Universitetet i Stavanger

HANDELSHØGSKOLEN VED UIS

BACHELOROPPGAVE

STUDIUM:	OPPGAVEN ER SKREVET INNEN FØLGENDE TEMATISKE RETNING:
BØKBAO – 1 22H Økonomi og Administrasjon Handelshøgskolen ved Universitetet i Stavanger	Samfunnsøkonomi

TITTEL:

The female prison population rate and economic, gender and societal conditions

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Preface

This thesis marks the end of our three-year bachelor's degree at the Business School at the University of Stavanger and represents 20 ECTS credits. This has been an educational and challenging process, where the learning curve has been steep. We are still far from fully educated but are grateful for all the knowledge we have acquired during this semester.

We are grateful for the support, guidance, and motivation our councillor Yulia Dudareva have given us through this period.

We want to thank our families for supporting us when writing this thesis. A special thanks to Eivind and Einar for bringing food.

Handelshøgskolen ved Universitetet i Stavanger

Stavanger, mai 2023

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Abstract

Women in prison is a topic that has received increasing attention in academia in recent years. While women are a minority in the total prison population, the rate of women prisoners is rising and has been for many years. Earlier research shows an increase of female prison admissions in countries where women have a higher advancement in economic, societal and equality conditions. There is also research showing that women living in poverty has an increased chance of participating in criminal activities and ending up in prison.

In our thesis we will explore the relationship between economic, gender and societal variables and the female prison population rate of the total prison population. Which have culminated into our Problem statement:

Does the female prison rate correlate with several indexes and topics when it comes to female advancements in regard to economy, gender and societal conditions?

To answer our problem statement, we have used single and multiple linear regression, to analyse our dataset.

When answering all our research questions and by this answering our problem statement. We have reached a conclusion that there is a relationship between our dependent variable the female prison population rate and the different topics and indexes in our independent variables. The different relationships are both positive and negative but with the exception of the Gini index (not significant) and the women's legal rights (could not reject the null hypothesis) they all support our assumption that when economic, gender and societal conditions improve for females they will constitute a larger part of the prison population.

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1 Introduction

1.1 Background

As business students we are interested in the economic mechanisms of a society. Living in 2023 and still seeing the vast difference between genders made us want to look more into it. With one of the group members working in the Norwegian prison system, we quickly found that we wanted to shed some light on women in imprisonment. We still have a long way to go in presenting the same opportunities for men and women within the prison system, both here in Norway and in the world. Our preconceived notions about many of these differences, was challenged. When looking at literature on the topic it becomes clear that one consequence is that prisons and prison systems are organised on the basis of the needs and requirements of the male prisoners. They are not designed with the specific needs and rights of female inmates in mind. Especially when it comes to facilities, safety, activities and health.

While we have been writing our thesis there has now been a case before a Norwegian court, where the defendant a woman facing a longer sentence for drug related crime, has been given a more lenient sentence, because her lawyer argued that women have poorer prison conditions than men. The judgment (22-101653MED-THOD/MEDS) is not yet enforceable. This is however an important step in acknowledging the point many are trying to make, that the gender gap is too big in the prison system, and that women are the loosing part.

However, this is not the problems we ended up analysing. After contacting all the Norwegian prisons with female inmates and trying to get data on the economic situation and the gender differences in the Norwegian prison system, we found that this information is not easily accessible to the public. We could only get aggregated levels combined for men and women. We had to shift focus to a more global view, to find our problem statement. We still think that exploring the gender differences in the Norwegian prison system is something that someone with more time available and maybe with more in-depth knowledge of the prison system should investigate. We think it would make up for some interesting reading.

1.2 Problem statement and limitation of the thesis

Today over 740,000 women and girls live their lives behind bars worldwide. This number has increased by nearly 60% since 2000. United Nations figures show that the general population growth has been around 30%. While the increase in numbers for male prisoners in the same period is 22%. We are not seeing these trends in Norway, but as economic students we think of the financial cost of this global prison population, not to mention the social cost and all the human potential going to waste.

In the now famous words of Nelson Mandela, 'no one truly knows a nation until one has been inside its jails. A nation should not be judged by how it treats its highest citizens, but its lowest ones.' One of the points here that relates to our thesis is that women in prison is a marginalized group, often with lack of resources both economical and socially. The proportion of women in the prison system is generally between 2% and 10%. In Norway it is 5%, and as shown in the Figure 1in 2021 the female prison population was 7% of the total prison population in the world.

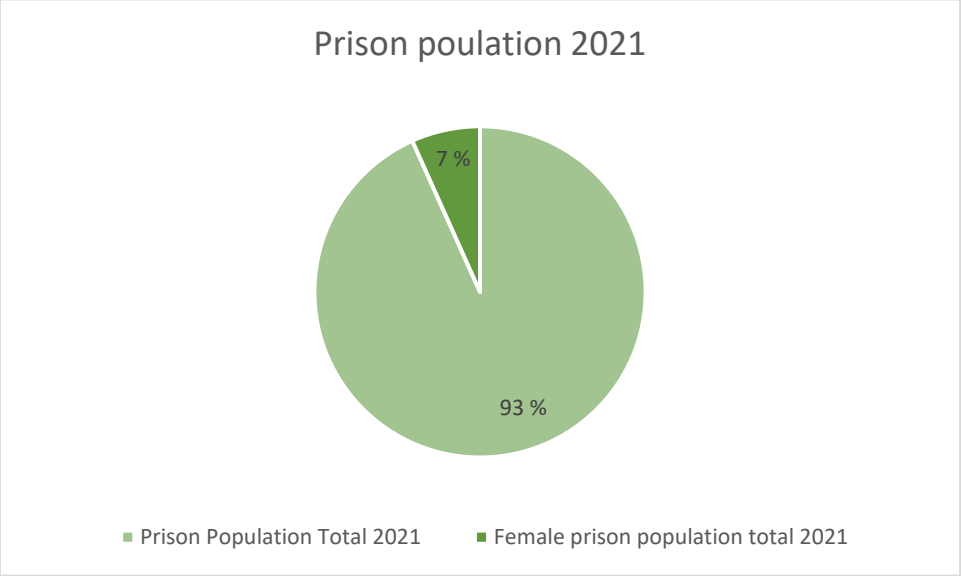

Figure 1 Share of female prisoners in total prison population 2021

Imagine you are a woman accused of theft or drug trafficking or any other felony. If convicted, would you go to prison? Where would you serve your prison sentence and for how long? Would you have access to the basic needs and requirements that should be provided for women? Would your time in incarceration be within your human rights? Would these rights and your conditions while serving time be less adequate just because

you are a woman? There are many different questions and many of them gender related when one looks at women in the prison system. To examine all the questions and all the disciplines of the global prison system would be too extensive. We had to narrow it down into a research area that would be manageable.

Table 1 shows an overall view of the change in the female prison population levels for the different continents since about the year 2000.

	Estimated female prison population total at about 2000	Latest available female prison population total (to 5.8.22)	Change in female prison population total since about 2000	Change in general population mid-2000 to mid-2022 (United Nations)
AFRICA	24,000	37,314	+ 55.5%	+ 76.5%
AMERICAS without USA	196,300 37,671	306,375 94,900	+ 56.1% +151.9%	+ 24.5%
ASIA without China & India	143,800 87,611	305,537 137,619	+ 112.5% +57.1%	+ 26.0%
EUROPE without Russia	99,900 44,450	87,324 48,204	- 12.6% +8.4%	+ 5.7%
OCEANIA	1,900	4,077	+ 114.6%	+ 39.2%
WORLD	465,900	740,627	+59.0%	+ 29.5%

Table 1 Female prison population levels - change since about the year 2000, ICPR

(Source table 1: World female imprisonment list fifth edition, p.14, 2022)

In our research we found an article from 2002 where they hypothesized that in countries where women have greater advancements in regard to education, society and economy, are countries where women comprise a larger percentage of the prison population (Heitfield og Simon 2002). Their result showed a positive correlation between the female prison population rate and GDP growth rate for the 27 countries in their article.

	GDP per capita annual growth rate	*pop%*
GDP per capita annual growth rate	1	
pop%	0,372376546	1

Table 2 Correlation results from the article Women in Prison: A comparative assessment

We recreated this part of the study with 2021 numbers for the same countries used in the article and found a negative correlation.

	GDP per capita annual growth rate	*pop%*
GDP per capita annual growth rate	1	
pop%	-0,289243775	1

Table 3 Correlation results for 2021 numbers

We found this interesting; something had happened in the last 20 years. We started to debate why we saw this change in these countries with the updated numbers. Looking back at Table 1 it shows the increase worldwide, while for Europe the trend is not that clear. We started to look at countries that where not on the list of the 27 countries from the article (Heitfield og Simon 2002) and debated further on about these changes. Could it be that the female prison population in a country evolves alongside the way the country evolves? We started developing an idea that the female prison population rate correlates to several variables according to where the country ranks according to these. Our assumption is that when economic, gender and societal conditions improve for females they will constitute a larger part of the prison population. Figure 2 shows female prisoners as a percentage of the total prison population across different countries.

We still needed to limit our research area and we now had something interesting to work with the change in female vs men. We limited it down to the share of female prison population in the total prison population. Further referred to as "female prison rate" and chose this to be our dependent variable.

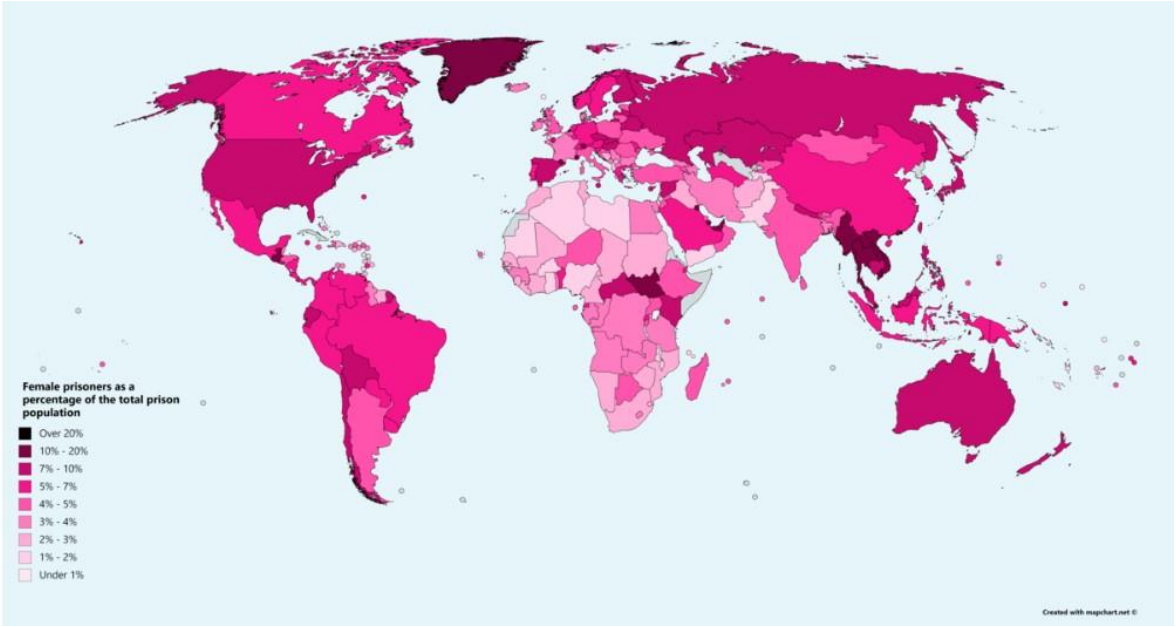

Figure 2 Map: Female prisoners as a percentage of the total prison population

(Source of Figure 2: Wikipedia 2018)

We analyse it through several independent variables, related to economy, gender and societal conditions. When we found our main theme for the thesis and made some limitations to our research area, we can formulate our problem statement:

Does the female prison rate correlate with several indexes and topics when it comes to female advancements in regard to economy, gender and societal conditions?

To better answer this, we divided it into several research questions. Then it would be possible to answer different parts of the problem statement individually, and then combine the answers. We have already limited the research area and want to look at:

Economic conditions

1. Does a countries economic "level" represented by GDP per capita PPP influence the female prison population rate?
2. Does the distribution of wealth in a country represented by the GINI index influence the female prison population rate?

Inequality conditions

3. Can the level of legal rights influence the female prison population rate?
4. Can the level of gender equality/inequality influence the female prison population rate?
5. Can the fertility rate have an influence on the female prison population rate?

Societal development conditions

6. Does the level of human development in a country influence the female prison population rate?
7. Does the level of democratic development in a country influence the female prison population rate?

In answering these questions, it is important to distinguish between causality and correlation. Causality says something about causal relationships, while correlation is a statistical measure and explains whether two variables are related, and whether this correlation is positive or negative. We can only look for correlation between variables.

1.3 Implementation

We have used data collected from The Institute for Crime & Justice Policy Research, The World Bank, The United Nations development program, and The Economist Intelligence Unit to answer the research questions in our thesis. We have done correlations in excel and regression analyses using RStudio.

We have divided our research questions into economic conditions, inequality conditions and societal conditions and ran simple linear regression on all our independent variables too see the relationship between our independent variable and our dependent variable. We then used gender inequality as a control variable to test the relationship between the independent and the dependant variables keeping the control variable fixed.

1.4 Structure of the thesis

In chapter 2 we present how former literature answer questions regarding women in prison and economic, societal and gender equality conditions. The chapter will also look at the institutional background of the correctional system.

Chapter 3 presents our hypotheses, which we have formulated based on the problem statement, our research questions, and the literature review in chapter two.

Chapter 4 presents an overview of existing theories and mechanisms relevant to this thesis. It is divided into the factors: economic, social, political, institutional and gender-based.

Chapter 5 goes through the methodology used, including the method of how the dataset is collected and cleaned to use in our analyses. In this chapter we introduce regression, hypothesis testing, sources of error, correlation and causality, reliability and validity and ethical consideration.

Chapter 6 presents the data. The data contains in depth information about our dependant and our independent variables. The sources of where the data is collected from is presented in this chapter and is a part of the consideration of the reliability and validity. The limitations of data and missing data are reflected over and presented, and the descriptive statistics are at the end of the chapter.

Chapter 7 has the purpose to answer the research questions. It shows the analysis from the regressions done in RStudio and the correlations done in excel. This shows if there are

relationships between the dependent and the independent variables used in this thesis. The data has been divided into Economical, Gender and Societal.

Chapter 8 is the chapter for the discussion of the findings from chapter 7. The end of the chapter shows extended models and reflects of the limitation made by Covid-19 in this thesis.

Chapter 9 is the last chapter of the thesis and contain the conclusion of the thesis. The finding from chapter 7 will be summarized, as well as the discussion from chapter 8. Here the possibility of future work will be presented for other who consider this thesis intriguing.

2.Literature Review and Institutional Background

2.1 Literature review

Women in prison is a topic that has received increasing attention in academia in recent years. As a minority of the prison population, women experience unique challenges and barriers while incarcerated. This review will explore some of the possible variables and its effect of admissions of female inmates in prisons around the world.

2.1.1 Economic conditions

The number of admission of women in prison is related to the economic development when seen together with the GDP. Increased GDP correlates with the percent of women who committed thefts, fraud, counterfeit/currency offenses, drug offenses, and all offences (Heitfield og Simon 2002). When the women come out in the labour force they contribute with the increase of GDP in their country, which is connected to the rise in social status. As the counties develop economically there is a positive relationship to the rate of women's crimes (Heitfield og Simon 2002).

In the article by McLaughlin and Shannon (2022) they used three variables of economic conditions as control variables: unemployment rate, Gini coefficient and Gross state product. The Gini coefficient showed that there has been an increase of female admissions in prison compared to the male admission in percent in non-violent crimes.

