UNIVERSITY OF LJUBLJANA
SCHOOL OF ECONOMIC AND BUSINESS

MASTER THESIS

AN ANALYSIS OF GENDER GAPS AND THE LEAKY PIPELINE IN THE ACADEMIC FIELDS OF ECONOMICS AND BUSINESS IN SLOVENIA

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AUTHORSHIP STATEMENT

The undersigned Maša Žnidaršič, a student at the University of Ljubljana, School of Economics and Business, (hereafter: SEB), author of this written final work of studies with the title An analysis of gender gaps and the leaky pipeline in the academic fields of economics and business in Slovenia, prepared under supervision of assoc. prof. Tamara Pavasović Trošt, PhD.

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LIST OF ABBREVIATIONS

ACHE – (sl. ameriški kolegij vodstvenih zdravstvenih delavcev); American College of Healthcare Executives
BIGI – (sl. osnovni indeks neenakosti spolov); Basic Index of Gender Inequality
CEO – (sl. glavni izvršni direktor); Chief Executive Officer
EIGE – (sl. evropski institut za spolno enakost); The European Institute for Gender Equality
GARCIA – (sl. označevanje spola v akademiji in raziskavah, ki združujejo karierno nestabilnost in asimetrije); Gendering the Academy and Research combining Career Instability and Asymmetries
GDI – (sl. usmerjeni indeksi razvoja); Gender - Related Development Indicators
GDP – (sl. bruto domači proizvod); Gross Domestic Product
GEI – (sl. indeks spolne enakosti); Gender Equility Index
GEM – (sl. mera opolnomočenja spola); Gender Empowerment Measure
GGI – (sl. globalni indeks spolne vrzeli); Global Gender Gap Index
GII – (sl. indeks spolne neenakosti); Gender Inequality Index
GPA – (sl. povprečna ocena); Grade Point Average
GPG – (sl. plačna razlika med spoloma); Gender Pay Gap
HBS – (sl. poslovna šola Harvard); Harvard Business School
HDI - (sl. indikatorji človeškega razvoja); Human Development Indicators
ILO – (sl. mednarodna organizacija dela); International Labor Organization
NSF – (sl. nacionalna znanstvena funadacija); National Science Foundation
OECD – (sl. organizacija za ekonomsko sodelovanje in razvoj); Organisation for Economic Co-operation and Development
PhD – (sl doktor znanosti); Doctor of Philosophy
SDG – (sl. cilji trajnostnega razvoja); Sustainable Development Goals
SEB – (sl. ekonomska fakulteta); School of Economics and Business
SIGI – (sl. indeks socialnih institucij in spolov); Social Institutions and Gender Index
SSH – (sl. družboslovje in humanistika); Social Science Humanities
STEM – (sl. znanost, tehnologija, inženirstvo in matematika); Science, Technology, Engineering and Mathematics
UK – (sl. združeno kraljestvo velike britanije in severne irske); United Kingdom
UL – (sl. univerza v ljubljani); University of Ljubljana
UN – (sl. združeni narodi); United Nations
UNDP – (sl. program razvoja združenih narodov); United Nations Development Programme
UNESCO – (sl. organizacija združenih narodov za izobraževanje, znanost in kulturo); United
US – (sl. združene države); United States
WEF – (sl. svetovna ekonomska zveza); World Economic Forum Nations Educational, Scientific and Cultural Organization

INTRODUCTION

In recent times there is boundless interest in the underrepresentation of women in the fields of science, technology, engineering, and mathematics (STEM) and withal, the progress regarding the gender equality in these fields is still slow. The situation with gender disparities gets more severe when examining women's representation within the STEM departments in academia.

During the time, the number of postgraduate degrees has increased within the female population, but the number of women in the STEM field faculty positions remains unchanged. This effect – where gender equality is achieved at certain levels (e.g., secondary, and tertiary education), but then widens along the career progression – is called the scissor effect (Adams & Miller, 2016; Schultz, 2016).

Economists think about the gender gap as a systematic difference in the outcomes achieved in the labor market between men and women. They are often reflected in the percentage of men and women in the labor force, types of occupations they select, and their hourly wages or relative incomes (Blau & Kahn, 1992). In the private sector, this is especially pronounced in the STEM fields, where women are vastly underrepresented in these careers and even in fields where gender equality has been achieved, the "glass ceiling", or underrepresentation of women at the highest positions, persists (Remington & Kitterling-Lynch, 2017).

In academia, even though there are different policies from universities and governments against discrimination and that the gender gap is narrowing at the stage of secondary and tertiary education, the disproportionate lack of women in these fields, especially at the upper end of the profession, is still visible (Emara & Hegazy, 2017).

When trying to recognize why women remain underrepresented in scientific fields, researchers have compared this process with a pipeline and its continuous series of leaks. The leaky pipeline hypothesis contends that in each career step, more men candidates are selected, and more women leave: a phenomenon that is visible in both the private and public sectors, like academia. Consequently, the overrepresentation of men rises by every juncture in the pipeline (Sealy, 2002; Nieuwenhuis, 2021).

The pipeline gender gap phenomena can emerge even before college, as students in high school try to set their career goals based on certain social expectations. These kind of social expectations of gender are deeply rooted and encoded in our society, especially if individuals grew up in a society that embraces traditional gender norms (Ferrero, 2020).

Several arguments have been made to try to explain why the leaky phenomenon persists. One argument, based on evolutionary psychology, is that women have a lower biological

tolerance to stress (Perez – Porro, 2017). On the other hand, many studies have demonstrated that academia itself systematically pushes women out of the field (Bianco, 2016).

These structural factors include, for instance, not providing institutional and individual support for expecting parents (referring mainly to women), which leads to publication gaps, since women at the beginning of the parenthood do not have that much time to be in the lab or to do the research and in this particular period, they may publish less work that the male colleagues who are usually not affected by the parenthood to the same extent as women are (Perez – Porro, 2017).

Research has also examined the actual academic output by gender, which shows that women in general publish fewer scientific papers, and when they do it, they are usually published in less prominent journals (Lerchenmueller & Sorenson, 2017; Tartari & Salter, 2014). Women also receive fewer citations in comparison with articles written by male academics and are also less often co- authored. These differences in publication can play a major role when it comes to research record, which is the deciding factor when hiring or promoting people in academia (Guarino & Borden, 2017).

An additional argument is that traditional gender roles, even in the academic sector, mean that female academics are more frequently given mentoring roles, committee assignments, and work that is not "promotable", while having less time for the kind of work that leads to advancement in the academic field (Guardino & Borden, 2017; Witteman, Hendricks, Straus & Tannenbaum, 2019).

Finally, studies have demonstrated the persistence of direct bias discrimination, wherein women are less likely to be selected than men for academic positions, partly due to bias that they will take time off research for their family or will not be able to demonstrate the commitment required for the job (Kosmač, 2017). A study from United States (US) conducted in 2014 has shown that on the identical resume the women's name led to fewer job employment offers in a selected university and lower salary, as it did with the male name (Tartari & Salter, 2014).

As reviewed above, many studies and research on the gender gap and leaky pipeline in academia have been done for the STEM field, while very few studies examine this phenomenon in the field of economics and business. Therefore, the purpose of this thesis is to research whether women in the field of economics and business face similar obstacles when trying to climb up the academic ladder and achieve the highest positions.

The findings of my research will help understand the challenges and barriers that women face in different academic fields, how these challenges differ among various academic fields, and provide suggestions that would help unify the possibilities for success of both genders

in academia. This would be useful for both leaders of universities, as well as the government of Slovenia in its pursuit to achieve better gender equality.

In line with this purpose, the goals of the thesis are:

- To compare the scissors phenomena in STEM with the field of economics and business and determine differences in gender gaps across academic fields (based on the scientific literature).
- To determine whether there are mechanisms that allow women to stay in academia across different fields (based on secondary data collection).
- To analyze the gender dynamics at the School of Economics and Business (SEB), University of Ljubljana (UL), and explore how the gender structure changes from the first year of undergraduate studies, through doctoral training, to the assistant and full professor level (based on primary data collection);
- To provide suggestions for potential changes that allow more women to remain in academia at the higher career levels.

The thesis is based on primary data obtained through semi-structured in-depth interviews with six women employed at SEB. Two of the women interviewed are young researchers/assistants at the faculty, two assistant professors and two full professors.

The master's thesis is structured in such a way that the first part of the thesis is the theoretical part (based on a review of the scientific literature and selected secondary data) and the second part of the thesis is the empirical part (based on primary data collection - semi structured interviews).

In the theoretical part in the first chapter, we define the concept of gender equality and gender equality as one of the seventeen Sustainable Development Goals (SDG), measurement of gender equality, the concept of glass ceiling and leaky pipeline (in private and public sector) and mechanism that allow the phenomena to exist. We continue with the second chapter where we describe gender equality across educational fields, glass ceiling and leaky pipeline globally and in Slovenia, gender equality in STEM fields and in the field of economics and business. We conclude this chapter with mechanisms that are in favor of women to stay in academia and obstacles for them.

The second part is the empirical part, where in the third chapter we firstly describe the sample and data collection procedure, following the research design format and data analysis of gender gap and leaky pipeline at SEB. The fourth chapter describes the results and findings of the research, and the thesis concludes with the fifth chapter where we discuss implications in a form of key findings, limitations of the research and potential for further future research.

1 GENDER EQUALITY AND THE LEAKY PIPELINE

1.1 Defining gender equality

Gender equality becomes reality just as all genders are being treated fairly and have equal opportunities – this human right issue is being very complicated for every country. When referring to gender equality, we do not mean that men and women will become the same, but that their rights, responsibilities, and opportunities in economic, political, education and health aspects will not be based on whether they were born male or female.

The critical aspect of attaining gender equality is women's empowerment. It contributes to her sense of self – worth, her access to resources and opportunities, her decision - making power, ability to effect change and her ability to control her own life inside and outside the home. However, gender issues are not only related to women alone, but also on the relationship between women and men in a particular society. The attitudes and actions of boys and men play a very important role in achieving gender equality.

Gender equality focuses at its core on the fact that the needs, priorities, and interests of both genders are taken into consideration. Equal treatment of men and women is not only seen as a human right issue but also as an indicator of and precondition for a sustainable people – centered development (European Institute of Gender Equality, 2021).

Guaranteeing women their rights and giving them opportunity to reach and utilize their full potential is not only necessary for achieving gender equality, but also for being successful in meeting a wide range of SDGs (United Nations, 2022).

The roles being played in society by men and women are not biologically determined, but they are socially determined, being changeable and are changing. They are usually justified as being part of the culture or religion and may also widely vary between different locations and over time (United Nation Population Fund, 2018).

Expectations about behavior and attributes that are appropriate to men or women and the nature of their relations is usually shaped by culture in which they belong. Gender relations and their identities are a critical aspect of culture since they shape the way people live daily, interact with the family, and function in the wider community or workplace. The cultural meaning that is given to men and women can be evident in the division of labor (men's work and women's work). The prevailing social structure is more oriented towards the fact that women are caregivers in the family and are mostly involved in activities within the household. Due to that, the participation of women in attaining higher education, leadership roles or decision-making roles is lesser (Mrevlje, 2020).

This gender disparity can be a barrier in the country's growth rate. When the participation of women in the workforce increase, this consequently increase the economic growth rate of the country. As a result, the gender equality has a positive effect on overall wellbeing of a particular nation along with their economic prosperity. When both genders are entitled to similar rights and opportunities, a society develops better in all aspects. Equal rights in health, politics, decision making, profession, infrastructure etc., will certainly advance our society to another level (Vedanta Zic International, 2019; Schalkwyk, 2000).

In the corporate workplace, gender equality brings financial benefits to companies. When seats of corporate boards are occupied more gender – equal, companies can easily adapt to the behavior and attitudes of whole population and not only one half of them. When women participate in politics, their perspectives can be better reflected in decision – making and legislation. Based on the evidence from international research agencies, if there is a significant number of women parliamentarians, previously unaddressed issues will come to the force, or at least those regarding the access to healthcare, pay equity, violence against women or education (Schalkwyk, 2000).

The New York Times Glass Ceiling Index for the year 2018 found out that there is more US Democratic governors and Republican senators named John than there are women occupying the same positions. Very similar case can be given regarding the business leadership where the index identified as many men named John as female peers heading Fortune 500 companies – being 5 per cent in both cases (Cain, Quealy & Sanger – Katz, 2018).

The Global Healthcare 50/50, another gender equity initiative, sent out a call for volunteers where 60 people came forward and 59 of them were women. This shows that it is a duty of women to change entrenched power structure, which can be very difficult since there are fewer women on top positions than men. The way to ensure that women should be given equitable opportunities to fulfill their potential in the workplace is to frame gender equity issue as a good that benefits everyone in society. This is not a zero – sum game but responsibility that is shared among everyone in society to create a society that works for all (Cain, Quealy & Sanger – Katz, 2018)

Based on the research done by World Economic Forum (WEF), it will take approximately 108 years to achieve gender parity. The biggest disparity is being found in economics and political empowerment (World Economic Forum, 2018).

According to the recently published report Women, Business, and the Law 2021 by the World Bank, only ten countries in the world offer women full legal protection. This report measures regulations and laws across 190 countries impacting women's economic participation in eight areas – workplace, mobility, marriage, pay, parenthood, assets, entrepreneurship, and pensions. Women are given only ¾ of the legal rights that are given to men. Higher development growth and progress can be attained only when women and

men are entitled to equal opportunities. Women are often burdened whether they will be given equal right as male peers to education, health, economic independence, decision making process or terms of wage (World Economic Forum, 2018; World Economic Forum, 2022).

1.1.1 Sustainable development goals

Gender equality as a fundamental human right is also necessary foundation for a sustainable, prosperous, and peaceful world. In 2015 the United Nations Member States adopted the SDGs, representing a universal call to action to end poverty, spread peace among people and to protect the planet by 2030 (United Nations, 2022).

There are 17 SDGs, and they are mutually dependent as the act in one area affects what will happen in another area. In this call to action plan the 5th goal among 17 goals, is called Gender equality. The aim of this goal is to end the discrimination against girls and women, which is crucial for sustainable future, since empowering girls and women will help both economic growth and development. Under this mentioned goal, they are going to strive to address the following issues: gender pay gap, gender employment gap, proportion of women's seats in the national parliament and the proportion of women in management positions (United Nations, 2022).

Despite the fact that the situation regarding gender equality has seen a remarkable progress in the last 20 years and there are more girls going to school, fewer of them are forced into marriage before being 18 years old, more of them are serving in parliament or on leadership position and the law is being reformed to move closer to gender equality in comparison to 15 years ago, there are still some major inequalities with women being systematically denied the same work rights as men (United Nation Population Fund, 2018).

Although there are many international agreements that are affirming girls and women's human rights, the chance of women being poor, and illiterate is still greater for them than for men. Generally, women have less access to property ownership, training, and employment, getting a credit and are less likely to be politically active in comparison with men (UN Women, 2022).

Some fact and figures on gender inequality identified by UN:

- For every dollar that men get, women earn only 77 cents for the same work,
- There is 2.6 times more domestic work and unpaid care done by women in comparison with men,
- Gender parity in primary education has been achieved by two thirds of developing countries,
- Around 750 million girls and women globally, were married before being 18 years old,
- In 20 countries, husbands can legally disable their wives from working,

- In 40 countries, the inheritance rights of sons and daughters are not equal,
- 50 countries worldwide lack laws that protect women from domestic violence (1 in 5 girls and women have experienced sexual or/and physical violence from their intimate partner in the last 12 months),
- Representation of women in national parliaments is only 23.7 per cent,
- Only 13 per cent of women are agricultural land holders.

Women's equality and empowerment requires urgent actions for elimination of different roots causing discrimination and disabling women to prosper either in private or in public sector. The first step towards achieving this goal would be the change in laws and legislation. Discriminatory laws need to be changed and legislation on the promotion of gender equality must be adopted. Currently there is more than 100 countries who have taken actions and allocate budget resources for gender inequality problematic. (United Nations, 2017; UN Women, 2022).

1.2 Measurements of gender equality

Measures of gender equality and/or inequality are employed to quantify the gender equality concept. Gaps between women and men are usually difficult to quantify and pin down.
They represent statistical tools with more than 300 different indicators that are used to measure gender gap together with several prominent composite statistics - indexes.

The most prominent measurements of gender equality are from United Nations Development Program's (UNDP) - Gender Empowerment Measure (GEM) and Gender Inequality Index (GII) and were introduced in 1995. More recently introduced measures are the Basic Index of Gender Inequality (BIGI), Gender Equality Index (GEI) from Social Watch and the Social Institutions and Gender Index (SIGI) developed by Organization for Economic Co – operation and Development (OECD) development center in 2007 (Resource Watch, 2019; European Institution for Gender Equality, 2022).

