BOOSTING FEMALE POLITICAL REPRESENTATION

A quantitative study of the impact of structural and policy factors on the representation of women in national parliaments in well-established democracies.

Final report for Public Governance Project, EPA Module 6

January 29, 2015

XXXXX words

Group 12

Marie-Helen Ferdelman (1436465)

Lukas Spielberger (1418493)

Yann-Paul Hegstenberg (1453149)

Oliver Klinkhammer (1595563)

Noor Gadhi (1489068)

UNIVERSITY OF TWENTE.

Abstract

Across all democratic countries in the world women are significantly underrepresented in national parliaments. However, it is often believed to be desirable that women are equally represented in political offices and that their number is therefore increased. This paper examines how structural factors such as the electoral system and the number of years women are allowed to vote and policy factors as gender quotas influence the representation of women and how they interact by using linear regression analysis. It is shown that when studied alongside structural factors gender quotas do not have an impact on the percentage of women in parliaments or the strength of the relationship between the electoral system and female representation, while the studied structural factors are indeed influential.

1. Introduction

Women in most countries around the world are underrepresented in leading positions. This also includes holding an elected office. The EU and the UN have both made an effort to increase the number of women who enter politics and take on responsibility for their country. In 2011 the UN adopted a resolution on the political participation of women, which urges states "to accelerate the implementation of strategies, as appropriate, that promote gender balance in political decision-making" (UN, 2011). Although women in countries in European Union have more rights and better chances than their counterparts in many other states they are still underrepresented in politics, with 23.3% of all parliamentary members in European countries, excluding the Nordic countries, being female (UN Women, 2014). Therefore, the EU Commission set up a network in 2008, whose goal it was to develop a strategy to raise the number of women in decision-making positions in politics as well as the economy (European Commission, 2014). However, policy-makers need to have the necessary tools to construct effective and efficient policies. Research on the topic can provide such a tool, by offering

insights into which factors influence women's participation in politics and increases their representation in elected offices. This study aims at showing how structural and policy factors influence female representation and which of the two outweighs the other in its strength.

There are a number of reasons why an equal representation of men and women in politics is often claimed to be desirable. First of all, it can not only be a mirror of the status of women in the country but the fair representation of women in politics could also influence the way in which women's rights are treated. In countries where women have been oppressed for a long time, women in parliament can be an example to others.

Secondly, as it was pointed out by Mansbridge (2005), the representation of a certain group in society only needs to be prescribed if non-members of this group cannot understand and represent their interests equally well. Indeed, it has been found that issues female legislators have different interest and influence the political debate towards the discussion of more women-related topics (Kenworthy & Malami; 1999, Wide, 2006). It has been shown that women in parliament tend to care more about women's rights, children and families than their male counterparts (Jones, 1997), which can affect the political agenda and decision-making process in the country. Not using this potential for a better-informed legislative process would automatically lead to the overrepresentation of another group (in this case men), and might induce one-sided legislation (Wide, 2006).

Thirdly, a parliament should be representative of its people and the fact that approximately half of the world's population is female should be reflected in the composition in parliamentary chambers around the world. In order for women to exert this influence and not be a marginal group, however, a 'critical mass' of 30% is needed (Kenworthy & Malami, 1999; Mansbridge, 2005). It is evident that even this representation would not reflect the share of women in the population, which usually is about 50%, which leads to another normative argument, the democratic principle. The current balance of sexes in most countries could hence not exist under the premise of equal opportunities (Kenworthy & Malami, 1999; Wide, 2006, Abdelzadeh, 2008). On the other hand, regulating the representation of a certain societal group according to its size also runs the risk of stigmatising its members (Mansbridge, 2005).

Therefore, the democratic argument is justified rather by equality of chance than by proportional representation of marginal groups.

Extensive research on the representation of women in national legislatures has been conducted over the past 20 years shows that, in general, the percentage of women in parliaments has increased all over the world (Abdelzadeh, 2008). It has, however, also been shown that there exist substantial differences between countries, with the Nordic countries having the highest percentage and Arabic and South-Sea states having the lowest proportions. Bullough e. a. (2012) have shown that political factors in the institutional environment have an influence on the percentage of female leaders. Structural elements, such as the whether there is a proportional or a majoritarian electoral system or the timing of women's suffrage can be mentioned (Abdelzadeh, 2008; Bullough e. a., 2012). The introduction of gender quotas is a policy that is recently increasingly used in order to provide equal representation. A number of normative arguments in favour of their introduction have been made that favour quotas as a short-term means (Mainsbridge, 2005). However, no research about the relative influence of quotas compared to structural factors has been made so far. This article therefore aims to juxtapose the influences of quotas and structural elements, which can extend the understanding of their respective impacts. It thus builds upon previous findings and aims to derive practical implications for the use of gender quotas for national parliaments.

Hence the following research question is formulated: **To what extent do female quotas, the length of time of female suffrage and the presence of a majoritarian electoral system influence the percentage of women in parliaments in well-established democracies in 2010?**

In the following, the theoretical background for this study will be explained first and deriving from this, four hypotheses will be formulated. Second, the collected data will be described and the variables' operationalisation will be discussed. Subsequently, the expected relationships will be tested in an analysis and the findings will be interpreted. Finally, the general results of this study will be concluded and the theoretical and practical implications will be discussed.

Theoretical background for this study

Numerous studies investigating variables that influence the representation of women in parliaments have been conducted. Generally three main categories have been distinguished, the political, the socio-economic and the cultural variable (Bullough, 2012; Kenworthy & Malami, 1999). This study will be focused on the political aspects only, because firstly they are the easiest to change, and secondly and capacity constraints were present. Both institutional factors will be investigated, such as the electoral system and the amount of time women enjoy the right to vote, and a specific policy that has been advocated in order to combat the underrepresentation of women, namely gender quotas. In the subsequent section, the political factors will be explained. In addition, hypotheses about their influence on the percentage of women in parliament will be formulated.

Electoral system

The electoral system is among the most frequently studied variables in order to explain the variation of parliamentary seats for women across countries (Wide, 2006). It is commonly asserted that countries with proportional representation have a higher percentage of female legislators than those with majoritarian systems. This difference can be explained in the degree to which the electoral system directs the vote towards a person or a political party. In majoritarian systems, per district one delegate is elected and hence only the strongest contender will eventually receive the seat in parliament (Abdelzadeh, 2008). In this case the nomination of a woman means that she will have to compete against male candidates and might therefore be considered a risk by party gatekeepers. Kunovich and Paxton find this to be the case, albeit women in party elites can reduce this effect (2005). If there is proportional representation, however, parties can balance their tickets and thereby enable more equal representation, since it is then in their interest to appeal to as many different groups as possible (IDEA, 2005). Following this assumption the **electoral system hypothesis** can be derived: **Countries with a**

mixed electoral formula or a proportional system have a higher percentage of women in parliament than countries with a majoritarian system.

