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## **The politics of presence: Women's political representation and sexual health regulatory frameworks**

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**Universiteit  
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**The politics of presence:**

**Women's political representation and sexual health regulatory frameworks**

BSc International Relations and Organizations

Thesis project: International development

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## **Abstract**

Since the advancement of the Millennium Development Goals, numerous governments started developing legal frameworks advancing Sexual and Reproductive Health Rights (SRHR). However, while some countries have made significant progress, others continue to lack regulations ensuring fair and equitable access to these services. To understand these diverging patterns, it is necessary to investigate what causal mechanisms can foster positive change in the advancement of those rights. In particular, this thesis examines whether higher women's political representation can lead to the development of new legislation safeguarding SRHR. While there is abundant research on the policy effects of women in politics, this specific relationship has not been extensively explored, partly due to a general lack of research on sexual health accessibility. Moreover, this study contributes to the existing literature by examining the individual effects of two kinds of representation: parliamentary and ministerial. Quantitative analysis will be used to answer the research question. The findings show a positive, yet statistically insignificant, relationship between higher representation and improvements in legal frameworks safeguarding SRHR. Moreover, parliamentary representation is found to be more influential than ministerial representation, although both coefficients are statistically insignificant.

## **Table of contents**

<b>1. Introduction</b>	3
<b>2. Theoretical discussion and framework</b>	5
a. Discussion	5
b. Framework	10
<b>3. Methodology</b>	12
a. Dependent variable	12
b. Independent variables	13
c. Control variables	13
d. Data and quality assurance	15
e. Assumptions	16
<b>4. Results and discussion</b>	17
a. Hypothesis 1	17
b. Hypothesis 2	21
c. Explanatory power of the models	23
<b>5. Conclusion</b>	24
<b>6. Bibliography</b>	27
<b>7. Appendix A: Regression results</b>	32
<b>8. Appendix B: Assumptions</b>	35
<b>9. Appendix C: Index</b>	43

## Introduction

Globally, over 4.3 billion people will not have access to at least one essential health reproductive intervention over the course of their lives (World Health Organization [WHO], 2023). Those interventions are covered by Sexual and Reproductive Health Rights (SRHR), defined as rights enabling individual freedoms over one's sexuality, and sexual partners, as well as non-discriminatory access to services regarding sexual and reproductive health (United Nations Population Fund [UNFPA], 2019, pp. 8-10). Those services may include the prevention and cure of Sexually Transmitted Diseases (STDs), treatment of infertility, choice of safe contraceptive methods, abortion services, as well as the provision of sexual education within schools.

SRHR are pivotal for human and economic development, as indicated by their inclusion in the Sustainable Development Goals (SDGs). Those rights have an intrinsic importance for individual development, as they ensure basic rights and freedoms for each individual on a non-discriminatory basis (United Nations [UN], 2018). Additionally, they have a relevant impact on national development. Given that SRHR include provisions on contraceptives and abortions, the protection of those rights can lead to lowering birth rates. According to the Demographic Dividend mechanism, countries with higher proportions of children tend to devote more resources to their care, slowing the pace of economic growth (Bloom, Canning, Fink & Finlay, 2010, p. 236). Thus, individuals' access to methods lowering birth rates should be beneficial to the economy. Moreover, provisions of SRHR are expected to reduce maternal and HIV mortality (UNFPA, n.d.). High mortality rates prevent future generations from investing in education, and can dramatically reduce the levels of GDP per capita within a country (Bloom, Canning & Jamison, 2004, p. 13). These considerations jointly indicate that legal frameworks promoting SRHR can also have a positive impact on the eradication of poverty and economic growth. As such, it is important to understand what kind of mechanisms can be beneficial in fostering frameworks safeguarding those rights.

A large body of literature has identified the increasing presence of female representatives in political bodies as a means to change legislative outcomes. Besides its intrinsic importance for gender equality and democracy, women's political representation can also have positive spillovers on policy-making. Perhaps, incorporating women in political bodies can bring new points of view and ideas, translating into different legislative outcomes (Clayton, 2021, p.

236). This is especially pertinent for SRHR, as females are disproportionately affected by the lack of protection within the realm of sexual health (Plan International, 2021, p. 3). Several girls worldwide are denied sexual and reproductive rights, primarily due to social norms related to females' bodily autonomy (UNFPA, 2019, p. 18). As a consequence, the inclusion of female representatives could help in reducing those disparities by triggering change in cultural norms. Moreover, harmful masculinities might stigmatize the importance of SRHR (WHO, 2019). Male representatives might be less inclined to introduce legislative proposals in this realm due to fear of social stigma. The presence of women representatives might catalyze the advancement of frameworks safeguarding SRHR benefiting both genders.

Despite their importance in fostering development, a very limited body of literature has analyzed how laws safeguarding SRHR might come into place. These laws differ from the ones analyzed in most studies, such as ones on education or family spendings (Enns-Jedenastik, 2017; Clayton & Zetterberg, 2018). SRHR are heavily subjected to cultural norms, which may hinder the appropriateness of discussions on the topic, even within political settings. Nevertheless, explicit and comprehensive laws are essential for achieving positive outcomes within SRHR, and ensuring equitable treatment for all. Thus, it is important to address whether the effects of women's political representation can be extended to topics subjected to such cultural norms. Additionally, when analyzing the relationship between representation and policy-making, most scholars focus on policy processes, such as bill initiation and representatives' policy preferences (Htun, Lacalle & Micozzi, 2013; Gottlieb, Grossman & Robinson, 2016). However, while women might have policy priorities different from those of men, or even initiate contrasting policy proposals, there is no guarantee that those initiatives will result in changes within legislation. Perhaps, female representatives may be marginalized within political bodies, hindering their legislative leverage. Thus, this analysis takes a further step compared to previous literature and analyzes whether those legislative interests can be translated into tangible outcomes.

This study contributes to the current literature by also expanding the theoretical and methodological frameworks traditionally used. Firstly, most studies have conceptualized women's political representation solely as parliamentary, overlooking the presence of women within cabinets (Westfall & Chantiles, 2016; Forman-Rabinovici & Sommer, 2018). This research, instead, expands its understanding of women's political representation, allowing to explore which specific kind of representation, amongst parliamentary and ministerial, can be

meaningful in initiating changes on SRHR. Secondly, most papers have either focused on a single country, employing case-study methods, or on Western countries, with a particular focus on industrialized democracies (Forman-Rabinovici & Sommer, 2019, p. 1515). Nonetheless, given the importance that SRHR can have in fostering development, it is important to understand how this relationship unfolds on a global scale. Thus, this thesis utilizes a cross-sectional analysis, with a globally representative sample, in order to draw conclusions which can be generalizable worldwide. Due to the gaps in the existing literature, this study aims to analyze whether the inclusion of women in political bodies can advance legislation aimed at protecting and ensuring SRHR. The following question is to be answered: *What is the impact of women's political representation on the enactment of laws that safeguard sexual and reproductive health rights?*

The research will unfold as follows. First, existing literature and theoretical discussions on the inclusion of women representatives and changes in policy-making will be presented. These considerations will guide the theoretical framework used in the thesis. Next, three linear regressions will be employed to assess the two hypotheses, using a sample of countries spread around various regions of the world. Finally, the last section will review the main findings of the paper, address possible limitations and provide recommendations for further research.

## **Theoretical discussion and framework**

### **1) Discussion**

This thesis' main objectives lie in the investigation of the causal mechanisms proposed within the research questions. This section will review the existing theoretical considerations on the topic.

To understand the proposed relationship, it is first important to discuss the concept of *women's political representation*. In this paper, it refers to the share of women representatives within political bodies in which national laws are discussed. Most studies, when discussing women's political participation, only include the share of women in the lower houses within each country (Mechkova, Dahlum & Sanhuez Petrarca, 2024; Forman-Rabinovici & Sommer, 2019; Mechkova & Edgell, 2023). By doing so, those works exclude the share of women in upper houses, associating lower houses with unicameral parliaments.

This exclusion might substantially limit the scope of their research. Whilst upper houses occasionally have only limited powers, there are also cases of strong bicameralism, where upper houses can amend legislation and influence the political agenda (Pedrazzani & Zucchini, 2020, p. 581). Therefore, the share of women in upper houses shall be included within the concept of political representation. Furthermore, building on Mavisakalyan (2014)'s study, which found a strong relationship between women in cabinets and public health spending, *women's political representation* is defined as the share of women in parliament and ministerial cabinets. Ministers can have very influential positions in the lawmaking process, even if parliaments are the bodies designated to drafting legislations (p. 282). For instance, in autocracies, members of the legislature are often controlled by the executive branch, regardless of their sex (Clayton, 2021, p. 244). Including both parliamentary and ministerial representation can provide a more comprehensive definition of women's political relationship, and can shed light on the differences between the two mechanisms.

Multiple studies advance the claim that women's political representation translates into positive policy outcomes. For instance, the presence of female legislators affects the likelihood of a state blocking pro-life laws (Berkman & O' Connor, 1993). Moreover, Bauer and Burnet (2013), comparing the cases of Botswana and Rwanda, have found that, in both countries, women played an important role in representing women's interests within the legislature. In particular, within the context of Botswana, women were critical in passing important laws such as the "Violence bill" and "Children bill", despite opposition from male MPs (p. 16). Similarly, Wang (2013) has found that women MPs in Uganda were crucial to the development of pro-women policy outcomes. Substantive representation of women in elected bodies can also lead to more special spending in public healthcare, family services and education (Clayton & Zettenberg, 2021, p. 920; Ennsner-Jedenastik, 2017). Finally, the presence of women in political bodies has important implications on rates of child mortality, maternal mortality and fertility (Mechkova & Carlitz, 2020, p. 17; Westfall & Chantiles, 2016). In general, changes in budget allocation and positive health outcomes might be indicative of previous changes within laws. These pieces of literature jointly indicate that including women within political bodies can provide substantial changes in policy making, or relevant proxies.