Figure 3 Illustration of the change in the woman's occupation.

(Source for Figure 3: Secureteen, 2013)

2.1.2 Societal conditions

The societal conditions have improved, and more women go out and join the labour force. As women enter into white-collar jobs a correlating increase can be shown in crimes such as embezzlement, fraud and forgery (Heitfield og Simon 2002:54; McLaughlin og Shannon 2022:511). When the women become a part of the labour force there was a rise in dual-earned families. A consequence of the females getting more independent is a rise in divorces, followed by a rise in female headed households and birth outside of marriage (Heimer 2000:447; McLaughlin og Shannon 2022:511).

2.1.3 Gender equality

Differences from what offers a male inmates get, and a female inmate gets in Norwegian prisons: has been seen an inequality between the female correctional facilities and the male correctional facilities. The females have not gotten a good enough facility service to get visitors, compared with male facilities. The hygienic needs a women have is not met at the facilities as the facilities often have collective bathrooms and showers, not meeting the hygienic needs when women are on their period or in menopause (Vige 2019:13; Aanstad, Solli, og Tvedten Smith-Gahrsen 2020:42; United Nations Human Rights 2014)The goal of the Norwegian correctional facilities and the Bangkok rules made by the UN is for all

women in prison to have a minimum of these rights met, even though it is still not a practice for it. (Kriminalomsorgen u.å.; United nations 2011)

The women face unique challenges by living in prison, because of living conditions that are not made for women and their health physical or psychological (Anon 2019). There are often put into isolation if they are placed in facilities that have both men and women. The facilities are often understaffed and do not have the time or prioritize the women since they are a minority (Vige 2018:17).

The Proximity principle in Norway correctional system says that an inmate should serve the sentence as close to where they live as possible. This is important for the inmate to be able to have visitors and for their family, friend and children to be able to visit (Vige 2019:46; Aanstad mfl. 2020:38). This is important for the inmates for their mental health. It will be hard for the next of kin to be able to visit because of time spent travelling and because of personal economics (Stangeland 2022:3).

The goal is for the women to have the same rights as men when it comes to have equal programs, rights, privileges, and facilities (Zaitzow og Thomas 2003:35). Ideally the men and women would be given the same treatment, however there are variations between a man and a woman that makes the equality treatment difficult.

There has been a change of the gender gap in the higher educations. In the 1960 only 39 percent was female undergraduates, now the females outnumber the males in college in the U.S (Goldin, Katz, og Kuziemko 2006:138). While the outside world has more women than men at this time to take a higher education in recent time, this is not reflected within the correctional facilities. Education in prisons have been made for the largest participation group of inmates: men.
In Norway it is normal for the all-female correctional facilities to have a lower effort in education in the facilities. In the mixed facilities the offer is better, but still not sufficient for women. The education have often targeting traditionally masculine professions like carpenters (Vige 2018:40). While in some prisons there have been opportunities to learn cosmetology, office skills, sewing and horticulture, this does not train the women to be legitimately independent when released (Zaitzow og Thomas 2003)

There have traditionally been more admissions of men in the correctional system than women. This is still the trend, but the increase in prison admissions of female inmates has

increased at a higher rate than with men (Bucerius og Sandberg 2022) this especially in drug charges.

Women are most represented in self-harm and suicide statistics in prisons (Jewkes mfl. 2019), although they only make up 5% of prisoners. This article describes the importance of introducing TICP (trauma informed care practice). The article mentions the importance of TICP being implemented along with prisons becoming less institutional and resembling the world outside more. It is written about budget cuts that result in fewer employees, older buildings are not maintained, etc., such as in Norway.

2.2 Institutional Background

The prison system is designed to punish individuals who have been convicted of crimes by removing them from society and restricting their freedom. However, prisons also serve other purposes, including rehabilitation, deterrence, and incapacitation. The prison system in itself consists of wide range of components, such as correctional officers, administrative staff, medical personnel, educational and vocational programs, and various types of facilities, such as maximum security, medium security, and minimum-security prisons. Overall, the institutional background of the prison system is complex and multifaceted, and it is subject to ongoing scrutiny and debate about its effectiveness and impact on society.

The imprisonment is meant to deprive the inmate for the basic right to liberty. It is not meant to deprive the inmate of the human rights, other than what is a natural consequence of being in prison. The UN promotes prison reforms (United Nations u.å.). Although women still comprise a small percentage of the total prison population in countries in North America, Western Europe, and Latin America, their numbers have been rising in the past two decades. This article is a literature review of a new and dynamic field of scholarship that maintains that this increase is a by-product of three interrelated factors: the war on drugs, globalization, and prison building. First, using international pressure, the United States has imposed its federalized and militarized drug war on the governments of other nations. Second, the transfer of U.S.-led neoliberal economic policies, fuelled by globalization, has marginalized poor women of colour in modern and developing nations. As a result, many of these women have become involved in criminalized behaviours, including drug trafficking, as a means of economic survival. In this post-September 11 environment, transborder crossings are closely monitored, increasing the likelihood of arrest. Third, in an effort to contain surplus populations created by economic restructuring

the United States has promoted a social policy of mass incarceration. The union of these three factors results in the greater likelihood of the arrest, detainment, prosecution, and imprisonment of poor women of colour. The article concludes with a brief discussion of the experiences of women in global prisons and recommends strategies to curtail women's imprisonment (Reynolds 2008) to help the human rights to be a part of the program in prisons around the world. The prison system also has a significant impact on society, including the families and communities of those who are incarcerated. The high cost of incarceration, the impact on children of incarcerated parents, and the disproportionate incarceration of marginalized communities are all issues that have been raised in discussions about the prison system.

There are many different types of sentencing around the world, some of them are: parole or probation, incarceration, and death (capital punishment). In 2019 there was 20 counties that had recorded executions (Amnesty International 2020).

Next to all the countries of the world has agreed to follow the guidelines of the UN prison reforms. The adoption of the UN Rules for the Treatment of Women Prisoners and Non-custodial Measures for Women Offenders (Bangkok Rules) in December 2010 aimed to improve conditions and rehabilitative opportunities for women in prison. There has been some progress in many countries, but there are still a rise in the female prison population, and there is still inadequate research and data available on the situation of women in prison. Women remain at high risk of physical and sexual abuse and compromised access to healthcare services. Recent studies show that poverty, homelessness, mental health, substance use, and being coerced into criminal offending are all factors linked to female imprisonment. The UN Standard Minimum Rules on the use of Non-custodial Measures (Tokyo Rules), adopted 30 years ago, commit governments to use alternatives to imprisonment, which are still relevant today. The Tokyo Rules link increasing prison populations and prison overcrowding, which create difficulties for the proper implementation of the UN Nelson Mandela Rules. The Tokyo Rules should guide responses to the coronavirus pandemic to prevent the dire consequences of the disease rampaging through places of detention. Some governments have released significant proportions of prison populations and brought prison admissions to a minimum through the use of alternatives (United Nations Office on drugs and crime 2021).

When looking further into the institutional background of the penal system it would be difficult to incorporate all the different systems of the world. We will therefore present part of the Norwegian penal system to show some of the conditions women face here and acknowledges that there will be parts missing from the big picture. The Norwegian penal system is based on the principles of rehabilitation and reintegration into society. The maximum prison sentence is 21 years, but most sentences are much shorter. Prison conditions in Norway are considered to be relatively comfortable and focus on providing inmates with opportunities for education and job training. The aim is to reduce the likelihood of reoffending and to promote successful reintegration into society upon release. Norway also has a low recidivism rate, with a strong emphasis on alternative forms of punishment such as community service and fines.

A survey conducted by JURK (Legal Advice for Women) (Aanstad mfl. 2020) on the experiences of women in Norwegian prisons, found that maintaining and strengthening social relationships while serving time is a key factor in returning to society. However, the survey participants reported numerous challenges and obstacles that weaken their social relationships, due to a lack of accommodation for social contact during their incarceration. Many women reported serving far from their homes, making it expensive and/or difficult for family and friends to visit. The text also describes the inadequate conditions of female prisons in Norway, specifically with regard to sanitation and living conditions. The prisoners are lacking private restrooms, and the shared areas are not suitable for socializing. There is also a shortage of outdoor areas that allow for movement and exposure to sunlight. Some outdoor areas are small and lack physical activity opportunities, and there is no place to seek shelter during inclement weather, with some places having no seating outside.

In an assessment of health and care needs among prisoners done by The Center for Care Improvement (Senter for omsorgsforskning) (Magnussen og Tingvold 2022), findings show an increase in prisoners with particularly extensive health and care needs and both staff and prisoners report prisoners with too many mental and physical problems to serve time in prison. A lack of capacity in the criminal justice system can cause non-acute health problems to be put on hold for weeks and months. The lack of capacity in the criminal justice system leads to prisoners experiencing rejections and cancellations when it comes to participating in activities, which in turn leads to increased lock-up time. The prison buildings are described as not being well adapted for prisoners with health and care needs.

There are particularly challenging issues in allowing prisoners with serious mental health problems and prisoners with disabilities to participate in activities on an equal footing with other prisoners.

An analysis reveals variations in prison conditions and daily life between prisons, even between the same security level (Asp 2020). Furthermore, it shows that officers enforce and interpret rules and routines to different degrees, leading to unequal treatment of women. Because women make up a minority of the prison population, they also experience being downgraded in comparison to men. For example, this can be seen through previous experiences of exclusion from work opportunities, leisure activities and drug management units at a now closed mixed prison. The fact that women feel downgraded is also demonstrated through the limited opportunities for serving their sentence, which results in many of them serving far from home. This makes women's sentence experiences vary primarily based on three factors: which prison they are serving at, who is on duty, and their gender. However, research finds that women are associated with even worse upbringing and living conditions. Despite this, some women feel that there is no room in society's expectations for them to end up "off track", as one participant called it. The picture becomes even more complex when the role of motherhood is taken into account. The analysis finds that women experience being a mother in prison as not only breaking with society's expectations of them as women and mothers, but also with their own expectations. Furthermore, it is difficult to "play the role of mother" from prison, and visiting facilities are considered inadequate. As a result of the limited opportunities for serving their sentence, many women serve far from home, making it impossible for them to visit and physically participate in their child's life.

In reality, female prisoners are subjected to isolation, although it is not legally considered as such. This is due to insufficient staffing to accommodate both men and women, as well as a lack of priority for women who are in the minority.

In 2017, the Norwegian Correctional Services approved a strategy for women in custody and criminal execution witch states that women should be housed in separate prisons or units designed for women. There are fewer female convicts compared to male convicts, so there must be sufficient attention and support for these women. Information must be easily accessible regarding the framework for female convicts and their situation. Female convicts should have the same offerings as male convicts. Many female convicts have

experienced abuse and violence, and procedures must be in place for their security. All those working with female inmates and convicts should be equipped with special expertise on women in prison. The purpose of the strategy is to ensure that women in prison and under community supervision are given equal treatment as men.

Overall, the institutional background of the prison system is complex and multifaceted, and it is subject to ongoing scrutiny and debate about its effectiveness and impact on society.

Figure 4 Graphic illustration on the goal of rehabilitations

(Source to figure 4: Council of Europe portal, 2023)

3. The construction of hypotheses

We have formulated seven research questions to help answer our problem statement. We will answer them with the help of regression analyses. Here we will interpret the different regression coefficients, further on referred to as “beta”, of our different variables. This will tell us if an expected change in the independent variables will have a positive or negative relationship with our dependent variable the female prison rate of the total prison population. Our first research question can be defined as the following hypothesis:

H0: There is no correlation between a countries GDP per capita PPP and the number of women in prison.
H1: There is correlation between a countries GDP per capita PPP and the number of women in prison.

On the background of the literary review, which have shown that there is some positive correlation between the female prison population rate and GDP growth rate for the 27

countries in their article (Heitfield og Simon 2002) we also hope to show that we can reject the null hypothesis, that there is no correlation between the level of income for women or in a country in general and the percentage of women in prison.

Hypothesis 2:

H0: There is no correlation between how the wealth in a country is distributed and the percentage of women in prison.

H1: There is correlation between how the wealth in a country is distributed and the percentage of women in prison

Hypothesis 3:

H0: There is no correlation between a country's level of female legal rights and the number of women in prison.

H1: There is correlation between a country's level of female legal rights and the number of women in prison.

Hypothesis 4:

H0: There is no correlation between the level of gender equality/inequality in a country and the number of women in prison.

H1: There is correlation between the level of gender equality/inequality in a country and the number of women in prison.

Hypothesis 5:

H0: There is no correlation between a country's fertility rate and the number of women in prison.

H1: There is correlation between a country's fertility rate and the number of women in prison.

Hypothesis 6:

H0: There is no correlation between how a country scores on the Human Development Index and the number of women in prison.

H1: There is correlation between how a country scores on the Human Development Index and the number of women in prison.

Hypothesis 7:

H0: There is no correlation between a country's democratic level and the number of women in prison.

H1: There is correlation between a country's democratic level and the number of women in prison.

In the analysis chapter 7 of the thesis we will look closer on these hypotheses.

4.Overview of existing theories and mechanisms

There are several theories and mechanisms behind women's imprisonment, including social, economic, and political factors. When looking further into some of the theories and mechanic we have used the United States for examples, this because they are by far the country with the biggest female prison population in the world. Here are some of the key points:

4.1 Economic factors

Economic factors can play a role in women's imprisonment. Factors that are related to crime can be: poverty, unemployment, labour markets, reduced function in families and neighbourhood among others. It is not an automatic result that poverty equals crime, but there is an increase of likelihood that that a criminal is living in poverty (Webster og Kingston 2014).

Economies grow when more women work. The economic empowerment of women strengthens productivity and results in higher economic diversification and income equality (United Nations Human Rights 2014).

Women who are formerly convicted of crimes may face difficulties finding employment after they are released from prison, which can make it harder for them to reintegrate into society. As a consequence of Covid-19, The United States (Stabley 2021) has an increasing unemployment rate. When the unemployment rate is high it is harder for former incarcerated people to get employment. The unemployment rate in 2020 was 15% in the general US population, while for formerly incarcerated people the unemployment rate was 27%.

4.2 Societal factors

Women's imprisonments are often linked to societal factors such as poverty (see also economic factors), lack of education, and exposure to violence. Many women who end up in prison have experienced physical, sexual, or emotional abuse, and may have turned to drugs or other criminal activity to cope with their circumstances (Rich, Wilson, og Robertson 2016).

In the US former prisoners have a harder time if they want to take a college degree than their peers. Many of them lack high school degree and have a less optimal background to get into college. To be a candidate that will be accepted into a college, it is necessary to send an application to the college. In the college applications it usually includes questions about criminal history among several questions, that is taken into consideration when the college choses the students. Pell grants and federal student loans are unavailable to former prisoners and reduces the possibility for taking a college education (Couloute 2018).

4.3 Political factors

Political factors such as the tough-on-crime policies that have been implemented in many countries have also contributed to the increase in women's imprisonment. These policies have resulted in longer prison sentences and harsher penalties for drug offenses, which have disproportionately affected women (Empower Missouri 2020).

After the terror 9/11 the there was an increase in border control in large part of the world. One of the consequences was an increase in the discovery of drug related crimes. (Reynolds 2008).

With globalization the economic opportunities for many women have increased, but for women of colour living in poverty these opportunities are usually not available. This leads these women into criminal actions like drug-related, low-paid work or sex work. (Pierce mfl. 2017).

Drug tests shows a relationship that individuals that test positive for drugs are more likely to have a criminal record. It shows that a reduction of the possibility opiates, may reduce offending.