This compound measures take into consideration different indicators (individual measures) of specific phenomena, such as life expectancy, literacy rate, participation in labor force, government positions and combine them into index. Thus, with respect to certain indicator it includes, each index differs (European Institution for Gender Equality, 2022; World Health Organization, 2022).

1.2.1 Gender – Related Development Index (GDI)

Gender Development Index (GDI) is a composite index measurement that focuses on human development achievements by taking into consideration disparities between men and women in three human development dimensions: education, long and healthy life and a decent living standard. It is extended from Human Development Indicator (HDI) and cannot be used

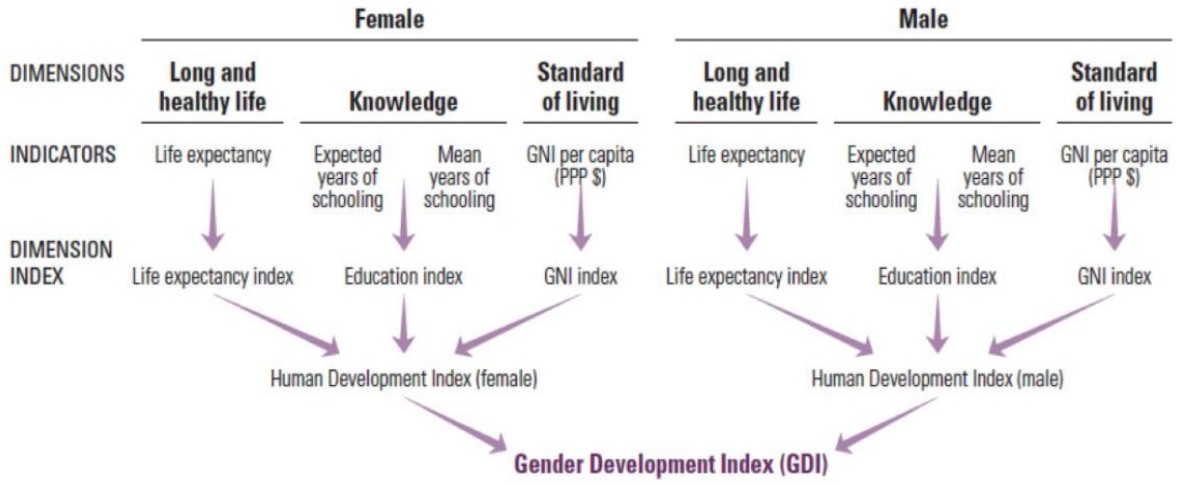
independently of HDI. The GDI displays by how much are women "lagging behind" and how much do women need to catch up with dimension of human development based on their male counterparts. It is a very useful tool for discovering the real gender gap in human development and can also be very informative for designing policy tools for closing the gap (Human Development Reports, 2022a).

To get the dimension indexes, different indicators must be taken into consideration. The education dimension is being measured as the mean of expected years to be spent for schooling for children being of school entering age and the mean of number of years spent schooling for people aged 25 years or more. The long and healthy life dimension is evaluated by life expectancy at birth and the decent living standard dimension is assessed by gross national income per capita (Human Development Reports, 2022a).

In the final step of the measurement process, the output of this assessments is the HDI for each gender separately, which is used for the calculation of GDI. As it can be seen on the Figure 1, the GDI is the ratio of the HDIs and is calculated separately for males and females using the same methodological process as in the HDI. It directly measures the gender gap, and it shows it in a form of female HDI as a percentage of male HDI (Resource Watch, 2019).

Index is calculated for 167 countries, which are later divided into five different groups based the gender parity deviation in HDI values. The grouping takes into consideration gender gaps by favoring females as well as males (Human Development Reports, 2022a).

Figure 1: GDI measurement process



Source: Human Development Reports (2022a).

1.2.2 Gender Empowerment Measure (GEM)

Gender Empowerment Measure (GEM) is a measurement that focuses on inequalities between women's and men's opportunities in a particular country and it takes into consideration 177 countries. It combines inequalities in three different areas: power over economic resources, decision making and political participation, and decision making and economic participation. GEM measurement is considered as a valuable policy instrument, since it allows for certain dimensions to be compared between countries which can result in the international comparisons (World Health Organization, 2022).

Three basic indicators have to be used in order to determine GEM: (1) political participation and decision making is measured by the percentage share of seats held in parliament of both female and male; (2) economic participation and decision making is measured by percentage shares of men and women under each of these indicators: technical and professional positions and legislators, managers and senior officials; (3) authority or power over economic resources, measured by the contribution of income earned by men and women (Human Development Report, 2022b).

However, when the assessment of indicators is complete, the pair of gender percentage for each area must be combined into Equally Distributed Equivalent Percentage (EDEP) which penalize the inequality or reward gender equality. This is than calculated as harmonic mean of the two components. The essence of GEM is shown on the Figure 2 (Schrunti, 2015).

Figure 2: The essence of GEM

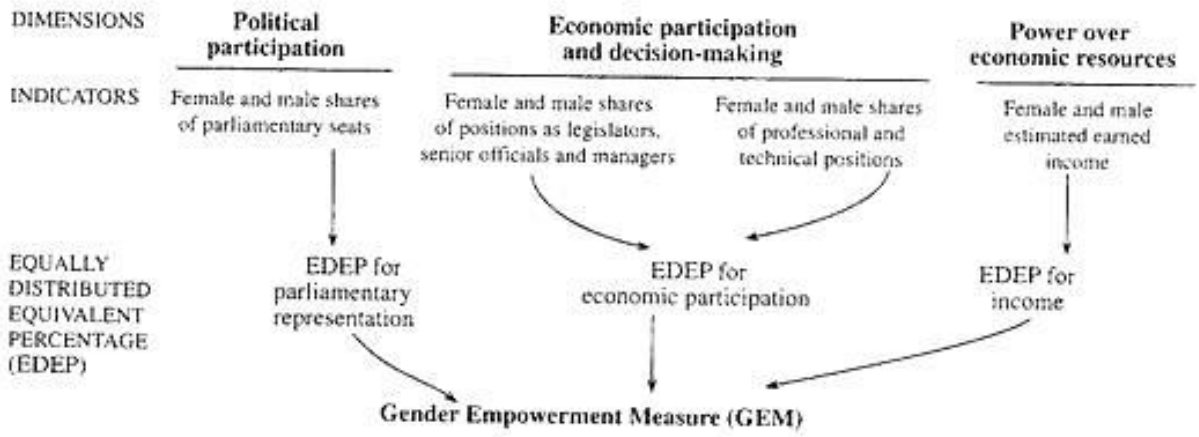


Fig. 5.3 : GEM

Source: Schruti (2015).

1.2.3 Gender Equity Index (GEI)

Gender Equity Index (GEI) was developed to monitor the evolution of gender equality and to make gender inequality more visible around the world. The three gender inequality indicators that are selected and consequently classify countries into rankings are education, empowerment, and economic participation. The values of index are ranging from 0 to 100, where 0 is perfect inequity and 100 is perfect equity. In general, this index measures the inequalities in men and women's everyday life in different areas, all around the world (European Institution for Gender Equality, 2022; Human Development Reports, 2022c).

Calculation of GEI is reflecting different situations that are unfavorable for female. If there is situation where women are at proportional disadvantage in comparison to men, the GEI will not reach maximum value (of 100 points). Calculation of the final value of the index will depend on the level of negative inequality prevailing for women in a particular region or country regardless of the level of inequalities that are positive for women (negative for men) (European Institution for Gender Equality, 2022).

Based on the ranking done so far, there is no country among all selected countries (158 countries), where women would enjoy the same opportunities as men, even though the country is low or high – income country (European Institution for Gender Equality, 2022).

1.2.4 Global Gender Gap Index (GGGI)

Global Gender Gap Index (GGGI) is an index that represents the central part of the Global Gender Gap Report published by World Economic Forum (WEF). This index was designed to measure gender – based gaps regarding the access to opportunities and different resources, rather than actual levels of opportunities and resources available (World Economic Forum, 2022).

This index is published annually, and its main purpose is to review the magnitude of disparities between genders and track the progress from year to year in this area. GGGI is being used as a benchmark for comparing annual results of different countries to see the progress of gender quality over time (World Economic Forum, 2022).

GGGI captures the gap between women and men across four key areas (subindexes): political empowerment, economic participation and opportunity, educational attainment and health and survival for 153 countries. Each of these four subindexes is composed of different indicators (14 indicators in total) and various sources of data. Index scores are determined by taking into consideration different situations where women are being in disadvantage position relative to men.

The score from 0 to 1 is given to a particular country, where 1 indicates full equality between men and women, whereas 0 indicates full inequality between them (Resource Watch, 2021).

Even though gender equality is necessary for a prosperous, peaceful, and sustainable world and that women do represent half of the population worldwide, they remain underrepresented in the workplace and in leadership positions. Based on the GGGI for the year 2018, only 34% of global managerial positions is being held by women, whereas the largest gender gap was captured in political empowerment (World Economic Forum, 2022).

1.2.5 Social Institutions and Gender Index (SIGI)

The Social Institutions and Gender Index (SIGI) from the OECD development center is intendent for measurement of discrimination against female in social institution worldwide across 180 countries. It takes into consideration different indicators such as social norms, practices, and laws while it tries to identify the underlying drivers for gender inequality. The aim of SIGI is to identify drivers of inequality and transform the policy to achieve greater equality (OECD ILibrary, 2022).

The SIGI is also trying to demonstrate the correlation between discrimination and development. High level of discrimination in social institution usually translates into slower development and performance of a particular country and consequently lower level of gender equality (OECD ILibrary, 2022).

SIGI is a composite index which scores countries based on 14 indicators, which are grouped into five sub – indices. Each of these sub – indices measure one social institution dimension related to gender inequality. These values are between 0 and 1, where 1 is indicating a perfect inequality and 0 is indicating no inequality (Land Portal, 2022).

1.2.6 Measures of gender equality for Slovenia

With respect to gender equality, Slovenia is ranked 7th among 144 countries according to the report from World Economic Forum (WEF). Based on the data from European Institution of Gender Equality (EIGE), Slovenia scores among the best countries among European Union member countries with respect to gender equality between men and women.

Based on the identified results in the Table 1 below, we can see how Slovenia is ranked based on the indexes measuring gender equality but taking different factors into consideration. Slovenia ranked the highest under the GDI index, which means that it is at the very top of the countries where the gap between men and women is very small. The result of Slovenia under the GEM index is still exceptional, but of all the indices, Slovenia is ranked the worst there (relative to the results of the other indices), which shows that men and women

can engage in decision-making and actively participate in economic and political life to a very similar extent.

Table 1: Table of indices for measuring gender equality for Slovenia

Index	Year of the last known report	Value of the index	Number of countries taken into consideration	Slovenia's ranking	Index interpretation
GDI	2018	1.003	166 countries	4th place	Slovenia was grouped into the Group 1 among five groups (Group 1 is closest to gender parity and Group 5 is the furthest from gender parity)
GEM	2009	0.641	177 countries	34th place	Index that equals 1 indicates that full equality between men and women has been reached. As this number is closer to 0, inequality increases.
GEI	2022	67.6	28 countries (EU)	11th place	This index gives Member States of EU a score from 1 to 100. Score of 100 means that the country had reached full equality between men and women.
GGGI	2020	0.797	153 countries	12th place	Measuring a gap between men and women with highest possible score of 1 indicating equality or better position for women.
SIGI	2019	12.9	120 countries	8th place	This measurement of gender-based discrimination place 0 to no discrimination and 100 to full discrimination in a particular country.

Sources: Resource Watch (2019); Human Development Reports (2022).

1.3 The glass ceiling and leaky pipeline phenomenon

A phrase glass ceiling refers to artificial restraints and invisible barriers made up of prejudices and stereotypes that prevent women from accessing the highest positions of decision-making and leadership in organization being either public or private in any field.

C. Himowitz and T. Schellhardt were the first to use the term glass ceiling in the 1986 Wall Street Journal and since then, the glass ceiling has been used as a metaphor for informal and nowhere explicitly defined but distinctly strong and difficult to overcome obstacles regarding the mobility within organizations. The term 'glass' is used because these barriers are not clearly visible and are usually associated with maintaining the status quo in organizations, as opposed to transparent and equal opportunities for career advancement in the organization for both men and women (Kanjuo - Mrčela, 2007).

In literature the metaphore leaky pipeline is used to describe women in science that leave academia at a greater rate than thier male peers. The image of a pipeline thus represent a set of employment and educational stages from which s science career comprise of. The implication of this phenomenon is to increase the representation of women in science and in order to do so, policies must be structured in a way to patch the leakage where the pipeline loses more female than male colleagues (Kanjuo - Mrčela, 2007).

Kanjuo - Mrčela (2007) points out that the glass ceiling is a characteristic obstacle to the advancement of women in the business world. The author emphasizes that glass ceiling is more intense at higher levels but present at all levels within the organization, and that they are difficult to tear down.

The phenomenon of the glass ceiling can be attributed to cultural and economic factors in a society. It defines the point where there are no objective reasons for women not to advance to the highest positions. Competent and qualified women see through the glass ceiling and are aware of what they can achieve, but invisible obstacles prevent them from doing so (Weyer, 2007).

According to Houser (2019), the glass ceiling consists of organizational as well as individual barriers that prevent capable women from realizing their full potential at work. These barriers have a long tradition and are very complex, and many organizations and many individuals are often unaware of their presence. Author also argues that the glass ceiling concept does not explain the institutional barriers that women encounter in advancing. Thus, according to him, this term glass ceiling primarily describes the presence of inequality and does not explain it or justify it.

Di Gregorio (2019) cites family obligations, research productivity, discrimination and (ignorance) of habilitation criteria as factors influencing hidden barriers to women's career advancement. In the literature, various factors for the appearance of the glass ceiling are listed, e.g. obvious gender discrimination, incompatibility of family and professional roles, gender differences in lifestyle choices, self-exclusion, traditional division of household chores and responsibilities for childcare, lower self-esteem and poor self-esteem of women,

less support from family, mentors and colleagues, sexual stereotyping, sexism, disparagement gender differences and bias in recruitment and selection procedures.

Kanjuo - Mrčela (2007) also uses the term glass architecture, which is based primarily on stereotypically defined work and organizational roles of men and women and on gender-specific organizational culture and work organization. This invisible, gender-specific architecture consists of glass ceilings, glass elevators and glass mirrors. According to the author, the existence of an invisible organizational "architecture" can explain the phenomenon of a small number of women in the highest positions of organizational power (glass ceilings) or sexual segregation in individual work areas (glass walls). So, glass ceilings they are also based on glass walls; compared to men, women often enter organizations in positions and jobs that are feminized (e.g., education, social welfare, nursing, etc.) and turn out to be "dead ends" in terms of promotion. The metaphor that sums this up is called the glass elevator which allows easier, preferential access of members of privileged social groups to positions of power (Bandelj, Mrčela, Penner & Peterson, 2012).

Gender-determined hierarchical structure of organizations is thus expressed in the easier promotion of men to leading positions, even in highly feminized environments in which male gender represents an invisible advantage. Some authors mention another metaphor called glass mirrors, which are supposed to help women remove obstacles on their way to the highest positions and eliminate the problems they encounter there. The author believes that women should turn glass ceilings into glass mirrors of their reflections on what is expected of people in the highest positions, and thus actively contribute to changing the implicitly applied organizational rules (Weyer, 2007).

A minority of women who "break - through" the glass ceiling and come to positions that woman usually see but do not reach are often not in solidarity in their new role and do not support women in lower positions. Thus, a British study revealed a low level of solidarity of older women occupying the highest positions in the academic hierarchy with younger colleagues in lower positions. One explanation for such conduct is the claim that you survive in academia only if you participate in the reproduction of already established power structures (Mensah & Kiernan, 2010).

Thus, the phenomenon of the leaky pipeline exists and sums it all up in the form of this metaphor which describes the way organizations find themselves in a continuing loss of female talent. On every higher rung of the career ladder, fewer women are present, and they disappear like continuous series of leaks in the pipeline (Mensah & Kiernan, 2010).

1.3.1 The glass ceiling and leaky pipeline in the private and public sector

Women usually confront the glass ceiling phenomenon during their careers when it comes to areas of work authority, trust, prestige, wages where they are still left behind in terms of

duty and responsibility. This is most often expressed by preferring male worker in the organizational structure.

In literature the term glass ceiling is largely connected with the private sphere since many well-paid jobs worldwide comes from the private sector, but we cannot neglect the phenomenon also in the public sphere.