Female suffrage

Second, the percentage of female legislators can be influenced by the amount of time that has elapsed since the introduction of female suffrage. Kenworthy & Malami (1999) say that although women enjoy the right to vote in almost all countries in the world, the percentage of women voting is not only dependent on whether the right to vote has been introduced but also on when that took place. They suppose that over time, the percentage of women that vote increases, hence the interests and representation of women are not as critical a factor in the first years after the introduction as they are later on. Accordingly, Abdelzadeh (2008) found that the number of years of female suffrage is positively related to the percentage of women in parliament.

Assuming that the longer women are entitled to vote, the more common it will be for them to take part in politics, as their rights become better established and more widely accepted in society,which leads to **the female suffrage hypothesis**: **Countries with a longer period of time that women enjoy the right to vote have a higher percentage of women in parliament than countries with a shorter period of time that women enjoy the right to vote.**

Gender quotas

Gender quotas are a contested means to improve the representation of women in parliament. On the one hand, they have lead to a remarkable increase in the representation of women in Latin American countries (IDEA, 2005). They have lead to a number of countries catching up with the Scandinavian countries which used to be on top within a few years (Dahlerup & Freidenwall, 2005). However, quotas, as pointed out by Mansbridge (2005), do not in all cases lead to a higher percentage of women. Quite the opposite, in some countries they are even understood as the denial of merit and the favouring of candidates to reasons other than qualification (IDEA, 2005). Nevertheless the findings indicate that generally, the introduction of quotas is an effective means to a higher share of women in parliament (Dahlerup & Freidenwall, 2006).

Currently, more and more countries are introducing various types of quotas. A specific type of quota, the reserved seat quota, regulates the number of women in parliament directly by reserving a certain amount of seats for female representatives. Although the use of quotas may raise some questions regarding their contribution to democratisation, they tend to be the most effective method of increasing the percentage of women in parliament. Quotas ensure a certain percentage of women in parliament. Using this information the **gender quota hypothesis** is formulated**: Countries with a gender quota have a higher percentage of women in parliament than countries with no gender quota.**

Despite the general merits of gender quotas, however, their effect is not certain to be successful. One of the major obstacles for the successful implementation can indeed be the electoral system which hampers the chances of women being elected into parliament. Whereas in proportional representation systems women can be required to take a certain share of the positions on the list and thus be assured a seat in parliament (IDEA, 2005), in majoritarian systems, a number of possibilities exist that reduce the effect of a quota. As an illustration, in majoritarian systems, or other single member districts, the mere fact that only one contender can finally receive the seat in parliament makes party watchdogs more attentive as to which candidate they propose for the election. If they generally assume that women are less likely to win the seat, even a quota might lead to the nomination of female candidates only in districts where they are not likely to win (IDEA 2005). On the other hand, it is not certain that a quota, once it is in place will be generally accepted and adopted by all parties.

The **interaction hypothesis** is therefore**: In countries with gender quotas the effect of proportional systems is stronger.**

Causal model

In Figure 1.1 the causal model of the three variables on the percentage of women in parliament discussed above is presented. The causal model illustrates the relations between the different variables and the percentage of women in parliament in well established democracies. Whenever the gender quota is higher, a higher the percentage of women in parliament is

expected. Further, the longer the time that women enjoy the right to vote results in a higher percentage of women in parliament.

The majoritarian system is likely to lower the amount of women in parliament whereas the proportional representation system is likely to have a positive influence on the percentage of women in parliament. Since there can only be one system present in a nation, only one of them is shown in the causal model. The interaction hypothesis is illustrated in Figure 1.2. The effect of quota is illustrated by the arrow pointing from the gender quota to the relationship between the proportional representation system and the percentage of women in parliament.

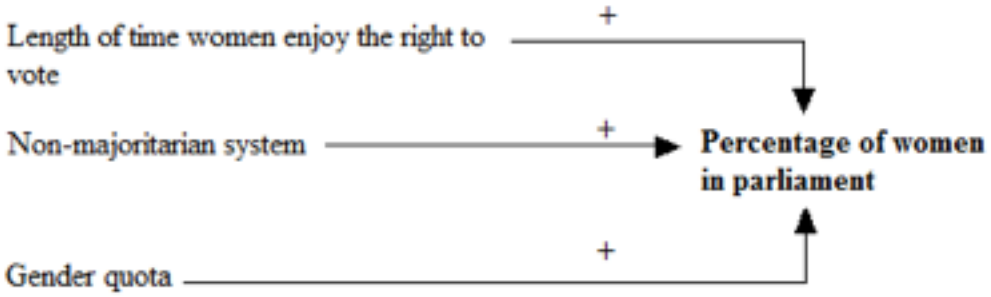

Figure 1.1 Causal model

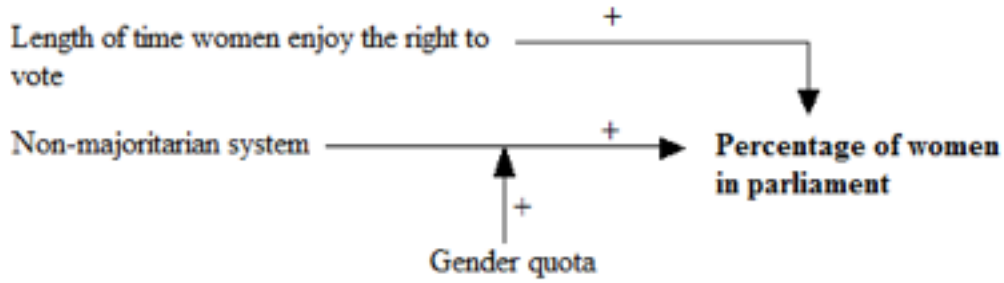

Figure 1.2 Causal model visualizing the interaction hypothesis

2. Data and operationalisation

Analysis of pool of countries

As it was pointed out by Knutsen (2010), the definition of a free democracy given by the Freedom House Index is valid for substantive democracy definitions. It involves two different dimensions of questions. On the one hand it asks ten questions regarding political rights, divided

into subcategories such as the Electoral Process, Political Pluralism and Participation and the Functioning of Government. On the other hand it includes fifteen questions about civil liberties, consisting of questions about the Freedom of Expression and Belief, Associational and Organisational Rights, Rule of Law and Personal Autonomy and Individual Rights (Freedom House, 2010). Thereby each question can reach on a scale between the value 4, which is the highest possible value, and 0 as the lowest. The total score of the two dimensions' checklists determines the political rights rating and the civil liberties rating, which lies between 1 as the highest and 7 as the lowest. Each pair of political rights and civil liberties rating, in turn, is averaged to determine an overall status of "Free", "Partly Free" or "Not Free" (Freedom House, 2010). Since this paper wants to investigate on well-established democracies, the focus in this research lies on countries who received the overall status of "Free" according to the Freedom House Index.

These conditions led to the selection of 82 countries (see Appendix, Table 6.1), dominated by Western states. Every country is associated to the United Nations and is stable in its political system over the past decades.

