment, clothing and footwear, furniture and household articles.



(Photo: iStockphoto)

Introducing gender “from above” in a regional innovation policy programme

In order to promote regional innovation, knowledge development and value creation the Research Council of Norway (RCN) established a programme called “Programme for Regional R&D and Innovation [Virkemidler for Regional FoU og Innovasjon], abbreviated VRI (2007 – 2016)”. In 2008, the gender perspective on innovation was implemented in the programme. Projects with funding from VRI were required to draw up action plans for improving gender imbalances in projects and account for the present situation in terms of gender representation.

Several studies have analysed the VRI programme in a critical gender perspective. Studies conclude that when gender was implemented in the programme at the national level, it was mainly understood as a variable (e.g., gender differences in numbers) with little significance for innovation. When the requirement for action plans for gender balance was introduced, it was vaguely formulated and lacked explanations for why gender was important. As a consequence, the strategy, on the regional level, was primarily to count the number of women and men; in other words, a continuation of the understanding of gender as a variable rather than a qualitative aspect of activities and decisions. Despite the critical analysis of lacking gender perspectives in the VRI programme, researchers have emphasised that the requirement to include gender had a certain influence on the programme.

Source:

The Research Council of Norway, 2016.

Kvidal, Trine og Elisabet Ljunggren, 2014.



(Photo: iStockphoto)

Further research

The research literature points to several areas in which there is need for more research:

- To what extent could the requirement for excellence conflict with the Norwegian gender equality model, which is based on the possibility to combine careers and care responsibilities?
- Statistics show that the proportion of women in the STEM fields has decreased in Norway as a consequence of the recruitment of more male researchers from abroad. It remains to be explored whether the content of the research is impacted by the fact that nearly one in three researchers in Norway today are internationally recruited.
- What is the significance of the interplay between gender, ethnicity, immigrant background and other differential mechanisms for the lack of gender equality and diversity in the research and innovation sector?
- Why are descendants of immigrants underrepresented in the research sector, and is gender also significant here?
- What are the consequences of the restrictions introduced during the pandemic for gender equality and gender balance in the research sector?
- What are the consequences for the work environment and organisational culture that some male-dominated industries are so closely associated with innovation?
- What significance would a broader understanding of innovation have for gender balance in innovation teams and for gender perspectives in innovation?

About Kilden genderresearch.no

Kilden genderresearch.no is a national knowledge centre for gender perspectives and gender balance in research. We disseminate and promote research on gender and function as a meeting place for everyone interested in research on gender and equality.

Questions or comments? Please feel free to contact us at post@kilden.forskningsradet.no

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