Two strains of theories can explain the causal mechanisms in place. On the one hand, female representatives are theorized to have different policy preferences than male ones. As such, they are more likely to advance laws favoring specific interests because of the group's shared experiences. On the other hand, women and male representatives are not expected to have differing preferences. However, male representatives are likely to promote women's rights in order to get positive appraisal from female constituencies. The two strains of theories will be explained further in the following paragraphs. While navigating those claims, it's important to avoid incurring in the essentialization of women. Beckwith (2014)'s differentiation of interests and preferences can be particularly useful in achieving this aim. While preferences are personal and represent individual experiences, interests are policy-making areas designed to protect a group's rights (pp. 24-26). Thus, it is possible to talk about frameworks that protect women's interests, without homogenizing each woman's preference.

A first set of scholars argue that female representatives have different policy priorities than their male counterparts. Studies such as the one of Clayton, Josefsson, Mattes & Mozaffar (2018) found that, in African parliaments, female members of parliaments (MPs) were more likely than male MPs to advance laws on women's rights (p. 93). Differences in priorities may not be limited to women's rights, but also to other social benefits, such as poverty alleviation, infrastructure and access to clean water (Gottlieb, Grossman & Robison, 2016; Clayton, 2021, p. 239). Academics theorize that women, as a group, might have common interests as the result of a set of shared experiences. Women's lives have been constructed and shaped by political, social and economic arrangements which are substantially different from those of men (Beckwith, 2014, p. 20). Therefore, given the similar constraints to which they are subjected, women might have developed a set of common concerns. Consequently, those interests will be reflected in the individual policy-priorities. Additionally, theories of descriptive representation assert that female citizens might engage more with women legislators because of the expected similarities in interests (Clayton et al., 2018, p. 75). Thus, women MPs' policy priorities might be different than those of men because they are more aware of the female citizens' desires.

How can those interests be translated into policy outcomes? Most studies have turned towards the link between descriptive and substantive representation. Descriptive representation refers to the representation of a group based on visible characteristics, such as ethnicity, gender, and other shared characteristics (Pitkin, 1967). This form of representation

ensures that a group's interests are visibly represented within political bodies. Descriptive representation is expected to lead to substantive representation, the way in which representatives achieve the group's interests within policy-making (Mansbridge, 2006, p. 622). In other words, increasing descriptive representation should improve substantive outcomes for women. Female representatives, who often share similar experiences to female citizens, are better positioned than males to represent women's concerns (Forman-Rabinovici & Sommer, 2018, p. 189). Additionally, theory suggests that, as the representatives of a group grow in number, they will be more capable to advocate for the group's interests (Franceschet, Krook & Piscopo, 2012, p. 8). Thus, the increasing presence of women within political bodies should facilitate their ability to put "women's issues" on the political agenda, and ensure their inclusion within parliamentary debates (Mechkova & Carlitz, 2020, p. 6). In other words, higher numbers of women in political bodies should increase opportunities for collective organization, leading to the formation of a "critical mass" capable of changing political outcomes (Forman-Rabinovici & Sommer, 2019, p. 1515; Yoon, 2011, p. 84). On the contrary, when women are included only in small percentages, it is expected that they will have no choice but to accept the dominant culture of the existing elites (Kanter, 1977).

In the specific case of ministerial representation, female ministers may have a particularly influential role in advancing "women-friendly" laws. First, the legislative agenda is typically, to some extent, controlled by the cabinets (Atchison, 2005, p. 392). Thus, ministers hold extensive individual powers in steering debates towards discussions towards topics pertinent to women. This stands in contrast to female parliamentarians, whose influence may be more constrained. Moreover, due to their leadership positions, ministers are better-positioned to advance initiatives within their area of expertise (p. 393). Numerous studies found that female ministers are usually assigned to "social" committees, such as education, women's rights or health (Schwindt-Bayer, 2006, p. 583). As leading figures within those committees, they are expected to have ample room of maneuver to influence outcomes within their areas. Second, female ministers can also serve as a role-model to challenge specific norms. The limited size of the cabinet can increase individual politicians' visibility, amplifying their platform for advocacy and enhancing their bargaining power in negotiations (Liu & Banasak, 2017, p. 138). Perhaps, their likelihood of instigating change within cultural norms should be higher. Therefore, they may be better positioned to advance laws safeguarding SRHR compared to women within parliaments.

As previously discussed, however, some scholars argue against the notion that female and male representatives possess different policy interests. According to social control theory, when a new group gains inclusion within politics, existing elites will seek representatives of that group that conform to traditional standards (Escobar-Lemmon & Taylor-Robinson, 2016, p. 4). Consequently, women chosen as representatives, working alongside pre-existing male elites, would have to incorporate typical masculine characteristics in order to be chosen (p. 6). Moreover, even if women possess different policy priorities than men, they might be prevented from expressing them. As newcomers within the political arena, they are often incentivized to avoid threatening the status quo, in order to maintain political legitimacy (Clayton et al., 2018, p. 77). Specifically, loyalty to political parties can constrain representatives' ability to voice their personal interests (Wang, 2023, p. 1984). Political parties might seize control in the public sphere and demand that party aims are prioritized over personal ones (Walsh, 2012, p. 1336). Therefore, the legislator's personal preferences may be overshadowed by parties' demands.

In circumstances where women representatives' policy priorities do not differentiate from those of men, the descriptive-substantive link fails to explain how SRHR may be achieved. Nonetheless, an alternative explanation might exist. Politicians have been described as rational actors that are incentivized by the rationale of vote-seeking, as their political careers depend on re-election (Hohmann & Nugent, 2022, p. 765). As women increasingly enter political arenas, male politicians might feel electoral pressure: the availability of seats diminish, together with incumbents' chances of re-election. The concept of "gendered leeway" becomes increasingly salient in this context. This notion suggests that, while women are socially expected to act on behalf of women's interests, men are free to choose whether to advocate for gender equality or not (Bergqvist, Bjarnegård & Zetterberg, 2016, p. 6). Hence, men enjoy the possibility to talk about women's interests, without facing delegitimization if they do not do so (p. 12). In contrast, female politicians are often criticized when they don't prioritize women's interests. Building on this framework, Hohmann & Nugent (2022) hypothesize that men will be praised and get electoral credit when promoting women's rights, as they are not required to do so (p. 766). In times of electoral instability, which women's political representation can trigger, men could leverage women's rights issues to appeal to female constituencies (Wang, 2023, p. 1986). This dynamic could potentially trigger an increase in legal frameworks protecting SRHR.

These considerations jointly indicate that women's political representation has an effect on the presence of laws guaranteeing SRHR. Nonetheless, a large body of literature sustains the idea that women's political representation may not be influential in changing policy outcomes. According to "group threat" theories, majority groups might feel threatened when minority groups become politically relevant (Hohmann, 2020, p. 36). Consequently, members of the majority group may fear losing their dominant positions and react with hostility to the new group's inclusion. As newcomers in the political arena, women may also experience political marginalization, including a lack of political resources to influence the legislative agenda (Kerevel & Atkeson, 2013, p. 981). Moreover, social norms continue to exert significant influence within society, potentially limiting women's opportunities to engage within relevant discussions and to be recognized within debates (Kunovich & Paxton, 2005, p. 517).

Specifically, there is a lot of academic contestation regarding women's political participation induced by gender quotas. First of all, since gender quotas entail reserving seats, hence not characterized by pure electoral competition, women may be perceived as "tokens" by other male politicians, limiting their legislative potential (Westfall & Chantiles, 2016, p. 475). Scholars such as Childs & Krook (2009) advance the notion of "critical actors" over the one of "critical mass". Perhaps, while gender quotas introduce a critical mass within political bodies, critical actors, individuals assuming a leadership position towards the cause, can actually have better results in bringing change within policy-making. However, the "tokenism" related to quotas may limit women's ability to act as critical actors. Secondly, there are concerns that gender quotas may be used as instruments to gain international recognition. In this case, the number of women present in political bodies increases, but female representatives would still be controlled by other male politicians, or "stand-ins" for influential men (Mechkova & Edgell, 2023, p. 6; Franceschet & Piscopo, 2008, p. 403).

## 2) Framework

The review of the existing literature has shed light on some plausible explanations which may answer the research questions proposed. Consequently, the following section indicates the framework and hypothesis that are being used to conduct the analysis. Figure 1 summarizes the theoretical considerations.