Description of the data sources

In order to obtain valid and reliable data, internationally acknowledged organisations, such as the Inter-parliamentary Union (IPU, 2014), served as critically accessed data sources for this paper. It is an international organisation of parliaments, holding permanent observer status at the United Nations and hence working closely together with it. The organisation calls itself "the focal point for world-wide parliamentary dialogue" (IPU, 2014) and is primarily funded by its members out of public funds. Its headquarters are located in Geneva, Switzerland. The IPU provides profound information about the length of the period of women's suffrage and about the percentage of women in parliament. Also big and well known organisations, such as the World Bank, use IPU information for comparing the percentage of women in parliament (The World Bank, 2014).

The QuotaProject, which is a research project from the International Institute For Democracy and Electoral Assistance (IDEA), the University of Stockholm and the Inter-

Parliamentary Union collates comparative knowledge and resources on the implementation and impact of quotas (QuotaProject, 2013). The database is intended as a working research tool (QuotaProject, 2013) and therewith serves this research paper with comparative data on gender quotas in different democracies around the world.

Information regarding the presence of a majoritarian system were retrieved from the ACE Project, which is a collaborative project between IDEA, EISA, Elections Canada, the National Electoral Institute of Mexico (INE), IFES, The Carter Center, UNDESA, UNDP and the UNEAD (Ace project, n.d.). Apart from that, the IPU provided information about electoral systems in the world as well.

Discussion of the operationalisation of the relevant variables:

Following up the answering of the research question "To what extent do female quotas, the timing of women's suffrage and proportional systems, compared to majoritarian electoral systems, influence the percentage of women in parliaments in well-established democracies in 2010?", the three already conceptualised variables "Length of time that women enjoy the right to vote", "Gender quotas" and "Percentage of women in parliament by 2010" need to be defined first. In the following operationalisation, a clear and structured conceptualisation is used in order to transform the used data/variables into measurable results. The transformation for analysing data through SPSS demands the assignment of labels to some of the quantitative data, exemplary the unit of observation "Gender Quotas". The final output of this quantitative study will be displayed in diagrams, scatter plots and further charts, enabling the reader and researcher to continue analyses and interpretations. The variable "Length of time that women enjoy the right to vote" is very obvious to measure in years, with a minimum score of x and a maximum score of x, the other two variables offer different ways to approach their operationalisation. Accordingly, there are two different types of gender quotas, namely voluntary and legal quotas since there is only one country with reserved seats quotas. These differences can generally be divided into two dimensions: The first dimension is about who has mandated the quota system, while the second dimension is concerned with what part of the selection and nomination process the quota aims at (QuotaProject, 2009). Hence the first dimension includes on one hand legal gender quotas, which

are mandated either by the constitution or by the electoral law, while on the other side voluntary party gender quotas are taken into account. It should be mentioned that also the latter can have a significant impact on the overall rate of female representation. The second dimension, in contrast, can target one of the three stages of the selection process. Thereby the first stage is about finding aspirants for getting nominated, the second stage is the actual nomination of candidates and the third stage is concerned with the number of reserved seats in parliament (QuotaProject, 2009). This paper concentrates on the comparison of the impact of legal and voluntary quotas and assumes the former as having a major impact on the percentage of women in parliament. By doing so, the sampling of countries allows to examine quotas on the stages of the actual nomination of candidates.

The dichotomous independent variable "electoral system" is measured by looking at which specific kind of electoral system a country has, herein either "majoritarian systems" or "proportional systems". The value 0 has been assigned to "majoritarian systems" while "proportional systems" have been coded with 1.

Gender quotas as intervening and explanatory variable are coded as dichotomous with the assigned values of 0 for "no quota" and 1 for any "quota".

The dependent variable, the percentage of women in parliament in a country, coded in a ratio scale with values between 0% and 46,4% (see Table 2.1), measures the number of seats with female politicians in relation to the total number of seats in a parliament.

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
perc_fem	82	,00	46,40	19,8244	11,5163
years_suf	82	20,00	117,00	68,6463	21,1207
elec_dic	82	,00	1,00	,6951	,46319
quot_dic	82	,00	1,00	,5732	,49766
Valid N (listwise)	82				

Table 2.1 Descriptive Statistics of variables

It is to mention that, since a comparison is made between both unicameral and bicameral parliament types, the focus is set on the percentage of women in the lower or the single chamber of a country in order to achieve analogous results.

Even though it is possible to make a broader operationalisation of the variables by comparing all different electoral systems and the effects on the various different parliamentary chambers, it was still decided to focus on this concept and approach due to feasibility- and time-reasons.

The specific selection of solely well-established democracies might have affected the specific results but was for this moment the most feasible approach to ensure reliability of the effects between the chosen variables.

3. Data analysis

Due to the small sample of 82 well-established democracies (see appendix 6.1), some concessions had to be made when analysing the data with linear regression. First, the distinction between voluntary and legislated quotas turned out to yield too few cases for at least 10 cases to be present for each value. Therefore these two values were collapsed into one, making gender quota a dichotomous variable. Although the problem is not remedied completely it was consider to be sufficiently decreased to proceed with the analysis.

Secondly, three cases were excluded from the analysis due to missing data and to make the results better comparable.

The following table shows the results of the linear regression analysis of the first causal model. The model has an adjusted R square of 0.295, meaning that it explains nearly 30% of the variation in percentage of women in parliament between the countries.

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	Sig.
		B	Std. Error	Beta	
1	(Constant)	-3,968	4,220		,350
	Years of female suffrage	,178	,052	,327	,001
	Electoral system	4,816	1,334	,373	,001
	Gender quota	1,437	2,401	,062	,551

a. Dependent Variable: Percentage of women in parliament

Table 3.1 Coefficients causal model I

Female suffrage hypothesis

According to our female suffrage hypothesis specified above, the proportion of women in parliament will rise with the number of years they have had the right to vote. Figure 3.1 shows that the general trend that was predicted can indeed be detected.

The regression analysis also shows that the impact of the number of years that a country has had female suffrage on the proportion of women in its national parliament is significant (Sig. 0.001; α=10%). The relationship has been confirmed to be a positive one and for every additional year of female suffrage the proportion of women in parliament will rise by an average of 0.178%.