Public sector accounts for 10 to 35% of total employment when considering countries from OECD community. On average the share of female employees in public sectors is higher than in private sector, with 65% of them working in public sector (and many sub - sectors such as education and local government) and 35% of them working in the private sector (Eurostat, 2022).

The Gender Pay Gap (GPG) that explains the differences between female and male average earnings is much lower in the public sector. The GPG for full time employees is half of that in the private sector. Women who are employed part - time are dealing with pay penalty in both sectors (still lower in the public sector). The worst part - time jobs are still better paid in public sector where hourly wage goes up to 9.98 US dollars and 7.00 US dollars in the private (Eurostat, 2022; Roseberry, Remke, Kleasson & Holgersson, 2016).

Even though the female part of the population represents the smaller share of employment in comparison with men in both sectors, the public sector seems to be one step ahead in achieving gender parity. Higher proportion of women in the public sector is not the consequence of the fact that the government would favor women, but it derives from the women's side and the fact that they choose to work in the public sector. This can be assigned to work - life balance policies that are greater in public sector in comparison with private sector e.g., the working hours are usually regular in comparison to longer hours in private sector, maternity leave is paid for longer period as it is in the private sector and the far future is more secure since the public sector pays relatively good pensions even though women's careers may get interrupted meanwhile. However, this is only one aspect of work - life balance; flexibility to work from home, sick days, holidays etc. is the other part that attracts women to work in the public sector (Shi, Kay & Somani, 2019).

The gender pay gap in the public sector is 10 percentage points lower in comparison with the private sector. In general women's average wages are only 86% of the wage that is given to her male peers in the public sector and even lower, only 76% in the private sector. Despite the inequality of payment for the same amount of work done by either gender, the greater wage equality is seen in public sector. This can be explained with the fact that wages from public sector are highly regulated which consequently leads to the fact that women favor working in the public sector (Eurostat, 2020).

While women remain very well represented in the public sector, they remain underrepresented at the top. In the public sector less than 30% of senior positions is occupied by women and more than 60% of them occupy clerical positions.

To achieve greater gender parity in the workplace the formation of policies would need to aim towards improving women's representation at the top and address occupational segregation more often. But in general, public sector have specific policies for promoting gender equality and serves as a benchmark for better gender equality policies for private entities (Roseberry, Remke, Kleasson & Holgersson, 2016).

1.3.2 Mechanisms that allow the phenomena to exist

The term glass ceiling does not sit between women and executive positions, but it exists even in industries where most entry level employees are women. The mechanisms that allow that this substantial drop off continues with every promotion can be a consequence of different factors (Babic & Hansez, 2021; Schultz, 2016).

Through the model of Elacqua, Beeher, Hansen & Webster, authors researched why are highest levels in organization rarely reached by women managers. According to their findings, different interpersonal factors have an influence on how women are treated differently within the company in comparison to their male counterparts. Therefore, they have examined three different aspects of interpersonal factors that are in their opinion related to the career advancement the most, but on the other hand they can also inhibit or slow down women's progress if they don't have them (Babic & Hansez, 2021; Elacqua, Beeher, Hansen & Webster, 2009)

- Mentoring: individuals supported with mentors, generally perceive more opportunities when it comes to promotion, they do not feel excluded from opportunities and important information and consequently they do not perceive differential treatment among employees. Women's career advancement is negatively impacted by a lack of high-level organizational mentors, as mentoring is an important source of information, according to research.
- Relationship with decision – makers in the company: people often enjoy making friends with people of the same sex that have had similar experience. The issue might then arise between women managers: the "syndrome of the queen bee". This syndrome refers to the perception held by some successful female managers that since they have worked hard to achieve their goals, they believe that other women should put in the same effort to succeed as they did.
- The establishment of informal network of senior managers: members of networks exchange valuable strategic information (about new positions, ongoing projects, managerial decisions, etc.) through the development and use of career-relevant contacts. Women's chances of connecting with high-ranking people and building social networks

are being limited, according to several studies, because they are being placed in positions with lower visibility. This would reduce women's chances of promotion and consequently create the perception of glass ceiling. (Babic & Hansez, 2021).

This study highlighted the importance of interpersonal factors and concluded that the lack of them can have a strong negative influence on female glass ceiling perception.

Elacqua, Beeher, Hansen & Webster investigated further and tried to identify other factors influencing the perception of differential treatment and of a glass ceiling. These authors asserted that in cultures that encourage different treatment and views of men and women, perception of glass ceiling is more likely to be found. Another factor influencing the glass ceiling perception is also implemented organizational culture and their shared beliefs and values that consequently reflect employees' judgments. Two aspects of organizational culture that are related to gender and are also important barriers for women's progression; (1) organizational culture that is male – oriented, (2) perception of incompatibility of roles of manager, mother, and wife (Elacqua, Beeher, Hansen & Webster, 2009).

(1) Gendered culture that marginalizes and excludes women, consists of organizational practices and norms that define and promote values, behaviors, stereotypes, and a vision of leadership and management that are masculine. Masculine qualities are often associated with the image of the manager, which are independency, authority, aggressiveness, and competitiveness. Women who have been for centuries associated with diametrically opposite qualities such as sensitivity, sympathy, listening and collaboration and are being perceived as less committed and capable to manage.
(2) Being a manager requires schedule flexibility not only when it comes to working long hours but also when it comes to travel. In line with this, authors concluded that managers perceive work – life conflict being greater for women counterparts than for male. This belief reduces the perception of women's adequacy in the organization and consequently reduces the probability of their promotion. (Elacqua, Beeher, Hansen & Webster, 2009).

Wright (1991) summarized the Claudia Goldin's book "Understanding the Gender Gap" in which she explained that one of the reasons that women still earn less money than their male peers is that women prefer temporal flexibility over salary. Consequently, they are willing to reject the higher – paying jobs since those jobs usually come with more unpredictable and demanding working hours.

There are some jobs that do not allow temporal flexibility, such as a neurosurgeon where you cannot postpone your operation due to the parent – teacher conference, but on the other hand there is a wide variety of jobs where women work and where the implementation of policies could allow either work from home or let people pick the work schedule as long as they are present for the required business hours (Write, 1991).

The International Labor Organization (ILO) report found out that women generally perform 76.2% of the total hours of care work that is not paid, and it inflicts as much as three times more than men. In this regard, childcare support or care for elderly people should be taken into consideration by companies to avoid high attrition rates among females.

Some suggestions were also suggesting a possibility for father parental leaves not only for women to concentrate on their career but also for fathers to be involved in the child upbringing. The corporate social responsibility is to provide a work – life balance since it is considered as vital part of a healthy work environment which consequently have a great impact on the stress level and overall, well – being (Charmes, 2019).

Akdemir (2020) argued that the mechanisms that allow glass ceiling and consequently the leaky pipeline to exist are divided into three groups: individual, organizational, and social.

– Individual obstacles experienced by women usually arise from personal preferences.
– Social problems arise from gender roles and stereotypes.
– Organizational obstacles consist of components like organizational culture and mobbing.

Kanjuo - Mrčela (2007) had cited different reasons why so few women are in leadership and senior positions.

- The advancement of women in the profession is slower than that of men, also with women who have even higher education than men and in industries that are generally dominated by women – usually the reason for wage gap lies in the fact that college educated women avoid majors that lead to occupations with higher earnings.
- Prevailing stereotypes in a society still put a woman in the role of a housewife who is obliged to take care of the home, which coincides with the male notion of a woman's natural role. No matter what their job responsibilities are, women usually do most of the housework. Forms of career development are oriented towards the male population and do not consider objective obligations related to family and motherhood. Obligations that women perform outside of paid working hours make it very difficult for them to develop careers and to devote themselves to demanding tasks in the workplace. They often achieve their professional success by working much more than men. A woman who has a family must first take care of the well – being of the family members in the optics of androcentric thinking, and professional advancement is of secondary importance
- Lack of self – confidenc*e* in women is usually a consequence of the fact that the upbringing and socialization of women is completely different from the upbringing and socialization of men. Men are expected to be self – confident and strong, to be members of the stronger sex and to maintain culturally educated behaviors that have been passed down from generation to generation for centuries, while women remain representatives of the private, home and children.

- Negative prejudices about women in science and at university still exist, especially about women's emotionality and lower mental capacity, which lead to an underestimation of women's work contribution. Breaking through the glass ceiling can greatly facilitate good mentor guidance.

Johns (2013) also writes about the different reasons that keep women in the background.

- Among the main reasons the author cited an inadequate system of social support which does not allow women to have the optimal conditions to balance work and duty in the household, thus the career progress remain somewhere in the background. Since many countries and organizations do not allow women to work flexibly, they are usually forced to quite job for that time which consequently leads to women either not returning to work or they find it difficult to integrate back into the workflow once they have been absent for some time. Author has also presented the major finding from American College of Healthcare Executives (ACHE) research when preparing annual white paper, where they have reported that on average 48% of male directors meet with other managers at lunch monthly, while there is only 33 % of women directors doing the same in the similar time frame. The report highlighted the importance of the meetings occurred outside working hours.

Chisholm-Burns, Spivey, Hagemann & Josephson (2017) described the reasons that make it difficult for women to get into leadership positions. These reasons can also be defined as mechanisms that consequently lead to a leaky pipeline syndrome which illustrates women dropping out of business or academia.

- Conscious and unconscious biases and gender stereotypes often assign a successful leader title to a male figure (male leadership) and thus subconsciously devaluate women's abilities to lead. If there are women on top positions, they are often under scrutiny and more rigorously assessed. Women thus face a double burden throughout their career since they are largely skeptical in their abilities and knowledge and would like to perform their job very well to advance and on the other hand, they have to overcome stereotypes that could hinder their leadership skills.
- The degree of occupational risk that they are willing to take is more reserved and thus they are less often represented in management. Because of this they are usually assigned fewer demanding tasks, have fewer opportunities to participate in important decisions and receive less recognition for their work contribution since they are operating in the "safe zone".
- As already addresses by other authors the lack of a role model could play a key role in the early career period in a form of sponsor or mentor. If women had a role model in a leadership position, they believe that they could achieve such a position themselves much easier.

2 GENDER DYNAMICS IN ACADEMIA

2.1 Gender equality across educational fields

Enrolment in higher education from female part of the population has tripled globally between 1996 and 2018. Worldwide more women than men are completing tertiary education, with women representing 53% of tertiary graduates, and men 47% in 2019 (World Economic Forum, 2018).

Although, there is more women graduates, men are more likely to participate in the labor market than women, where men labor force represent 75% and women 25%. This can be translated into the statement that men have more opportunities than women, and that proportion of women drops at upper management levels (leaky pipeline) due recruitment bias, promotion bias, organizational culture or need for constant availability. At senior levels men are also more often placed in roles that allow growth and promotion, whereas women are more often placed in roles that have limited upward mobility (glass ceiling) (World Economic Forum, 2018).

Many academic women find themselves caught in a situation where they strive towards ideals of professionalism, womanhood, motherhood, scholarship, wifehood, community membership and teaching. The tension that women feel about being a productive academic and caring woman is widely documented. But this tension between public work and private life is not the only tension that women encounter on their academic journey (Thoreson, Kardash, Leuthold & Marrow, 1990).

Female academics are often put in a situation where they are torn between two things where they want to fully excel, such as research and intellectual scholarship and the teaching component and nurturing and thus they must give more energy and time into their duties that do not affect their overall productivity but rather contribute to their own self-satisfaction (Thoreson, Kardash, Leuthold & Marrow, 1990).

The recently conducted research had shown that the gender gap has decline very little in higher education in recent decade and is very similar to the gender inequality in labor market. Despite the equal access to the academic education that female has enjoyed in recent times, this has not led to the equal outcome in terms of academic position and leadership, payment or research and publication in prominent international journals (Stoet & Geary, 2020).

The question of how we understand or explain the persistence of women underrepresentation at upper academic levels, has been very high on both academic and political agenda. Despite the increasing participation of women at undergraduate and postgraduate levels, their access or appearance on senior position is still limited. Women’s education and workplace diversity

has been seen as contributing to countries development and economic growth. Organizations that can create a corporate culture of equal opportunity are being able to motivate, attract and retain the most qualified individuals (Stoet & Geary, 2020).

The report Women in Higher Education: Has the female advantage put an end to gender inequalities? published by United Nations Educational, Scientific and Cultural Organization (UNESCO) acknowledged the dearth of women among academic teachers and researchers and women at the top positions. Women are being overrepresented among lower educational levels and teaching stuff, but their presence significantly drops in tertiary education. In 2018, there were 43% of women teachers in tertiary education in comparison with 54% and 66% in primary and secondary education. In 2020, only 30% of researchers were women, globally (United Nations Educational, Scientific and Cultural Organization, 2021).

The implicit gender bias is one of the reasons why women at all career levels decide to quit their academic careers. Unconscious evaluations are usually based on social assumptions and cultural patterns of thought, which can all lead to distorted decisions and perceptions (bias). Such an evaluation is based on unconscious assumptions and attributions of social and biological gender, rather than solid information about individuals. Implicit gender bias can have a grave consequence on development of women and men's career. Female researchers tend to receive smaller research grands and fewer rewards since they are usually evaluated more harshly. They are also treated as if they have less research potential which makes them less visible and less suited for a career in science and research, than their male peers (Neyt, Vandenbulcke & Beart, 2019).

Research conducted in 2019 by Dr. Georgina Santos from Cardiff University when she studied 2000 academics across the United Kingdom (UK) 24 top universities showed that those male academics have reached more senior positions than their female colleagues even when parenting responsibilities were taken into account. She compared individuals having similar or identical credentials, qualifications and family circumstances and she found out that the only influencing factor for different academic rankings was gender. Men were holding higher positions in comparison with female academics (Santos, 2019).

These findings were not new phenomenon because similar research was conducted in 2013 at Harvard Business School (HBS) where academics challenged the general assumption of women not achieving leadership positions in that extent as male peers does, due to the maternal and domestic duties. The results from the research showed that childcare is not the reason for women not being promoted, and that the real cause of this barrier emerge from the individual and institutional biases, attitudes of managers, lack of self believe, which together create the metaphor called sticky floor (Santos, 2019; Ibarra, Ely & Kolb, 2013).

As opposed to the glass ceiling, the sticky floor explains why higher levels of management lack women and why the pipeline narrows when they approach the leadership apex. All these

assumption about women having less of an appetite for progressing emerge from unconscious biases, which influence individuals' reactions before even being conscious of their decision. Thus, behavior and actions of people within organizations are a consequence of these assumptions and often lead to the fact that new roles, development opportunities are not even offered to a woman, but they are crucial and very needed part for promotion or raise. This kind of behavior is as likely to occur in politics, business as it is in academia (Santos, 2019; Ibarra, Ely & Kolb, 2013).

A study from Norway and Italy published in the Journal of Informetrics (JOF) showed that female scientists are underrepresented even though they perform just as well as male counterparts in top research jobs. They took into consideration Italian and Norwegian women because the countries widely differ in how men and women share family responsibilities and welfare system. They found out that women in Italy are being more concentrated on the lower part of the academic ladder - representing 18.3% of full professors, 35.2% of associate professors and 47.2% of assistant professors. In Norway, full professors represent 26.1%, 46.5% of associate professors and 41.5% of assistant professors (Romano, 2021).

The findings of the study, according to Ilenia Picardi, a sociology researcher at Università Federico II in Naples who is studying gender gaps in academia, confirmed concerns about the fairness of the career system and suggest that motherhood has a particularly negative impact on the productivity of young female researchers: the beginning stages of a research career frequently coincide with a crucial time when women, more so than men, devote a greater amount of time to family and childcare. Additionally, Picardi points out that indicators frequently "ignore" structural and cultural factors that influence research performance. Over 90% of children in Norway attend kindergarten, whereas only 24% of children in Italy do so. She writes, " Indeed, research performance is influenced by cultural views and different welfare states. (Romano, 2021; McClung, 2022),

2.1.1 Glass ceiling and leaky pipeline in academia globally

Careers in academia and science are still subject to discrimination in the literature according to sex. This is mostly visible in the scissor – shaped curve with disappearance of women on their career path, as they advance which is called the leaky pipeline phenomenon. The Gendering the Academy and Research combining Career Instability and Asymmetries (GARCIA) research project supported by the 7th framework programme of the EU have examined different European countries and their attitude towards scientific/academic careers of women (Shaik & Fusulier, 2013).