As previously discussed, contrasting views exist on whether women’s political representation has an effect on policy outcomes. Particularly, studies have argued that women continue to be “minority” groups within political bodies and, thus, lacking voice to influence policy-making. However, these criticisms often overlook the potential for women’s political representation to trigger broader societal changes towards greater gender equality. Indeed, the mere presence of women in political bodies can initiate greater political engagement of female citizens, leading to demands for legislation that reflects their interests (Barnes & Burchard, 2012). Furthermore, the greater inclusion of women representatives can stimulate social changes within the political atmosphere, with male MPs becoming more aware towards gender issues, and gender stereotypes diminishing (Yoon, 2011, p. 85). This effect may be particularly pronounced with gender quotas, as women enter politics in large numbers, enhancing their capacity for collective action in challenging social norms. Given the aforementioned theoretical considerations, this research hypothesizes that:

*H1: Higher women’s political representation will increase the likelihood of enacting laws safeguarding SRHR.*

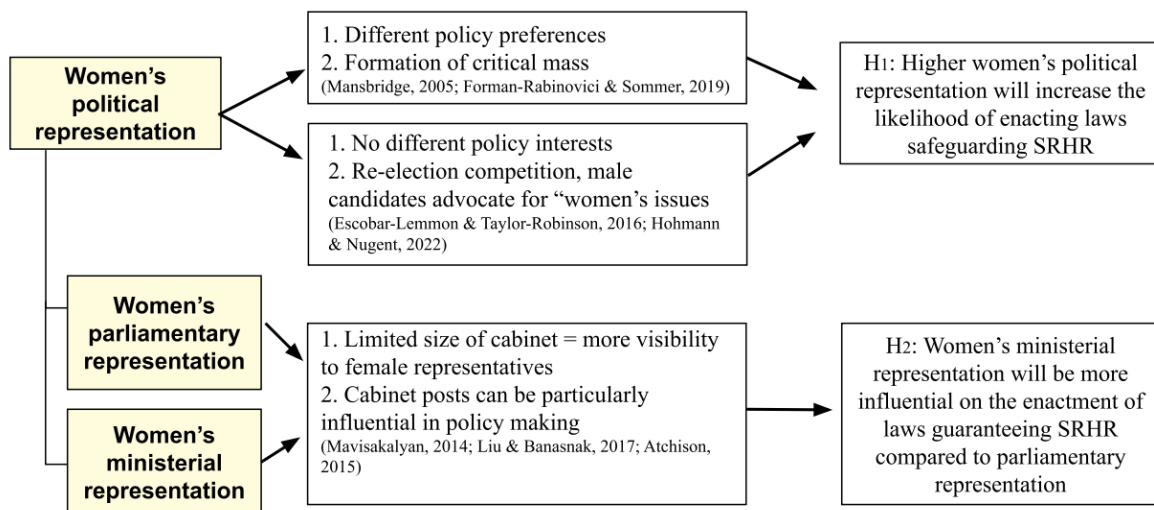


Figure 1. *Visualization of hypotheses.*

Additionally, the literature emphasizes women’s ministerial representation as being particularly influential in driving changes within lawmaking. As the executive can substantially shape the legislative agenda, female ministers hold crucial individual powers in advocating for laws related to SRHR. Furthermore, the significance of individual ministerial positions allows cabinet members greater opportunities for advocacy compared to

parliamentarians, with greater possibility to act as role-models for societal change. Therefore, it is hypothesized that:

*H2: Women's ministerial representation will be more influential in enacting laws guaranteeing SRHR compared to parliamentary representation.*

## **Research design and methodology**

To answer the question posed, this study employs a large-N statistical study utilizing the software *SPSS*. This method allows for an investigation of the relationship across numerous countries, which would identify causal patterns (Halperin & Heath, 2016, p. 251).

Additionally, the relationship between women's political participation and regulations of SRHR might not be straightforward, and other variables might influence the outcome.

Utilizing a large-N statistical method enables the control of spurious relationships, making it particularly suitable for this study. To assess the strength and direction of the relationship between the two variables while accounting for potential confounding factors, Ordinary Least Squares regressions are the most suitable instrument. In particular, three regressions will be conducted. The first regression examines the impact of overall women's political representation on the presence of laws guaranteeing SRHR. To test the second hypothesis, women's political representation is disaggregated into parliamentary and ministerial representation, creating two variables. Subsequently, two regressions are conducted to evaluate each one's individual effects on the dependent variable.

### **a. Dependent variable**

The dependent variable, *SGD\_562*, measures the extent to which countries have positive laws on SRHR, while also considering specific legal barriers based on gender, sex and other factors. The inclusion of legal obstacles within the index is crucial as it acknowledges that, even when positive laws are in place, active barriers can impede equal access to these rights. The measure is composed of 4 indicators, for a total of 13 subcomponents. The indicators are:

1. maternity care (composed of *maternity care, life-saving commodities, abortion, post-abortion care*)
2. contraception services (with the components of *contraception, consent for contraceptive services, emergency contraception*)

3. “sexuality education” (of *CSE law* and *CSE curriculum*)
4. “HIV and HPV” (with the components of *HIV testing and counseling*, *HIV treatment and care*, *Confidentiality of health status*, *HPV vaccine*).

More information on how the index is constructed can be found in Appendix C. The variable is measured in percentage, ranging from a scale from 1 to 100, with 100 being the most positive score, and 0 the most negative. The data regarding the existence of legislation is provided by relevant government ministries and departments to the UNFPA (UN, 2022). Subsequently, the WHO has collected this information and constructed a database, which will serve as the data source for the research (WHO, 2022).

#### b. Independent variables

*Women\_representation* will be used as the independent variable to answer the research question presented. The variable measures the share of women representatives within national political bodies. It is constructed as the aggregate mean of two sub-variables, *ministerial\_representation* and *parliamentary\_representation*. First, data on the share of women in ministerial positions was retrieved by the World Bank Gender Data portal, and it represents the percentage of women, relative to the total number of seats, involved within ministerial positions, including head of states and prime ministers (World Bank, 2022). Secondly, data on the share of women in parliament was retrieved from the Inter-Parliamentary Union Parline (Inter-Parliamentary Union [IPU], 2024). The variable, *parliamentary\_representation*, is the mean of scores for the percentage of women in lower and upper chambers in each country, or as the percentage of women in unicameral chambers. The final variable, *women\_representation* is constructed by aggregating *ministerial\_representation* and *parliamentary\_representation*, taking the mean of the two variables for each case. All variables range from 0 to 100, with a 100 being the most positive score. Consequently, *women\_representation* also ranges from 0 to 100, with 50 meaning equal share between sexes.

#### c. Control

The first control variable to be included within the regression models is *polity*, the political regime of each specific country. Authoritarian regimes may increase women’s political representation as a means to appease international constituencies and signal progress in human rights performance (Mechkova & Edgell, 2023, p. 6). The presence of women within

those regimes may, however, serve more as an institutional showcase, with limited actual agency for women representatives. Furthermore, if laws on SRHR do not pose a threat to the regime's survival, authoritarian governments may be more likely to enact those laws to signal "democratic shifts" (p. 7). On the other hand, democracies are also generally associated with better human rights practices, thus increasing the likelihood of having laws protecting such rights (United Nations Human Rights Office of the High Commissioner [OHCHR], n.d.). Therefore, different kinds of regimes may have different incentives to advance laws safeguarding SRHR, implying a need for the inclusion of *polity* within regressions. The type of polity is measured using the variable *polity2\_mean* from the Polity5 program (Center for Systemic Peace, 2018). It measures the extent of the political regime within a given country, based on the levels of constraint, competitiveness and openness. It ranges from -10 to 10, with a score of -10 being attributed to a strongly autocratic regime.

*Electoral system* is the second variable used to control the relationship between women's political representation and SRHR. Previous research has indicated that the extent of women's political representation varies depending on the type of electoral arrangement in place (Krook, 2017, p. 179). Particularly, systems incorporating elements of PR tend to have higher women's representation. Furthermore, electoral arrangements can also influence policy congruence between citizens and elites. Majoritarian systems, for instance, reward large parties and, thus, create incentives for elites to adopt centrist positions (Golder & Ferland, 2017, p. 220). On the other hand, systems with PR arrangements are more likely to incorporate a wider range of issues and views, possibly including the advancement of laws protecting SRHR. Therefore, the electoral system serves as a confounder variable, as it influences both the dependent and independent variable. For this reason, its inclusion in the regression is necessary for a comprehensive analysis. An *electoral\_system* variable is constructed based on the Electoral system design dataset (International IDEA, 2023). The variable measures a country's electoral system, ranging between Proportional Representation (PR), majoritarian, and mixed systems. A fourth category, *other* is included, for systems which do not belong to any particular institutional family. For the regression analysis, a first dummy variable, *Majoritarian*, is created. PR, mixed and other electoral systems are coded as 0, whilst majoritarian systems are coded as 1. The same process is repeated for the second dummy variable, *PR*, and the third, *mixed*. In the regression, *majoritarian* will be used as the reference category. Both *mixed* and *PR* have elements of proportional representation; thus, it is useful to compare them to a system which does not.



*Female literacy* is the final variable which is included within the various regressions. Increasing literacy rate can be influential in determining one's opportunities for political engagement (Bellani & Hidalgo-Hidalgo, 2023, p. 22). Consequently, female citizens that are more politically engaged can pressure legislatures into developing laws safeguarding SRHR. Data on literacy of females within a country is retrieved from the World Bank, measuring literacy rates amongst females of age 15 and above (World Bank, 2022). The variable is expressed in percentage, ranging from 0 to 100, with 0 being the most negative score.

#### d. Data and quality assurance

The hypotheses will be tested using national country data from a sample of countries representing different areas of the world. Information regarding laws pertaining to SRHR has been collected through responses from relevant ministries and governments (UN, 2022). In the cases where data is missing, a response was not obtained from the respective country. Thus, the selection of countries has been mildly constrained by data availability. This consideration can potentially limit the generalizability of the findings, as countries had the discretion to decide whether to provide data for the inquiry or not. Nonetheless, Figure 2 illustrates that both countries with low and high scores on SRHR responded to the inquiry, suggesting diverse representation within the dataset. Additionally, the data collection process enjoys high levels of reliability. The UNFPA offices responsible for data-gathering conducted follow-up quality checks and requested additional information from in-country UN's agencies and governments when necessary.

Up-to-date data for some countries was also missing in regard to *polity*. After excluding cases with incomplete information, the final sample comprises 74 countries. As Figure 2 shows, the sample encompasses countries from diverse geographical areas, enabling the analysis of the relationship across a wide range of regions. Due to the variability in the dependent variable across cases, and the presence of countries from multiple regions, the sample is quite representative of the overall population, enhancing the external validity of the research. Additionally, the introduction of three control variables in the regression mitigates potential threats to internal validity. However, given the complexity of the relationship, there might be other factors influencing the relationship which have not been included. While efforts have been made to control for relevant variables, the presence of additional confounding factors could still impact the results.