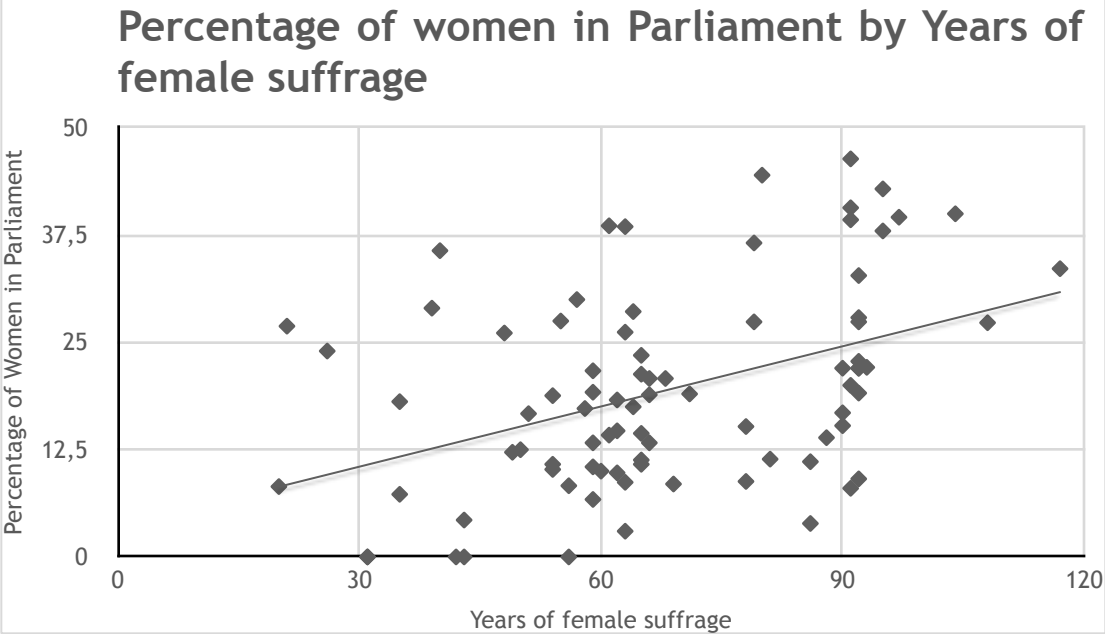

Figure 3.2 Scatter plot years of female suffrage by percentage of women in parliament

Electoral system hypothesis

The mean percentages of women in parliament in countries with majoritarian systems lies at 12.36% while the one for mixed and proportional systems lies at 23.10% (see Figure 3.2), which is in accordance with the electoral system hypothesis. . The linear regression analysis shows that this difference is significant (Sig 0.001; α=10%). The unstandardised coefficient of the electoral system is 4.816, which means that in a majoritarian system the average percentage of women in parliament is 4.816% lower than in a non-majoritarian system when all other factors are held equal. The electoral system hypothesis has therefore been confirmed.

The model for the combined hypotheses is therefore: Proportion of women in parliament = -3.968 + 0.178 × years of female suffrage + 4.816 × electoral system + 0 × gender quota

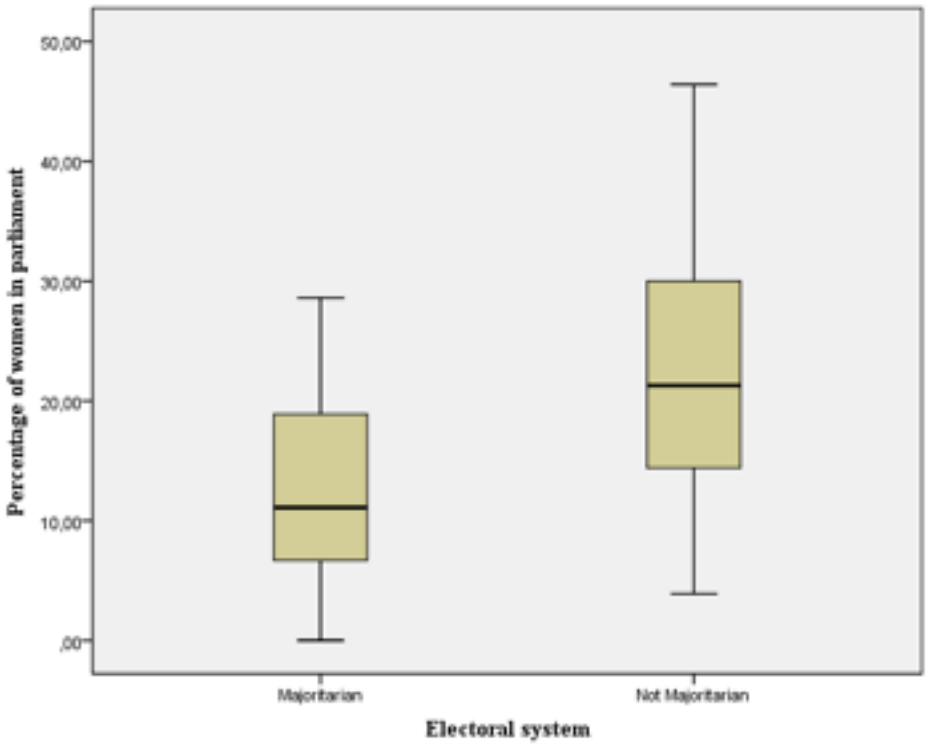

Figure 3.3 Boxplot Electoral system

Gender quota hypothesis

The mean for the proportion of women in parliaments with any kind of gender quota lies at 22.07%, whereas the mean for those countries without a gender quota is only 16.07% (see Figure 3.3). However, the regression analysis shows that the difference between the two groups is significant (Sig.: 0.551; α=10%). This means that the gender quota hypothesis has to be rejected. One of the reasons for the insignificant result may be the relatively high, although not significant, level of multicollinearity between the gender quota variable and the electoral system variable. This implies that gender quotas have no direct effect on the percentage of women in parliament.

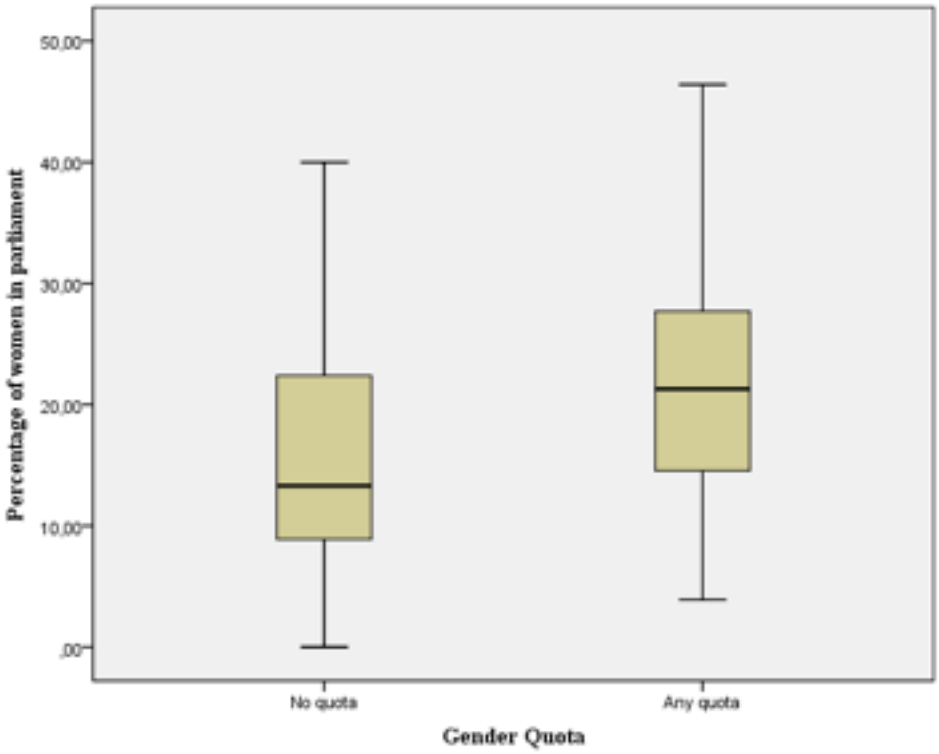

Figure 3.4 Boxplot Gender Quota

Interaction hypothesis

It was expected that in countries with a gender quota the electoral system hypothesis would be stronger than in those without a gender quota. However, this hypothesis had to be rejected. As can be seen in Figure 3.4 the effect is insignificant in the presence of a gender quota. However, if there is no gender quota the effect is significant, which is contrary to the expectations. This conclusion can be drawn as the 95% confidence interval for no quota lies above zero, while the confidence interval for any quota includes zero. From this it can be derived that there only is an effect of electoral systems on the percentage of women in parliament if there is no gender quota present in this country. This becomes evident when looking at Table 3.2. The increase of the percentage of women in parliament is much larger between majoritarian countries with no quota and any quota than in countries with a non-majoritarian electoral system.