The Coloured and Hispanic women are statistically more likely to be incarcerated. The main reasons of incarceration are Property and drug offences. The likelihood for a poor coloured woman to get incarcerated is higher than for a white woman(Anon 2019)

4.4 Institutional factors

Institutional factors such as the lack of access to healthcare, education, and job training programs in prisons can contribute to the cycle of reincarceration for women. In addition, many prisons are not designed to meet the unique needs of women, such as providing adequate hygiene products or accommodating pregnant women (van den Bergh mfl. 2011).

The Universal Declaration of Human Rights is the most important document in the international work for Human Rights. It was enacted by the UN General Assembly in Paris on the 10th of December 1948 (United Nations 2023). It contains a total of 30 articles including both civil and political rights. This includes among other things: the right to privacy, the right to free speech, the right to freedom of religion, ban of torture and ban of discrimination. The articles also include economic, social, and cultural rights, like the right to social security, the right to work, the right to an adequate standard of living and the right to education.

The UN have made a list of seventeen sustainable development goals that have a timeline to 2030. These goals aim to improve the world, by taking action to prevent poverty and inequality, work towards the health of the people and the planet, and for justice and prosperity. The last of the seventeen goals is partnership for the goals, this brings the society together to take actions and make things happen. This shows a relationship of a collected goal and the strength of unity (World Health organization 2015).

Figure 5 The United Nations sustainability goals

(Source Figure 5: United Nations, 2023)

4.5 Gender-based factors

Gender-based factors can also contribute to women's imprisonment. For example, women who are involved in prostitution or who are accused of infanticide may be subject to harsher penalties than men who commit similar offenses (Gross 2019). Additionally, women may be more likely to be incarcerated for nonviolent offenses such as drug possession, which can lead to lengthy prison sentences and a lack of access to resources and support systems.

The gender gap in pay is a mechanism of work and income. Working women in comparison with men are getting fewer working hours and lower pay for the work they do. They also have more unpaid care that keeps them from being able to have the same prospects as the men in the labour market (United Nations Department of economic an social affairs 2022).

A lifetime consequence of women earning less than men is the lost possibility to save and use resources. While in a short-time perspective is a challenge to pay for everyday expenses. The gap can be explained by discrimination of ethnicity, gender and race (Gaines 2020).

5. Methodology

We have used a quantitative research method by collecting data from The Institute for Crime & Justice Policy Research, The World Bank, United Nations and The Economist Intelligence Unit. When collecting the data, we had to process it in order to use it in our models. We evaluated which variables to use and organized them in excel spreadsheets by categories. Processing the data included, removing irrelevant data, convert data to the same format and managing missing values. To be able to process the data and use it in correlation tests and regressions. The collected data used have been the latest available numbers closest to 2021.

5.1 Regression

The relationship between a dependent variable and one or more different independent variables can be explained by using regression analysis (Ubøe 2019). When we have one independent variable it is a single regression model, when we have more than one explanatory variable it is a multiple regression model.

In our regression analysis we have used the female prison population rate as our dependant variable. The independent variables we have used were: Gross Domestic Product per capita purchasing power parity, Gini, Women's legal rights, gender inequality index, fertility rate, human development index (HDI) and democracy index. The variables are further explained in chapter 6 Data.

Starting with the single regression analyses using the dependent variable and the chosen variables individually, we formulated the following models:

$Y = \alpha + \beta * X$

Where X can be GDP, Gini, WLR, GII, FR, HDI, DI

In the multiple regression the dependent variable and three of the independent variables are in the equation:

$Y = \alpha + \beta * GDP + \beta 2 * FR + \beta 3 * DI$

$Y = \alpha + \beta * GDP + \beta_2 * LR + \beta_3 * DI$

Explanation of the abbreviations: GDP = Gross domestic product per capita PPP, Gini = Gini index, WLR = Women's Legal rights index (Women, business and the law Score), GII = gender inequality index, FR = fertility rate, HDI = Human Development Index, DI = Democracy index.

To interpret the regression, we need to know what the parts of the equation tells us. Alpha is the constant that tells how big the dependant variable is, if the independent variable is zero, and thereby shows the intersection of the y-axis. Beta is the rate of increase which tells us about a change in a dependent variable associated with a change in an independent variable.

In this thesis we have carried out several regression models. As shown in chapter 7.

We have taken the individual independent variables and measured the association between dependent variable and each independent variable. This helps us examine contexts of our dependant variable and our independent variables.

By using regression as analysis, we wanted to examine whether or not there are contexts between female percentage of the total prison population and variables that may show association with an increase or stagnation of female admissions in prisons.

To make an analysis we used regression. After collecting data, we put them together in excel spreadsheet and used excel to run correlations. We run regressions using the program RStudio and the package stargazer (Hlavac 2022). A regression analysis shows the connection between two or more variables. We made a regression with several independent variables used in the analysis.

5.2 Hypothesis testing

When completing the regression analysis, the results give us the beta coefficient of the independent variables. If $\beta = 0$ for one of the independent variables, there are no connection between the dependant and the independent variable. If the beta coefficient is significantly different from 0, there are a connection. When there is a positive number >0, it tells us that there is a positive correlation, while if there is a negative number <0 it tells us that it is a negative correlation.

H_0: There are no correlation between the variables; $\beta = 0$

H_1: There are a correlation between the variables; $\beta \neq 0$

5.3 Limitations of using Ordinary least squares Regression (OLS)

When doing a linear regression there are data sets who are put in order to see if there are a relationship between a dependent variable and an independent variable (simple regression), or more independent variables (multiple). OLS is a method used to find the best fitted – line of the used dataset when using linear regressions. Limitation of using the OLS is that it captures the linear relationship, while the real relationship can be non-linear.

5.4 Correlation and causality

Correlation and causality are concepts that are often used in research and statistical analysis. They may be related but they are not interchangeable. The difference between them is vital.

Correlation is a statistical method to show if there is a liner association between two continuous variables. It tells us if it is a positive or negative relationship by having a positive or negative sign.

While Causality explains the capacity for one variable to influence another. It can be looked at as a direct consequence of something happening.

In summary, correlation refers to a relationship between two variables, while causality refers to a relationship in which one variable causes the other variable to change.

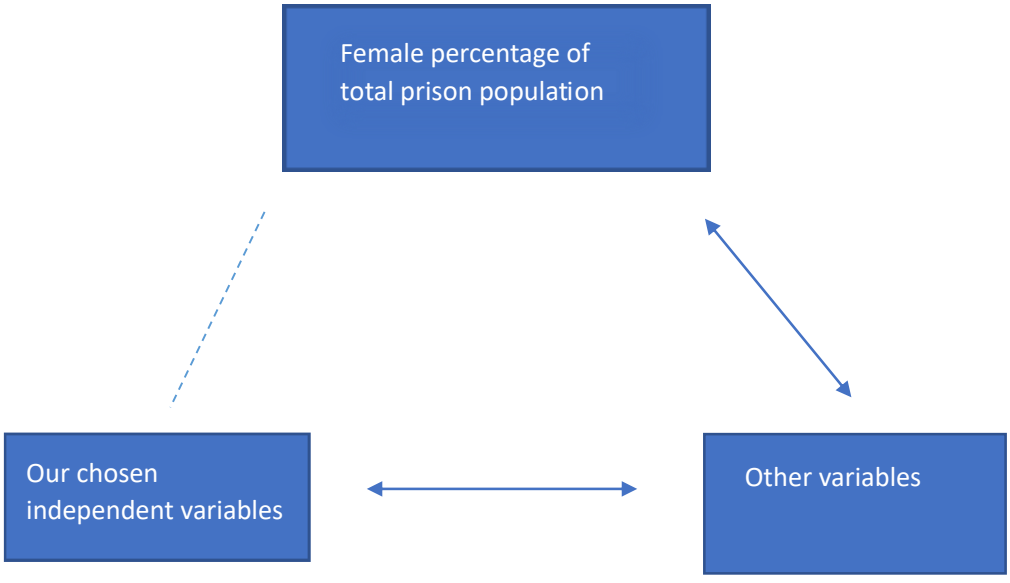

Figure 6 Causality and correlation

Figure 6 presents how our dependent variable, the female prison population rate and our chosen independent variables may be correlating. The dotted line illustrates a correlation,

while the solid arrows indicate a causality. We cannot prove causality in our thesis as there can be many underlying reasons for causality.

5.5 Validity and reliability

Validity and reliability are two key concepts in research that help to ensure the accuracy and consistency of findings. A study is valid if it accurately captures what it is intended to measure (Barber 2023). There are several types of validity, including face validity, content validity, criterion-related validity, and construct validity. Face validity refers to whether a measure appears to measure what it claims to measure, while content validity refers to whether a measure adequately covers all aspects of the phenomenon being studied. Criterion-related validity refers to the extent to which a measure is related to other measures that are known to be valid, and construct validity refers to whether a measure accurately captures the theoretical construct it is intended to measure.

Reliability refers to the consistency of a measure. A measure is reliable if it produces consistent results when used repeatedly under the same conditions (Barber 2023). There are several types of reliability, including test-retest reliability, inter-rater reliability, and internal consistency. Test-retest reliability refers to the consistency of a measure when used at different points in time, while inter-rater reliability refers to the consistency of a measure when used by different rates. Internal consistency refers to the consistency of a measure when different items on the measure are compared to each other.

In this thesis the data available made some restrictions of the possibility to compare all the countries of the world. This is a challenge discussed in chapter 6 Data.

For research to be considered valid and reliable, it must have strong evidence of both validity and reliability. This ensures that the findings of the study are accurate, consistent, and trustworthy.

5.6 Ethics considerations

Writing a thesis involves not only conducting research but also following ethical principles and standards. We have taken the following into consideration while writing our thesis:

Academic Integrity: we have tried our best to ensure that all information included in our thesis is accurate and reliable. Plagiarism is something we want to avoid and have focused on. We refer to our sources by using the APA6 style, in this way it should be easy for a reader to find the refences.

Data Protection and privacy: our research does not involve collecting personal information. This made it easier for us in handling and implementing our data.

Transparency: we have done our best to be transparent about our research methodology, data collection methods, and analysis procedures. This to ensure that our analysis and work can be replicated and verified by others.

Cultural sensitivity: hopefully we have written the thesis in a respectful manner so it can be read by readers of different cultures or backgrounds.

Conflict of Interest: in our research we could not exclude papers and articles that did not fit with our assumptions or theories. It is important to not let our own feelings or assumptions affect the gathering of data.

Overall, we hope we have written our thesis while maintaining high ethical standards and that we have done it with integrity.

6 Data

In this chapter we will present our dataset. We will also present our variables and how they are constructed and what they consist of.

6.1 Data providers

We have gathered data for our analysis from the following 4 data providers:

6.1.1 The Institute for Crime & Justice Policy Research

The Institute for Crime and Justice Policy Research (ICPR) was established in 2003. It is located at Birkbeck, School of law at the University of London, which is a centre of world-class legal research and scholarship. Their main focus in the research of the justice system is policing and the policed, courts, court users and the judicial process, prisons and the use of imprisonment. Their research consists of quantitative and qualitative methods, and the results are used to inform policy recommendations, develop practices and advocate for evidence-based reforms. They are known for bringing together researchers, policymakers, practitioners and communities to conduct research that addresses issues related to crime and justice (Institute for Crime & Justice Policy Research 2023).

6.1.2 The World Bank Group and World Bank data

The World Bank Group consists of five institutions: The International Bank for Reconstruction and Development (IBRD), The International Development Association (IDA), The International Finance Corporation (IFC), The Multilateral Investment Guarantee Agency (MIGA) and The International Centre for Settlement of Investment Disputes (ICSID). They have 189 member countries, with staff members from more than a 170 of these. Their data are related to various economic and social indicators and are used by researchers, policymakers, and practitioners to analyse global development trends (World Bank Group 2023). The platform World Bank data covers a wide range of topics, among them macroeconomic indicators, social indicators, and inequality indicators. They also publish reports, research papers and policy briefs based on their data.

6.1.3 The United Nations development program

The United Nations development program (UNDP) is United Nations lead agency on international development. They work in 170 countries to help with leadership skills, partnering abilities, institutional capabilities, and development policies, to eradicate poverty and reduce inequality. Their mission is to help countries achieve The Sustainable Development Goals. These are 17 goals to address challenges such as poverty, inequality, climate change, peace and justice. In addition to the development work at country level, the UNDP also play a key role in coordinating and supporting global efforts to achieve the sustainable development goals (United Nations Development Programme 2023)

6.1.4 Economist Intelligence Unit

The Economist Intelligence Unit (EIU) is the analysis and research division of the Economist Group (Economist Intelligence 2022). EIU was established in 1946 and is the sister company to the newspaper The Economist. It was created to answer the questions of The Economists readers. With over 70 years of experience, they are at the forefront of providing forecasting and advisory services to businesses, financial firms and governments.

6.1.5 Validity and reliability of the data

We have evaluated the validity and reliability for the data used from the 4 dataset providers. We consider all the data to be valid, reliable and of high quality. However, we acknowledge that any of our chosen datasets may have limitations or inaccuracies that should be considered when we interpret the results. Some of these limitations may include

incomplete coverage of certain geographic areas or demographic groups, measurement errors or inconsistencies, and issues related to data collection or sample design.

The ICRP uses a range of data sources, including primary research, public data sources, and administrative records, to produce its data. To ensure the validity of its data ICRP employees at team of experts who are responsible for the design and implementation of the data collection processes. The organization also provides clear documentation and metadata for its data, including information on the sources, methods, and limitations of the data. In addition, ICPR has a peer review process in place, where experts in the field of criminology and criminal justice review and validate its data. This peer review process helps to ensure that the data produced by ICPR meets the highest standards of reliability and accuracy (Institute for Crime & Justice Policy Research 2023) .

The UNDP also uses a team of experts in ensuring the validity of the data, as does The World Bank and EIU. They also provide clear documentation and metadata for its data, including information on the sources, methods, and limitations of the data, enabling us to understand how the data was collected. They all have a peer review process in place (Economist Intelligence 2022; United Nations Development Programme 2023; World Bank Group 2023).

6.2 Our dependent variable

6.2.1 The female prison rate of the total prison population

When choosing our dependent variable, we wanted a variable that would let us measure cross sectional date between countries as well as some time series data. We found some extensive research by The Institute for Crime & Justice Policy Research's (ICPR). Their fifth edition of the World Female Imprisonment List (Fair & Walmsley) presents the number of women and girls held in penal institutions in 221 prison systems in independent countries and dependent territories around the world.

The World Female Imprisonment List is constructed and divided into three main reporting methods of the female prison population. The total number of female prisoners per country. The female percentage of the total prison population (men and women) and the female prison population rate, which is the number of imprisoned females per 100.000 of the national population. We have constructed our own rate, taking the total female prison population divided on the total prison population. Which gives us the female prison

population rate of the total prison population (further on referred to as the female prison population rate). Mainly because we think that this is easiest to compare between countries, without having to consider the ever-changing national populations. There is off course to parts of a fraction and the total number of the prison population will influence our rate. Implying that how the number of men in prison evolves will influence our rate. The original sources for the data in the list are the national prison administration of each country or the Ministry responsible for the prison administration.

6.2.2 Skewedness

A linear regression model makes a good number of assumptions for the data we provide. And more reliable predictions are made if the variable is normally distributed. Seeing that our dependent variable the female prison rate is left skewed, Figure 7, we needed to modify it before we use it in our model.