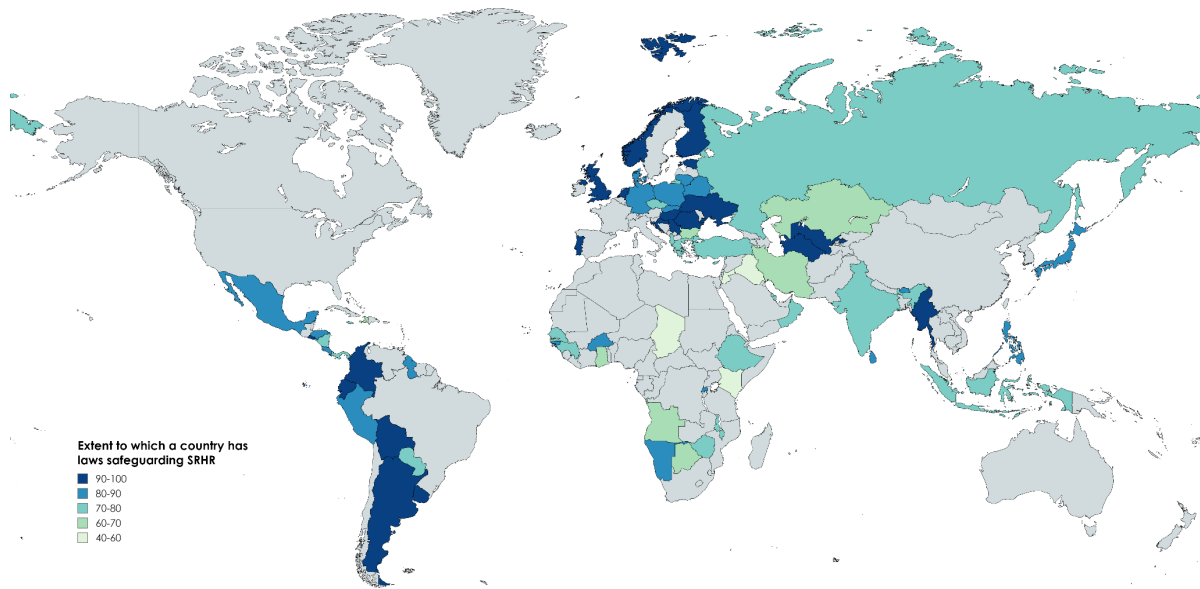


Figure 2. Sample of countries and respective extent of laws safeguarding SRHR.

The dataset utilized for the regressions has been manually constructed by computing the various indexes, and it represents a comprehensive attempt to investigate the relationship given the data limitations. The study examines the proposed question within the timeframe spanning from the year 2000 to 2021. The year 2000 has been chosen as the starting point of the analysis due to the adoption of the Millennium Development Goals, whose main focus, amongst others, was to ensure the protection of SRHR (WHO, 2018). Consequently, it is hypothesized that, following the declaration, countries began developing frameworks to address these issues. To understand what were the conditions under which frameworks protecting SRHR have developed, the final score for women’s political representation is calculated as the average mean value of the variable between 2000 and 2021. An exception is made for ministerial representation, for which data is available only from 2008 to 2021. A similar process is also made for the rates of female literacy, electoral system and polity. However, data for the latter is restricted to the 2000-2018 timeframe. Finally, data regarding the dependent variable is retrieved from the year 2022, which represents the second, and most comprehensive, data collection on the extent of legislations safeguarding SRHR.

#### e. Assumptions

Before undertaking any statistical analysis, OLS assumptions have been tested for each of the three regressions. Through the analysis of the scatterplots related to each regression, it is possible to observe that the assumptions of heteroskedasticity, and somewhat linearity, are violated, inducing bias in the results (Field, 2018, p. 335). To correct for potential errors, the

models will be estimated using the method of bootstrapping, which is robust to violations of assumptions (p. 366). Bootstrapping involves treating the sample data as the population of interest, and smaller samples are drawn from that population. From each sample, a parameter estimate is calculated, and the process is repeated 2000 times, resulting in 2000 parameter estimates. Because the design of bootstrapping is based on random sampling, coefficients are slightly different every time the regression is computed. All other assumptions have been successfully met. The relevant tables can be found in Appendix B.

## Results and discussion

### a. Hypothesis 1

To test the hypothesis that women's political representation has a positive effect on the presence of SRHR laws, a first linear regression is being conducted. Table 1 reports the results of the statistical analysis.

In Model 1, only the dependent and independent variables are computed. By looking at the results, it is possible to establish that an increase in women's political representation causes a 0.48-point increase in the likelihood of enacting laws that safeguard SRHR. This effect is statistically significant at a 99% significance level ( $p < 0.001$ ). In Model 2, polity and literacy are added to the regression. An increase in women's political representation is associated with a 0.33-point increase in the likelihood of enacting laws that safeguard SRHR. The result is statistically significant ( $p < 0.01$ ). Finally, in Model 3, the variables controlling for the kind of electoral system are added. Higher women's political representation is now associated with a 0.26-point increase in the presence of SRHR laws, thus continuing to reflect the direction hypothesized in the literature. However, the result is not statistically significant ( $p > 0.05$ ). In Model 3, *literacy* continues to maintain a slight positive, statistically significant, effect ( $p < 0.05$ ). Higher rates of literacy amongst females are associated with a 0.15-point increase in the presence of laws safeguarding SRHR. This is in line with the proposed theoretical expectations. The remaining coefficients for the control variables are not statistically significant.

Given these results, it is not possible to reject the null hypothesis that women's political representation does not have a positive effect on the enactment of laws. Nonetheless, the results still offer a good prompt for discussion. The statistical insignificance will be

approached trying to understand the possible effect of including *electoral system* within the regression, as well as linking the results to the theoretical discussions.

Table 1. *Linear regression model of women's political representation on SRHR laws.*

	<b>Model 1</b>	<b>Model 2</b>	<b>Model 3</b>
(Constant)	71.11*** (3.20)	58.03*** (5.55)	63.33*** (7.09)
Women political representation	0.48*** (0.13)	0.33** (0.12)	0.26 (0.14)
Polity		0.30 (0.27)	0.22 (0.32)
Literacy		0.17** (0.06)	0.15* (0.06)
Electoral system (Ref. = Majoritarian)			
PR			5.50 (4.74)
Mixed			5.96 (4.59)
R <sup>2</sup>	0.12	0.25	0.28
Adjusted R <sup>2</sup>	0.11	0.22	0.23
F statistic	9.90**	7.84***	5.26***
N	74	74	74

Note: OLS regression coefficients with bootstrapped standard errors in brackets

\*\*\* p < 0.001, \*\* p < 0.01, \* p < 0.05

As hypothesized by the literature, women's political representation is positively associated with the outcome variable in all three models, with a statistically significant effect in the first two models. Once the electoral system is added to the regression, however, the variable loses its statistical significance. Perhaps, this loss in significance can be explained by looking at the semi-partial statistics, reported in Appendix A. *Women\_representation* in Model 2 accounted for 4.8% of the variance on the outcome variable. When adding *electoral\_system* to the regression, in Model 3, the variable instead only accounted for 2.6% of the variation in the extent of laws protecting SRHR. Hence, *electoral\_system* and *women\_representation* explain shared variance in the dependent variable, reducing the statistical significance of the single predictors. Perhaps, PR arrangements are usually linked with greater representation of diverse

groups, and, more specifically, with higher women's political representation (Krook, 2017). Hence, it was expected that the variables explained overlapping variance.

However, as indicated by the semi-partial statistics, *electoral\_system* also explains variance of its own. Particularly, *PR* and *mixed* in Model 3 jointly explain 4.2% variation in the dependent variable which is not accounted for by *women\_representation*. Those kinds of electoral systems are, thus, able to create friendly environments for the advancement of laws on SRHR, regardless of the extent to which women are represented. Systems with elements of PR usually usually create multi-party legislatures and governments, as parties with small percentages of votes can still be included in political bodies (Golder & Ferland, 2017). According to the literature, as a result of the increasing party fragmentation, systems with PR arrangements would experience centrifugal tendencies, with parties dispersing across the political spectrum (p. 220). In other words, parties in those systems are more likely to adopt non-centrist positions, targeting specific groups of voters and their interests. Furthermore, in systems with PR arrangements, candidates are accountable to national constituencies and, thus, are likely to provide goods whose benefits can be targeted nationally (Menocal, 2011, p. 12). These two mechanisms would explain why certain types of electoral systems are linked with laws safeguarding SRHR, besides their connection to higher women's political representation. This analysis does not test whether those alternative mechanisms are the ones causing alterations in SRHR, as this would fall out of the scope of this thesis. Nonetheless, understanding how the inclusion *electoral\_system* has influenced the results can provide a better understanding of the relationship between the variables.

Further considerations are necessary to understand the coefficient for *women\_representation*. While the coefficient in Model 3 exhibits a positive trend, suggesting that the previously theorized causal mechanisms continue to hold, it's fundamental to note this effect is relatively small and statistically insignificant. The lack of statistical significance may arise from the discrepancy between the variations in the independent and the dependent variable. Perhaps, as shown by Figure 3, some of the countries have scored relatively low in women's political representation, with values under 10%, but reached high scores in the dependent variable.

First, this result indicates a need for re-consideration of "critical mass" theory, which suggested that high numbers of women in political bodies could result in a collective organization of interests (Forman-Rabinovici & Sommer, 2019, p. 1515). While this holds

true for countries that scored high both in the dependent and independent variable, it fails to explain how countries with relatively low women’s representation achieved similar results. A more plausible explanation lies in the concept of “critical actors”. As explained by Childs & Krook (2009), critical actors are representatives, either males or females, that tend to have high motivation to introduce change, and can inspire others to do so (p. 138). What may be suggested, thus, is that the individual leadership of representatives matters more than the group’s numerical threshold. It is important to acknowledge that a larger group of women theoretically increases the likelihood of having more critical actors. However, due to women’s inclusion mostly happening through gender quotas, the tokenistic nature of their representation may imply a loss of credibility and opportunities for individual leadership (Westfall & Chantiles, 2016, p. 475).