Case Summaries

Percentage of women in parliament

Gender Quota at all	Is the country majoritarian?	N	Mean
No quota	Majoritarian	18	9,9222
	Not Majoritarian	17	22,5882
	Total	35	16,0743
Any quota	Majoritarian	7	18,6286
	Not Majoritarian	40	23,3150
	Total	47	22,6170
Total	Majoritarian	25	12,3600
	Not Majoritarian	57	23,0982
	Total	82	19,8244

Table 3.5 Case summaries

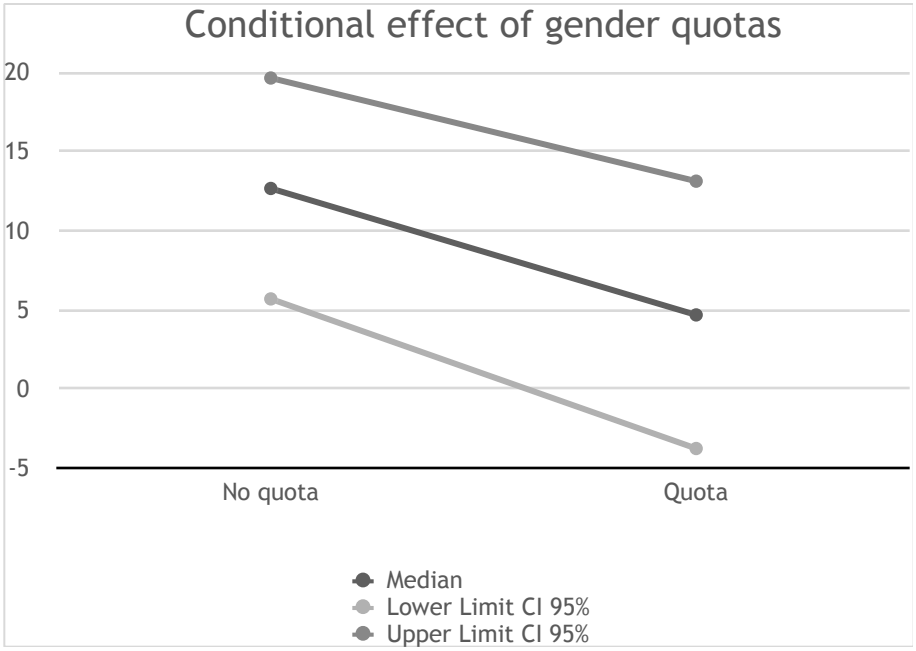

Figure 3.6 Conditional effect of gender quotas on the relationship of electoral systems and percentage of women in parliament

4. Conclusion

The research has shown that only two out of the four hypotheses could be confirmed. First of all, the female suffrage hypothesis could be upheld. Secondly, the electoral system hypothesis was validated. The standardised coefficients for electoral system and length of female suffrage show that both have a similarly large impact on the percentage of women in parliament (see Table 3.1). If one looks at the possible impact of the respective variables, however, one can see that the maximum effect of a change in electoral system can be 4,8%, since only a step from 0 to 1 is possible. On the other hand, years of female suffrage range from 20 to 117 years, making a difference of between 3,6% and 20,9% possible. Hence based on the unstandardised coefficients, years of suffrage are likely to have a bigger effect on the percentage of women in parliament over a longer period of time. Opposed to that the gender quota hypothesis was rejected. This stands in opposition to the claim that is often made that gender quotas are necessary to ensure a higher percentage of female parliamentarians. Instead it seems that gender quotas, if legally binding and voluntary quotas are reconsidered in combination, do not have an effect on female representation in parliaments. This implies that the two structural factors of the years of female suffrage and the electoral system have a larger impact on female political representation than the policy factor of a gender quota. Unfortunately, this is bad news for those countries that are aiming to increase the percentage of women in their parliaments in the near future, since structural factors are much more difficult to change and influence than establishing a gender quota.

Lastly, the interaction hypothesis also had to be rejected. The assumption that the effect of the electoral system on the percentage of women in parliament is strengthened should be rejected. It has been found instead that the effect of electoral systems is strong when a quota is absent and turns insignificant once quotas are present. Not only does this explain the absence of an effect of quotas in the multivariate regression model, it also brings with it important implications for policy makers, which will be discussed later.

The present research has some limitations as to how far the results can be taken to answer the research question. First, the distribution of the dependent variable deviates substantially, albeit not significantly from a normal distribution, which limits the reliability of the multiple

regression analysis. This is also due to the fact that the sample size was relatively small with only 82 countries. Another danger of the relatively small sample is that certain outcomes might be rendered insignificant, although in a bigger sample they might be present. In addition, the sample size has brought with it some limitations with regards to the variables and categories that could be considered.

Second, in order to have sufficiently many cases for either value of the variables, the original division several categories of quotas had to be collapsed into a simple distinction between quotas and no quotas. The same applies to the distinction between majoritarian and non-majoritarian systems that is also more parsimonious than intended in the beginning of the research. The idea behind having more categories was that that would yield more refined results and a more precise model.

A third problem that arises from this research is that besides the few categories, there are no control variables included that could explain some of the effects observed. As a consequence, the variables used run the risk of being distorted by an omitted variable bias. Only the two institutional variables 'female suffrage' and 'electoral system' serve as a control as opposed to the policy of including a female quota. Other control variables that would have been valuable to include could be the Human development index, the GDP per capita or the percentage of female university graduates. With regards to further political factors that could have played a role, the present sample deliberately controls for those political freedoms and civil liberties that are considered under the Freedom House index.

Finally, the model presented in this research is, although significant not very strong, with $R^2=0.265$ and hence implies that there are a number of further factors involved in explaining the variation in percentages of women in parliament across countries.

Notwithstanding the flaws discussed above, this research has helped to get a more thorough understanding of the mechanisms that determine the representation of women in parliament. It combines and compares the effect of gender quotas and institutional circumstances and shows that two current recommendations to policy makers are misleading. Not only is the influence of quotas not present when controlled for institutions, also the line of thought presented in the IDEA guide on increasing female representation (2005), which holds that quotas will be

less effective under majoritarian systems, could be rejected. Policy implications will be discussed in more detail in the final section.