At the early stage of scientific career right after the Doctor of Philosophy (PhD) graduation, the gender asymmetry in Italy can be most observable. This usually translates into the increased level of job instability or precariousness experienced by new generation of young

researchers. This situation consequently led to the rise of the competition among new generation of PhD holders, since university system has a limited number of permanent positions that could be offered to young researchers. The pressure for young researchers is even higher due to the limited research positions in the other sectors and low level of employability for young doctorate holders. Women are most often the ones that are in disadvantageous positions since they suffer when it comes to the process of selection and scientific productivity (Hofman, 2017).

At the early stage of women's career, they are not only paid less, but their career positions are also less stable than the ones occupied by their male peers. The research project found out that the main reason for the unstableness of both lies in the influence of personal situation and family on their career path. This problem is even more visible and palpable in the STEM discipline. The instability of job position for young women PhD holders, and later the insecurities of obtaining a permanent position in the academic system rise the importance for women PhD holders to give continuity to their career paths (Shaik & Fusulier, 2013).

The significant advances towards equality of genders are observable in Belgium. Even though women have higher graduation rates than men and that they are in the majority when it comes to higher and university education, the presence of two important reservations is still present. Firstly, obtaining of PhD and the highest level of qualification still dominates by male in majority, and secondly the horizontal segregation between female's track of studies (social and human science) and male track of study (technology and science) is still reproduced (Shaik & Fusulier, 2013).

Women in scientific/academic careers mostly work part time in Belgium (especially in French speaking universities) in comparison to men who mostly work full time. For women this type of positions that are available as part time, are usually in lower academic/scientific posts, such as assistant position. It seems like a general condition that the higher one climbs up the academic ladder the more full - time work is required. This would explain the higher number of male colleagues occupying the full - time position and lower number of female colleagues in professorship or decision - making organs. For women, the full - time presence and high demands in teaching and research are not the only obstacle. The additional pressure comes from institutional investment and presence to integrate into institutional culture and complex system of bureaucracy. This kind of requirement of omnipresence in three pillars (service, research, teaching) has increased in its complexity and demand for personal engagement. This represents an issue and pressure for work/life balance, where on one side women would like to climb up the career ladder, but on the other side they would also have a family life (Shaik & Fusulier, 2013; Hofman, 2017).

There is the lowest number of female full professors in the Netherlands. This can not only be seen in the STEM field but also in Social Science and Humanities (SSH), where the leaky pipeline is present. The number of women in STEM and SSH domain differs on

organizational and national level but there is an overall trend of decreasing number of women in academia at every step in the pipeline, but the biggest leak in the pipeline can be observed at the assistant professor level. Since the Netherlands has the highest number of part – time working women, this could explain the lowest number of female full professors. The prevalence of part – time working model does not pay off to women in academia. The research project also found out that women working in academia at higher range of career ladder usually do not have children or have fewer of them in comparison to women working outside of academia (Shaik & Fusulier, 2013).

In Iceland**,** higher education is dominated by women in terms of numbers. At first, we find this positive, but when we look closer, we see that this only applies because there are so many women working in the field of SSH. Women working in this fields are given low amount of funding, have the biggest workload when examine the teacher - to - student ratio, have the lowest stature and fewest option for a future in academia.

On the other side, STEM fields are mostly dominated by men who receive more funding and enjoy better stature even though this field attracts a significantly lower number of students. Men thus occupy higher academic positions that have the most stature in the society. The leaky pipeline phenomena thus have its roots in broader welfare and gender regimes, since women are generally left with less prestigious societal responsibilities (Shaik & Fusulier, 2013).

Based on the research project it was clear that most of the male population in Iceland feel a need to confirm to masculine ideals due to homo – social environment and they usually end up choosing any kind of technical field not only to be well – paid in the future, but also to confirm their role as breadwinners and family providers. It is also very common for men to opt out from certain careers in SSH field since they are not aligning with their masculine culture (Shaik & Fusulier, 2013).

In Switzerland, gender regimes strongly influence women's career decisions due to high levels of vertical and horizontal segregation, large gender pay gaps especially prominent in the upper level of occupational hierarchy and the undeniable fact of childcare being very costly and childcare provisions being very low. The occupation hierarchy in academic sphere continues to manifest a glass ceiling despite the significant improvement regarding the access to higher education in the last decade.

Although women are well represented among doctoral students and occupy a significant proportion of scientific research positions, they are still less likely to reach the professorship in comparison with their male colleagues. Increasing number of women occupying the scientific occupations and reduction of vertical and horizontal segregation is facing a strong institutional commitment. But in a county with a small number of universities – educated people and relatively well-paid jobs both in public and in private sector (despite the level of

education), Swiss educational institutions do not represent attractive employer (Shaik & Fusulier, 2013).

Around 53% of university students in Austria are women, but there is a significant difference regarding the enrollment rates in STEM and in SSH fields. The highest scientific positions (professors) are in Austrian universities in majority (87%) held by man. There are still major differences across different scientific fields, where in the natural science, engineering and technology women represent only 8%. The major bottleneck in can be identified in the transition path from PhD student to assistant professor. Women researchers in general earn 21% less than their male colleagues, and those not employed as researchers earn more than 27% less than their male colleagues (Shaik & Fusulier, 2013).

Based on the data obtained by National Science Foundation (NSF) for the year 2018, women in United States (US) are earning half of the doctoral degrees in scientific fields, however they still represent not more than 22% of the full professor level (Lerchenmueller & Sorenson, 2019). At the level of university studies and junior positions, there are plenty of women, but later in the career progression, their representation slides. This effect – where gender equality is achieved at certain levels (e.g., secondary, and tertiary education), but then widens along the career progression – is called the scissor effect (Adams & Miller, 2016; Schultz, 2016; Shaik & Fusulier, 2013).

The gender gap differs from country to country: the proportion of men and women in academia at all levels is nearly equal in Central Asia, Latin America, or Island, and far from equal in Netherlands. For Slovenia, the total share of women working in academia stands around 36%. However, across countries, there is a visible lack of women at the highest (full professor) levels (Montoya, 2019).

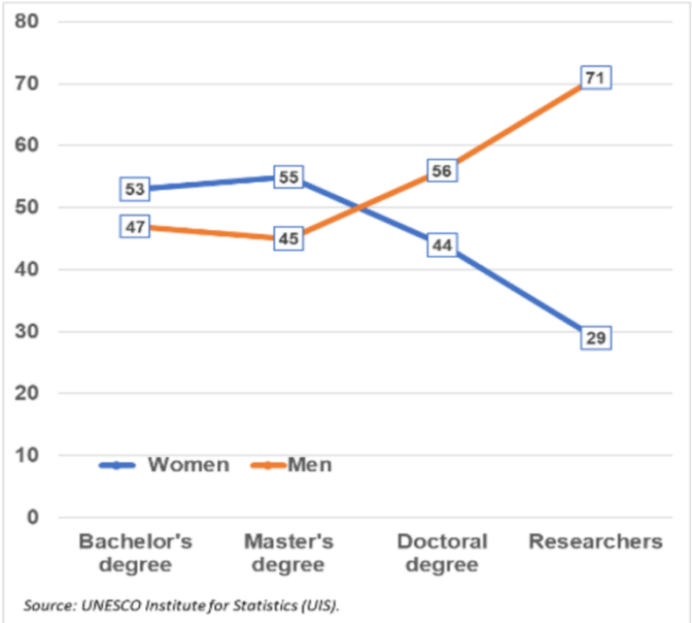
Together the number of PhD graduates and doctoral students clearly indicates the potential research capability in a particular country. The gender split with the doctoral graduates and doctoral students in Italy, Iceland and Slovenia was quite balanced. Opposite of these countries, underrepresentation of women among doctoral graduates was visible in Switzerland, Netherlands, Austria, and Belgium. The persistence of segregation of women and man across different fields of study was observable despite the differences between countries. Switzerland was the only country that reached 25% of women among full professors, while in the Netherlands and Belgium this proportion remain lower than 15% (Shaik & Fusulier, 2013).

Female PhD holders are in disadvantage position in comparison with male PhD holders when it comes to risk of being unemployed, ability to perform development and research activities or being awarded a lower average wage. The phenomena glass ceiling and leaky pipeline can be identified for all countries that have participated in the GARCIA research process; whereby fewer female peers are being recorded when climbing up the academic/scientific

ladder. An important finding during this research process was that the most countries have their bottleneck located either at the doctoral or postdoctoral level and thus having faced a big issue of women obtaining permanent positions (Shaik & Fusulier, 2013).

To sum up all the above, Figure 3 represents the global proportion of men and women in science and technology for the year 2018, where we can see that women outnumber men when attaining both bachelor's degree and master's degree in fields that are science related. Women's participation starts falling at the doctorate level (44% of all students are women) and later at the research level (29% of all researchers are women). As women progress through university ranks, they start to disappear, which results in the "scissors" diagram (Montoya, 2019).

Figure 3: Global proportion by gender in science as graduates and researchers



Source: Montoya (2019).

2.1.2 Glass ceiling and leaky pipeline in academia in Slovenia

Women in Slovenia in recent decade, have massively entered the field of science and higher education. At the end of year 2020, among the residents of Slovenia aged up to and including 69 years old, the PhD title was given to more men than women, and among those who obtained their doctoral degrees more recently, there were more women. The most PhD holders were in the natural sciences. Among PhD graduates 54% were men and 46% were women (Statistical Office of the Republic of Slovenia, 2020).

The gender structure by field of doctoral science shows that men and women chose different study fields, as the proportion by gender differed in most of them. The share of women was

the smallest in technical and technological sciences and engineering. Among all those who received doctorates in these sciences, 22% were women. More women than men received doctorates in the humanities, followed by medicine and social sciences. The proportion of women was highest in the humanities (61%) (Lapuh, 2004; Šmuc, 2016; Hofman, 2017; Šakanovič, 2019; Statistical Office of the Republic of Slovenia, 2020)

- In the bachelor's degree study, women generally prevail among students in health and welfare, education social science, business and law and humanities. On the other hand, man largely prevail in engineering, manufacturing, construction, and science.
- In the master's degree study**,** the gender unbalance continues to persist, but it started slightly to diminish. This would hold true for social science, business and law and humanities and art. The share of women had considerably increased in engineering, manufacturing, agriculture, and construction, but there is still twice as many male colleagues than female.
- In the doctoral study level, women in general do outnumber man in many fields except for mathematics, computing, science, manufacturing, and engineering.

The data show that the share of PhD holders, employed or self-employed in the higher education sector is decreasing (in 2009 there were 54%, whereas in 2012 there were only 49% of them), but in the business and government sectors the number of PhD holders being employed or self – employed is increasing (in 2009 there were 19% in the business sector, and 24% in 2012, whereas 23% in the government sector in both mentioned years) (Statistical Office of the Republic of Slovenia, 2020).

Based on the survey conducted in 1996 from Slovenian National Commission for UNESCO, which included in its sample Assistants, Assistant Professors, Associate Professors and Full Professors from University of Ljubljana and University of Maribor the following barriers regarding the female PhD holders and their academic careers were identified: (1) hidden discrimination; (2) prejudice about women; (3) overload of duties; (4) lack of support from the working organization; (5) overburdens with household work and (6) higher expected efficiency in comparison with their male peers. Although this survey was conducted 25 years ago, based on the current literature review for gender inequality in Slovenia in academic sphere the situation has not significantly changed (Kump, 2010).

Table 2 shows the data about desegregation by gender for bachelor, master, and PhD students for the period 2017-2020 in Slovenia. According to data presented in the Table 2 the presence of women does prevail at all three levels of study in the period of 2017-2020. They are most strongly represented among master's degree students, whereas throughout the same period, the share of women PhD holders comes very close to the share of men PhD holders, even though they strongly outperform men when it comes to completing the master's degree studies (Statistical Office of the Republic of Slovenia, 2020; Statistical Office of the Republic of Slovenia, 2022a).

Table 2: Graduates of tertiary education in Slovenia between 2017 – 2020

	2017		**2018**		**2019**		**20202**	
	Men	Women	Men	Women	Men	Women	Men	Women
Batchelor degree	1854	3250	1790	3081	1726	3019	1819	2969
Master's degree	1755	3394	1834	3591	1732	3387	1607	3071
PhD degree	268	246	212	249	218	259	210	221

Source: Republic of Slovenia Statistical Office (2022b).

When comparing the statistical data about teaching and research staff with the data of PhD students the leaky pipeline on national level as a vertical segregation in academic/science career of PhD holders is clearly visible. Throughout the same period, the share of women as research stuff becomes considerably lower in comparison with male peers. Only 20% of women continue their career to full professorship level (Statistical Office of the Republic of Slovenia, 2022a).

2.2 Gender equality in STEM fields

Throughout the history the list of science and math greatest, is the list of men - Copernicus, Galileo, Kepler, Pythagoras, Hippocrates, Aristotle, Newton, Gauss, Darwin, Einstein etc., with only a few women entering in between, Mead and Curie. The newer fields such as information technology, computer and science are also dominated by men, from Gates to Sanger, Jobs, Collins or Watson. This explains why people associate STEM with men and pursue men as the only successful scientists. The lack of women in this occupation and discipline can have a overlasting implications for society and women itself.

We cannot attribute a dearth of women in STEM to a single cause, nor can we directly link this to biological differences between genders or perceived women's intellectual inferiority. It is rather a result of different societal norms and beliefs that has accumulated in individual's life, education and career stages. According to the European Commission, scientific excellence will never be achieved without better utilization of human resources and gender equality in science. To address the gender gap in science participation, three main pillars were taken into consideration (Alvarez, 2021):

- Barriers to the recruitment process, retention, and career advancement.
- Gender imbalances when it comes to decision-making processes.
- The role that genders plays in research programs.

Although the gender gap in STEM is narrowing, women remain underrepresented as an academic labor force. When trying to explain why the gender gap still exist, research has shown that women generally produce less measurable output in comparison with their male counterparts' due significant differences in working conditions, stereotyping and labor market affecting women's participation in research and higher education. Reducing the gender gap would not only increase productivity and employment of women, reduce skills gap but it would also reduce the occupational segregation. This would consequently have a positive impact on economic growth via increased labor market activity and higher productivity (Alvarez, 2021).

In his research, professor dr. Anders Nelson from Educational Sciences at Halmstad University wanted to show how is gender segregation learned already in the early childhood uncounciously by analyzing 4 – and – 5 year old children and their attitude towards particular toys. He found out that kids do perceive toys as gender specific (science kits for boys and Easy Bake Ovens for girls). This perception is a result of societal and cultural stereotypical ideas of what men and women should be and are society's expecatiton of them. (Nelson, 2008).

Along with gender stereotypes about men being a scientist and women having more modest faminine role in a society, there are also other gender biases that affect kids in the early years, such as gender bias curriculum, gender bias parental expectations, gender bias teacher expectations, gender bias in classrom. As explained in other sections of this master thesis, the gender gap is created even before college, right when students begin to develop their career expectations and ambitions. Then the leaky pipeline phenomena tend to become more visible at bachelor and masters' levels, but it is even more pronounced from the doctoral study onwards or at senior positions where with every additional step up in terms of status and responsibility, women become rare (Nelson, 2008; Alvarez, 2021).

According to the WEF in 2021, the top 25 college degrees by demand and pay were all in STEM fields (top 5: aerospace engineering, construction services, computer engineering, transportation sciences and technologies and architectural engineering). STEM are male dominated fields with a notable skills gap and labor force shortage (Masterson, 2021).

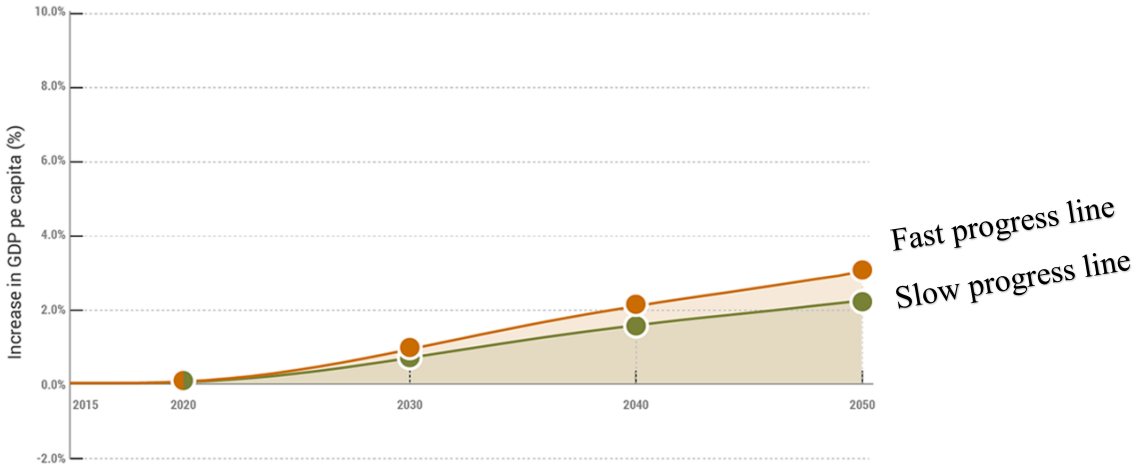
If women could access these well-paid positions in these sectors, it would boost the economy, improve competition, and increase productivity. Bringing the skills gap would positively impact the employment and rise it up from 850.000 to 1.200.000 by 2050. Achieving equality between women and men is one of the EU's founding values. The impact of better gender balance on education, employment and wages would be significant. The gender equality in one domain has a spill – over effect in other domains. With more active measures towards gender equality such as gender stereotypes removal in education, promotion of STEM subject to female population or career guidance for women to consider

studying in male dominated fields, the overall employment rate would reach almost 80% by 2050 in the EU (European Institution for Gender Equality, 2020; Masterson, 2021).