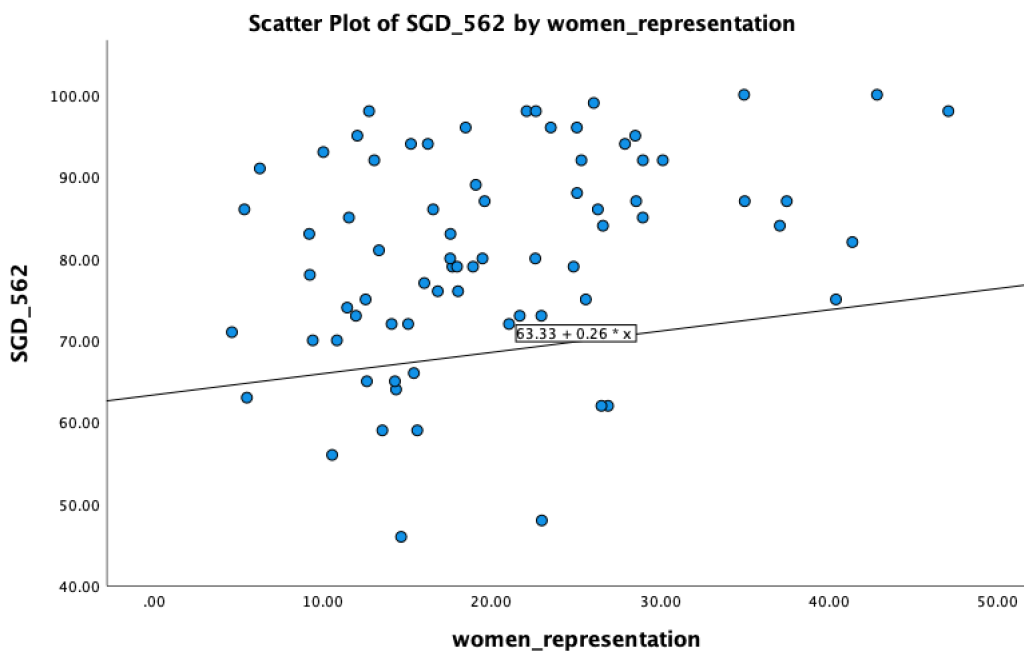


Figure 3. Scatterplot of women representation’s influence on laws safeguarding SRHR.

Second, as illustrated in Figure 3, the majority of countries tend to score relatively high on the independent variable. Since the adoption of the Millenium Development Goals, countries have been incentivized by the international community to adopt legal frameworks which could guarantee SRHR rights. Consequently, the development of frameworks on SRHR may have been primarily driven by a desire to meet international standards rather than by the extent of women’s political representation. Perhaps, the impact of women’s representation on reproductive health policies might become more visible when examining the actual

implementation of these legal frameworks. However, due to data limitations, this aspect could not be explored within the scope of this research.

### b. Hypothesis 2

Despite general women's political representation being statistically insignificant, it is still important to evaluate differences between the specific components of women's representation. To fulfill this aim, two regressions are conducted, one for each specific component. Table 2 presents the results.

Table 2. *Linear regression model of women's parliamentary and governmental representation on SRHR laws.*

	Model 1	Model 2
(Constant)	58.39*** (4.87)	58.92*** (5.42)
Parliamentary representation	0.26 (0.13)	
Ministerial representation		0.16 (0.13)
Polity	0.30 (0.32)	0.21 (0.32)
Literacy	0.14* (0.06)	0.16* (0.07)
Electoral system (Ref. = Majoritarian)		
PR	5.84 (4.60)	6.03 (4.71)
Mixed	5.73 (4.67)	6.40 (4.53)
R <sup>2</sup>	0.29	0.27
Adjusted R <sup>2</sup>	0.23	0.21
F statistic	5.42**	4.91***
N	74	74

Note: OLS regression coefficients with bootstrapped standard errors in brackets

\*\*\* p < 0.001, \*\* p < 0.01, \* p < 0.05

*Literacy*, similarly to the previous regression, continues to maintain a positive and statistically significant effect in both models (p < 0.05). The coefficients of the other control variables are not statistically significant. Furthermore, when controlling for polity, electoral system and female literacy, parliamentary representation has a stronger influence on the

enactment of SRHR laws compared to ministerial representation. As shown by Model 1, larger women's presence in parliament is associated with a 0.26-point increase in the presence of laws concerning SRHR. Larger ministerial representation is, instead, associated with a 0.16-point increase in the outcome variable. Both coefficients, however, are not statistically significant ( $p > 0.05$ ). Given the results, it is not possible to reject the null hypothesis that women's ministerial representation is more influential in enacting laws guaranteeing SRHR compared to parliamentary representation.

Despite the statistical insignificance of the coefficients, it is still possible to make interesting claims. Perhaps, these findings are contrary to what H2 theorized, namely that ministerial representation would be more influential than representation in parliament in bringing laws on SRHR. This theoretical consideration was made on the premise that female ministers held more influence than legislators in shaping the political agenda, along with having more opportunities for advocacy, due to their enhanced visibility (Liu & Banasnak, 2017, p. 138).

In order to explain these contrasting findings, it is important to reassess whether women ministers would want to advocate for different interests than men in the first place. Particularly, the greater opportunities for female ministers to instigate changes in the protection of SRHR would not matter if those were not willing to do so. According to social control theory, women entering politics have to embody masculine characteristics in order for them to be accepted by the new elites (Escobar-Lemmon & Taylor-Robinson, 2016, p. 5). In cabinet posts the mismatch between feminine attitudes and the conventional attributes traditionally attributed to leadership roles may be exacerbated within cabinet posts, given the importance of those positions (p. 6). The expectation for female ministers to conform to traditional attitudes of leadership can push women not to advocate for SRHR. These issues are often connected to harmful masculinities, leading to the perpetuation of social stigmas and taboos surrounding sexual health (WHO, 2019). Perhaps, due to the fear of facing backlash, female ministers may prefer not to deviate from traditional leadership attitudes, and, thus, accept the "culture of the dominant group". Consequently, issues related to sexual health may continue to be sidelined.

Furthermore, a question of electoral accountability might have an important role in explaining those diverging findings. Notably, the "gendered leeway" hypothesized by Hohmann & Nugent (2022) may not apply in the context of cabinet positions. Male



representatives were hypothesized to advance propositions on SRHR once women increasingly entered politics, as they would get praised by constituencies and increase their chances for re-election (p. 766). However, unlike legislators, individual ministers are not directly accountable to their constituencies, but, rather, to the political parties that appointed them (Muller & Meyer, 2010, p. 1066). Therefore, the mechanism proposed by Hohmann & Nugent (2022) would not activate itself, as male ministers lack electoral incentives.

This discussion offers plausible explanations for why the coefficient for women's parliamentary representation may be greater than the one for ministerial representation. However, given the lack of statistical significance, it is premature to accept or reject alternative explanations. Further research is required to determine the validity of these conjectures. Moreover, the difference between the coefficients is relatively small, indicating that, while those explanations could possibly be supported, the mechanisms described are not particularly strong and prominent.

#### c. Explanatory power of the models

An important note needs to be made regarding the overall explanatory power of the models. As indicated by the R squared and Adjusted R squared, the models account for only a small part of the variation in the dependent variable. These values suggest that only around 20 to 23% of the variation of laws safeguarding SRHR can be explained by the various independent variables. This leaves around 77 to 80% of the variance in the dependent variable unexplained. The processes leading to legislation are very complex, and, as such, it is likely that the dependent variable has been affected by factors beyond those included in the models. Adding additional variables to the regressions, however, could have been potentially problematic. Given that the sample size is limited to 74 cases, the inclusion of other variables could have risked overfitting the models, with the models having too many predictors in relation to the number of cases (Field, 2018, p. 519). Despite the low explanatory power of the models, the F-statistics for all three models are statistically significant. This indicates that, collectively, the predictors do significantly affect the extent to which a country has laws safeguarding SRHR.

## Conclusion

The objective of this research was to investigate whether higher political representation of women could lead to a positive change in the enactment of laws safeguarding SRHR. Through quantitative analysis, this study found a positive but statistically insignificant relationship between the independent and dependent variables. These findings support the direction of the relationship hypothesized by H1, that higher women's political representation would bring positive changes in the presence of laws safeguarding SRHR. However, they do not provide enough evidence to reject the null hypothesis. Furthermore, the analysis revealed that parliamentary representation has a more influential impact in bringing positive changes within frameworks on SRHR compared to ministerial representation. This result is contrary to the expectations outlined in H2. However, similarly to H1, the results did not reach statistical significance for any of the two components. In summary, the findings presented do not provide enough evidence to determine the effect of women's political representation. Additionally, while the analysis proposes alternative explanations based on existing theoretical considerations, it is not able to clearly identify which mechanism is at work.

This research provides a solid theoretical standpoint for future analyses, and represents one of the first attempts to investigate this specific relationship. The study contributes to the existing literature in two ways. First, it offers a broader conceptualization of women's political representation, differentiating between the impacts of ministerial and parliamentary representation, and including upper houses in the latter. Second, the analysis sheds light on a three-folded relationship, suggesting a potential association between the kind of electoral system and advancement of laws protecting SRHR, partially mediated by women's political representation. While future research is needed to redefine these models, this thesis offers interesting insights within a relationship which is academically debated.