Implications for future research that can be derived from the present research are that only focusing on functioning democratic countries is perhaps not sufficient in order to get a good impression of the effect of quotas compared to institutional givens. Similar research with a larger sample, for instance taking into consideration lower administrative levels could be a solution to this limitation. This would also make it possible to conduct a more refined analysis with more than two categories and receive a more precise model in the end.

A second interesting point to pay attention to would be in how far quotas are complied with and whether the prescribed percentage of quotas is associated with the actual percentage of women in parliament. For that research, also more institutional givens and societal factors or policy interventions targeted at increasing the percentage of women in parliament could be included.

Finally it would be worthwhile to conduct in-depth analyses not only of the most positive cases like Sweden (which has already been investigated very thoroughly with regards to female representation, e.g. by Wide, 2006), but also of those countries that have extremely low values, such as Trinidad and Tobago or Ukraine.

On the basis of this analyses certain conclusions for policy implications can be drawn. Since a more proportional electoral system turned out to be the strongest factor for increasing the percentage of women in national parliaments, the implementation of it should be a major concern of policy makers. This is interesting especially for policy makers of states that are in the transition to a democratic state, because already existing democracies are unlikely to change their whole electoral system. The current policy debate in most democratic countries concentrates on the implementation of gender quotas, which makes this an important perception and an incentive for rethinking.

The present results could however motivate political parties to change their agendas. Obviously, the length of time that women have the right to vote is positively related with the percentage of women in parliament. This makes time an automatic mechanism in increasing female representation in parliaments.

With regards to the introduction of a gender quota, the results show that this policy option should only be considered in a majoritarian system, since in non-majoritarian systems, no significant effect would be achieved. Based on this research it can hence be concluded that in the future, female representation is likely to increase around the globe and it can be hoped that changes will take place in the ongoing policy debate.

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6. Appendix

Appendix 1

Table 6.1: Free countries of the world according to the FHI

	Woman suffrage (Inter-Parliamentary Union)	**Electoral system (ACE-Project)**	**Gender quotas (Quota Project)**	**Percentage of women in parliament by 2010 (Inter-Parliamentary Union)**
Countries				
Andorra	1970	Parallel	No	35,7%
Antigua & Barbuda	1951	FPTP	No	10,5%
Argentina	1947	List PR	Yes (Legislated candidate quotas)	38,5%
Australia	1902	AV	Voluntary political party quotas	27,3%
Austria	1918	List PR	Voluntary political party quotas	27,9%
Bahamas	1961	FPTP	No	12,2%
Barbados	1950	FPTP	No	10%

Belgium	1919	List PR	Yes (Legislated candidate quotas)	39,3%
Belize	1954	FPTP	No	0%
Benin	1956	List PR	No	10,8%
Botswana	No data	FPTP	Voluntary political party quotas	7,9%
Brazil	1932	List PR	Yes (Legislated candidate quotas)	8,8%
Bulgaria	1944	List PR	No	20,8%
Canada	1917	FPTP	Voluntary political party quotas	22,1%
Cape Verde	1975	List PR	Yes (Legislated candidate quotas)	18,1%
Chile	1949	List PR	Voluntary political party quotas	14,2%
Costa Rica	1949	List PR	Yes (Legislated candidate quotas)	38,6%
Croatia	1945	List PR	Voluntary political party quotas	23,5%
Cyprus	1960	List PR	Voluntary political party quotas	12,5%
Czech Republic	1920	List PR	Voluntary political party quotas	22%

Denmark	1915	List PR	No	38%
Dominica	1951	FPTP	No	19,2%
Dominican Republic	1942	List PR	Yes (Legislated candidate quotas)	20,8%
El Salvador	1939	List PR	Yes (Legislated candidate quotas)	19%
Estonia	1918	List PR	No	22,8%
Finland	1906	List PR	No	40%
France	1944	TRS	Yes (Legislated candidate quotas)	18,9%
Germany	1918	MMP	Voluntary political party quotas	32,8%
Ghana	1954	FPTP	No	8,3%
Greece	1952	List PR	Yes (Legislated candidate quotas)	17,3%
Grenada	1951	FPTP	No	13,3%
Guyana	1953	List PR	Yes (Legislated candidate quotas)	30%
Hungary	1918	MMP	Voluntary political party quotas	9,1%
Iceland	1915	List PR	Voluntary political party quotas	42,9%
India	1950	FPTP	No	10,8%

Indonesia	1945	List PR	Yes (Legislated candidate quotas)	18%
Ireland	1922	List PR	Yes (Legislated candidate quotas)	13,9%
Israel	1948	List PR	Voluntary political party quotas	18,3%
Italy	1945	List PR	Voluntary political party quotas	21,3%
Jamaica	1944	FPTP	No	13,3%
Japan	1945	Parallel	No	11,3%
Kiribati	1967	TRS	No	4,3%
Latvia	1918	List PR	No	22%
Liechtenstein	1984	List PR	No	24%
Lithuania	1918	Parallel	Voluntary political party quotas	19,1%
Luxembourg	1919	List PR	Voluntary political party quotas	20%
Mali	1956	TRS	Voluntary political party quotas	10,2%
Malta	1947	STV	Voluntary political party quotas	8,7%
Marshall Islands	1979	FPTP/BV	No	3%
Mauritius	1956	BV	No	18,8%

Mexico	1947	MMP	Yes (Legislated candidate quotas)	26,2%
Micronesia	1979	FPTP	No	0%
Monaco	1962	Parallel	No	26,1%
Mongolia	1924	Parallel	Yes (Legislated candidate quotas)	3,9%
Montenegro	No data	List PR	Yes (Legislated candidate quotas)	11,1%
Namibia	1989	List PR	Voluntary political party quotas	26,9%
Nauru	1968	Modified BC	No	0%
Netherlands	1919	List PR	Voluntary political party quotas	40,7%
New Zealand	1893	MMP	No	33,6%
Norway	1913	List PR	Voluntary political party quotas	39,6%
Palau	1979	FPTP	No	0%
Panama	1941	List PR	Yes (Legislated candidate quotas)	8,5%
Peru	1955	List PR	Yes (Legislated candidate quotas)	27,5%

Poland	1918	List PR	Yes (Legislated candidate quotas)	20%
Portugal	1931	List PR	Yes (Legislated candidate quotas)	27,4%
Romania	1929	MMP	Voluntary political party quotas	11,4%
Saint Kitts and Nevis	1951	FPTP	No	6,7%
SaintLucia	1924	FPTP	No	11,1%
Saint Vincent and Grenadines	1951	FPTP	No	21,7%
Samoa	1990	FPTP and BV	Yes (reserved seats)	8,2%
San Marino	1959	List PR	No	16,7%
Sao Tome & Principe	1975	PR	No	7,3%
Serbia	No data	List PR	Yes (Legislated candidate quotas)	21,6%
Slovakia	1920	PR	Voluntary political party quotas	15,3%
Slovenia	1945	PR	Yes (Legislated candidate quotas)	14,4%
South Africa	1930 (white); 1984 (coloureds + Indians) ; 1994 (Blacks)	PR	Voluntary political party quotas	44,5%