By increasing a women's participation in STEM field, this would have a positive impact at EU level. Closing of gender gap in STEM would increase EU GDP per capita somewhere between 0.7 to 0.9 by 2030 and 2.2 to 3.0% by 2050. To translate this into monetary terms, closing of gender gap in STEM can improve the GDP by 610 – 820 billion euros by 2050 (Charmes, 2019; European Institution for Gender Equality, 2020).

The Figure 4 bellow shows the impact that closing of gender gap in STEM field would have on GDP by the year 2050, where the green line represents the slow progress and the orange one the rapid progress (Alvarez, 2021; European Institution for Gender Equality, 2020).

Figure 4: Impact of closing the gender gap in STEM on GDP by year 2050

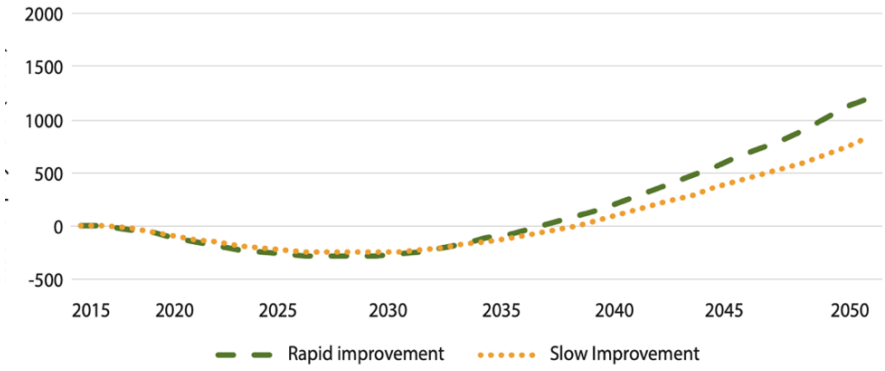


Source: European Institution for Gender Equality (2020).

The new jobs that would be created are likely to be highly productive since women that would graduate from STEM filed would occupy high value-added positions in different sectors, such as finance and business services or information and communication. Higher productivity in STEM jobs would most likely result in higher wages and greater overall wellbeing. Increased employment in STEM would also help to reduce existing bottlenecks and labor market shortage in the labor market (Charmes, 2019).

The Figure 5 shows the impact that would closing of gender gap in STEM filed have on employment by the year 2050 (European Institution for Gender Equality, 2020.)

Figure 5: Impact of closing the gender gap in STEM on employment by year 2050



Source: European Institution for Gender Equality (2020).

However, the gap in so – called STEM subjects only tells us part of the story about women studying science subjects at university. There are plenty of subjects with big gender gaps that favor women, such as medicine with 55.5%, dentistry with 62.0%, biological science 63%, veterinary science 77.3% and nursing 90.5%. Based on that, researchers are rather focusing on why some occupations are so dominated by one gender and how to achieve gender equality among all subjects not only women in engineering or computer science but also men in nursing (Kugler & Tinsley, 2021).

Only 30% of STEM jobs were occupied by women in 2019, worldwide. While the number of women enrolling in universities is growing, many of them opt out on higher levels that are required for a research career. Although some countries are more gender equal than others, this does not mean that women and men enjoy similar interest or occupational choices.

When examining if there are more women in STEM in more gender equal countries such as Finland, Norway, or Sweden in comparison with less gender equal countries such as Turkey or Algeria, the results were quite the opposite. When taking the level of gender equality measured by WEF's GGGI and plotted it against the proportion of women graduates in STEM subjects, there were no country scoring high on both measures. Countries like Finland, Norway or Sweden measured high for gender equality but low for women STEM graduates. For countries like United Arab Emirates, Turkey, and Algeria it was the other way around. There are different explanations for this contradicting outcome like the fact that in less qender equal countries women were never excluded from science in the past, like they were in Europe or North America (O'Dea, Lagisz, Jennions & Nakagawa, 2019).

The research showed that girls begin to lose confidence in STEM subjects at the age of 15 unlike their male peers. By the age of 16, only 25% of girls asked to draw scientists will draw a picture of female. This loss of confidence is not inherent it is a direct result of the

unique issues women face when pursuing STEM education and careers including lack of recruitment by higher education and deployers, stereotypes, implicit bias, and fixed mindset. Nearly half of the women interested in STEM do not know a woman in a STEM career. A lack of female role models is cited by many authors as a major contributor to women's attrition throughout the STEM pipeline (Shaik & Fusulier, 2013; Bidwell, 2015).

In the study Why don't women choose STEM conducted by I. Yatskiv (2017), author researched which social science theories or gender related blocks to women, contribute to their slower progress in STEM careers. The study was conducted with 12 participants with age between 25 and 65 years, from academic and non academic fields (we have to take into account the low number of respondents; statistically not valid analysis) (Yatskiv, 2017).

Table 3: Social science theories contributing to women's slower progress in STEM careers

Social science theory	**Likert scale (1 – strongly disagree, 5 – strongly agree)**
Lack of enthusiasm for STEM field due to traditional beliefs of women being inferior to men.	Score 1: 2 participants Score 2: 0 participant Score 3: 3 participants Score 4: 6 participants Score 5: 1 participant
Softer sciences are prefered field of study for women (philology, management etc.)	Score 1: 0 participant Score 2: 2 participants Score 3: 5 participants Score 4: 3 participants Score 5: 2 participants
Lack of parental motivation.	Score 1: 2 participants Score 2: 1 participant Score 3: 5 participants Score 4: 4 participants Score 5: 0 participant

(table continues)

Table 4: Social science theories contributing to women's slower progress in STEM careers

(continued)

Fear of difficult subjects (physics, mathematics etc).	Score 1: 0 participant Score 2: 4 participants Score 3: 0 participants Score 4: 7 participants Score 5: 1 participant
Working conditions in these industries are being more favourable for men than women.	Score 1: 2 participants Score 2: 4 participants Score 3: 2 participants Score 4: 3 participants Score 5: 1 participant
Gender inequality is bigger at highest levels of an income in comparison to lower levels of an income.	Score 1: 1 participant Score 2: 1 participant Score 3: 5 participants Score 4: 3 participants Score 5: 2 participants
More opportunities for men then women in STEM when in comes to research and industry.	Score 1: 2 participants Score 2: 7 participants Score 3: 0 participant Score 4: 2 participants Score 5: 1 participant
Perception of women being a burdon to the organization due to their reproductive role.	Score 1: 0 participant Score 2: 1 participant Score 3: 2 participants Score 4: 3 participants Score 5: 6 participants
Male oriented attitudes dominate in the management in STEM.	Score 1: 2 participants Score 2: 1 participant Score 3: 2 participants Score 4: 5 participants Score 5: 2 participants
Lack od assertivness and confidence in women in STEM.	Score 1: 1 participant Score 2: 2 participants Score 3: 3 participants Score 4: 6 participants Score 5: 0 participant

(table continues)

Table 5: Social science theories contributing to women's slower progress in STEM careers

(continued)

Stereotyping of what are female roles.	Score 1: 2 participants Score 2: 0 participant Score 3: 3 participants Score 4: 2 participants Score 5: 5 participants
Saxual harresment.	Score 1: 8 participants Score 2: 1 participant Score 3: 2 participants Score 4: 1 participant Score 5: 0 participant

Source: Yatskiv (2017).

The results cannot be generalized, but they are useful in one context. While women generally express satisfaction with their STEM careers, they also face obstacles when entering the STEM workplace, particularly higher educational levels. To address the current causes of underrepresentation, changes in policy and educational methods must be prioritized, and universities and research institutions must make STEM careers more welcoming to female candidates (Yatskiv, 2017).

2.3 Leaky pipeline in Economics and Business

Business schools are no exception when it comes to women underrepresentation pattern. The Financial Times 2019 reported than among top 85 business schools on their European Business School Rankings, there is only 33% of all females employed full time (not only senior professors). This number is even lower (23%) when it comes to top 10 business school list.

The aim of a study conducted by EFMD Programme Accreditation System using multiple methods such as qualitative interviews with senior leaders from four business school from different geographical regions (business schools in UK/Irelands, Scandinavia, Southern Europe and German – language region) and quantitative survey questionnaire including 39 Likert – styled questions focusing on gender diversity at their faculty and their general understanding of the problem, was to investigate the differences among European business school regarding the gender diversity, how senior leaders respond the organizational and social barriers towards gender diversity and effectiveness of policies aiming towards gender equality. The leaky pipeline phenomena have initially focused on STEM field, but the phenomenon is widely applicable on different academic fields not related to STEM.

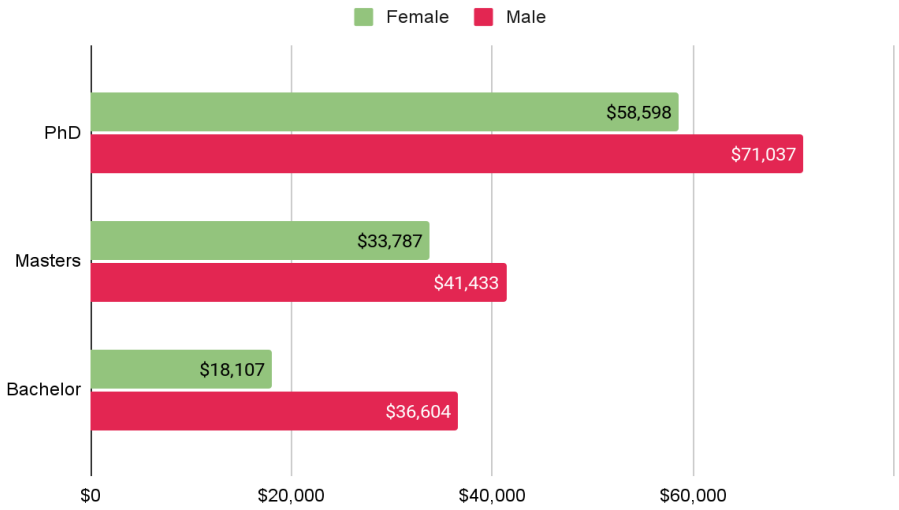
Although, the literature indicates that reasons for women remaining underrepresented or why they stagnate on their career vary among different industries, type of career, personal circumstances of women and cultural context. The reasons for women to struggle in career advancement, especially among business schools are market as complex, multifaceted and interrelated. The researchers came to the realization that senior leaders consider the lack of gender diversity at their faculty either as a problem of the quality of education or reputation of their school, and that this indicates that something is unfair or wrong. They explained that the lack of diversity can be attributed either to social and cultural challenges, such as lack of childcare or to individual challenges which usually translates into the lack of self-confidence. This scenario results with two possible choices for women: stay stuck in academia or exit (Phelps, 2020; European Foundation of Management Development Programme Accreditation System, 2016).

The INOMICS Salary Report have analyzed and collected survey data from economists worldwide. They have estimated that there is 26.2% of economists being women, which classifies economics as male – dominated field. This data can be easily comparable to the STEM field which is historically known for the biggest underrepresentation of women (INOMICS Salary Report, 2022).

Field of economics can be comparable with the field of STEM when it comes to the number of women in the field. The number of women is slightly higher in economics in comparison with engineering and computer science and appears lower when it comes to mathematics and physical sciences. The report also suggested that women are choosing different fields rather than economics not because of the lack of interest but due to unequal treatment (INOMICS Salary Report, 2022).

The INOMICS Salary Report also discovered that male economists earn on average 27% more than female economists did last year, whereas that average number has slightly increased to 28% this year. The fact that a greater number of male economists hold PhDs raises the possibility that the figures in Figure 6 simply reflect a difference in educational attainment (INOMICS Salary Report, 2022).

Figure 6: Average pay by highest degree achieved and by gender (in USD).



Source: INOMICS Salary Report (2022).

The gender pay gap exists at all educational levels, but economists with a bachelor's degree are affected the most. On average male economics with bachelor's degree earn 102% more than female economists with bachelor's degree. With master's degree this difference gets lower to 22.6% and with PhD, male economics earn only 21.2% more (Phelps, 2020; INOMICS Salary Report, 2022).

Unlike most other knowledge work, the work of academics requires multitasking, after – hour workdays or increased travel. Academics are simultaneously teachers, researchers, and administrators. Thus, the leaky pipeline in business schools can be attributed partly to division of labor within society and universities and institutional factors. Therefore, to understand the leaky pipeline we must consider the intersection of caregiving duties and work.

2.4 Mechanisms in favor of women to stay in academia

The Guardian (2018) recently revealed that only 12% of women finishing their PhD wants to stay and have a career in academia. This led to universities survival being at risk and thus it is of crucial importance for universities to change the ongoing situation and become socially responsible towards women and minorities.

The decision whether to stay in academia or leave it to peruse an industrial career is usually made before PhD graduation. The answer most often depends on opportunities available at the time and personal attitude. One of the reasons why women decide to pursue the academic career despite all challenges, is the intellectual freedom and independence of the project work they could have. Research work as part of continuing work in academia allows an individual to research a field that really interests them. Outside the academia individuals are

usually assign to a particular project whether they like it or not and their decision making is limited (Bickenstaff, 2005).

Schedule flexibility and taking sabbatical in academia can be characterized as one of the many industries where long hours and intensification of work are very common. When having a flexible work schedule, this does not mean that people would work less, but it just means that they can organize their own everyday life to some extent (Kump, 2010).

It allows women to decide how to divide time between different tasks, when to arrange holidays or to harmonize family and work responsibilities more easily. It is required to carry out duties, whereas the only time obligation is when they have a particular meeting appointment or teaching responsibilities (in some countries at some universities, academic employees have to work approximately 1600 hours per year in order to fulfill the requirements from university, but only these can be distributed as suits them best) (Kump, 2010; Goastellec & Pekari, 2013; Asgari, 2016).

There are only a few job opportunities where you get told that you can take a few months, semester, or student year off to be able to go abroad to teach somewhere else and be paid and this is unique for academia. Being able to do a research, write a book with other colleague or be a visiting professor in a different city and different university is a great opportunity to enrich your academical portfolio (Kump, 2010; Guarino & Borden, 2017).

Chances to cultivate young minds; women are much more likely than their male counterparts to engage in the intellectual and social development of students. As they devote more time to preparing for lectures, advising, and providing feedback to students, their role in the life of students is very important. As a professor, it is necessary to help students recognize their weaknesses and strength and to motivate them (Kump, 2010).

They are also a very important role model for students and can have a big impact on shaping, creating, supporting, establishing student's goals and knowledge. Changing the lives of youth by guiding their career opportunities is a valuable task, which suits women well since they are natural nurturers and caretakers (Kump 2010; Horman, 2017).

Educating the next generation; can be seen as an ultimate contribution into your field of study and this can be done in many ways either by teaching undergraduate students, mentoring of postdoctoral fellows or by sharing your research with younger scholars that are in your field (Asgari, 2016).

Through this act of education, they can have an unbelievable impact on students, and if they have impact on only few students from each generation, and they have an impact on their friends, and their friends have an impact on their friends, then they are only few degrees away to have a global impact (Kump, 2010; Asgari, 2016).

2.5 Obstacles for women to stay in academia

Despite the equal opportunity policies, there is still a comparatively low number of female professors globally in many scientific fields. The results of numerous studies show that there is a gender division of labor in academia that affects the different career paths of women and men (Bidwell, 2015).

One of the main reasons, that was already mentioned was the unconscious gender bias which refers to the gender-based attitudes, actions, perceptions (prejudice, stereotypes, experiences) that enable our formation of on – the – spot opinions. In the literature and research this kind of bias can activate undesirable consequences. Female researchers are often seen as less qualified or less appropriate for a particular position in comparison with their male peers (Vasic, 2021).