It is important to acknowledge the main limitations of this study. Firstly, changes in laws protecting SRHR were not measured over time, but were rather assessed at one point in time due to constraints on data availability. While the UNFPA conducted two rounds of data collection for this indicator, one in 2019 and one in 2022, the 2022 sample only included countries not surveyed in the previous round, precluding the possibility of comparing countries over time. Aggregating the mean scores for each predictor between the year 2000 and 2021 provides insight into the average scores of the predictors during the timeframe, and

how those led to potential changes in the dependent variable. Despite this approach's inability to fully isolate the causality behind the relationship, it represents the most comprehensive attempt possible to investigate the research question. Furthermore, even when using a time-series analysis, there may be challenges in isolating causality. Higher women's political representation could be associated with advancements in SRHR not because the former directly causes the latter, but rather because both phenomena happen concurrently. Countries might simultaneously increase women's political participation and SRHR due to a general relaxation of social norms. To better understand the causal mechanisms proposed, further research could combine a time-series quantitative analysis with process tracing. In this way, these studies could investigate the general trend of the relationship, and then strengthen their results by identifying the contributions of specific critical actors.

The second limitation concerns the sample size and the selection of countries for the investigation. As the data available was limited to 74 countries, the sample size was significantly restricted. Consequently, the model could only account for a specific amount of predictors, as adding more variables within the regression would have led to overfitting. Therefore, the models may not have accounted for additional variables which could have influenced the relationship. Furthermore, the countries included in the analysis were solely those that responded to the UNFPA inquiry. Thus, it is possible that countries with low scores on SRHR could have strategically chosen not to participate in the study, leading to their exclusion from the dataset. Additional rounds of data collection would be needed in order to counter those problems, concurrently increasing the number of cases and the choice of countries.

Thirdly, it is crucial to remember that this study focuses solely on the existence of legal frameworks guaranteeing SRHR, and not on their implementation. As previously discussed, countries might develop legal frameworks to satisfy demands by the international community, without genuine commitment to their implementation. Investigating the extent to which these laws are actually implemented could provide more information on the influence of women's political representation. Thus, further research could integrate quantitative indicators of legal frameworks to qualitative interviews assessing their practical implementation.

Lastly, this thesis encourages general greater attention from academia towards SRHR. The topic of sexual health has been under analyzed within research over the years, yet it is of fundamental importance for individuals' well being and the country's developmental prospects. Future research should explore more comprehensively the benefits that those rights entail for international development, as well as understanding what mechanisms can trigger a change towards more inclusivity.

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## Appendix A

### Regression 1.

Regression results using bootstrapping.

Model		B	Bias	Std. Error	Bootstrap <sup>a</sup>		
					Sig. (2-tailed)	95% Confidence Interval Lower	Upper
1	(Constant)	71.114	.095	3.199	<.001	64.726	77.281
	women_representation	.475	-.004	.132	<.001	.225	.736
2	(Constant)	58.030	-.253	5.330	<.001	46.046	67.241
	women_representation	.329	-.003	.119	.005	.098	.566
	polity2_mean	.385	.006	.270	.151	-.105	.966
	literacy	.169	.003	.061	.004	.062	.302
3	(Constant)	57.832	-.321	4.938	<.001	46.607	66.380
	women_representation	.259	-.003	.144	.077	-.030	.539
	polity2_mean	.220	-.013	.320	.478	-.420	.835
	literacy	.151	.004	.061	.018	.043	.286
	system_mixed	5.961	.270	4.593	.187	-2.669	15.106
	system_PR	5.499	.150	4.744	.255	-3.847	15.058

a. Unless otherwise noted, bootstrap results are based on 2000 bootstrap samples

“Part” (semi-partial) correlations to assess unique explanations of variance.

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	71.114	3.370		21.105	<.001					
	women_representation	.475	.151	.348	3.147	.002	.348	.348	.348	1.000	1.000
2	(Constant)	58.030	5.830		9.953	<.001					
	women_representation	.329	.155	.240	2.119	.038	.348	.245	.219	.831	1.204
	polity2_mean	.385	.253	.177	1.518	.134	.351	.179	.157	.785	1.273
	literacy	.169	.062	.290	2.706	.009	.365	.308	.280	.932	1.073
3	(Constant)	57.832	5.840		9.903	<.001					
	women_representation	.259	.165	.190	1.570	.121	.348	.187	.162	.726	1.378
	polity2_mean	.220	.273	.102	.807	.423	.351	.097	.083	.670	1.493
	literacy	.151	.063	.258	2.379	.020	.365	.277	.245	.900	1.111
	system_mixed	5.961	4.186	.184	1.424	.159	.088	.170	.147	.634	1.576
	system_PR	5.499	3.825	.217	1.438	.155	.308	.172	.148	.467	2.143

a. Dependent Variable: SGD\_562

R<sup>2</sup> and model fit.

### Model Summary<sup>d</sup>

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.348 <sup>a</sup>	.121	.109	12.05277	
2	.502 <sup>b</sup>	.252	.219	11.27902	
3	.528 <sup>c</sup>	.279	.226	11.23347	1.713

a. Predictors: (Constant), women\_representation

b. Predictors: (Constant), women\_representation, literacy, polity2\_mean

c. Predictors: (Constant), women\_representation, literacy, polity2\_mean, system\_mixed, system\_PR

d. Dependent Variable: SGD\_562

### ANOVA<sup>a</sup>

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1438.233	1	1438.233	9.900	.002 <sup>b</sup>
	Residual	10459.388	72	145.269		
	Total	11897.622	73			
2	Regression	2992.486	3	997.495	7.841	<.001 <sup>c</sup>
	Residual	8905.136	70	127.216		
	Total	11897.622	73			
3	Regression	3316.638	5	663.328	5.257	<.001 <sup>d</sup>
	Residual	8580.984	68	126.191		
	Total	11897.622	73			

a. Dependent Variable: SGD\_562

b. Predictors: (Constant), women\_representation

c. Predictors: (Constant), women\_representation, literacy, polity2\_mean

d. Predictors: (Constant), women\_representation, literacy, polity2\_mean, system\_mixed, system\_PR

### Regression 2.

a. Model 1

Regression results using bootstrapping.

### Bootstrap for Coefficients

Model	B	Bias	Std. Error	Bootstrap <sup>a</sup>		
				Sig. (2-tailed)	95% Confidence Interval	
					Lower	Upper
1 (Constant)	58.393	-.340	4.868	<.001	47.568	66.905
polity2_mean	.295	-.013	.319	.360	-.339	.918
literacy	.139	.003	.061	.023	.027	.272
parliamentary_representation	.260	.000	.134	.058	.008	.538
system_PR	5.841	.180	4.603	.205	-3.332	15.050
system_mixed	5.728	.297	4.671	.219	-3.413	14.654

a. Unless otherwise noted, bootstrap results are based on 2000 bootstrap samples

R<sup>2</sup> and model fit

### Model Summary<sup>b</sup>

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.534 <sup>a</sup>	.285	.232	11.18602	1.729

a. Predictors: (Constant), system\_mixed, parliamentary\_representation, literacy, polity2\_mean, system\_PR

b. Dependent Variable: SGD\_562

### Bootstrap for Model Summary

Model	Durbin-Watson	Bootstrap <sup>a</sup>			
		Bias	Std. Error	95% Confidence Interval	
				Lower	Upper
1	1.729	-.524	.215	.803	1.643

a. Unless otherwise noted, bootstrap results are based on 2000 bootstrap samples

### ANOVA<sup>a</sup>

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3388.975	5	677.795	5.417	<.001 <sup>b</sup>
	Residual	8508.646	68	125.127		
	Total	11897.622	73			

a. Dependent Variable: SGD\_562

b. Predictors: (Constant), system\_mixed, parliamentary\_representation, literacy, polity2\_mean, system\_PR

b. Model 2

Regression results using bootstrapping

### Bootstrap for Coefficients

Model		B	Bias	Std. Error	Bootstrap <sup>a</sup>		
					Sig. (2-tailed)	95% Confidence Interval Lower	Upper
1	(Constant)	58.922	-.711	5.421	<.001	46.178	67.775
	polity2_mean	.208	-.015	.319	.504	-.455	.786
	literacy	.156	.006	.065	.016	.043	.309
	system_PR	6.030	.188	4.709	.209	-2.746	15.295
	system_mixed	6.400	.274	4.526	.163	-2.114	15.453
	ministerial_representation	.164	.000	.128	.188	-.097	.404

a. Unless otherwise noted, bootstrap results are based on 2000 bootstrap samples

R<sup>2</sup> and model fit

### Model Summary<sup>b</sup>

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.515 <sup>a</sup>	.265	.211	11.33744	1.679

a. Predictors: (Constant), ministerial\_representation, literacy, system\_mixed, polity2\_mean, system\_PR

b. Dependent Variable: SGD\_562

### Bootstrap for Model Summary

Model	Durbin-Watson	Bootstrap <sup>a</sup>			
		Bias	Std. Error	95% Confidence Interval Lower Upper	
1	1.679	-.498	.201	.807	1.585

a. Unless otherwise noted, bootstrap results are based on 2000 bootstrap samples

### ANOVA<sup>a</sup>

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3157.065	5	631.413	4.912	<.001 <sup>b</sup>
	Residual	8740.557	68	128.538		
	Total	11897.622	73			

a. Dependent Variable: SGD\_562

b. Predictors: (Constant), ministerial\_representation, literacy, system\_mixed, polity2\_mean, system\_PR

## Appendix B

### Regression 1.

Multicollinearity: No scores of VIF > 5 and of tolerance < 0.02. Score for *system\_PR* is > 2, however this should not represent a problem.