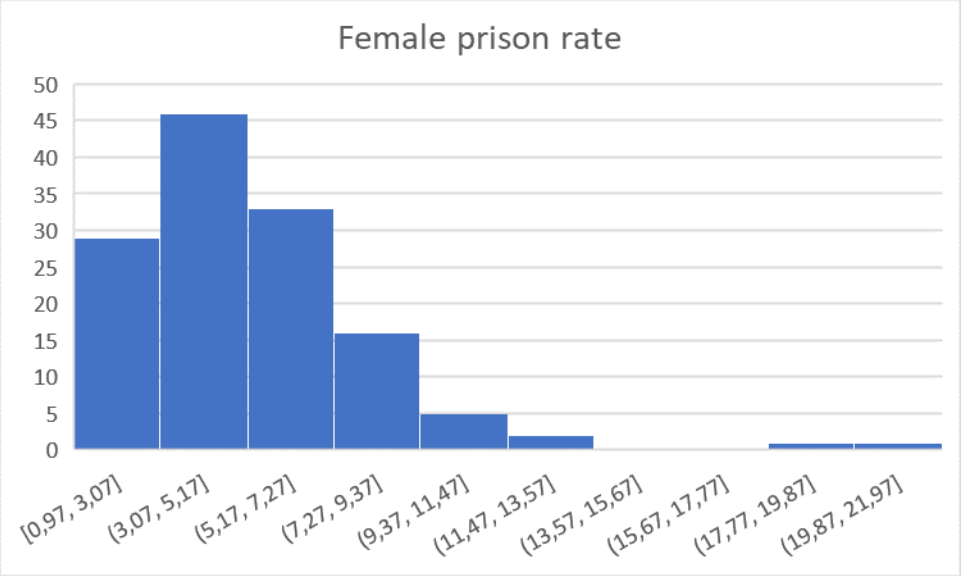

Figure 7 Histogram of the female prison rate, to show skewness

We transform the variable so that it is less skewed, (Turney 2022) applying the same function to all the observations, we used log transformation to remove the skewness from our dependent variable, shown in Figure 8.

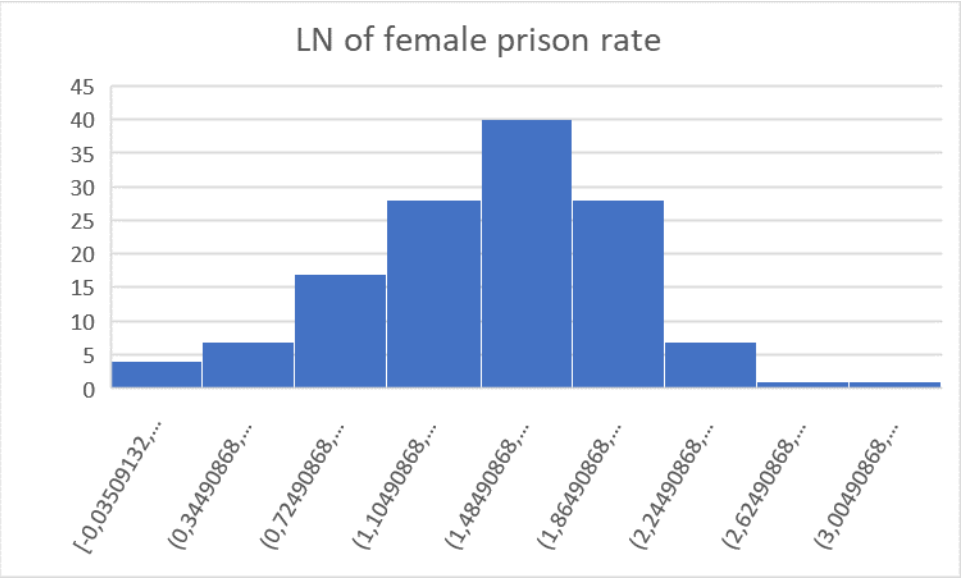

Figure 8 Histogram of LN of female prison rate

6.3 Our independent variables

6.3.1 Gross Domestic Product per capita purchasing power parity

Different organizations such as IMF and The World Bank report Gross Domestic Product (GDP) per capita purchasing power parity (PPP) numbers. We have chosen The World Bank who started to calculate all countries' GDP in 1966 but recognize that the numbers provided by The World Bank may differ from other organizations. GDP has since its implementation become one of the most used indicators to measure the economic performance of a country. GDP per capita PPP is a measure of the value of all goods and services produced within a country's borders over a specified period of time, usually a year, divided by the number of residents of the country. This includes everything from the food we eat to the cars we drive, and the services we use, such as healthcare, education and in our case the prison service. The value of intermediate goods and services, which are used to produce final goods and services, are not included to avoid double-counting. We use the PPP model because it takes into account the relative cost of living and the inflation rates and gives a better picture of the differences in living standards. However, it is not a measure of personal income and the distribution of wealth within a country. Other limitations can also be labour force participation and inequalities related to this, volunteer work and natural consequences like climate change or natural disasters.

We have extracted the GDP per capita PPP numbers from The World Bank data centre and aligned them country by country with the female prison rate numbers. The data for the

female prison rate consists of as earlier mentioned 221 prison systems in independent countries and dependent territories and 186 countries from the GDP per capita PPP list. Therefore, we first subtracted the countries and territories that were not on both lists and then those that had missing data, for when calculating correlations in excel, R-studio doesn't take into account missing data in columns. That brought the total number of countries down to 161. The countries we subtracted consisted of small countries and island states with a national population of under 200 000 (with the exception of Chad 12,42m, Costa Rica 5,15m, Ivori Coast 28,85m, Hong Kong 7,39m, Korea 51,25m, Syria 17,68m, Timor-Leste 1,29m, Turkmenistan 5,24m, Venezuela 33,84m, Yemen 28,12m, Kosovo 1,8m, Puerto Rico 3,2m and Taiwan 23,53m). Table 5 shows a list of the countries that are compatible. This sort of comparison and compilation of the datasets have been done for all the variables but will not be individually commented on, see also 6.4 Limitations of the constructed dataset.

When computing our regression, we check how well distributed our dataset is, we use the diagnostic plots from R for this, checking if the regression assumptions are satisfied by checking the residuals. This is done for all our variables but just presented for the GDP per capita PPP variable.

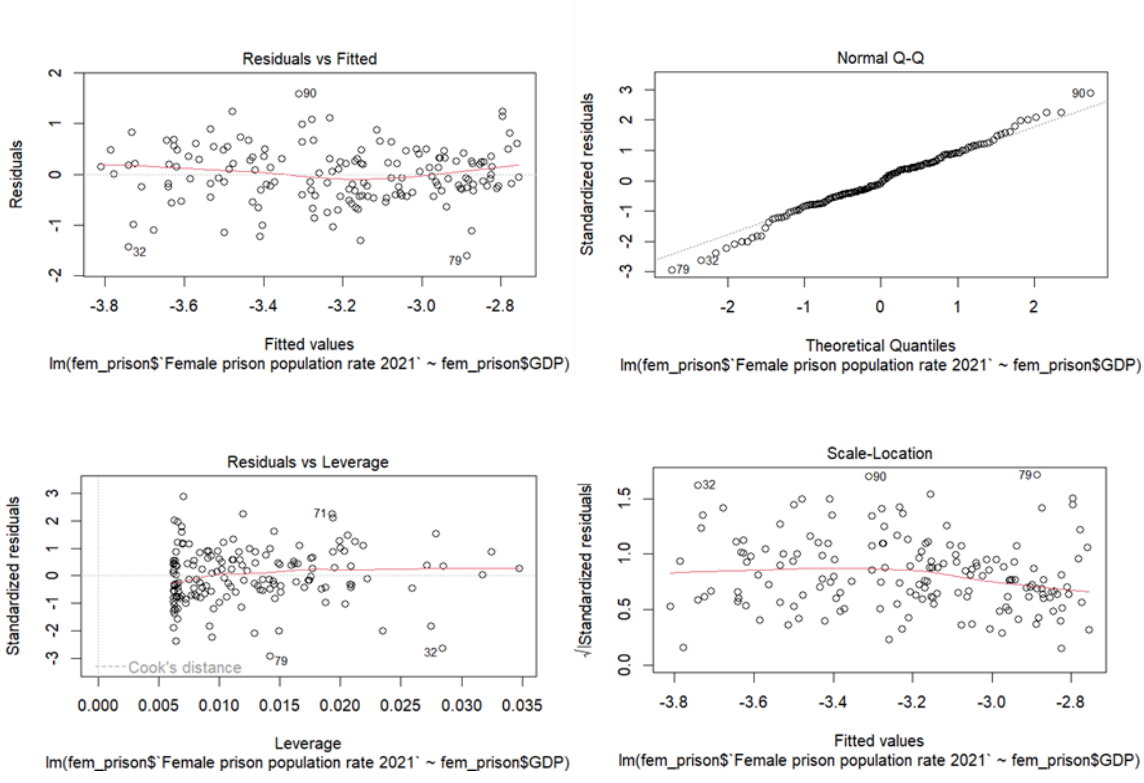

Figure 9 Analysis plots per capita PPP

6.3.2 Gini index

The Gini index measures the income distribution within a country or a population (Epland og Tuv 2023). In a country like South-Africa there is a few very rich people and very many poor people. In Norway we would say that the distribution is more evenly distributed with few people with very low income and few people with very high income. The Gini index helps to shed light on the extent of these income disparities. The countries rated on the Gini index is measured by a Gini-coefficient extending from 0 to 1. In a country with the score 0 all residents have the same income, while a country with a score of 1 would have one resident having all the income.

The Gini-coefficient makes for a quite complicated calculation, it was invented by the Italian statistician, Corrado Gini in 1912. The index is often used by international organizations that highlights inequalities. We have collected our Gini-numbers from The World Bank data. They show that South-Africa is the country with the biggest differences with a Gini-coefficient of 0,630, Norway is at number 16 with a coefficient of 0,277 and Slovakia is the country with the lowest differences at 0,232. The GINI numbers are often reported as percentages.

A weakness when measuring Gini is that it does not take into consideration if a country has a large, retired population. It is not gender related as well so the numbers will not reflect on this.

6.3.3 Women's legal rights

We have collected data from The World bank report; Women, business and the law 2023 (World Bank 2023), where the countries are scored on the basis of eight indicators which measures legal differences between men and women at different stages of a woman's working life, making up the women, business and the law 2023 score. We have used this score for our independent variable and renamed it for simplicity reasons to women's legal rights.

The indicators for the score are mobility, workplace, pay, marriage, parenthood, entrepreneurship, assets and pension. The score is constructed based on feedback from experts in family, labour, and criminal law.

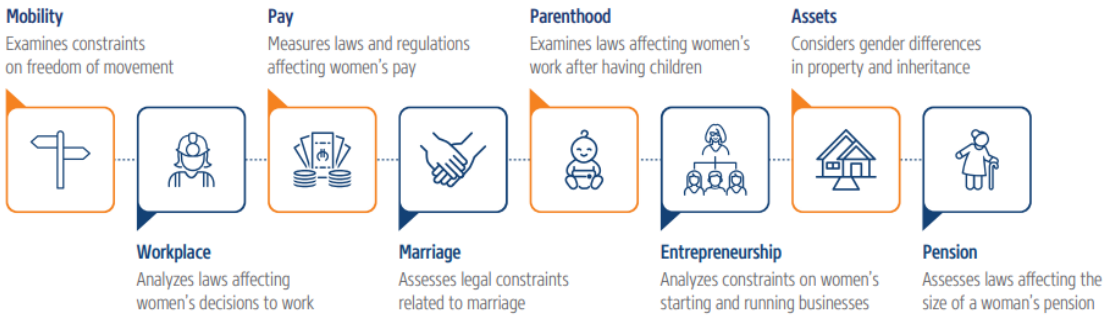

Figure 10 Legal rights

(Source of illustration: WBL report p.2, 2023)

Mobility, addresses differences in the rights of men and women to choose where to live, travel outside the home, get a passport and be able to leave the marital home at their own choosing.

Workplace, analyses laws influencing women`s decisions to work. It could be their ability to enter the labour market, including their legal capacity or protections against discrimination and sexual harassment.

Pay looks at laws and regulations contributing to the gender wage gap. Are there laws in place to make sure that men and women get equal pay for equal work.

Marriage assesses legal restrictions related to marriage and divorce. This also affect women's ability to become head of the household.

Parenthood examines laws regarding women`s work after having children. Especially focusing on paid leave and laws that enables firms to dismiss women workers when they are pregnant.

Entrepreneurship analyses constraints on women starting and running businesses. Unequal legal treatment of women who plan to start a business is a large reason for why there is 68 women entrepreneurs for every 100 men entrepreneurs, active globally (GEM 2022).

Assets, considers gender differences in ownership, use and control over property and inheritance, a large step on the way of leaving poverty.

Pension assesses laws affecting the size of a woman`s pension and here total economic security after leaving the workforce.

In 2010 there was no place in the world were women and men had the same legal rights to economic opportunity as measured by the score of the 8 indicators. This has now changed as 14 countries (Belgium, Canada, Denmark, France, Germany, Greece, Iceland, Ireland, Latvia, Luxembourg, Netherlands, Portugal, Spain and Sweden) all scored a top score of

100. Resulting in 93 million women of working age (15-64) now having the same legal rights as men in the areas measured. Figure 11 shows a map presenting the score around the world.

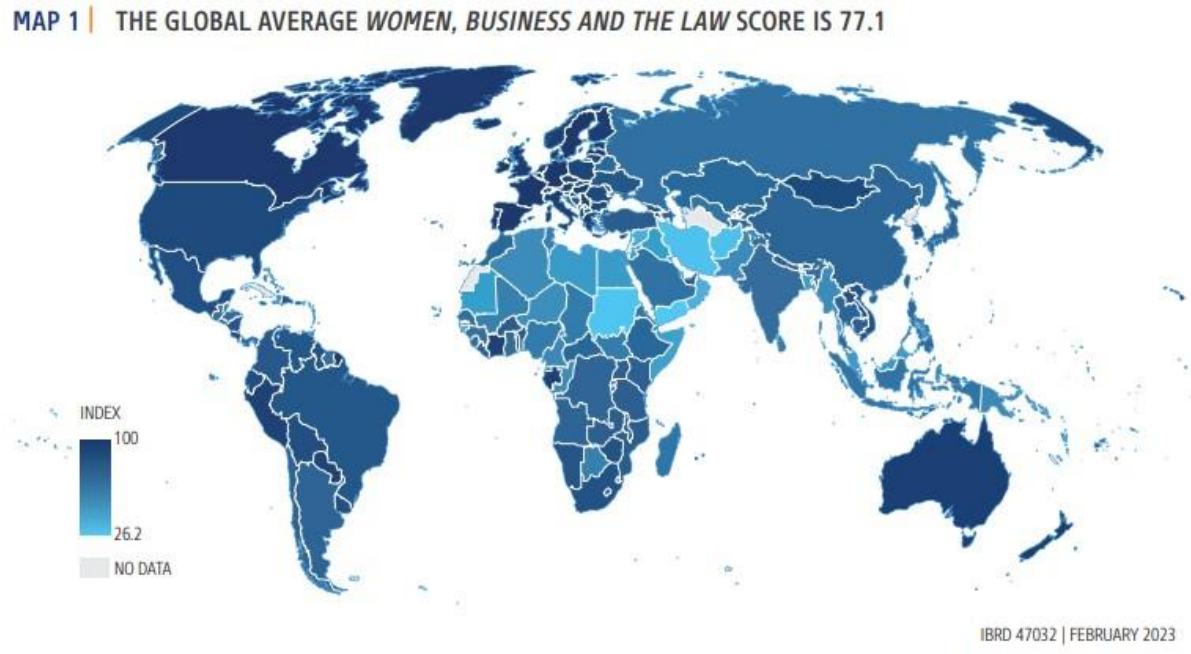

Figure 11 Map showing WBL Score

(Source of Figure 11 map: WBL report p.xiv, 2023)

It is worth noting that laws may differ across states or provinces and that there can be large gaps between laws enacted and actual practice. Economic, social and cultural factors can also play a role.