This gender bias is one of the main reasons for glass ceiling phenomena to exist and it is the responsibility of each institution either business or academic to break this vicious cycle and strive to minimize gender bias entirely (Lapuh, 2004; Vasic, 2021)

Evaluation of good performance; is more often attributed to men than to women. Men usually receive excellent evaluation for the work they have done in comparison to women who receive only good evaluations that are usually perceived as a consequence of a good work done from their male colleague. This kind of underestimation of women is called a Matilda Effect. At the individual level this kind of contempt of someone's achievements do not only weaken' their self-esteem but can also have an impact on their future performance, whereas at the collective level, women underestimation leads to prejudice which usually limit their succeeding or unequal public recognition which consequently manifests in unequal distribution of resources. This constant pressure and need for confirming that you are equally competent than male colleagues tend to contribute to the women's decision for opting out of academic career (Sheltzer & Smith, 2014; Schultz, 2016; Phelps, 2020).

Publication and third-party funding; persisting model in academia to either publish or perish needs to be moved away, since it creates an unhealthy working environment in academia. Women devote more time to pedagogical and administrative work, while men devote themselves to research in international projects and publishing in reputable journals. Because research is valued more in the academic world than pedagogical work, men are at an advantage, as they consciously devote a lot of their time, work, and attention to research.

Research has a positive effect on teaching performance, and teaching burdens have a negative impact on the conduct of research work. Since women dedicate a lot of work to teaching, they are usually left with little time to do the research. This has a rather negative effect on their academic prosperity (Sheltzer & Smith, 2014; Schultz, 2016).

An interesting study by Kugler, Tinsley & Ukhaneva (2021) was conducted, where they analyzed the letters of recommendation for higher education teacher jobs. They found that there are many more descriptions in the recommendation letter for women which starts with e.g. “Her teaching ...” and recommendation description for men often begin with “His research work ...”.

Similar findings were made by Neyt, Vandenbulcke & Beart (2019) if women already receive funding for research, it is very modest. Because women obtain resources less often than men, they are less motivated to research and spend less time on it than their male counterparts. Due to the listed factors (lack of financial resources, equipment, motivation, time), women do less research, which of course affects their more modest biographies and bibliographies; thus, they are at a disadvantage compared to men when applying for an academic position or promotion.

Female scientist should be allowed to have a publication gap without being left behind or being punished. The rate of publication also signals one’s productivity and impact, thus women who are trying to balance family life with academic career have less time to research and are on that basis labeled as less productive part (Neyt, Vandenbulcke & Beart, 2019; Nieuwenhuis, 2021).

The elderly, full professors are most often in clearly privileged position when it comes to access to research funding, while other groups, especially women and young people, are in a marginal position. However, they only have the role of collaborators. Older, full professors also have a different opinion from their colleagues about the possibilities for scientific research. Among those who are satisfied with the management and administration of research activities, with the connection between pedagogical and research work, with the research atmosphere and external research cooperation are usually full professors with more than 30 years of service years (Neyt, Vandenbulcke & Beart, 2019; Nieuwenhuis, 2021).

Very often do men dominate the position of being the first or the last author (prestige position), although the publication number hardly differs between both genders. If publication is written entirely by women or team of women, it is automatically less cited than publication written entirely by men or group of men. At the same time, the publication written by mixed gender group will receive 34% more citations than if it is purely written by male team. Female researchers are single – authored on only 26% publications and they are less likely to be contacted from leading science journals to submit their article (Neyt, Vandenbulcke & Beart, 2019; Nieuwenhuis, 2021).

These differences in publication may stem from discrimination, insufficient mentoring, or division of time for childcare, but they have a great influence on hiring, funding of research, promotion or whether to retain the faculty position. The literature review based on audit studies concluded that even though women and men have equivalent research records, the

promotion and hiring committees would still favor men over women (Krishna & Orbun, 2020).

Network and conferences; women receive less support, chances, and instruction for collaboration in comparison to men who receive it more. This also translates into the fact that women lack mentors and their support to advance in their career. A lot of studies pointed out that lack of networks and mentors is a major reason for women not successfully climbing up the academic (or corporate) ladder (Kugler, Tinsley & Ukhaneva, 2020). Research on academic life abroad reveals that there are male social networks in universities in which senior professors provide assistance to younger colleagues in their academic careers.

Waldstrøm & Madsen (2007) also states that "old boys' networks" are evident in a small academic community such as Slovenia. These "invisible networks" provide access to research management, reputable publications, scientific awards, and scientific reputation. In short, members of such networks, which include informal power groups, implicitly decide on the academic level and position of academic staff. In particular, the senior professors who make up the core of these networks act as "gatekeepers" who hinder or at least hinder the advancement of women in their academic careers. Mentors could help women navigate within the organization and teach them how to overcome different challenges. They also offer psychological support which is very important for women fighting their battle with tremendous work and dedication in academia.

Conference abstracts done by women are considered as less qualified and consequently women as less attractive collaboration partners. Conferences that are organized by man usually accept fewer female speakers or submit fewer invitations to female researchers or scientists. Lack of mentorship, gender segregation when it comes to citations and publishments and inability of networking in the same extent as male colleagues push women out of the academic careers (Houser, 2019; Johns, 2013),

Professional situation and hiring process; because of the parenthood, higher number of women is being employed part- time. This number has even increased in the past few years, what makes women's employment relationships less stable (Perez – Porro, 2017).

Even though women colleagues earn less than male researchers, women are also being treated as more competent applicants when applying for a new job position. They are also offered higher entry salary and are usually entitled to more career support in comparison with female applicants (O'Dea, Lagisz, Jennions & Nakagawa, 2019). This is contradictory with the fact that men are already in a privileged position and additional support and help from older colleagues is not that necessary as it is to women who are initially at deprived position and would need help in order have more chance for succeeding.

Pregnancy and childcare; this can easily interrupt the academic career, especially in countries which has no policies in place for expecting parents' support. By failing to provide individual and institutional support, academia systematically pushes women out of academic career and thus create a leaky pipeline. Little focus is put into the work - life balance problematic in terms of introducing more active policies that focus on non – censured culture of giving a care leaf and increase childcare support. Consequently, women decide to pause their career progression to take care of a child and significantly reduce the chance of coming back (Chee, Pino & Smith, 2005; Bianco, 2016; Bonča, 2018).

In academic circles, the everyday term "habilitation" means election to the title or obtain the right to teach at a university. The candidate must meet a university's standards for teaching, and postsecondary education, excellence in research and usually also a certain period spent abroad. The length of this period varies between transitions between academic titles, but it is still mandatory and often prolongs the process of transitioning between titles for women, even though all other criteria is being met, because only she cannot spend that much time abroad either for family reasons or for any other reasons (Di Gregario, 2019).

3 RESEARCH FRAMEWORK AND METHODOLOGY

In addition to the theoretical part presented in the first part of this master's thesis, where I presented the theoretical framework of gender (in)equality as a general phenomenon and more specifically in academic spheres of STEM field and economics and business, where I concentrated on the research and articles that were already made available on this subject, I am continuing this thesis with empirical part. The research part of my master's thesis includes a qualitative research study based on primary data collected. Primary data collection was done through semi – structured interviews.

3.1 Sample and data collection procedure

For my empirical part of the master thesis, I conducted a qualitative research study based on the primary data collection in a form of semi - structured individual in - depth interviews. The semi-structured interviews allowed me flexibility, because in addition to a predetermined question, I could then ask sub-questions based on the interviewer's answer, which lead me to a larger amount of information. I didn't always ask the questions in order, but I still made sure to ask all the predetermined questions. I adapted the order of the questions to the answers of the interviewees so that the whole was derived in a logical way.

My sample included 6 women employed at the SEB, UL. I aimed for a heterogeneous sample across different levels of the academic hierarchy, choosing to include 2 young researchers, 2 assistant professors and 2 full professors.

The interview consisted of general demographic questions (current position at SEB, how long have they been working at SEB, age, and children), followed by nine questions related to the topic of my master's thesis. With the purpose of achieving high-quality qualitative research and due to the sensitive nature of the topic, answers were analysed and treated confidentially. This approach allowed me to obtain more honest and realistic information.

The interviewees were invited to the interview via email, where I wrote them a cover letter and sent them a preview of the interview questions with the intention that they would read the questions in advance and decide based on this whether they would be willing to participate in my interview and want to answer the questions. It took quite some time before I got all six interviews done. I started conducting interviews in October and finished them in December (2022). Partly due to the Covid-19 virus and the habit of working remotely I conducted all six interviews via the Zoom platform. This was mostly at the request of the interviewees.

Interviews were analyzed using thematic analysis, which is a qualitative data analysis technique that includes reading over a data set (such as the transcripts of in-depth interviews) and looking for patterns in meaning to derive themes. It involves an active reflexive process in which the researcher's personal experience is crucial to extracting meaning from the data. During my research, I was looking for patterns that occurred in the data between the six respondents to derive concept from the data obtained. All obtained data are going to be analyzed, discussed, and supported together with the theoretical background of the first part of the master's thesis.

The data were first compared between individuals of the same academic title and later the data were compared with each other as a whole. It was also interesting to compare the young researcher/assistantship period or docent period of full-time professors with the periods of current young researchers and assistant professors and to compare the changes over time. Or also to compare the young researcher/assistantship period of assistant professor with the experiences of current young researchers. Since a semi-structured interview allows sub-questions, only these could be slightly different with each interviewee. I also analyzed and compared the latter as much as possible.

3.2 Sample characteristics

As already mentioned, my research sample of the master's thesis includes 6 women employed at SEB. Of these, 2 interviewees are young researchers (one also a teaching assistant), 2 are assistant professors and 2 are full professors at the faculty. All the interviewees are female, between the ages of 28 and 48. Of all the interviewees, 4 have children and 2 do not. Their activity at the faculty is continuous (the exception is maternity leave for those who have children). Respondent A has been at the faculty the shortest time

and Respondent E has been at the faculty the longest. Among interviewees, 5 out of 6 are a member of the economic field, whereas 1 is a member of the business field (Respondent D).

The Table 4 provides demographic information about each individual unit included in the primary data collection:

Table 6: Sample characteristics of semi – structured interview respondents

	Current position at SEB	**Time working at SEB**	**Age**	**Children (Yes/No)**	**Gender**
Respondent A	Young researcher	0 - 5 years	25 - 30 years old	No	Female
Respondent B	Young researcher/Assistant	6 - 10 years	31- 35 years old	Yes	Female
Respondent C	Assistant professor	11 - 15 years	35 - 40 years old	Yes	Female
Respondent D	Assistant professor	6 - 10 years	31 - 35 years old	No	Female
Respondent E	Full professor	21 - 25 years	46 - 50 years old	Yes	Female
Respondent F	Full professor	16 - 20 years	46 - 50 years old	Yes	Female

Source: Own work.

3.3 Research design/format – interview questions

The questions for the semi – structured interview was formulated based on studied scientific articles and research and according to the needs of the task. The interview begins with five short general demographic questions and continues with a total of nine questions, divided into nine sections according to the area each question touches. In the *Table 5* below we can see that the interview started with a warmup question, discussion of gender equality, equality of treatment, family life, actual workplace barriers, discrimination mechanisms in academia, mechanism for improvement and concluded with questions about mentoring and motivations to stay in academia. Interviews were conducted in Slovenian language since all the interviewees were Slovenian speakers.

The purpose of my questions was to see how gender inequality has changed over the years at SEB and to see which factors have changed and which have remained the same. Lastly, I also wanted to obtain information on how they dealt with the phenomenon then (mechanisms) and how they deal with it today.

Table 7: Interview questions source and structure

Area of question	Question	Source
Warm up question (no area)	How long have you been working at this school?	Own source
Gender quality	Is the topic of gender equality in academia something you think about or discuss with your colleagues or friends? a. If you do discuss it, who do you usually discuss it with? b. How do you think your male colleagues feel about this topic?	Own source
Equality of treatment	Did you ever feel like you were treated differently than your male colleagues, either during your schooling or at work?	Own source
Family life	Have you ever had the feeling that prioritizing your family life could jeopardize the prosperity of your academic career? a. How about at the beginning of your career? Did you think about the relationship between kids and career when you started?	Own source
Workplace barriers	Statistics show that at STEM faculties in Slovenia, on average, the ratio between men and women working in the academia is 60 to 40 percent in favour of men. How do you think this situation is like at the SEB, better or worse? a. What were the biggest barriers you faced at SEB, if any? b. Which of these do you think are specific to our school, which to academia specifically, and which in general to Slovenian/global society in general? c. On which stage of your academic career (at SEB) would you say you encountered the most challenges related to gender discrimination?	(EIGE, 2020; Montoya, 2017)

(table continues)

Table 8: Interview questions source and structure

(continued)

Discrimination mechanisms in academia	Previous research has outlined many mechanisms that keep women from progressing in the academic career ladder. These range from explicit bias to more implicit things like having extra administrative duties. Now, when you look back on your academic career, could you say that you were a victim of explicit or implicit gender bias? a. If yes, could you share some details and/or events that occurred?	(Yatskiv, 2017; Chisholm-Burns, Spivey, Hagemann & Josephson 2017)
Mechanism for improving	What do you think are the most effective mechanisms for achieving gender equality in academia (specifically at our faculty)? a. Do you think the current measures or policies at SEB are effective in overcoming the challenge of gender inequality at the faculty? If no, what would be your suggestions to reduce the gender gap in the academic world? b. Can you think of any particular things that would have been helpful to you during your career? What do you think can be done to help other women in academia?	(Johns, 2013)
Mentoring	Since mentoring may be an important source of support and guidance in academic career progression, how do you think that traditional mentor – protégé model affects women's experience regarding gender discrimination when climbing the career ladder? What is/was your experience with a mentor or how would you define the impact it had on you?	(Waldstrøm & Madsen, 2007)
Motivation	Despite any challenges you have encountered on your academic path, what are your goals and motivations that keep you in the academic world?	Own source

Source: Own work.

4 RESULTS AND FINDINGS

4.1 Decision to pursue an academic career

Since having a successful academic career is quite challenging, it is important to understand people's internal motivators for choosing such a career path.

- Respondent A's reasons for deciding whether to persue academic career were more practical and spontaneous. When she was finishing with her master thesis, the position for young researcher opened and her mentor offered it to her. As she wanted to continue her research, she decided to accept the offer.
- Respondent B pointed out, that academic career enables research work, which means creating and distributing new knowledge among students. Academic career also gives academic freedom to a person. The possibility of working abroad was also a contributing factor. The tab on the scale was an encouragement of a certain professor that invited her to join academic circles several times and persuaded her, eventhough she had different career path in mind. However, she emphasized that these contributing factors have proven to be unattainable ideals, mainly because of the rigid system.
- Respondent C decided on an academic career at the initiative of her mentor. After finishing her studies, she got a job in a company and realized that she missed academics and research, and at the initiative of her mentor and an open call for young researchers that happened at the same time, she decided to continue her career in academia.
- Respondent D started teaching at the faculty as a student and she enjoyed working with students. She applied for a job at the faculty and she also stated that this was one of the quickest and most certain decisions in her life, since she knew that this is something she would like to do in her life.
- Respondent E got an invitation to be a young researcher (was already a sholarship holder of the bank) due to her high Grade Point Average (GPA). Her reason for coming at SEB is similar to that of Respondent B, who was invited or encouraged by a certain professor.
- Respondent F, applied for an open position after graduating as a young researcher at the initiative of her mentor.

4.2 Gender (in)equality in academia as the topic of discussion with coworkers and friends

Since gender inequality is a topic that represents a global problem in the public and private sector, I started the interview by asking if employees at SEB talk about it among themselves. Three out of six respondents (Respondent A, Respondent B, Respondent C) mentioned that gender inequality at SEB is not a topic they regularly talk about. They confirmed that when talking about this topic, it is mostly discussed between female coworkers, but it is mostly about certain habilitation conditions for promotion to full professors.

Respondent B shared her personal experience with a male colleague, who pointed out that she is a woman and a mother of two and considering this, he asked her how much time does she think she will have for her new independent career. She then asked her husband, if he was ever asked the same question. She pointed out, that her prior employment was in business consulting in team of ten men and this kind of thinking and debating was more present and more noticeable in that working environment in comparison with this one on faculty.

Respondent C added that she often talks about this topic with her friends who work in the private sector and that their experiences cannot be compared with her own. She herself added that, according to the testimonies of her friends, gender discrimination is much worse in large private companies.

For Respondent D, gender inequality in academia is part of her research area and that is why she sometimes talks about this topic with her male colleagues (mainly in connection with their research work). On the question of how she thinks that her male colleagues feel about this topic, she answered:

"Sometimes I perceive them as if they are uncomfortable talking about this topic, like they feel like they are doing something wrong, even though they are not."