Model		Coefficients <sup>a</sup>					Correlations			Collinearity Statistics	
		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Zero-order	Partial	Part	Tolerance	VIF
		B	Std. Error	Beta							
1	(Constant)	71.114	3.370		21.105	<.001					
	women_representation	.475	.151	.348	3.147	.002	.348	.348	.348	1.000	1.000
2	(Constant)	58.030	5.830		9.953	<.001					
	women_representation	.329	.155	.240	2.119	.038	.348	.245	.219	.831	1.204
	polity2_mean	.385	.253	.177	1.518	.134	.351	.179	.157	.785	1.273
	literacy	.169	.062	.290	2.706	.009	.365	.308	.280	.932	1.073
3	(Constant)	57.832	5.840		9.903	<.001					
	women_representation	.259	.165	.190	1.570	.121	.348	.187	.162	.726	1.378
	polity2_mean	.220	.273	.102	.807	.423	.351	.097	.083	.670	1.493
	literacy	.151	.063	.258	2.379	.020	.365	.277	.245	.900	1.111
	system_mixed	5.961	4.186	.184	1.424	.159	.088	.170	.147	.634	1.576
	system_PR	5.499	3.825	.217	1.438	.155	.308	.172	.148	.467	2.143

a. Dependent Variable: SGD\_562

Independent errors: Score between 1 and 3 (Durbin Watson) indicate no problems.

### Model Summary<sup>d</sup>

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.348 <sup>a</sup>	.121	.109	12.05277	
2	.502 <sup>b</sup>	.252	.219	11.27902	
3	.528 <sup>c</sup>	.279	.226	11.23347	1.713

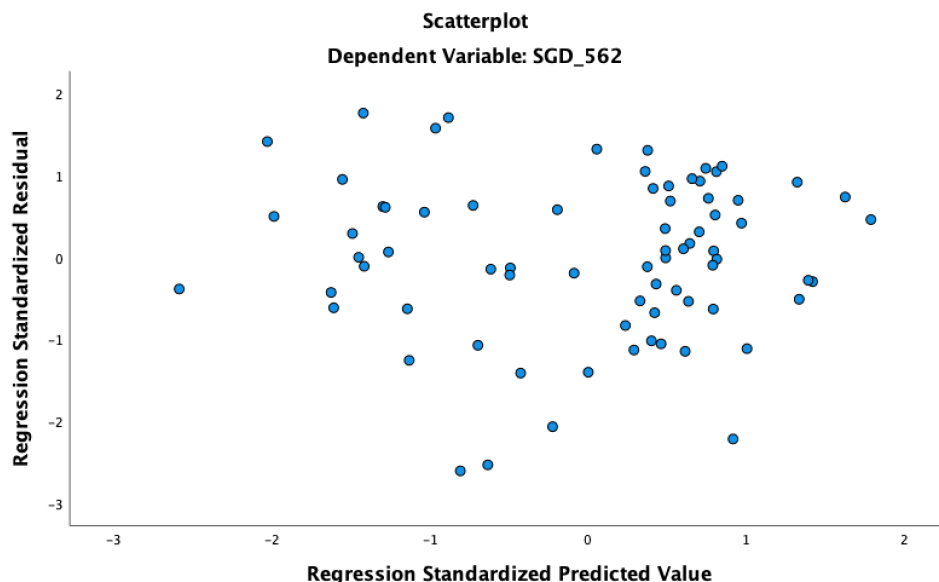
a. Predictors: (Constant), women\_representation

b. Predictors: (Constant), women\_representation, literacy, polity2\_mean

c. Predictors: (Constant), women\_representation, literacy, polity2\_mean, system\_mixed, system\_PR

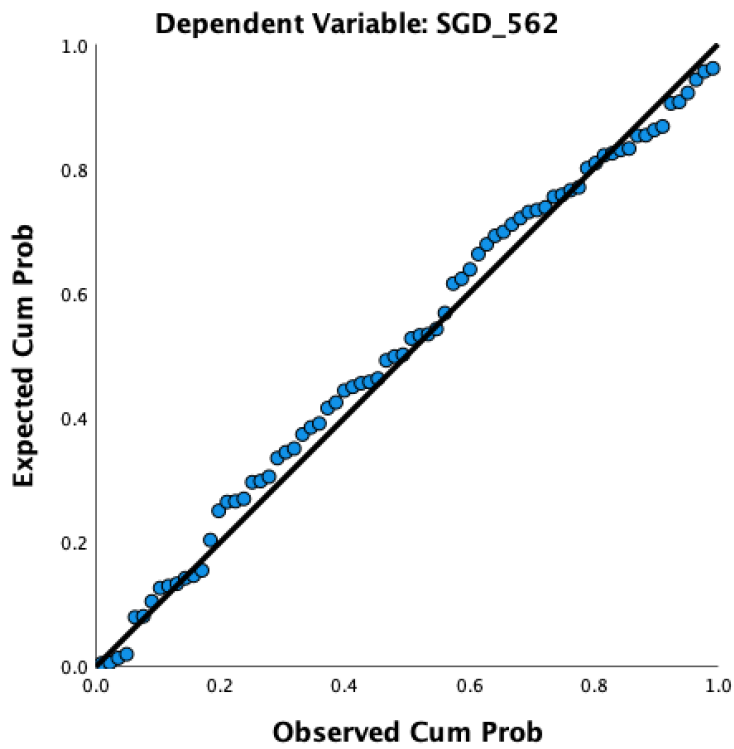
d. Dependent Variable: SGD\_562

Visualization of heteroskedasticity and non-linearity. Presence of a funnel shape. Even with transformations of the variables, problems with heteroskedasticity (and non-linearity) continued to be present. Bootstrapping helps in assessing the relationship properly.



Normal distribution

**Normal P-P Plot of Regression Standardized Residual**



There are some outliers. Specifically, more than 1% at the 2.58 level and more than 5% at the 1.96 level. However, none of these outliers is influential. Hence, they are not problematic.

**ZRE\_329**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.00	74	100.0	100.0	100.0

**ZRE\_196a**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.00	70	94.6	94.6	94.6
	1.00	4	5.4	5.4	100.0
	Total	74	100.0	100.0	

**ZRE\_258a**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.00	73	98.6	98.6	98.6
	1.00	1	1.4	1.4	100.0
	Total	74	100.0	100.0	

**cook**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.00	74	100.0	100.0	100.0

**Regression 2.**

- a. Model 1

Independent errors: Score between 1 and 3 (Durbin-Watson) indicate no problems.

**Model Summary<sup>d</sup>**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.332 <sup>a</sup>	.110	.098	12.12751	
2	.506 <sup>b</sup>	.256	.224	11.24633	
3	.534 <sup>c</sup>	.285	.232	11.18602	1.729

a. Predictors: (Constant), parliamentary\_representation

b. Predictors: (Constant), parliamentary\_representation, literacy, polity2\_mean

c. Predictors: (Constant), parliamentary\_representation, literacy, polity2\_mean, system\_mixed, system\_PR

d. Dependent Variable: SGD\_562

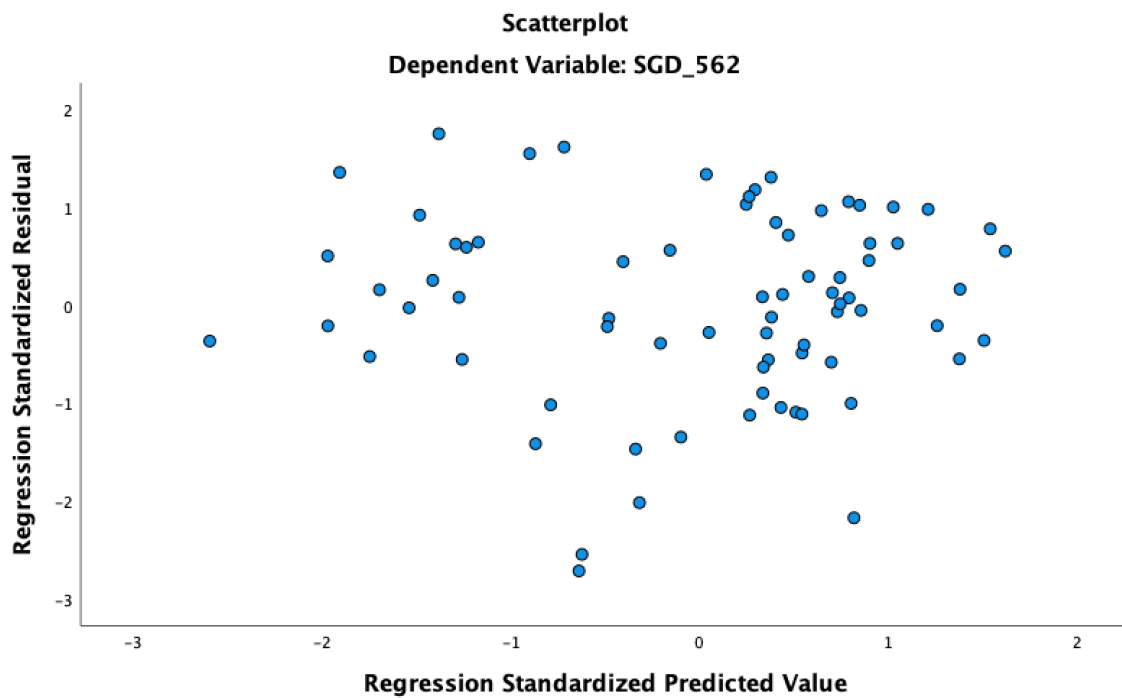
Multicollinearity: No scores of VIF > 5 and of tolerance < 0.02. Score for *system\_PR* is > 2, however this should not represent a problem.