South Korea	1948	MMP	Yes (Legislated candidate quotas)	14,7%
Spain	1931	PR	Yes (Legislated candidate quotas)	36,6%
Suriname	1948	List PR	No	9,8%
Sweden	1919	PR	Voluntary political party quotas	46,4%
Switzerland	1971	List PR	Voluntary political party quotas	29%
Taiwan	1947	Parallel	No	No data
Trinidad and Tobago	1946	FPTP	No	28,6%
Tuvalu	1967	BV	No	0%
Ukraine	1919	Parallel	No	8%
United Kingdom	1918	FPTP	Voluntary political party quotas	22%
United States	1920	FPTP	No	16,8%
Uruguay	1932	List PR	Yes (Legislated candidate quotas)	15,2%
Venezuela	1946	MMP	No	17,5%

Table 6.1: Composed and edited by authors

Glossary

- FPTP: A very simple form of plurality/majority electoral system. The voters assign their vote to one specific candidate, the candidate with the highest share in votes wins the election district.
- BV: Voters can freely assign as many votes as there are candidates, representing political parties and movements.
- List PR: In a List Proportional Representation system, each party or movement receive a share of the seats in proportion to their share in votes in a specific district.
- MMP: Mixed-Member Proportional Systems express the choices by the voters through two different systems- a List-PR and a plurality/majority-system balancing the results of both choices out
- TRS: A system of two electoral rounds. Every candidate needs to win with a minimum of 50% of the votes in his/her district in the first round, if not, a second round of the two candidates with the most votes is held and won by the candidate with the majority of all given votes.
- Parallel-Systems: A mixed system comprising elements of List-PR and plurality/majority systems but not, as mentioned above, with elements compensating differences between the two different systems

Appendix 2

Assumptions for linear regression

In this appendix the assumptions for linear regression for this study are discussed.

Normal distribution of dependent variable:

As can be seen in Figure 6.2, the percentage of women in in parliament is not normally distributed. The linear regression analysis was carried out anyways in the awareness that this means a limitation to the research.

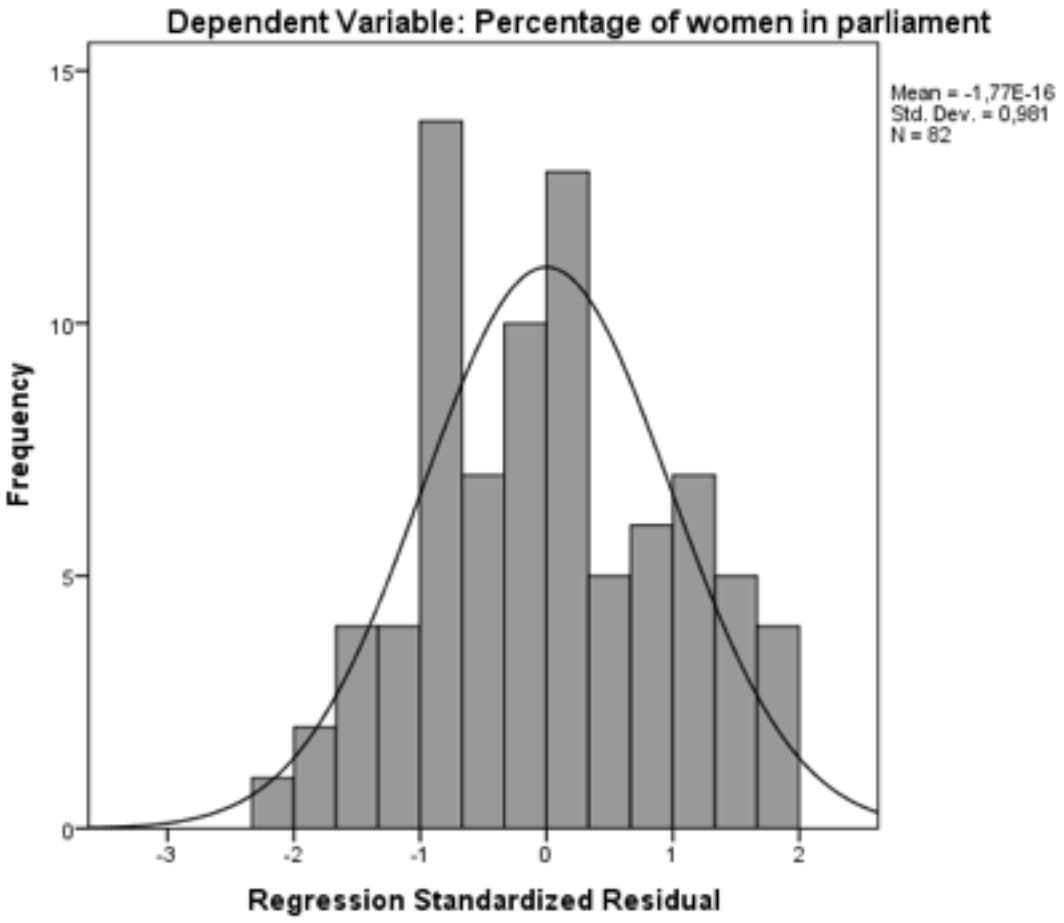

Figure 6.2 Histogram Proportion of women in parliament

Linearity Assumption

The scatterplot for the length of female suffrage and the percentage of women in parliament indicates that a linear relation might be present. For quotas and electoral system, this test cannot be conducted since they are dichotomous variables.

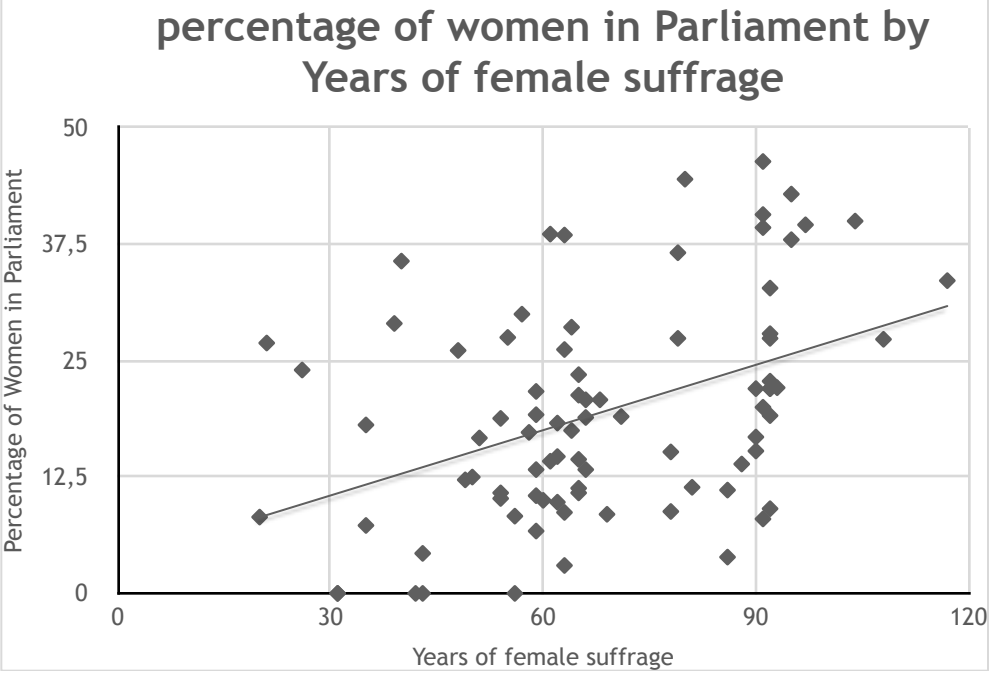

Figure 6.3 Scatterplot Percentage of women in parliament by years of female suffrage