6.3.4 Gender inequality index

Gender equality refers to the concept of equal rights, opportunities, and treatment for individuals regardless of their gender. It means that both men and women should have equal access to education, healthcare, employment, and political representation, among other things. Gender equality aims to eliminate discrimination and bias based on gender and promote fairness and justice for all.

United Nations and their Development Programme has established the Gender Inequality index. Ranking the worlds countries and giving them a “value” between 0 and 1 on how they perform related to several gender topics. Where 0 is best and 1 is the worst.

The UN has divided the worlds countries into four groups of human development. They have calculated the Gender Inequality Index average for these groups:

Very high human development	0,155
High human development	0,329
Medium human development	0,494
Low human development	0,577

Gender equality refers to the concept of equal rights, opportunities, and treatment for individuals regardless of their gender. It means that both men and women should have equal access to education, healthcare, employment, and political representation, among other things. Gender equality aims to eliminate discrimination and bias based on gender and promote fairness and justice for all.

Gender inequality is a pervasive issue in many societies worldwide. Women often face barriers to accessing education, healthcare, and employment, as well as experiencing gender-based violence and harassment. Gender inequality can also limit men's ability to participate fully in family life and caregiving.

Promoting gender equality requires action at the individual, societal, and systemic levels. It involves challenging and changing gender stereotypes and biases, addressing discriminatory policies and practices, and ensuring that women and men have equal access to resources and opportunities.

Efforts to promote gender equality have been ongoing for decades, and progress has been made in many areas. However, there is still a long way to go, and ongoing efforts are needed to achieve true gender equality for all.

6.3.5 Fertility rate

The fertility rate measures the average number of children per woman, with the global average being around 2.3 children per woman, halved over the last 50 years (Roser 2014). This development is linked to the economic empowerment of women, generally correlated with greater wealth, education, urbanization, and other factors. South Korea is the country in the world with the lowest fertility rate of 0,837 and in the other end way past the world average is Niger with a fertility rate of 6,892 (World Bank Group 2023). We have collected our data from The World Bank who reports the fertility rate on an annual basis.

This indicator is often used to measure population growth and changes in family size over time. The total fertility rate is calculated using data on live births from vital registration systems, censuses, or surveys. When age-specific fertility rates are not available, a model is used to estimate the share of births to adolescents.

The fertility rate is often compared to the replacement rate. This rate presently at 2,1 tells how many children a woman in average will have to produce and who will survive to childbearing age for then to themselves have children to keep the population increasing. Countries that are facing a fertility rate lower than 2,1 children per women, will have an ageing population. While not producing enough children to replace itself, it will also eventually lead to a reduction in population. It is not yet clear what impact this declining and ageing populations will have on future sustainability (United Nations Development Programme 2007).

The United Nations and forecasters like (Sanyal 2011) projects that the human population will achieve zero growth sometime in the second half of this century. Factors that relates to the fertility rate in Nordic counties can be increased childlessness (voluntary and involuntary), higher first-time-mom age and a decrease of mothers with two children are having a third child. (Anon 2020)

6.3.6 Human development index (HDI)

The first Human Development Report came in 1990 and focused on people and their choices and opportunities (Nations u.å.).It supported a new way for advancing human wellbeing. Instead of thinking that economic growth will benefit all, human development is about giving people a chance to live lives they value. Where people can develop skills and abilities and get opportunities to use them. For example, a violation of this advancement would be when girls get access to schools and education but are denied access to work. To create the right conditions for human development the UN acknowledges three foundations that are important. To live a healthy, long and creative life, to be knowledgeable and to have access to resources that would make it possible to have a decent standard of living.

With the first Human Development Report came also the first Human Development Index (HDI)(Nations u.å.). It stands as a measure across countries of achievements in the fundamental dimensions of human development. It might be quite simple, but adjustments

have been made and are still incorporated to the index to ensure that it paints a broad picture of the global human development.

The three focus areas or dimensions of the HDI; health, education and standard of living are illustrated in Figure 12. It also shows the indicators for the different dimensions. Life expectancy at birth for health, expected years of schooling and mean years of schooling for education (knowledge) and GNI per captia (PPP $) for standard of living. The HDI is a summary measure (the geometric mean of normalized indices) for these dimensions.

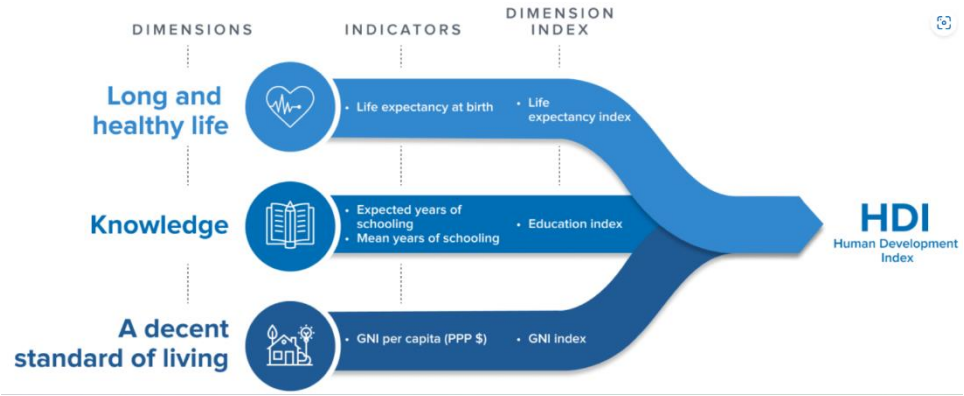

Figure 12 HDI dimensions and indicators (UNDP)

(Source of Figure 12 is collected from United nations development report, 2023)

The HDI ranks 191 countries worldwide. The calculations for each country on how they score on the index gives them a value between 0 and 1 with 1 being at the top end of the scale. The values for 2021 (latest available) ranks Switzerland (0.962) at number one and South Sudan (0,385) at number 191. The HDI also divides the countries into four group related to their score;

Very high human development	1,000 – 0,800
High human development	0,799 – 0,700
Medium human development	0,699 – 0,600
Low human development	0,599 – 0,000

Table 4 shows the average values for these four groups. It also shows the numbers for the three dimensions compiling the index. The differences are substantially.

Country	Human Development Index (HDI) Value 2021	Life expectancy at birth (years) 2021	Expected years of schooling (years) 2021 [a]	Mean years of schooling (years) 2021 [a]	Gross national income (GNI) per capita (2017 PPP $) 2021
Human development groups					
Very high human development	0,896	78,5	16,5	12,3	43 752
High human development	0,754	74,7	14,2	8,3	15 167
Medium human development	0,636	67,4	11,9	6,9	6 353
Low human development	0,518	61,3	9,5	4,9	3 009

Table 4 Human development groups (HDI index data extracted from UN data centre)

6.3.7 Democracy index

A democracy at its most basic is a type of government in which a countries citizens have the power to decide which laws will apply to them. This can be decided true a vote of the people or through elected officials who vote on their behalf. There are so many ways a country can be governed, that there can be one description for each. The Economic Intelligence Unit makes an annual report, the democracy index where they measure the state of democracy in 167 of the world's countries. The index uses 60 indicators in five different sectors to make a 0 to 10 scale of the sector ratings. The five sector scores are averaged to determine the overall index score. The sectors are electoral process and pluralism, functioning of government, political participation, political culture, and civil liberties. In addition, the EIU have divided the worlds countries into five categories of government, full democracies, flawed democracies, hybrid regimes and authoritarian regimes. Figure 13 shows the different ratings and the distribution of the world.

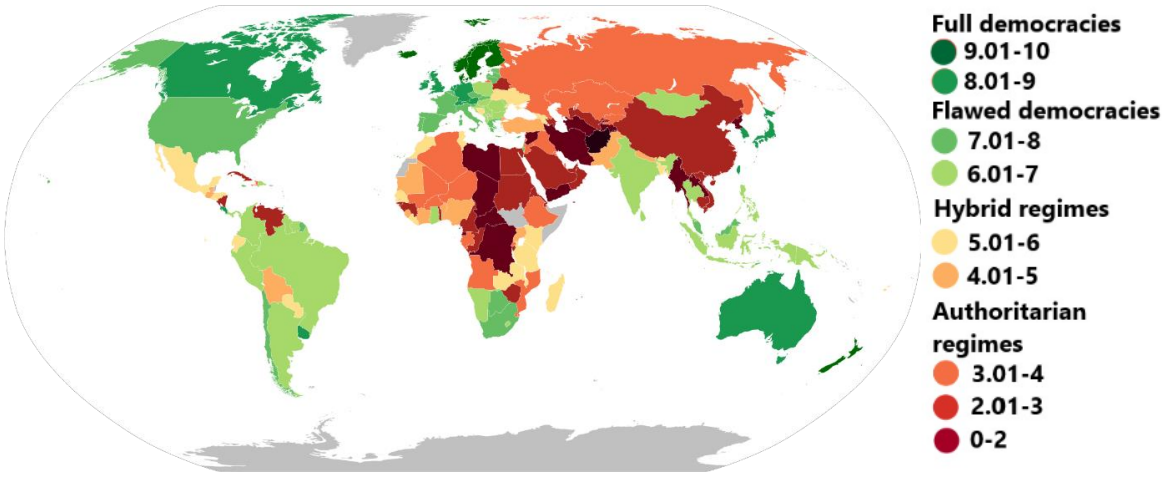

Figure 13 Map of democracy index of 2021

(Source of Figure 13 map: Wikipedia, 2023)

Full democracies are countries where political freedoms and civil liberties are fully respected and protected and with well-functioning democratic institutions. The media are independent and diverse, and the judiciary is independent and impartial. Elections are free and fair, and there is high participation by citizens in the political process.

Flawed democracies are countries where elections are generally free and fair, and there are some basic political rights and civil liberties, but there are significant weaknesses in other areas of democracy, such as government transparency, corruption, and media freedom. These countries may also have issues with political violence, discrimination, or inadequate legal frameworks.

Hybrid regimes are countries where elections may be held, but they are not always free or fair, and democratic institutions are weak or non-existent. These countries are often characterized by high levels of corruption, restricted political participation, and limited civil liberties. Hybrid regimes are often transitional states that are moving towards more democratic or authoritarian systems.

Authoritarian regimes are countries where political power is concentrated in the hands of a few individuals or groups, and where basic political rights and civil liberties are severely restricted or non-existent.

Norway ranks at the top of the scale with a score of 9,81 and Afghanistan is at the other end, being the least democratic country in the world with a score of 0,32.

6.4. Limitations of the constructed dataset and sources of error

There are always limitations when constructing a dataset. When selecting the countries for our analyses we could be subjected to selection bias. Meaning that we would only include certain countries, related to regime types etc. Another limitation we have to address is that the data for the countries in our dataset may not be complete or accurate. The data for the 221 prison systems in independent countries and dependent territories that make up the list for the female prison population rate is the latest available by august 2022. This means that for some of the countries, many of them authoritarian regimes, the data available is several and up to 20 years old (Oman 2002). We have set the limit to 2011, with many of our variables reporting for 2021, this constitutes to a 10-year difference. We would initially like to have this at a much tighter interval but needed to include these countries in order to make the list comparable to the other variables. This problem of having datasets that may not be comparable is a third limitation. What would make it less compatible is that we would have to exclude to many authoritarian and hybrid regimes. And then we would have to address the point on selection bias again. We don't think that our analyses are subjected to selection bias.

Table 5 is a list of all the countries that are compatible with the independent variables.

List of countries			
Afghanistan	Ecuador	Lesotho	Russian Federation
Albania	Egypt	Liberia	Rwanda
Algeria	El Salvador	Libya	Samoa
Angola	Estonia	Lithuania	Sao Tome e Principe
Argentina	eSwatini/Swaziland	Luxembourg	Saudi Arabia
Armenia	Ethiopia	Macau (China)	Senegal
Australia	Fiji	Madagascar	Serbia
Austria	Finland	Malawi	Sierra Leone
Azerbaijan	France (metropolitan France)	Malaysia	Singapore
Bahamas	French Guiana/ Guyane (France)	Maldives	Slovakia
Bahrain	French Polynesia (France)	Mali	Slovenia
Bangladesh	Gabon	Malta	Solomon Is.
Barbados	Gambia	Martinique (France)	South Africa
Belarus	Georgia	Mauritania	South Sudan
Belgium	Germany	Mauritius	Spain
Belize	Ghana	Mayotte (France)	Sri Lanka
Benin	Greece	Mexico	Sudan
Bhutan	Guadeloupe (France)	Moldova	Suriname
Bolivia	Guatemala	Mongolia	Sweden
Bosnia & Herzegovina - Federation	Guinea (Republic of)	Montenegro	Switzerland
Botswana	Guinea Bissau	Morocco	Syria
Brazil	Guyana	Mozambique	Taiwan
Brunei Darussalam	Haiti	Myanmar	Tajikistan
Bulgaria	Honduras	Namibia	Tanzania
Burkina Faso	Hong Kong (China)	Nepal	Thailand
Burundi	Hungary	Netherlands	Timor-Leste
Cambodia	Iceland	(France)	Togo
Cameroon	India	New Zealand	Trinidad & Tobago
Canada	Indonesia	Nicaragua	Tunisia
Cape Verde	Iran	Niger	Turkey
Central African Republic	Iraq	Nigeria	Turkmenistan
Chad	Ireland	North Macedonia	U.S.A.
Chile	Israel	Norway	Uganda
China	Italy	Oman	Ukraine
Colombia	Jamaica	Pakistan	United Arab Emirates
Comoros	Japan	Panama	United Kingdom
Congo (Republic of)	Jordan	Papua New Guinea	Uruguay
Costa Rica	Kazakhstan	Paraguay	Vanuatu
Cote d'Ivoire	Kenya	Peru	Venezuela
Croatia	Korea (Republic of)	Philippines	Vietnam
Cyprus	Kosovo	Poland	Yemen
Czech Republic	Kuwait	Portugal	Zambia
Dem. Republic of Congo	Kyrgyzstan	Puerto Rico (USA)	Zimbabwe
Denmark	Laos	Qatar	
Djibouti	Latvia	Reunion (France)	
Dominican Republic	Lebanon	Romania	

Table 5 List of counties

There are also limitations when putting the lists together. There are different numbers of countries included in the various lists for the variables:

GDP per capita PPP	161 Countries
GINI Index	140 Countries
Women's legal rights	181 Countries
Gender inequality	163 Countries
Fertility rate	172 Countries
Human development	170 Countries
Democracy index	159 Countries

The finale number of countries included in each of the regression models is presented in table 7 and table 8 output of regression models.

We have removed countries with a population lower than 200 000, and we also removed some countries with missing data. The lists over these countries can be found in our appendix.

Possible sources of error: when making the data set used for the analysis, we collected data from many sources. The sorting and organising was done manually, which makes room for human errors. If any of the data got mishandled it could weaken the thesis.

6.5 Descriptive statistics

All our predictor variables are measured on different scales, this prevents us comparing the relative contribution each predictor variable has on our dependent variable. However, since our main focus is the effect that the predictor variables have on the dependent variable, and not the comparison we use unstandardized coefficients.

For regime we created three dummy variables authoritarian, hybrid and flawed democracy.