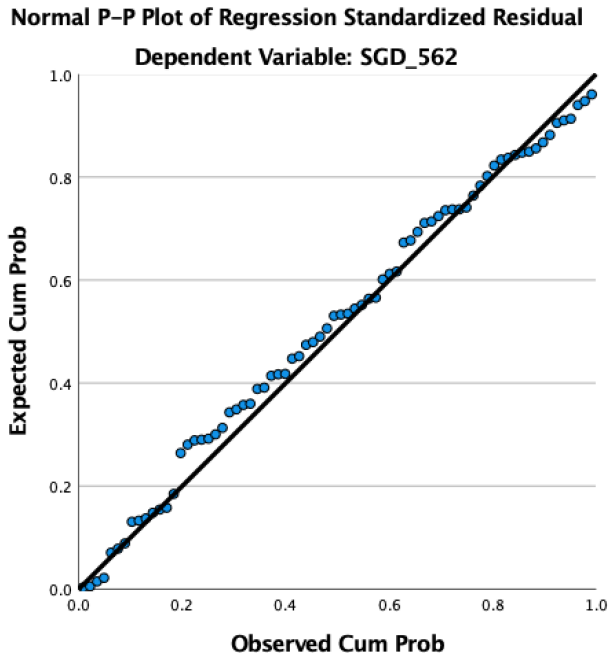
		Coefficients <sup>a</sup>										
Model		Unstandardized Coefficients		Standardized Coefficients		t	Sig.	Correlations			Collinearity Statistics	
		B	Std. Error	Beta				Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	71.823	3.311			21.694	<.001					
	parliamentary_representation	.448	.150	.332		2.982	.004	.332	.332	.332	1.000	1.000
2	(Constant)	58.912	5.607			10.506	<.001					
	parliamentary_representation	.319	.144	.236		2.219	.030	.332	.256	.229	.937	1.067
	polity2_mean	.496	.236	.228		2.096	.040	.351	.243	.216	.897	1.115
	literacy	.156	.063	.267		2.483	.015	.365	.285	.256	.921	1.086
3	(Constant)	58.393	5.593			10.440	<.001					
	parliamentary_representation	.260	.148	.192		1.751	.085	.332	.208	.180	.872	1.147
	polity2_mean	.295	.265	.136		1.112	.270	.351	.134	.114	.704	1.421
	literacy	.139	.063	.238		2.202	.031	.365	.258	.226	.898	1.114
	system_mixed	5.728	4.179	.177		1.370	.175	.088	.164	.141	.631	1.585
	system_PR	5.841	3.711	.230		1.574	.120	.308	.188	.161	.492	2.034

a. Dependent Variable: SGD\_562

Visualization of heteroskedasticity and non-linearity. Presence of a funnel shape. Even with transformations of the variables, problems with heteroskedasticity (and non-linearity) continued to be present. Bootstrapping helps in assessing the relationship properly.



Normal distribution



There are some outliers. Specifically, more than 1% at the 2.58 level and more than 5% at the 1.96 level. However, none of these outliers is influential. Hence, they are not problematic.

**ZRE\_196b**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid .00	70	94.6	94.6	94.6
1.00	4	5.4	5.4	100.0
Total	74	100.0	100.0	

**ZRE\_258b**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid .00	73	98.6	98.6	98.6
1.00	1	1.4	1.4	100.0
Total	74	100.0	100.0	

**ZRE\_329b**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid .00	74	100.0	100.0	100.0

**cook\_b**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid .00	74	100.0	100.0	100.0

b. Model 2

Independent errors: Score between 1 and 3 (Durbin-Watson) indicate no problems.

### Model Summary<sup>d</sup>

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.304 <sup>a</sup>	.093	.080	12.24510	
2	.483 <sup>b</sup>	.233	.200	11.41726	
3	.515 <sup>c</sup>	.265	.211	11.33744	1.679

a. Predictors: (Constant), ministerial\_representation

b. Predictors: (Constant), ministerial\_representation, literacy, polity2\_mean

c. Predictors: (Constant), ministerial\_representation, literacy, polity2\_mean, system\_mixed, system\_PR

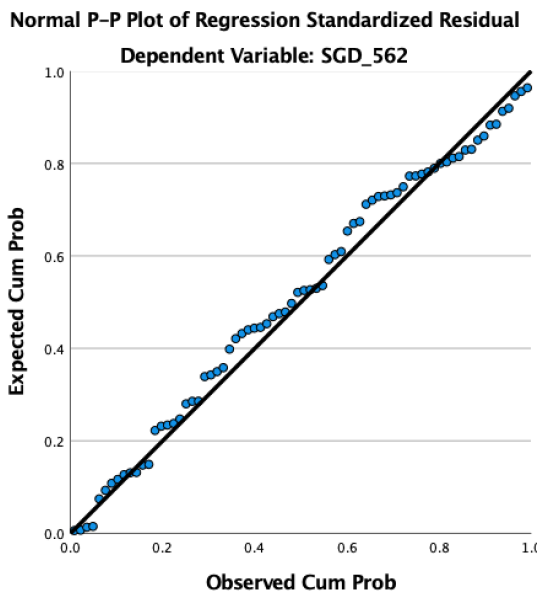
d. Dependent Variable: SGD\_562

Multicollinearity: No scores of VIF > 5 and of tolerance < 0.02. Score for *system\_PR* is > 2, however this should not represent a problem.

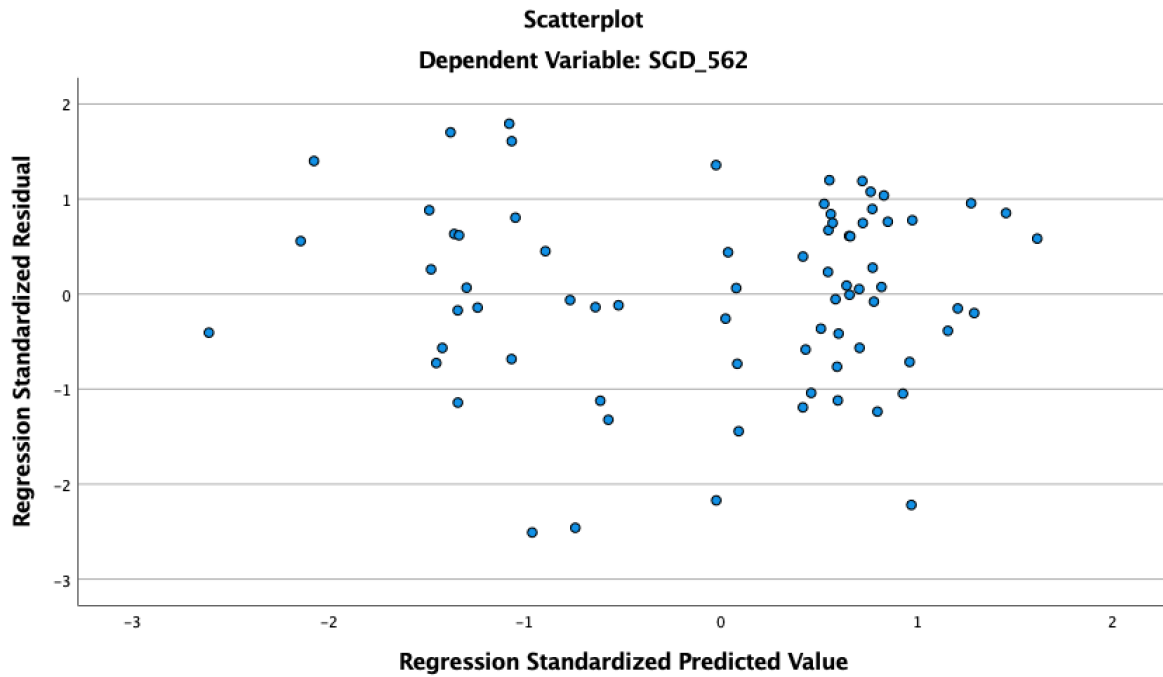
Model		Coefficients <sup>a</sup>					Correlations			Collinearity Statistics	
		Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	t	Sig.	Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	73.499	3.032		24.238	<.001					
	ministerial_representation	.352	.130	.304	2.711	.008	.304	.304	.304	1.000	1.000
2	(Constant)	59.142	5.920		9.991	<.001					
	ministerial_representation	.230	.140	.199	1.642	.105	.304	.193	.172	.744	1.344
	polity2_mean	.373	.272	.172	1.368	.176	.351	.161	.143	.696	1.436
	literacy	.179	.063	.308	2.827	.006	.365	.320	.296	.926	1.080
3	(Constant)	58.922	5.936		9.927	<.001					
	ministerial_representation	.164	.151	.142	1.086	.281	.304	.131	.113	.630	1.589
	polity2_mean	.208	.287	.096	.727	.470	.351	.088	.076	.620	1.614
	literacy	.156	.064	.268	2.424	.018	.365	.282	.252	.883	1.133
	system_mixed	6.400	4.207	.198	1.521	.133	.088	.181	.158	.640	1.563
	system_PR	6.030	3.888	.238	1.551	.126	.308	.185	.161	.460	2.174

a. Dependent Variable: SGD\_562

Normal distribution



Visualization of heteroskedasticity and non-linearity. Presence of a funnel shape. Even with transformations of the variables, problems with heteroskedasticity (and non-linearity) continued to be present. Bootstrapping helps in assessing the relationship properly.



There are some outliers. Specifically, more than 5% at the 1.96 level. However, none of these outliers is influential. Hence, they are not problematic.

**zre\_196c**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid .00	70	94.6	94.6	94.6
1.00	4	5.4	5.4	100.0
Total	74	100.0	100.0	

**zre\_258c**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid .00	74	100.0	100.0	100.0

**zre\_329c**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid .00	74	100.0	100.0	100.0

**cook\_c**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid .00	74	100.0	100.0	100.0

## Appendix C

The 13 components that compose the index are placed on the same scale, ranging from 0 to 100%. Each component is calculated independently and weighted equally. Components are calculated using the following formula:

$$C_i = \left( \frac{e_i}{E_i} - \frac{b_i}{B_i} \right) \times 100$$

where;

*C<sub>i</sub>*: Data for component i

*E<sub>i</sub>*: Total number of enablers in component i

*e<sub>i</sub>*: Number of enablers that exist in component i

*B<sub>i</sub>*: Total number of barriers in component i

*b<sub>i</sub>*: Number of barriers that exist in component i

Source: <https://unstats.un.org/sdgs/metadata/files/Metadata-05-06-02.pdf>

The final index, SGD 5\_6\_2, is calculated as the arithmetic mean of the thirteen components.