Independence of errors assumption:

There is no reason to believe that the values of one country on any of the variables should influence those of another country. What is more, the Durbin-Watson test of the model yields a result of 1.982. In a (n=82; k=3) model, the critical value du is 1.572. Since 1.572<1.982<4-1.572, this assumption is fulfilled.

Model Summary[b]

Model	Durbin-Watson
1	1,982

b. Dependent Variable: Percentage of women in parliament

Table 6.4 Durbin-Watson test

Homoscedasticity

As can be seen in Figure 6.5 the error variance becomes less homoscedastic between the standardised predicted values of approximately 0 and 1.5, however this is not to such a large extent to make a linear regression analysis impossible.

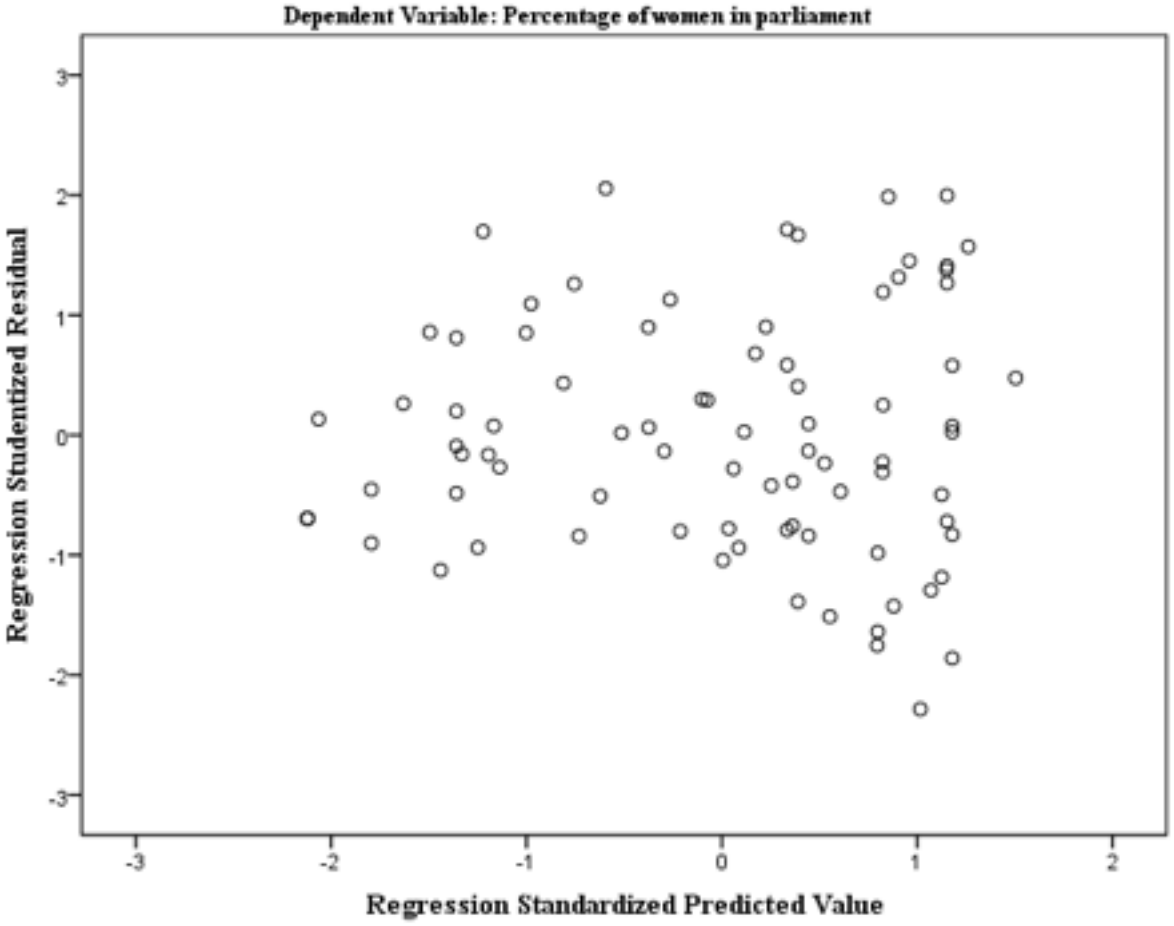

Figure 6.5 Regression studentised residual by regression standardised predicted value

Normal distribution of the residuals

The Shapiro Wilk test for the standardised residual yields the value of 0.332, which is not significant. We can therefore conclude that the residuals are normally distributed and that the

assumption is fulfilled. The Histogram of the residuals confirms this result, since the data are approximately normally distributed.

Tests of Normality

	Shapiro-Wilk		
Standardized Residual	,983	82	,332

Table 6.6 Shapiro-Wilk test

Multicollinearity

The table 6.7 shows that the VIF scores for all variables are below 10, which means that their collinearity is not significant.

Coefficients[a]

Model		Collinearity Statistics	
		Tolerance	VIF
1	years_suf	,932	1,073
	Is the country majoritarian?	,820	1,220
	Gender Quota at all	,835	1,198

a. Dependent Variable: Percentage of women in parliament

Table 6.7 Collinearity statistics

Argumentations for tests conducted

In order to check the **female suffrage hypothesis**, it can be noted that the effect of a rational variable is analysed. Hence a linear regression can be used in order to obtain insights in the effect and its strength. Since there is already a hypothesised direction, alpha is equal to 10%.

For the other variables, we use the same test but we note that they are dichotomous variables, so different tests, like a t-test, could be conducted however, since we eventually want to conduct a multiple regression analysis, there is no reason not to directly start with that.

7. Declaration of equal contribution

We herewith declare that all members of project group 12 contributed equally to the research paper. The division of responsibility for the individual parts was the following:

Abstract:	Marie Helen Ferdelman
Introduction:	Marie Helen Ferdelman Noor Godijk Oliver Klinkhammer Lukas Spielberger
Theory:	Noor Godijk Lukas Spielberger
Data and Operationalisation:	Yann Hengstenberg Oliver Klinkhammer
Data analysis:	Marie Helen Ferdelman Lukas Spielberger
Conclusion:	Noor Godijk
Editing:	Yann Hengstenberg