Female rate	GDP	GINI	Womens legal rights	Gender Inequality
Min. :-5.179	Min. : 6.979	Min. :23.20	Min. :0.000	Min. : 1.30
1st Qu.:-3.586	1st Qu.: 8.502	1st Qu.:31.65	1st Qu.:2.451	1st Qu.:17.20
Median :-3.125	Median : 9.524	Median :35.80	Median :3.016	Median :36.20
Mean :-3.194	Mean : 9.377	Mean :37.44	Mean :2.825	Mean :34.20
3rd Qu.:-2.765	3rd Qu.:10.362	3rd Qu.:42.30	3rd Qu.:3.512	3rd Qu.:50.55
Max. :-1.555	Max. :11.171	Max. :63.00	Max. :4.615	Max. :72.50
	NA's :20	NA's :41		NA's :18

Fertility rate	HD Index	Democracy
Min. :0.837	Min. :38.50	Min. :10.20
1st Qu.:1.560	1st Qu.:58.77	1st Qu.:33.85
Median :2.055	Median :73.50	Median :57.10
Mean :2.570	Mean :71.95	Mean :54.19
3rd Qu.:3.373	3rd Qu.:84.50	3rd Qu.:71.70
Max. :6.892	Max. :96.20	Max. :97.50
NA's :6	NA's :11	NA's :22

Table 6 Descriptive statistics for dataset

7 Analysis

The purpose of this chapter is to answer our research questions. We have done this by separate simple regression analysis of all the independent variables against our dependent variable the female prison population rate. The output for this is shown in table 7 and table 8.

7.1 The variables

Table 7 and table 8 shows the beta coefficient for each of the independent variables. This is a simple linear regression with cross sectional data, meaning it is looking at the data at one period in time. The stars indicate the significance level for each beta coefficient. The values in the parentheses are the standard errors for each beta coefficient. Observations shows how many countries we could include in each of the regression models, see also chapter 6 Data. R squared explains how much of the variation in the dependent variable that is explained by the independent variable.

	Dependent variable:			
	`Female prison population rate 2021`			
	(1)	(2)	(3)	(4)
GDP	0.252***			
	(0.039)			
GINI		-0.007		
		(0.006)		
`Womens legal rights 2`			-0.160***	
			(0.040)	
`Gender inequality index`				-0.012***
				(0.002)
Constant	-5.572***	-2.940***	-2.742***	-2.766***
	(0.369)	(0.238)	(0.121)	(0.088)
Observations	161	140	181	163
R2	0.208	0.008	0.082	0.153
Adjusted R2	0.203	0.001	0.077	0.148
Residual Std. Error	0.554 (df = 159)	0.598 (df = 138)	0.603 (df = 179)	0.558 (df = 161)
F Statistic	41.699*** (df = 1; 159)	1.139 (df = 1; 138)	16.073*** (df = 1; 179)	29.090*** (df = 1; 161)
Note:				*p<0.1; **p<0.05; ***p<0.01

Table 7 Output from regression analysis (table made using stargazer package, Hlavac, 2020)

7.1.1 GDP per capita PPP

In the first model in Table 7 we look at GDP per capita PPP and how this correlates with the female prison population rate. The model shows a beta of 0,252. We did a log transformation of the data for GDP per capita PPP giving us a log/log relationship with the dependent variable. The formula for a log/log model is that a 1% increase in X accompanies a beta% change in Y (Williams 2020). The measure for GDP per capita PPP is in us dollar, so when GDP per capita (X) increases by 1%, e.g, for the United States from a GDP of 63669$, increasing with 636,69$ to 64305$ the female prison rate (in the US) is expected to increase by 0.252% (at current level from 211375 up with 532 inmates to 211907). The model explains 21% of the variation in the female prison rate. The explanatory power for cross sectional data should be at least 20% so we think this is a good model. The GDP per capita PPP coefficient beta is significant different from zero on a 1% significance level (p<0,01). We therefore reject the null hypothesis that the coefficient is 0. In conclusion there is a statistically significant correlation between the variables.

7.1.2 Gini

The second model from Table 7 shows the independent variable the GINI index. We wanted to have one more economic variable and wanted this in addition to the GDP to see if the distribution of wealth in a country correlates with the female prison rate. The model shows a beta of -0,007. In this model we did not need to use log transformation on our

dependent variable the GINI Index, giving us a log/level relationship. The formula for a log/level model is that a one unit increase in X accompanies a 100*beta% change in Y. The measures for the GINI Index are 0-1, but we have multiplied it with a 100 for an easier interpretation. Making 100 on the scale perfect inequality and 0 perfect equality. When (X) the GINI Index increases with 1 unit e.g., from 32 to 33 towards more inequality the female prison rate (Y) is expected to decrease by 0,7%. The model has an R squared equal to 1%. However, the GINI index coefficient beta is not significantly different from zero on any reasonable significance level. We therefore cannot reject the null hypothesis that the coefficient is 0. In conclusion there is not a statistically significant correlation between the variables.

7.1.3 Women's legal rights

The third model from Table 7 shows the independent variable women's legal rights index. We are now looking at one of our gender-based variables to balance our analysis. The model shows a beta of -0,16. The Legal rights index has a distribution that is left skewed, and we had to do a log transformation with the formula LN(largest K+1-legal rights score) (Turney 2022). This gave us a log/log relationship. The measure for the legal rights index is from 0-100 where 100 is a top score, so when (X) the legal rights index increases with 1% the female prison rate (Y) is expected to decrease by 0,16%. The model has an R squared explanatory power of 8%, which is low and indicates that women's legal rights is limited in explaining the variation in the female prison rate. The women's legal rights coefficient beta is significant different from zero on a 1% significance level ($p<0,01$). We therefore reject the null hypothesis that the coefficient is 0. In conclusion there is a statistically significant correlation between the variables.

7.1.4 Gender inequality index

The fourth model from Table 7 shows the Gender inequality index. We are now exploring more of the gender issues. The model shows a beta of –0,012 With this model we are then back to a log/level relationship. The measure for the Gender inequality index is from 0-1 where 0 is best, the index is reported with 3 decimals. For an easier interpretation of the numbers, we have multiplied all the observations with 100. When (X) the Gender inequality index goes up with 1,0 unit e.g., from 45 to 46 towards more inequality, the female prison rate is expected to decrease by 1.2%. The model explains 15% of the variation in the female prison rate. The explanatory power for cross sectional data should

be at least 20% but given that there are many different factors that would affect the female prison rate we still think the explanatory power of 15% could be accountable. The gender inequality index coefficient beta is significant different from zero on a 1% significance level (p<0,01). We therefore reject the null hypothesis that the coefficient is 0. In conclusion there is a statistically significant correlation between the variables.

	Dependent variable:		
	`Female prison population rate 2021`		
	(1)	(2)	(3)
`Fertility rate`	-0.428***		
	(0.068)		
`Human Development Index (HDI) 2021`		0.016***	
		(0.003)	
Democracy			0.007***
			(0.002)
Constant	-3.344***	-4.332***	-3.535***
	(0.048)	(0.207)	(0.125)
Observations	172	170	159
R2	0.190	0.161	0.057
Adjusted R2	0.185	0.156	0.051
Residual Std. Error	0.555 (df = 170)	0.570 (df = 168)	0.606 (df = 157)
F Statistic	39.915*** (df = 1; 170)	32.252*** (df = 1; 168)	9.450*** (df = 1; 157)
Note:			*p<0.1; **p<0.05; ***p<0.01

Table 8 Output from regression analysis (table made using stargazer package, Hlavac, 2020)

7.1.5 Fertility Rate

The first model from Table 8 shows the independent variable Fertility rate, the last of our gender variables. The model shows a beta coefficient of –0,428. This model also has a log/log relationship. The measure for the Fertility rate is the number of births from 0-10, so when (X) the Fertility rate increases with 1 unit (0,1 births per woman) the female prison rate (Y) is expected to decrease by 0,4%. The model has an R squared explanatory power of 19%, and we think this is a good model. The fertility rate coefficient beta is significant different from zero on a 1% significance level (p<0,01). We therefore reject the null hypothesis that the coefficient is 0. In conclusion there is a statistically significant correlation between the variables.

7.1.6 Human Development Index

Second model from Table 8 shows the HDI. We are now exploring the societal concerns. The model shows a beta of 0,016. With this model we are on a log/level relationship. The measure for the HDI is from 0-1 where 1 is best, the index is reported with 3 decimals. For

an easier interpretation of the numbers, we have multiplied all the observations with 100. Changing the measure for the index to 0-100. When (X) the HDI goes up with 1,0 unit (e.g from 31 to 32 on the index), the female prison rate is expected to increase by 1,6 %. The model explains 16% but given that there are many different factors that would affect the female prison rate we still think the explanatory power of 16% could be accountable. The HDI coefficient beta is significant different from zero on a 1% significance level ($p<0,01$). We therefore reject the null hypothesis that the coefficient is 0. In conclusion there is a statistically significant correlation between the variables.

7.1.7 Democracy index

The third model from Table 8 shows the Democracy index. We are now exploring more of the societal conditions. The model shows a positive beta of 0,007. With this model we are on a log/level relationship. The measure for the Democracy index is from 0-10 where 10 is best, the index is reported with 2 decimals. For an easier interpretation of the numbers, we have multiplied all the observations with 10. When (X) the Democracy index goes up with 1 the female prison rate is expected to increase by 0,7%. The model explains 6% of the variation in the female prison rate which is low and indicates that how democratic a country is, has a limited explaining power of the variation in the female prison rate. The democracy index coefficient beta is significant different from zero on a 1% significance level ($p<0,01$). We therefore reject the null hypothesis that the coefficient is 0. In conclusion there is a statistically significant correlation between the variables.

7.2 Control variable

We have divided our variables into economic, gender and societal conditions. We want to check what will happen when we control these variables toward each other. Taking GDP per capita PPP as an economic variable against women's legal rights as a gender variable. When we control for the women's legal rights, the beta coefficient for the GDP per capita PPP holds as significant, but the beta coefficient for women's legal rights is no longer significant and changes from -0,160 to -0,410 as shown in model 3 in Table 7 and model 1 in Table 9. This indicates that women's legal rights correlates to a smaller extent with the dependent variable when we add it with the independent variable GDP per capita PPP in the regression model. This also indicates that the relationship between women’s legal

rights and the female prison population rate that we observed in model 3 Table 7 is a result of differences in other factors like the GDP per capita PPP.

	Dependent variable:			
	`Female prison population rate 2021`			
	(1)	(2)	(3)	(4)
GDP	0.232***			
	(0.046)			
`Gender Inequality`		-0.012***		
		(0.003)		
`Womens legal rights 2`	-0.041	-0.013		
	(0.049)	(0.052)		
`Gender inequality index`			-0.014***	
			(0.003)	
Democracy			-0.002	-0.003
			(0.003)	(0.003)
`Human Development Index (HDI) 2021`				0.019***
				(0.004)
Constant	-5.267***	-2.744***	-2.637***	-4.447***
	(0.519)	(0.121)	(0.213)	(0.216)
Observations	161	163	153	158
R2	0.211	0.153	0.171	0.187
Adjusted R2	0.201	0.143	0.160	0.177
Residual Std. Error	0.555 (df = 158)	0.559 (df = 160)	0.554 (df = 150)	0.563 (df = 155)
F Statistic	21.161*** (df = 2; 158)	14.494*** (df = 2; 160)	15.491*** (df = 2; 150)	17.841*** (df = 2; 155)
Note:				*p<0.1; **p<0.05; ***p<0.01

Table 9 Output from regression analysis (table made using stargazer package, Hlavac, 2020)

From table 12 we see that the gender inequality index and the fertility rate correlate too much. We therefor control gender inequality against women's legal rights to see how these two gender variables are in relation to each other. In model 2 in table 9 we see that the gender inequality index holds as significant, but the beta coefficient for the women's legal rights changes from -0.160 to -0.013 and is no longer significant at any level, as shown in models 3 and 4 table 7 and model 2 table 9. Table 9Table 9This indicates that women's legal rights correlates to a smaller extent to the dependent variable when we add the independent variable gender inequality index to the regression.

We also wanted to see how the gender inequality index would relate to the societal variables. The gender inequality index correlates too much with the human development index, table 12. So, in model 3 table 9 we look at the democracy index and control for the gender inequality index. The gender inequality still holds as significant, but the beta coefficient for the democracy index changes from 0,007 to –0,002 and is no longer significant at any level as shown in model 4 table 7, model 3 table 8 and model 3 table 9. This indicates that the democracy index correlates to a smaller extent to the dependent variable when we add the independent variable gender inequality index to the regression.

Model 4 table 9 we look at the democracy index and control for the human development index to see which of the societal conditions that better explain the dependent variable. The human development index holds as significant, but the beta coefficient for the democracy index changes from 0,007 to –0,003 and is no longer significant at any level as shown in models 2 and 3 table 8 and model 4 table 9. This indicates that the democracy index correlates to a smaller extent to the dependent variable when we add the independent variable human development index to the regression.

7.2.1 Dummy variable

	Dependent variable:
	`Female prison population rate 2021`
Authoritarian	-0.514***
	(0.147)
`Hybrid regime`	-0.525***
	(0.160)
`Flawed democracy`	-0.347**
	(0.150)
Constant	-2.791***
	(0.122)
Observations	160
R2	0.085
Adjusted R2	0.068
Residual Std. Error	0.599 (df = 156)
F Statistic	4.840*** (df = 3; 156)
Note:	*p<0.1; **p<0.05; ***p<0.01

Table 10 Output from regression analysis (table made using stargazer package, Hlavac, 2020)

In the model in Table 10 we ran a regression analysis on the dependent variable and dummy variables for the 160 regimes that had regime indicators available. They are distributed with 55 authoritarian, 34 hybrid regimes, 47 flawed democracies and 24 full democracies. From the analysis we can see that for authoritarian regimes the female prison population rate is expected to be 51,4% less than a full democracy. Hybrid 52,5% less and flawed democracy 35% less a full democracy. The authoritarian coefficient beta is significant different from zero on a 1% significance level (p<0,01). The hybrid regime coefficient beta

is significant different from zero on a 1% significance level (p<0,01). The flawed democracy coefficient beta is significant different from zero on a 5% level (p<0,05). We therefore reject the null hypothesis that the coefficient is 0 on all the coefficient betas. In conclusion there is a statistically significant correlation between the variables.

7.3 Extended models

The regression analysis for the independent variables have been simple regression analysis. In an extended model we want to see if adding more of the variables into the same model can make for better prediction of our dependent variable.

	Dependent variable:	
	`Female prison population rate 2021`	
	(1)	(2)
GDP	0.045	0.223***
	(0.073)	(0.051)
`Fertility rate`	-0.228***	
	(0.061)	
`Womens legal rights`		0.010***
		(0.004)
Democracy	-0.001	-0.004
	(0.003)	(0.003)
Constant	-2.985***	-5.902***
	(0.784)	(0.438)
Observations	147	146
R2	0.268	0.231
Adjusted R2	0.253	0.214
Residual Std. Error	0.536 (df = 143)	0.541 (df = 142)
F Statistic	17.444*** (df = 3; 143)	14.183*** (df = 3; 142)
Note:		*p<0.1; **p<0.05; ***p<0.01

Table 11 Output from multiple regression analysis (table made using stargazer package, Hlavac, 2020)

7.3.1 Extended Model

When creating an extended model, we wanted to have independent variables from the three categories we have evaluated, economic, gender and societal conditions. From table 12 we see that many of our independent variables correlates too much to put them in the same model, see also multicollinearity. We ended up with two models with independent variables from all three categories.

Model 1 in table 11 includes the independent variables, GDP per capita PPP, fertility rate and the democracy index. The model shows a positive beta coefficient for GDP per capita of 0,045, a negative beta coefficient for the fertility rate of 0,228, and a negative beta coefficient for the democracy index of 0,001. The model explains 27% of the variation in the female prison population rate. GDP per capita PPP and the democracy index is not significant. Fertility rate is significant on a 1% significance level ($p<0,01$).

Model 2 from Table 11 shows our next extended model. This time we have the same variables just exchanging fertility with women's legal rights. The model shows a positive beta coefficient for GDP per capita of 0,223. A positive beta coefficient for the women's legal rights index of 0,010 and a negative beta coefficient for the democracy index of 0,004. The model explains 23% of the variation in the female prison population rate, with beta coefficient for GDP and women`s legal rights index significant different from zero on a 1% level ($p<0.05$).