For Respondents E and F, this is a topic that is discussed a little more broadly, since they are still involved in the operation of the faculty at a higher level.

4.3 Equality of treatment

I continued the interview by asking whether women felt that they were treated differently during their studies at SEB or that knowledge was imparted to them in a different way just because they are women e.g. asking them multiple times if they understand something.

All respondents said that they never felt unequal treatment compared to their male colleagues or that knowledge would be given to them differently in any way just because they are women.

Respondent D added that she herself does not (or did not) feel unequal treatment by male colleagues, but that occasionally during semester evaluations of teaching work by students, students give completely different reasons why they liked her teaching than they give when evaluating a male colleague. She added that she sometimes feels that she may be viewed differently by the student more than by her male colleagues:

"The Slovenian environment is very egalitarian - because of our socialist history. I think the only thing we really lack is the number of women in the higher positions. But that is not so much the case at our faculty. Maybe it is because our dean is a woman, but I am not sure. I

would say that our colleagues do not have much of a problem with women in leadership positions But we sometimes discuss that we are treated a little differently than men when it comes to students. When they fill out these surveys and want to praise your work, they usually say you are nice, humble, etc., while men are intelligent. But maybe that is actually the felling that we give them, because we tend to have a higher level of empathy than men. And they are not saying that we are not smart, they are just saying that kindness is a quality that best describes us."

S. Writers (2021), students' evaluations are influenced by their unconscious biases regarding the gender and race of their instructors. In other words, even in online courses without face-to-face interaction, students tend to give male instructors higher ratings than female instructors.

Respondents E and F added that when they were young researchers, there was pressure on women who became pregnant or who were going on maternity leave. Respondent E also received a comment from the dean of the faculty at the time that she was an ordinary housewife and that nothing would come of her because she decided to have a child at the age of 27. She added that nowadays such comments towards her younger colleagues are a rarity.

Respondent E remembered that when she mentioned to an older colleague from the faculty that she was having a hard time with her child and work, she responded:

" If I went through it, you have to go too."

She felt no empathy from the woman, despite the fact that she expected it.

4.4 Balancing professional and private life

Reconciliation of business and family life is often the reason why women move up the career ladder more slowly or even leave the academic world. I continued the interview by asking how they manage to do this and whether there is any calculation when to have children or is there a time in academia that is more optimal to have a child.

Respondents A and D are the only ones who do not have children. Respondent A said that she will not calculate when to have a child and that she is not concerned with the delay that will follow if she decides to have a family. She said she will deal with it when it happens. But she is aware the calculation about when to have children or, when is the most suitable time, is common with her female colleagues. Respondent D added that she herself does not have children, but that she observes female colleagues around her who have them and that a child affects your career - especially the career of a woman (mother). Not only during the maternity leave period, but also afterwards. She also added the following:

“You rarely hear about men staying home on sick leave (because the child is ill). Especially when we talk about the older population. But this is also slowly changing.”

Respondent B decided to have children during her PhD studies and she does not regret this decision, even though her maternity leave absence meant that nearly all of her colleagues overtook her in fulfilling study obligations. She and her partner both have young parents that still work and cannot help with children care in case of illness or anything similar. She thinks that support system is very important. During lockdown due to pandemic outbreak she experienced severe fatigue, since working from home meant having lectures online, while taking care of her two children at home. This is one of the reasons she decided to change her career path. While she supports having children as soon as possible, this is not the case for most of women she knows. In her opinion women are unaware that having children later, when a person reached some milestones in a career, a year-long absence can be a serious set back.

Respondent C said that it is difficult and that calculating when to have a child is present because of the mandatory number of teaching hours that the assistant must have in addition to the fact that a certain course may not be taught next year, and she will still have to fill this lack of hours. She herself also added that this is something you know when you decide on an academic path and a family.

Respondents E and F mentioned that they would have had children regardless of which profession they would have chosen, and that therefore they did not think in advance about what having a child meant for career advancement, even during their academic journey. The Respondent D also added:

"I do remember this period as very tiring, but thanks to the good infrastructure of mine and my partner's mothers and my partner, it was easier to fulfill all obligations. It would have been much more difficult without their help. Now, when there was a pandemic and lectures and exercises were held online and when I looked at my younger colleagues who are teaching assistants and who have children who were not in kindergarten or school because of the aforementioned situation, I felt very sorry for them. Teaching the same thing (even up to six times per week) to large groups of students online and having children at home at the same time is a big challenge."

They mentioned that without the support infrastructure of their partner and parents, they would not have been able to succeed during their doctoral studies.

4.5 Actual obstacles in the workplace

All women were faced the fact, that statistics show that in STEM faculties in Slovenia, on average, the ratio between men and women working in the academic world is 60 to 40

percent in favor of men. They were asked, what is the ratio in Faculty of Economics in their opinion.

Respondent A had the feeling that there are more women than men at the faculty, and since she is currently at the beginning of her career, it is difficult to answer the question of where she had the most obstacles, because she has not encountered them at the moment. Unlike her, Respondent B answered, that currently this ratio in her opinion is 50 to 50, but in the future, it will change in favor of women. It is becoming more difficult to get suitable staff and starting salaries are low. Some studies showed that women are more willing to accept lower salaries than men do. She experienced the majority of obstacles in her career during her PhD studies, especially after she gave birth.

Respondent C said that she feels that there are more women than men at the faculty. She herself added that the transition after her doctorate was the most difficult for her (unrelated to gender), because until then she always had a plan of what to do or what to do next. After completing her PhD studies she was put on the labor market without a plan or idea, which also made it impossible for her to plan her private life. She also mentioned that the habilitation criteria are the ones holding her back from the title of associate professor, since she cannot afford to go abroad due to the fact that she has compulsory school children. She additionally explained that one of the conditions is three-month uninterrupted habilitation period abroad. These conditions give away the feeling that were written by older men rather than with participation of women. Another example is the fact that points obtained from published articles are erased after five years and it is very hard for women to publish anything, while being on maternity leave and that other female colleagues mentioned same experiences. She concluded that this is mostly topic of discussion between women and prevailing opinion is that changes are not happening fast enough.

"In my opinion, this is something that should be institutionally regulated better, as it puts women in a hopeless situation for at least a while."

Respondent D stated that in her opinion the situation at SEB is better and that there is for sure more women at the faculty, especially when it comes to youger generation. Regarding the part of the question of when she encountered the biggest barriers at SEB, she explained:

"Honestly, I do not remember any of them. But when I go to a conference or even more to a meeting with policy makers, I see mostly older men there. It feels a little strange and I sometimes feel like they are underestimating me. You can even be more sure that they do, because after the talk they usually look very surprised at how well you did. But I am not sure if this is due to gender or age discrimination. As I get older, it is less and less true, so it is probably age discrimination. I do not like gender quotas (shares) that you sometimes have to meet when applying to some projects, e.i. I would say that it is "reverse discrimination". Let us give the job to the one who is best, not to the corresponding gender."

Respondent E and F stated the following:

"Our faculty (SEB) is a kind of bubble. They say that women have always been present at SEB (for the past 30 years) and that this gender structure is very familiar to the faculty. Meanwhile, at other technical faculties, women trickle in slowly. A small part of them comes with each generation and they are therefore not used to them being there".

4.6 Mechanisms of discrimination

Previous research has identified a number of mechanisms that prevent women from moving up the academic career ladder. These range from explicit bias to more implicit or mental connections that are not under one's control or conscious awarenes. Looking back on their academic careers, they were asked if they were ever victims of explicit or implicit gender bias.

All respondents have pointed out maternity. The notion that women are synonymous with being mothers or housewives persists strongly.

Respondent C pointed out that it is also more difficult for beautiful women in the academic world. She herself stated that she had the feeling that she had to prove herself especially because of this and her hair color. She also added:

" I used to feel like the protagonist in the movie Legally Blonde. I had the feeling that I had to prove myself even more because of this."

The Respondent D herself did not notice this, but she heard that female colleagues complained that they were given more administrative work and men more intellectual work.

4.7 Mechanisms for improvement

All women were asked, in their opinion, which measures would be the most suitable for closing gender gap in academia. The following mechanism for improvement were most common with all the interviewees:

- Reduction of the number of teaching hours.
- Recognition of points for published articles beyond current 5 years.
- Extended election period for the title (particularly relevant for women after maternity leave, as they have the option of working 4 or 6 hours/day).
- More flexible habilitation criteria (mandatory time to be abroad) for transitions between titles. This is especially relevant for women who have children, as this makes them transition between titles more slowly. Given that nowadays everything can be done remotely, in their opinion this is something that should be regulated. Women then choose

worse universities than they could in neighboring countries (Austria, Italy, Croatia) so that they can drive home.

4.8 Mentorship

In the penultimate question, I asked the interviewees if they think the mentor-mentee relationship is important and how it has influenced their career. In the theoretical part of the master's thesis, the importance of high-quality mentorship and connections as strategies for success are often emphasized. Experience and education are necessary for success, but good personal qualities (hard work, sacrifice, loyalty, kindness, curiosity, agility, ambition) are also important.

As already mentioned, for some of the respondents, the mentor played a key role at the beginning of their career, because it was precisely because of their initiative that they decided to continue.

Respondents did not point out the difference between whether the mentor was a man or a woman. Respondent B also added that sometimes recognition or the establishment of the mentor in the academic circles, made certain things more difficult for her. She noted:

"I used to have the feeling that because my mentor was not liked by everyone, that they equated me with him and consequently I was not good for them either (but this was not related to gender)."

Respondent E said that her mentor was a man and that because of a male mentor, she came later to the department where the male structure was dominant. She credits male engagement and influence as credit for her success (partially). She concluded with:

"I think the fact that he was a man was quite crucial because he had an influence and because of him I got to certain things faster. Of course, the fact that he had a certain name in academic circles also helped."

4.9 Motivational factors

I ended the interview by asking what drives them forward or what are their goals and motivations that keep them in the academic world.

Respondent A compared the success in academia with marathon:

"Success in academia is comparable to running a long distance. Many times everything seems difficult, but in the end I am driven by the desire to finish what I started and the fact that I love doing what I do."

To conclude, five out of six female respondents would choose the path again and their desire to teach and research pays for the less loved parts of this profession, while one female respondent is leaving the academic world. Respondent B has decided to change her career and she will no longer pursue academic career. Her reasons mainly originate in rigidness of the system, poor work-life balance and working environment.

5 DISCUSSION

5.1 Summary of findings

The goal of my master's thesis was to identify gender dynamics in STEM and in the field of economics and business. At the same time, I wanted to find out whether gender inequality in both fields is comparable and what are the mechanisms that prevent women from prospering on the career ladder in STEM and whether these reasons are like those in the field of economics and business, more precisely at SEB. On the other hand, I wanted to discover mechanisms that would allow for women to exist in the academic world. I compare the data obtained from my semi - structured interviews. The key findings from the interviews are presented in the Table 6.

Table 9: Key findings of the empirical part of the research paper

Area of research	**Key findings from the qualitative research**
Reasons to work in academia	- Researching the field that interests you and passing on knowledge to younger generations - engage in the intellectual and social development of students. - Academic freedom and flexibility. - Many women enter the academic world because of the encouragement of a mentor, who is very important on the academic path.
Gender quality as discussion topic in academic circles	- Gender inequality is rarely a topic of conversation among female colleagues (habilitation criteria usually a topic of conversation in the context that they are more difficult to be achieved by women) - Male colleagues feel as if they are doing something wrong when talking about gender inequality with their female colleagues.

(table continues)

Table 10: Key findings of the empirical part of the research paper

(continued)

Equality of treatment between women and men in academic circles	- In principle, they did not perceive the feeling of unequal transfer of knowledge during their studies. - Unequal treatment when it comes to student evaluation of the teaching work of female professors (women = humble, men = intelligent).
Family life jeopardized due to academic career	- Calculation of when to have a child (not among the interviewees). - Absence not only during maternity leave but also afterwards - absence really affects the progress in academic career. - Ignoring women's reproductive role in meeting habilitation criteria.
Workplace barriers	- Unconscious gender bias not noted at SEB from respondents. - Uninterrupted habilitation period abroad. - Points obtained from published articles are erased after 5 years. - A flexible work schedule can be a golden cage.
Discrimination mechanisms in academia	- Women devote more time to pedagogical and administrative work in comparison to men. - Beautiful girls realized that they had to prove themselves even more. - The notion that women are born mothers. There is a trade – off between being a mother or doctor.
Mechanism for improving gender equality	- Reduction in the number of teaching hours. - Recognition of points for published articles beyond current 5 years. - Extended selection for the title. - Flexible habilitation criteria for mandatory time spent aboard.
Importance of mentoring	- Many times, a mentor is the reason for continuing an academic career. - Because of an established mentor in academic circles, the attitude towards his mentee by other colleagues can be positive or negative. - A mentor's help in moving forward and overcoming obstacles is very important
Motivation to work in academia	- The feeling of changing the lives of youth by guiding their career opportunities - Spreading knowledge to new generations. - Impact on supporting, creating, shaping, and establishing student's goals.

Source: Own work.

5.2 Implications

Despite thinking that the barriers for women to stay in academia in STEM and in economics and business were the same, I found out that this is not entirely the case. Most of the obstacles are similar, but after conducting qualitative research with semi-structured interviews, I found out that women at SEB face specific challenges that are not completely align with the described theory in the first part of the thesis.

Based on the research conducted the factor that was highlighted by all respondents who have children (four out of six) - the habilitation criteria of mandatory time abroad, was very rarely mentioned in the literature. The respondents stated that this is what prevents them to the greatest extent from switching titles, because as mothers they cannot afford to spend a few months abroad with the fact that they have school-aged children. Even though Moss - Racusa's (2012) showed half-time work of women as something negative or as something where men have an advantage, this is something our female respondents see as positive. This allows them to gradually return to college after maternity leave. As Goldin (1990) stated, one of the main reasons that women earn less money than male peers is the fact that they prefer flexibility over salary.

As two other very important factors that were not often mentioned in the literature reviewed, and push women out of the academic world at SEB is the number of teaching hours, which is very inflexible and rigid towards women who decide to have a child. Secondly, the deletion of points obtained by published articles older than 5 years. One of the respondents mentioned that she wrote an appeal to the UL, but in the end, she realized that the whole process of institutional change is so demanding that she would that she will complete all her academic obligations sooner.

When analyzing the obtained data, I also found that negative prejudices about women in academia, or more precisely in science, are still present. One of the respondents cited two examples (student evaluation bias and feeling of inferiority in front of older male colleagues) that she got the feeling of being underestimated only because of her gender.

Chisholm-Burns, Spivey, Hagemann & Josephson (2017) described gender stereotypes and conscious and unconscious where a woman's ability is not assessed based on her abilities, but only assumed in advance just because she is female, which often results in devaluation of their abilities. As a result, this also has an impact on the fact that they themselves begin to doubt whether they are competent at all. Kanjuo - Mrčela (1996) also stated that this prejudice is widely present in academia and have a big impact on the glass ceiling that prevent women to climb the ladder.

Since the age range of the interviewees is quite wide and since quite a few years have passed since the two full professors were young researchers and a little less since they were assistant

professors, and since the two assistant professors were young researchers, it was interesting to compare how the phenomenon has changed over time. I concluded that what pushes women out of the academic world or prevents them from advancing at SEB, remained unchanged during the years.

5.3 Limitations

In recent years, due to the pandemic, the new reality has become that we have moved many obligations, meetings, or any sorts of interactions that we would have attended physically or in person, to virtual platforms. In the last period, we moved the pedagogical process online, working from home became a new reality and all things that really do not require the physical presence of an individual moved online. As already mentioned, I had conducted interviews through Zoom videocall platform where the weakness of the aforementioned is certainly the lesser depth of the answer than you would receive in person.

The process of obtaining female candidates for the interview was quite challenging, since I did not receive many replies from the large number of emails sent. Most likely due to the sensitive subject matter or the large amount of work of individuals. Since my interview had quite a few direct questions, the real answers of which could be very sensitive, I allow for the possibility that the interviewees left out some details either because we did not have an interview in person or because it is only related to their workplace. Due to the complexity of the questions and the relatively large number of questions, I allow for the possibility that, if I had more time, I could have obtained some more information on individual answers.

5.4 Future research

The master's thesis in front of you still have a lot of room for improvement. Firstly, more individuals of a certain academic title could have been included in the sample to have more data to compare and so that the sample could be more statistically significant. This master’s thesis could be supplemented with qualitative interviews conducted with male individuals employed at SEB and analyze their aspects of the problem of gender inequality. One of the interviewees mentioned that she felt misjudged by the student. It would make sense to consider or to include prospective students in the research.

Considering that STEM is very widespread and includes various technical faculties, it would be interesting to look in more detail at which natural sciences faculties specifically are the most gender discriminatory towards women. SEB also has a business and economic department and thus, it would be interesting to see if the research holds the same for both.

Comparison of how gender discrimination differs between economic faculties around the world - between countries with greater and lesser gender inequality, would also give interesting insights. As a result, we could also analyze country-specific mechanisms that

affect gender inequality in the academic world (not for every country, but certain ones have their own specifics, which are also related to countries' legal jurisdiction).

Considering the mentioned obstacles faced by individual women in the academic world, it would be reasonable to compare the legal basis of individual acts and how much room there is for improvement. It would also be interesting to see how long it would take for small changes to happen, that would ultimately make a big difference for women in academia.

CONCLUSION

The role of women in society has changed greatly throughout history. In some parts of the world, people still hold the belief that women should not work, marry at a certain age (after the age of 18), stay at home with their children, and take care of them. But on the other hand, we had a new record-breaking in 2020, where 30% of S&P board directors were women. Additionally, 8.8% of Fortune 500 CEOs are women. It is right that their work (achievements, knowledge, and promotion) is treated impartially regardless of gender.

The proportion of female professors generally has increased, but at a snail's pace, and there is a risk that gender parity will not be achieved for another quarter of a century. When it comes to academic careers, women face more challenges than men do. Gender disparity in higher education institutions is exacerbated by the highly hierarchical nature of academia. When discussing on how to improve gender equality in academia, the focus is to increase the number of women in the field of STEM subjects. However, female underrepresentation at the student level is not common in all STEM fields.

The master's thesis pursues the purpose of studying and explaining the gender gaps and leaky pipeline in academia. Gender stereotypes, prior achievements, and attitudes, or, more generally, social factors, institutional structures, poor advice, and early education environments—all have received significant attention from education researchers—as barriers to entry into scientific educational for female students. Despite efforts to promote women into academic leadership positions, the race for academic positions favors men due to unwritten masculine rules that are deeply ingrained in the contemporary academic environment. The aforementioned stereotype implies that the majority of women's responsibilities involve household and child care. It is said that a woman's characteristics are influenced by the fact that she will one day be a mother. The stereotype that "a woman equals a mother" applies to women's characteristics, making them unsuitable for roles of higher position.

The master's thesis tried to achieve the following goals: presentation of the current situation of gender inequalities in the academic world in the field of STEM and economics and business (in Slovenia and globally), to explain the differences in the treatment of women and

men at SEB, to present the mechanisms that hinder women's advancement and good initiatives to improve the current situation.

The research questions that sought to achieve the goals were embedded in the empirical part of the master's thesis. A qualitative study with semi-structured individual interviews was conducted with interviews of six women employed at SEB (2 young researchers, 2 assistant professors and 2 full professors), between the ages of 27 and 48. Some have children, and some do not. The interviews were conducted via the Zoom platform, where I asked the interviewees nine different questions divided into sections. Since the interview was semi-structured, in addition to predetermined questions, I also asked various sub-questions depending on the direction the conversation led.

The results of the interview analysis showed that the interviewees perceive SEB as an institution that does not have a problem with the number of women in academic circles (young researchers are mostly women). The ratio between men and women is even in favor of women, which is usually not true for most STEM fields. The interviewees did not perceive gender as a problem in their current positions. The women in question see the following as obstacles to advancement between titles: trying to find a balance between academic career and family, because of habilitation criteria, the stereotype that a woman cannot be a mother and be successful in her career at the same time, and the resulting lack of self-confidence.

The interviewees believe that it is still women who mainly take care of the family and household. They carry a significantly higher burden of family life than their male colleagues, so the latter have a significant advantage in achieving academic career success.

Stereotypically, women are characterized as soft, too empathetic, and indulgent, while men are supposed to be decisive, unyielding, and intelligent. Unlike their male competitors, women are naturally less self-confident and much more self-critical, which greatly hinders their advancement.

It takes time and effort to overcome gender-based barriers or to work around established norms, both of which could be used to acquire career development credentials. A poor work environment is a major factor that drains energy out of the employees, and the report Spotlight on gender equality: When insecurity overshadows everything, demonstrates that it affects women than in men.

To conclude my master's thesis, I must confirm once again what Johns (2013) confirmed - inadequate social system support is one of the main reasons for women's slower progress at SEB. The system does not allow women to optimally balance work and childcare and thus their career progress remains in the background for a certain period. The criteria that they must meet either force them not to return to academia or make it hard to integrate back into the workflow when being absent for some time.

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APPENDICES

APPENDIX 1: Povzetek v slovenskem jeziku

V zadnjem času obstaja neizmerno zanimanje za premajhno zastopanost žensk na področjih znanost, tehnologija, inženirstvo in matematika (STEM) ter s tem je napredek glede enakosti spolov na teh področjih še vedno počasen. Stanje razlik med spoloma postane hujše, če preučimo zastopanost žensk na področju STEM v akademskem svetu.

V tem času se je povečalo število podiplomskih diplomantov ženskega spola, vendar število žensk na fakultetnih položajih na področju STEM ostaja nespremenjeno. Ta učinek – kjer je enakost spolov dosežena na določenih ravneh (npr. na sekundarni in terciarni ravni), vendar se oža vzdolž kariernega napredovanja – imenujemo učinek škarij (Adams & Miller, 2016; Sechultz, 2016).

Ekonomisti menijo, da je razlika med spoloma sistematična razlika v rezultatih, doseženih na trgu dela med moškimi in ženskami. Pogosto se odraža v odstotku moških in žensk med delovno silo, vrsto poklicev, ki jih izberejo, in njihove urne postavke oz. relativni dohodki (Blau & Kahn, 1992). V zasebnem sektorju je to še posebej izrazito na področju STEM, kjer so ženske slabo zastopane in tudi v teh poklicih, kjer je bila dosežena enakost spolov, stekleni strop ali premajhna zastopanost žensk na najvišjih položajih, še vedno vztraja (Remington & Kitterling-Lynch, 2017).

V akademskem svetu, čeprav obstajajo drugačne politike univerz in vlade proti diskriminaciji in razliki med spoloma, nesorazmerno pomanjkanje žensk na teh področjih, zlasti na višjem koncu stroke, še vedno obstaja (Emara & Hegazy, 2017).

Ko poskušamo ugotoviti, zakaj so ženske slabo zastopane na znanstvenih področjih, so raziskovalci ta proces primerjali s puščanjem cevi. The hipoteza o puščanju cevi trdi, da je na vsaki karierni stopnji izbranih več moških kandidatov, in več žensk odhaja. Pojav je viden tako v zasebnem kot v javnem sektorju (Sealy, 2002; Nieuwenhuis, 2021).

Razlike med spoloma se lahko pojavijo že pred fakulteto, ko dijaki v srednji šoli šoli poskušajo postaviti svoje karierne cilje na podlagi določenih družbenih pričakovanj. Te vrste družabnih pričakovanja glede spola so globoko zakoreninjena in zakodirana v naši družbi, zlasti če je posameznik odraščal v družbi, ki sprejema tradicionalne norme (Ferrero, 2020).

Podanih je bilo več argumentov, ki poskušajo razložiti, zakaj pojav puščanja ostaja. Eden od argumentov, ki temelji na evolucijski psihologiji, je, da imajo ženske nižjo biološko tolerance stresu (Perez – Porro, 2017). Po drugi strani pa so številne raziskave dokazale, da sam akademski svet sistematično izriva ženske s področja (Bianco, 2016).

Ti strukturni dejavniki vključujejo na primer nezagotavljanje institucionalne in individualne podpore bodočim staršem (predvsem ženskam), kar vodi do manjšega števila znanstvenih

objavah, saj ženske na začetku starševstva nimajo toliko časa biti v laboratoriju ali opravljati raziskavo in v tem določenem obdobju lahko objavijo manj kot moški sodelavci, ki jih starševstvo običajno ne prizadene v tolikšni meri kot ženske (Perez – Porro, 2017).

Raziskava je preučila tudi dejanski akademski rezultat po spolu, ki kaže, da ženske na splošno objavljajo manj znanstvenih prispevkov, in ko to naredijo, so običajno objavljeni v manj uglednih revijah (Lerchenmueller & Sorenson, 2017; Tartari & Salter, 2014). Ženske prejmejo tudi manj citatov v primerjavi s članki, ki jih pišejo moški akademiki in so tudi redkeje v soavtorstvu. Te razlike v objavi lahko igrajo pomembno vlogo, ko pride do raziskovalne evidence, ki je odločilen dejavnik pri zaposlovanju ali napredovanju ljudi v akademski svet (Guarino in Borden, 2017).

Dodaten argument je, da tradicionalne vloge spolov, tudi v akademskem sektorju igrajo pomembno vlogo saj moškim pogosteje dodelijo mentorske vloge in delo, ki vodi do napredovanje na akademskem področju (Guardino & Borden, 2017; Witteman, Hendricks, Straus & Tannenbaum, 2019).

Nazadnje so študije pokazale vztrajnost neposredne diskriminacije zaradi pristranskosti, pri čemer je za ženske manj verjetno, da bodo izbrane za akademske položaje kot moški, deloma zaradi tega, ker se meni, da čas katerega moški na začetku kariere posvetijo raziskovanju, one raje posvetijo družini in ne morejo dokazati zavzetosti za delo do te mere kot jo lahko pokažejo moški kolegi (Kosmač, 2017). Študija iz Združenih držav (ZDA) opravljena leta 2014 je pokazalo, da je ime ženske v enakem življenjepisu vodilo do manj zaposlitvenih priložnosti na izbrani univerzi in nižjo plačo, kot pri nekomu z moškim imenom (Tartari & Salter, 2014).

Kot je navedeno zgoraj, številne študije in raziskave o neenakosti med spoloma in puščanju cevi v akademskih krogih so bile narejene za področje STEM, medtem ko je zelo malo študij to preučevalo na področju ekonomije in poslovanja. Zato je namen magisterskega dela raziskati, ali se ženske na področju ekonomije in poslovanja srečujejo s podobnimi ovirami, ko se poskušajo povzpeti po akademski lestvici in doseči višje položaje.

Ugotovitve moje raziskave bodo pomagale razumeti izzive in ovire, s katerimi se soočajo ženske na različnih akademskih področjih, kako se ti izzivi razlikujejo med različnimi akademskimi področji in ponuditi predloge, ki bi pomagali poenotiti možnosti za uspeh obeh spolov v akademski svet. To bi bilo koristno tako za vodstvo univerz kot tudi za vlado Republike Slovenija v prizadevanju za večjo enakost spolov.

V skladu s tem namenom so cilji magisterske naloge slednji:

- Primerjati učinek škarij na področju STEM s področjem ekonomije in poslovanja in ugotoviti razlike pri neenakosti med spoloma na akademskih področjih.

- Ugotoviti, ali obstajajo mehanizmi, ki ženskam omogočajo, da ostanejo v akademskih krogih (na podlagi zbiranja sekundarnih podatkov).
- Analizirati dinamiko spolov na Ekonomski fakulteti (SEB), Univerze v Ljubljani (UL), in raziskati, kako se spolna struktura spreminja od začetka dodiplomskega študija do ravni rednega profesorja (na podlagi primarnega zbiranja podatkov).
- Zagotavljanje predlogov za morebitne spremembe, ki omogočajo večjemu številu ženskam do višjih položajev.

Magistersko delo temelji na primarnih podatkih, pridobljenih s polstrukturiranimi poglobljenimi intervjuji s šestimi ženskami zaposlenimi na SEB. Dve izmed anketiranih žensk sta mladi raziskovalki/asistentki na fakulteti, dve docentki in dve redni profesorici.

Magistrsko delo je sestavljeno tako, da je prvi del naloge teoretični del (na podlagi pregleda znanstvene literature in izbranih sekundarnih podatkov) in drugi del naloge je empirični del (temelji na primarni zbirki podatkov – polstrukturirani intervjuji).

V teoretičnem delu prvega poglavja opredelimo pojem enakosti spolov in enakost spolov kot eden od sedemnajstih ciljev trajnostnega razvoja (SDG), merjenje enakost spolov, koncept steklenega stropa in puščanja cevi (v zasebnem in javnem sektorju) in mehanizme, ki pripomorejo k neenakosti med spoloma. Nadaljujemo z drugim poglavjem kjer opisujemo enakost spolov na izobraževalnih področjih, stekleni strop in concept puščanja cevi v svetu in v Sloveniji, enakost spolov na področjih STEM in na področju ekonomije ter poslovanja. To poglavje zaključujemo z mehanizmi ohranjajo in preprečujejo obstoj žensk v akademskem svetu.

Drugi del je empirični del, kjer v tretjem poglavju najprej opišemo vzorec in postopek zbiranja podatkov, obliko zasnove raziskave in analizo dobljenih podatkov o pojavu steklenega stropa in koncepta puščanja cevi na SEB. V četrtem poglavju so opisani rezultati in ugotovitve raziskave, magistersko delo pa se zaključi s petim poglavjem, kjer obravnavamo ključne ugotovitve, omejitev raziskave in možnosti za nadaljnje raziskovanje.

APPENDIX 2: The interview

Interview for the needs of research within the framework of the master's thesis entitled: An analysis of gender gaps and the leaky pipeline in the academic fields of economics and business in Slovenia.

My name is Maša Žnidaršič and I am a student in the last year of my master's degree program in International Business at School of Economics and Business, University of Ljubljana (SEB). I am finishing my studies with a master's thesis on the topic "An analysis of gender gaps and the leaky pipeline in the academic fields of economics and business in Slovenia" under the mentorship of assoc prof. Tamare Pavasović Trošt.

Many studies and research on the gender gap and leaky pipeline in academia have been done for the STEM field, while very few studies examine this phenomenon in the field of economics and business. Therefore, the purpose of this thesis is to research whether women in the field of economics and business face similar obstacles when trying to climb up the academic ladder and achieve the highest positions.

The interview consists of general demographic questions, followed by ten questions related to the topic of my master's thesis. With the purpose of achieving high-quality qualitative research, your honest replies would be highly appreciated. Your answers will be kept confidential (about you personally and about your work at the Faculty of Economics) and your name will not be stored or written in any form in the assignment, only single quotes will be used, with a description (say "associate professor" or "full professor").

General demographic questions:

1. Current position at SEB:
2. How long have you been working at SEB?
3. Age:
4. Children (yes/no):
5. Gender: Female

Interview questions:

1. WARM UP: How long have you been working at this school? Do you remember why and when you decided to have an academic career?
2. DISCUSSION OF GENDER EQUALITY: Is the topic of gender equality in academia something you think about or discuss with your colleagues or friends?

a. If you do discuss it, who do you usually discuss it with?
b. How do you think your male colleagues feel about this topic?

3. EQUALITY OF TREATMENT: Did you ever feel like you were treated differently than your male colleagues, either during your schooling or at work?

4. FAMILY LIFE: Have you ever had the feeling that prioritizing your family life could jeopardize the prosperity of your academic career?

a. How about at the beginning of your career? Did you think about the relationship between kids and career when you started?

5. ACTUAL WORKPLACE BARRIERS: Statistics show that at STEM faculties in Slovenia, on average, the ratio between men and women working in the academia is 60 to 40 percent in favour of men. How do you think this situation is like at the SEB, better or worse?

a. What were the biggest barriers you faced at SEB, if any?

b. Which of these do you think are specific to our school, which to academia specifically, and which in general to Slovenian/global society in general?

c. On which stage of your academic career (at SEB) would you say you encountered the most challenges related to gender discrimination?

6. DISCRIMINATION MECHANISMS (IMPLICIT/EXPLICIT) IN ACADEMIA: Previous research has outlined many mechanisms that keep women from progressing in the academic career ladder. These range from explicit bias to more implicit things like having extra administrative duties. Now, when you look back on your academic career, could you say that you were a victim of explicit or implicit gender bias? If yes, could you share some details and/or events that occurred?

7. MECHANISMS FOR IMPROVING: What do you think are the most effective mechanisms for achieving gender equality in academia (specifically at our faculty)?

a. Do you think the current measures or policies at SEB are effective in overcoming the challenge of gender inequality at the faculty? If no, what would be your suggestions to reduce the gender gap in the academic world?

b. Can you think of any things that would have been helpful to you during your career? What do you think can be done to help other women in academia?

8. MENTORING: Since mentoring may be an important source of support and guidance in academic career progression, how do you think that traditional mentor – protégé model affects women's experience regarding gender discrimination when climbing the career ladder? What is/was your experience with a mentor or how would you define the impact it had on you?

9. MOTIVATIONS: Despite any challenges you have encountered on your academic path, what are your goals and motivations that keep you in the academic world?