7.3.2 Multicollinearity

In the best regression models all the explanatory variables should be independent. When we selected our variables, we dived them into three groups, this might imply that they are not totally independent from each other. When building an extended model, we don't want variables that are expressing some of the same variation in the dependent variable. This is called multicollinearity. Table 12 shows the correlation between the variables. We don't want to include independent variables that exceed 0,7 in correlation. This helps us build a better model.

	Female prison population rate 2021	*GDP*	*GINI*	*Womens legal rights*	*Gender inequality index*	*Fertility rate*	*Human development Index 2021*	*Democracy*
Female prison population rate	1							
GDP	0,45	1						
GINI	-0,10	-0,42	1					
Womens legal rights	0,20	0,46	-0,17	1				
Gender inequality index	-0,31	-0,84	0,51	-0,56	1			
Fertility rate	-0,35	-0,64	0,35	-0,41	0,79	1		
Human development Index (HDI)	0,32	0,88	-0,43	0,50	-0,92	-0,86	1	
Democracy	0,13	0,61	-0,18	0,61	-0,60	-0,57	0,66	1

Table 12 Correlation table for dataset

GDP per captia PPP is negatively correlated with gender inequality (0.84) and the human development index (0.88). GINI and women's legal rights have a sufficiently small value

for all variables with correlation that does not exceed 0.7. Gender inequality has a negative correlation value with fertility rate 0.79 and human development index 0.92. Our independent variables have a sufficient small correlation value with the dependent variable.

8 Discussion

In the previous chapter we analysed our data to try and answer our research questions. In this chapter we will discuss the problem statement:

Does the female prison rate correlate with several indexes and topics when it comes to female advancements in regard to economy, gender and societal conditions?

The discussion in this thesis will be based on the statistical findings we did in our chapter on analysis. These findings may differ from earlier studies on the basis of our samples and choice in methods. The discussion is also based on other literature and research on the topic. We will also discuss the limitations of our analysis and have a look at the control variables.
We will continue to use the classification with economic, gender and societal conditions. From the correlations we see that none of the variables we have are not influenced by the other variables so while continuing to pursue this classification we acknowledge that it is all interacted with each other.

8.1 Economic conditions

When we look at the economic conditions we will also touch on gender and legal issues that make up the intricate part of understanding how these variables influence the female prison population rate. The economic empowerment of women is crucial in realizing their rights and gender equality, because it includes their chances, same as men, to decent work, to have control of their own lives and bodies, and to access and have control over productive resources. A report by PwC shows that if you take the female employment rate of Sweden and implied it for all OECD Countries it would boost GDP by over USD 6 trillions (PricewaterhouseCoopers 2023) however that would not necessarily mean that there would be a reduction in gender-based inequality.

As shown in our regression analysis table 7, we found that there is a significant relationship between GDP per capita PPP and the female prison population rate. The

relationship is positive, meaning that when there is an increase in the GDP per capita PPP, there is also an increase in the female prison population rate in. When we tested for women's legal rights, we found that GDP per capita PPP is still significant while women's legal rights is not.

In the article; Women in prison: A comparative assessment, the writers found a positive correlation between GDP growth and the female prison rate and concluded that the more economically advanced the society is the greater the likelihood of having more women in prison (Heitfield og Simon 2002:73). In our remake of this part of the study, we found a negative correlation, suggesting that there are other factors that better explain the female prison rate other than a high GDP.

When implementing the GINI variable, we hoped to see that one of the factors that is not explained by GDP, the distribution of wealth, could be associated with the female prison population rate of the total prison population. This was not the case; our regression model shows that the GINI variable has no significant relationship.

We still think that many women are imprisoned for economic, non-violent offences, brought on by poverty and the lack of opportunities and resources available to them. For example, they may turn to drug use or prostitution as a mean of survival, which can lead to arrest and imprisonment. If we look to The United States, the country with the largest female prison population, The National Women`s Law Centre states that nearly 15,1 million women are living in poverty (Javaid og Tucker u.å.) and according to studies the rise in poverty rates has been a factor in the rise in female involvement in forgery, counterfeit, fraud, and embezzlement (Allen, Flaherty, og Ely 2010:1) and hence a rise in the female prison rate. Although Gottlieb argues in his study that a higher incarceration rate may lead to the reduction of relative poverty through mechanisms such as a reduction on family size and a declining supply of low-wage workers, which effectively increase the wage since employers have fewer possible workers to choose from (Gottlieb 2017:297). Poverty is a systemic problem along with racism and sexism and needs to be addressed in order to reduce the number of women who are incarcerated.

Furthermore, incarcerated women are often from marginalized communities, with low-income backgrounds and they are more likely to face economic challenges both before and after their release. They may have limited access to education, job training, and employment opportunities, which can make it difficult for them to transition back into

society and avoid future involvement in criminal activities. For instance, women offenders often do not have the financial resources to pay for legal representation or alternatives to custodial sentences such as fines or to obtain bail.

If poverty might be one of the biggest underlying reasons why women commit crimes, drug related crimes is one of the largest reasons for why women are incarcerated. 59% of all women sentenced to federal prison in the United States are serving time for drug offenses (Anon u.å.). Governments around the world have adapted the "War on Drugs" which refers to a set of policies and initiatives aimed at reducing drug use and drug-related crime (The phrase was first used by U.S. President Richard Nixon in 1971). It has led to various drug control measures through enforcement and interdictions, resulting in an increase in arrests and incarceration of women and men (Merolla 2008:7) with a disproportionate imprisonment of people of colour. Many advocates of drug policy reform believe that the War on Drugs should be replaced with a more public health-oriented approach that focuses on harm reduction, education, and treatment. This approach seeks to minimize the harm caused by drug use rather than simply punishing drug users.

As a result of this increasing number of prisoners from the war on drugs, several countries around the world have used this as an opportunity to re-evaluate state administrated prisons. Private prison corporations have been established and they have solved many of the problems created by the rapid growth in imprisonment (Henry 2019). This kind of for-profit, public traded prison corporations creates new ramifications on how prisons are run. When the prison itself is also owned or operated by a private corporation, then the handling of the prisoners and the function of the prison itself become commercialized. It is also troublesome that a private prison being a non-state agent can restrict the rights of the prisoners which, under other circumstances, would be a criminal act.

8.2 Gender inequality conditions

Around 2,4 billion working-age women live in countries where they don’t have the same rights as men (World Bank 2023). The development towards gender equality within the legal systems has been an uneven journey in the last decades as shown in Figure 14.

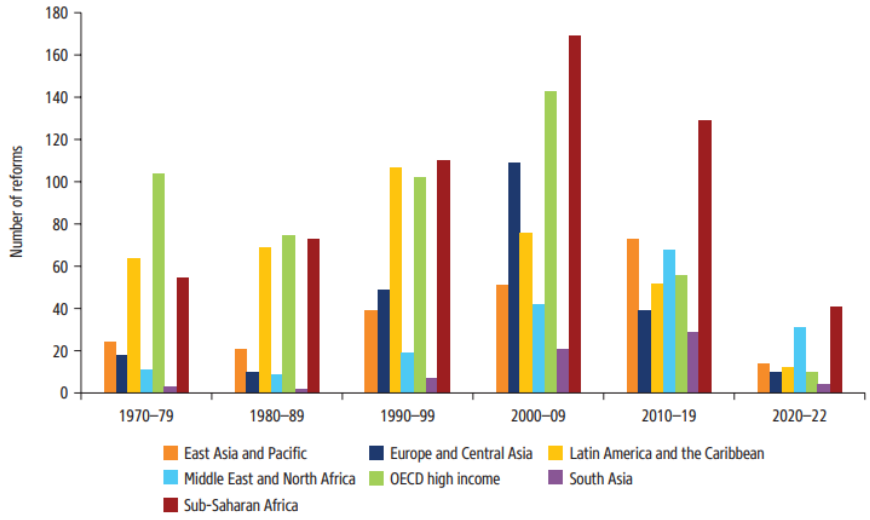

Figure 14 The number of women's rights reforms implemented, by region and decade

(Source to Figure 14: WBL report, p.7 2023)

It shows the number of women's rights reforms that has been implemented per decade in the world since the 1970s, divided into seven regions. As we can see the numbers vary quite a lot over the decades and regions, but for the last five years, regions scoring the lowest improved the most. However, the trend is not always moving towards better legal equality, right now Saudi Arabia and the interim Taliban administration in Afghanistan are limiting women's legal rights (World Bank 2023), removing among other things the freedom of movement and the chance to get a job. It is therefore not just how many reforms that has been implemented that matters, also what kind of reforms is important. Figure 14 shows how the 8 different parameters of the Women, business and law scores for the years 2023 and 2018. Here we can see that pay and parenthood are the two parameters that has the longest way to go in achieving equality.

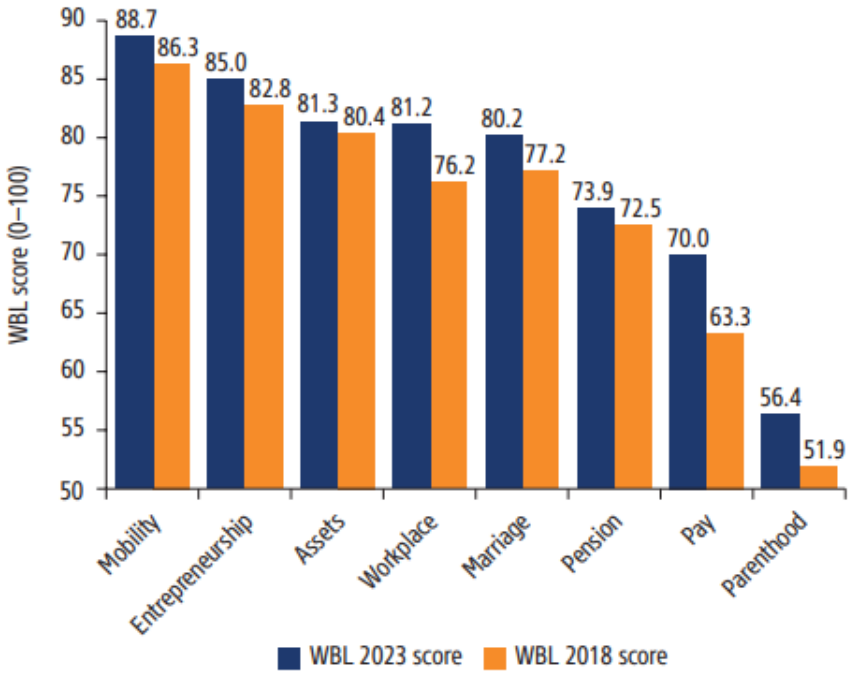

Figure 15 The change in WBL score

(Source of Figure 15: WBL report, p.19, 2023)

Our regression analysis in Table 7 shows that there is a significant relationship between the women's legal rights score and the female prison population rate. The relationship is marginally negative, meaning that when laws are implemented improving the legal rights for women in the 8 different stages implemented in the score, the female prison population rate goes marginally down. This goes against our assumption that with improved equality the female prison population rate goes up.

When looking more on how these Women, Business and the Law indicators affect the female prison population rate, we feel that it broadens our understanding and make for a more nuanced picture. All these indicators and parameters will give women new rights and opportunities and lift their ability to be a bigger part of the economic and societal development. It also gives them access to explore the grey and dark areas of the law. Limitations on mobility makes it harder for women to get a job and to live were they want. Lifting these restrictions should help our assumption with an increase in the female prison population rate. The Entrepreneurship parameter goes to women's ability to start and run a business. This also will impower women and give them more opportunities, but it also imposes the chance to commit crimes associated with this. As an example, 18 countries

have laws making it possible for the husbands to legally prevent their wives from working. Assets goes to the central role that property and the ability to inherit can play in women's economic development. Women's ownership, use, and control over resources matter for their economic output (O'Sullivan 2017). The workplace parameter analyses the laws affecting a woman's decision to enter the labour market, including her legal capacity and ability to work as well as protections against discrimination and sexual harassment. 104 countries still have laws preventing women from working in specific jobs, 59 countries have no laws on sexual harassment in the workplace (World Bank 2023). The Marriage indicator assesses legal constraints related to marriage and divorce, which also have critical effects on women's economic empowerment. The Pay indicator examines whether laws are in place to ensure equal remuneration between men and women for work of equal value and whether they allow a woman to work at night, in industrial jobs, and in jobs deemed dangerous in the same way as a man. Gender biases and inequalities that have placed women in low-wage occupations, such as differences in jobs and hours worked, as well as women's disproportionate caregiving responsibilities The Parenthood indicator examines laws affecting a woman's work during and after pregnancy, including paid leave, and laws prohibiting firms from dismissing workers because they are pregnant.

We see that there is a clear link between women's legal rights and gender inequality. In our regression analyses we found that when the Gender inequality index goes up the female prison rate is expected to decrease. This might be counterintuitive, but the index gives a best score of zero, so the countries with the lowest inequality will score close to zero. The relationship between the gender inequality index and the female prison rate is significant, and it supports our assumption.

Gender inequality is linked to many of the factors and issues that we touch on when analysing the impacts on the female prison population rate. We have previously looked at the economic and legal relationships and can easily say that many of these are gender related, but some of the crimes that women are incarcerated for one might say have a gendered nature as well. This can be prostitution or drug offenses related to addiction stemming from past abuse or trauma. In relation to this the lack of gender-sensitive policies and practices when it comes to prisons and criminal justice policies can lead to inadequate healthcare and limited programming opportunities for women in prison and can contribute to recidivism. The structural racism that exists in society will in addition introduce race to the equation. In many countries with the United States as the biggest

example; women of colour are overrepresented in the criminal justice system and are more likely to be incarcerated than their white counterparts (Gaines 2020).

One of the most significant social impacts of higher female prison population rates relates to women's roles as mothers and caregivers. Many of the women being incarcerated are mothers to children under the age of 18 and they are often the only parent in the household. Having the financial pressure of providing for the family, will drive some of them to criminal activity, when they can't pay the bills. If we look at less developed countries women tend to have more children and they are more likely to be the primary caregivers for children or elderly family members, staying more at home will make it less likely for them to be incarcerated.

We used the fertility rate to check this relationship and found in our regression analysis that there is a negative significant relationship between the female prison population rate and the fertility rate. The relationship being negative indicates that when the fertility rate goes up the female prison rate of the total prison population goes down. This is in line with our assumption that when development increases the female prison rate also increases.

When we looked at the rise in the female prison population rate for the last 20 years, we saw that the world population had risen with almost 30 percent in this period. This development in the world population is rapidly decreasing and is something that might also affect the future development of the prison population for men and women.

8.3 Societal conditions

Human development is in its most simple about choice, more choice. It is about the possibilities and chances to live lives we value. What we choose to do with the possibilities and chances are up to our selves or at least it should be. The possibilities and chances created in the lives of women should, individually and collectively make it possible for them to reach their full potential.

As shown in Table 8, model 2, we found a significant correlation between the Human Development index and the female prison population rate. The correlation is positive, meaning that when the human development increases the female prison rate of the total prison population is expected to go up. This indicates that once the fundamental part of human development is achieved for a country, it opens up possibilities and chances for progress in other aspects of life for its inhabitants. This progress can be good, but it can

also lead to choices made that are not guaranteeing happiness. This correlation is a positive indication for our assumption that when women take bigger part in the process of human development, they will also take a bigger part in crime and therefore be a bigger part of the total prison rate.

Political climate and sentencing policies, including changes in public opinion and political priorities, can have an effect on the female prison rate. The severity of sentencing policies and mandatory minimum sentences can lead to higher incarceration rates. Countries with a smaller gap when it comes to political empowerment are pushing the trend in a different direction. They were found to have lower female prison population rates globally and in the European region but have higher female incarceration rates in the African region, for Africa though many of the countries have opened up for women in political spheres but with no or little chance of influence, distorting the trend (Chu, Hebenton, og Toh 2023).

In model 3 from Table 8 we found a significant positive relationship between the Democracy index and the female prison population rate. This means that when a country becomes more democratic by the standards in the democracy index, the female prison population rate is expected to go up, this is in line with our assumption. We tested the regime types on our dependent variable with dummy variables for the 160 regimes that had regime indicators available. They are distributed with 55 authoritarian, 34 hybrid regimes, 47 flawed democracies and 24 full democracies. From the analysis we can see that for authoritarian regimes and hybrid regimes there is over 50 percent chance of these countries having a smaller female prison population than a full democracy, and with a flawed democracy a 35 percent chance of having a smaller female prison population rate. This is in line with our assumption that the evolution of regimes towards full democracy will influence the female prison population rate.

This does not mean that less democratic countries have small prison populations. If we look at the whole prison population in these countries, we see that they often have high rates of imprisonment, due to political instability, authoritarian regime types with low rule of law and high political corruption(Jacobs og Kleban) The societal implications from these and similar conditions of political instability depends on the countries level of human development and may lead to either high or low imprisonment rates. Less democratic countries with reduced resources to support the prison systems may also use other forms of

sanctions, such as labour camps, forced immigration/deportation and in extreme cases extra-judicial executions and “disappearances” (Sutton 2008).

8.4 Extended models

In our extended regression analysis, shown in Table 11 we tested two models. We found that R squared, the explanatory power of the variation in the dependent variable did not improve that much from the single regressions. Both of the models are significant, and in model 1 table 11 we see that fertility rate has significance. In model 2 table 11 we see that GDP per capita PPP and women's legal rights have significance.

The explanatory power R squared will always go up when adding more variables to the regression model. We therefor look at adjusted R squared when we want to compare models. We see that model 1 is the better of the two. Our assumption is that when economic, gender and societal conditions improve for females they will constitute a larger part of the prison population. What is interesting to see is that in model 2 table 11 the beta coefficient for the women's legal rights have changed from earlier reported negative relationship to now a positive significant relationship. This indicates as we suspected that the female prison population rate is influenced by many factors and when adding them together the picture will evolve. We also saw this indicated with the control variables.

8.5 Limitations

The COVID-19 pandemic has had a significant impact on prison rates around the world. Prisons have been particularly vulnerable to outbreaks of COVID-19 due to the close proximity of inmates, limited access to medical care, and inadequate sanitation and hygiene conditions(Initiative u.å.).

The latest data available for our dependent and independent variables are from the years 2020/2021/2022. Being years of the COVID-19 pandemic, it is a time with much uncertainty regarding the long-term effects off the pandemic. The work to reduce all prison admissions and reducing the numbers already incarcerated has been ongoing due to the pandemic. The influence this has had on our rates and numbers are difficult to comment on at this point.

In many countries, including the United States and the United Kingdom, the COVID-19 pandemic has led to a decrease in prison populations as governments have sought to reduce the risk of transmission within prisons. This has included measures such as early release of

non-violent offenders, deferring sentences, and suspending some parole and probation requirements (The prison reform trust 2021).

However, despite these efforts, COVID-19 has continued to spread in many prisons, leading to high infection rates and deaths among inmates and staff. In some cases, prisoners have staged protests and hunger strikes to draw attention to the dangerous conditions they are facing (perilous 2020).

The pandemic has also highlighted longstanding issues with the prison system, including overcrowding, lack of access to healthcare, and inadequate support for inmates with mental health and substance abuse issues. These issues have been exacerbated by the pandemic and have led to calls for significant reforms to the prison system.

Overall, the COVID-19 pandemic has highlighted the need for greater attention to be paid to the health and wellbeing of inmates, as well as the need for broader reforms to address longstanding issues within the prison system.

When looking into this topic we noticed that there seem to be a gender gap in the types of crime committed. In our research we could not find open-source data available for the world so we could not account for this in our analysis.

9 Conclusion

We have in this thesis looked at seven research questions to try and reach a solution to our problem statement: **Does the female prison rate correlate with several indexes and topics when it comes to female advancements in regard to economy, gender and societal conditions?** The research questions have been formulated as hypothesises and addressed in the analysis chapter in the thesis.

We have throughout the thesis divided our research questions into three focus areas, economic, gender and societal conditions. In the first research question we address whether there is a relationship between the economic factor the GDP per capita PPP and the female prison population rate. In our analyses we found that there is a positive significant relationship, and when using a gender-based control variable, the women's legal rights index we saw that the economic factor stayed significant while the gender-based did not. In our analysis we found that we can reject the research questions null hypothesis and conclude that there is a statistically significant correlation between the variables GDP per

capita PPP and the female prison population rate. The relationship is positive, meaning that when there is an increase in the GDP per capita PPP, there is also an expected increase in the female prison population rate, this supports our assumption that when economic female advancements are made the female prison population rate increases.

The second research question addresses another economic topic, whether there is a relationship between the distribution of wealth in a country, the GINI index and the female prison population rate. In our analyses we found that there is a negative relationship, but it is not according to our data statistically significant. We can therefore not reject the null hypothesis for the research question and cannot conclude with a significant relationship between the GINI index and the female prison population rate.

The third research question addresses a gender-based topic, whether there is a relationship between women's legal rights and the female prison population rate. In our analyses we found that there is a negative significant relationship. We saw when we controlled for the GDP per capita PPP that it lost its significance, we also controlled for another gender-based independent variable the gender inequality index and this time as well the relationship is no longer significant. This indicates that women's legal rights correlates to a smaller extent with the dependent variable when we add these other independent variables to the regression model. It also indicates that the relationship between women's legal rights and the female prison population rate is a result of differences in other factors like the GDP per capita PPP and the gender inequality index. In our analysis we found that we can reject the research questions null hypothesis and conclude with, according to our data, that there is a statistically significant relationship between women's legal rights and the female prison population rate. The relationship is negative, however marginally, meaning that when laws are implemented improving the legal rights for women, the female prison population rate is expected to go marginally down. This goes against our assumption that with improved equality the female prison population rate goes up.

The fourth research question addresses a second gender-based topic, whether there is a relationship between the gender inequality index and the female prison population rate. In our analyses we found that there is a negative significant relationship. We have used this as a control variable for the women's legal rights, as mentioned, but it highly correlates with the economic independent variable the GDP per capita PPP, and the societal independent variable the human development index so we could not explore these conditions more.

However, thinking that gender-based conditions are at the core of our issue. In our analysis we found that we can reject the research questions null hypothesis and conclude with, according to our data, that there is a statistically significant relationship between the gender inequality index and the female prison population rate. In our regression analyses we found that when the Gender inequality index goes up the female prison rate is expected to decrease. This might be counterintuitive, but the index gives a best score of zero, so the countries with the lowest inequality will score close to zero and it therefor supports our assumption that with improved equality the female prison population rate goes up.

The fifth research question addresses the third gender-based topic, whether there is a relationship between the fertility rate and the female prison population rate. In our analyses we found that there is a negative significant relationship. We also found that we can reject the research questions null hypothesis and conclude with, according to our data, that there is a statistically significant relationship between the fertility rate and the female prison population rate. The relationship being negative indicates that when the fertility rate goes up the female prison rate goes down. This is in line with our assumption that when development increases the female prison rate also increases.

The sixth research question addresses a societal topic, whether there is a relationship between the human development index and the female prison population rate. In our analyses we found that there is a positive relationship. The human development index highly correlates with many of the other variables, but we controlled for the democracy index to see which of the societal conditions that better explain the dependent variable. The human development index holds as significant. In our analysis we found that we can reject the research questions null hypothesis and conclude with, according to our data, that there is a statistically significant relationship between the human development index and the female prison population rate. The positive relationship indicates that when the human development increases the female prison rate is expected go up. This correlation is a positive indication for our assumption that when women take bigger part in the process of human development, they will also take a bigger part in crime and therefore be a bigger part of the total prison rate.

The seventh research question addresses the second societal topic, whether there is a relationship between the democracy index and the female prison population rate. In our analyses we found that there is a positive significant relationship. We can reject the

research questions null hypothesis and conclude with, according to our data, that there is a statistically significant relationship between the democracy index and the female prison population rate. The relationship being positive indicates that when a country becomes more democratic by the standards in the democracy index, the female prison population rate is expected to go up, this is in line with our assumption. It is as everything in our thesis an indication, this does not mean that less democratic countries have small prison populations.

We tested the regime types on our dependent variable with dummy variables for the 160 regimes that had regime indicators available. They are distributed with 55 authoritarian, 34 hybrid regimes, 47 flawed democracies and 24 full democracies. From the analysis we can see that for authoritarian regimes and hybrid regimes there is over 50 percent chance of these countries having a smaller female prison population than a full democracy, and with a flawed democracy a 35 percent chance of having a smaller female prison population rate. This is in line with our assumption that the evolution of regimes towards full democracy will influence the female prison population rate.

When building an extended model with independent variables from the three different topics we found that the explanatory power of the models for the variance in dependent variable was not that big. We also found that the beta coefficient for the women's legal rights have changed from earlier reported negative relationship to now a positive significant relationship. This indicates as we suspected that the female prison population rate is influenced by many factors and when adding them together the picture will evolve. We also saw this indicated with the control variables.

When answering all our research questions and by this answering our problem statement: **Does the female prison rate correlate with several indexes and topics when it comes to female advancements in regard to economy, gender and societal conditions?** We have reached a conclusion that there is a relationship between our dependent variable the female prison population rate and the different topics and indexes in our independent variables. The different relationships are both positive and negative but with the exception of the Gini index (not significant) and the women's legal rights (could not reject the null hypothesis) they all support our assumption that when economic, gender and societal conditions improve for females they will constitute a larger part of the prison population.

9.1 Further work

We have in our thesis looked at economic, gender and societal conditions and how they correlate with the female prison population rate at one specific time. To say more about the relationship between these variables it would be interesting to compare this over time. Looking more into the transition over time for the development of a country and how this transition will affect the female prison rate. We think that having a longer timeline will make it possible to predict at which levels of human development the biggest changes in the female prison rate occurs.

This thesis explores correlations between the variables and the female prison population rate, it would be great to look into a causal relationship for the female prison population rate.

Although societies are heavily invested in reducing crime, there is no agreed way of doing this, with several different approaches worldwide. To reduce crime a study into what crimes being committed is useful. Today there is differences between what kind of crimes are being committed by men and women. We think that the gender gap would be interesting to further investigate. This also extending to the coercive and unfair law enforcement practices we have looked at in the Women, Business and the law.

Like we said in the beginning of the thesis, we started looking at the Norwegian prison system and the conditions for female inmates, and it would be useful to have a closer look at this. Our impression is that females in prison is a marginalized group with limited resources wherever you look in the world, but it would be great to shed some light on the conditions in Norway. There would be many interesting angels to further investigate, but we think that the Norwegian society would benefit in exploring why women are being incarcerated, and helping all the women that comes in touch with the legal system. Looking further at the conditions that leads to them committing crimes, which crimes they are committing and how their time is spent while incarcerated.

Crime and law enforcement is also not untouched by technological advances, and how cyber-crime is battled will also be a defining issue in the coming decades. Another factor that may correlate with the dependant variable is race of the women, as it is known that there is a difference in women of colour, Hispanic and white backgrounds.(Bucerius og Sandberg 2022) (Heitfield og Simon 2002)

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Figure 2: Female prisoners as a percentage of the total prison population, Wikipedia, 2018 https://commons.wikimedia.org/wiki/File:Female_prisoners_as_a_percentage_of_the_total_prison_population.png

Figure 3 “working mom vs stay at home mom”, Secureteen , 2013, (https://www.secureteen.com/working-mom/working-mom-vs-stay-at-home-mom-what%E2%80%99s-best-for-kids/)

Figure 4 “SPACE – Council of Europe Annual Penal Statistics”, Council of Europe portal, 2023 (https://www.coe.int/en/web/prison/space)

Figure 13: “ map of the world by democracy index 2021” , Wikipedia, 2023 (https://commons.wikimedia.org/wiki/Category:Maps_of_the_world_by_Democracy_Index)

Figure 5 The United Nations sustainability goals: https://www.un.org/sustainabledevelopment/blog/2015/12/sustainable-development-goals-kick-off-with-start-of-new-year/

11 Appendix

List of countries with population under 200’

American Samoa (USA)	Kiribati
Andorra	Liechtenstein
Anguilla (UK)	Marshall Islands
Antigua & Barbuda	Monaco
Aruba (Netherlands)	Nauru
Bermuda (UK)	Northern Mariana Islands (USA)
Cayman Is. (UK)	Palau
Cook Islands (NZ)	San Marino
Curacao (Netherlands)	Seychelles
Dominica	Sint Maarten (Netherlands)
Faeroes (Denmark)	St Kitts & Nevis
Federated States of Micronesia	St Lucia
Gibraltar (UK)	St Vincent & the Grenadines
Greenland (Denmark)	Tonga
Grenada	Tuvalu
Guam (USA)	Virgin Islands (UK)
Guernsey (UK)	Virgin Islands (USA)
Isle of Man (UK)	Equatorial Guinea
Jersey (UK)	

List of countries with missing data

Gini	Democracy index	GDP	Gender inequality	Womens legal rights	Human development index	Fertility rate
Afghanistan	Afghanistan					
Bahamas	Bahamas					
Bahrain						
Barbados	Barbados					
Belize	Belize					
Brunei Darussalam	Brunei Darussalam					
		Burundi				
Cambodia						
Cape Verde						
		Central African Republic				
Chad						
Comoros			Comoros			
Costa Rica						
Cote d'Ivoire						
Djibouti			Djibouti			
French Guiana/ Guyane (France)	French Guiana/ Guyane (France)	French Guiana/ Guyane (France)	French Guiana/ Guyane (France)	French Guiana/ Guyane (France)	French Guiana/ Guyane (France)	French Guiana/ Guyane (France)
French Polynesia (France)	French Polynesia (France)	French Polynesia (France)	French Polynesia (France)	French Polynesia (France)	French Polynesia (France)	
Guadeloupe (France)	Guadeloupe (France)	Guadeloupe (France)	Guadeloupe (France)	Guadeloupe (France)	Guadeloupe (France)	Guadeloupe (France)
Hong Kong (China)			Hong Kong (China)			
		Ireland				
Korea (Republic of)						
Kosovo	Kosovo		Kosovo			
Kuwait		Kuwait				
Libya						
		Luxembourg	Luxembourg			
Macau (China)	Macau (China)		Macau (China)			
Maldives	Maldives					
Martinique (France)	Martinique (France)	Martinique (France)	Martinique (France)			
Mayotte (France)	Mayotte (France)	Mayotte (France)	Mayotte (France)	Mayotte (France)	Mayotte (France)	
New Caledonia (France)	New Caledonia (France)	New Caledonia (France)	New Caledonia (France)	New Caledonia (France)	New Caledonia (France)	
New Zealand						
Oman						
Puerto Rico (USA)	Puerto Rico (USA)		Puerto Rico (USA)		Puerto Rico (USA)	
Qatar		Qatar		Qatar		
Reunion (France)	Reunion (France)	Reunion (France)	Reunion (France)	Reunion (France)	Reunion (France)	
Samoa	Samoa					
Sao Tome e Principe	Sao Tome e Principe					
Saudi Arabia						
Singapore		Singapore				
Solomon Is.	Solomon Is.		Solomon Is.			
South Sudan	South Sudan	South Sudan				
				Sudan		
		Syria				
Taiwan		Taiwan	Taiwan		Taiwan	Taiwan
Timor-Leste	Timor-Leste					
Turkmenistan		Turkmenistan		Turkmenistan		
Vanuatu	Vanuatu		Vanuatu			
		Venezuela				
		Yemen	Yemen			