



THE EFFECT OF EXPECTED WOMEN'S PARTICIPATION IN LEGISLATIVE GOVERNANCE ON PUBLIC SUPPORT FOR PROPORTIONAL REPRESENTATION IN SIERRA LEONE: A PROBIT MODEL EVIDENCE

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Abstract:

The study investigates whether support for the proportional representation system of legislative governance in Sierra Leone is linked to an expected increase in women's participation in legislative governance. A Probit model of proportional representation support is estimated using a national survey dataset from all five regions in Sierra Leone, with all 16 districts covered. The results show that among those who support a proportional representation system of parliament, increased women's representation in parliament as a reason is 13.9 percentage points higher than otherwise. In addition, the probability of a respondent supporting proportional representation based on the expected increase in women's participation is 60.7% and is significant at the 1% level. Hence, there are about 39.3% of the sample that do not support PR in spite of its increase in female participation in legislative governance in Sierra Leone. The actual proportion supporting PR based on women's participation in governance is found to be 60.86%, implying that it captures the data well. In addition, overall, the proportion of the sample

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that supports PR. is 59.0%. Hence, enforcement of the Gender Equality Women Empowerment (GEWE) Act by the Political Party Regulation Commission (PPRC) and the Electoral Commission for Sierra Leone is very critical for the enhancement and sustainability of the PR system adopted in Sierra Leone in 2022, which is a tool for inclusive developments in all districts across Sierra Leone, including strengthening maternal and child healthcare, girls' education and enforcement of gender-based violence laws.

Keywords: proportional representation, women's participation, governance, Probit Model, Sierra Leone

1. Introduction

Proportional representation (PR) is an electoral system in which political parties get seats in proportion to the number of votes received in an election. It is more inclusive than the winner-takes-all system. In the latter, a district made up of constituencies may have all seats allocated to one party, driven by the fact that it produces multiple winners in all the constituencies in the district. Thus, proportional representation electoral system support is driven by the expected increase in the participation of women in governance. It is an important aspect of the discussion on PR merit in modern democratic governance. Normally, the share of women in governance is higher where the PR system is practiced than where it is not. A core factor for the weak gender representation in governance under the majoritarian rule has been attributed traditionally to structural, cultural, and institutional barriers, depending on the jurisdiction. In an effort to avert this norm, advocates of PR have argued that it can bring the opportunity for women and other excluded groups, such as minority groups, to be in governance, which is basically because party lists for representation are built around a formula that includes the less represented. This contrasts with the Winner-Takes-All approach in the majoritarian system.

The UN Women and various international organisations have advocated for more women to be in governance. Around the world, studies have indicated that the PR system is more consistent with having more women in governance, including in parliaments, cabinets, and local government institutions. However, evidence has also shown that electoral systems are necessary but not sufficient to guarantee gender equality. Economic empowerment, education, political culture, party commitment and reforms, especially legal reforms, are essential elements in the process.

With respect to the PR system in Africa, Rwanda, South Africa, Namibia and Mozambique are examples of successful electoral reforms in developing countries. For Rwanda, after the 1994 genocide, it adopted constitutional reforms, which incorporated the PR system with a focus on women's representation. Thus, today, women are more than men in the parliament of Rwanda, with an average of 61.3% during 2024 to 2025 (Inter-Parliamentary Union Parline database, 2026). Also, South Africa adopted the PR

system after the apartheid system, and the African National Congress (ANC) then implemented voluntary party quotas in favour of women's participation. This is a reform applied also in Namibia, Seychelles and Mozambique. Political parties in these countries have used party-list systems to include more women in governance structures. International organizations often cite these examples when advocating electoral reforms in developing democracies.

A common observation in Africa is that countries coming from conflict tend to adopt reforms favouring PR with a significant increase in women's participation. However, political commitment, constitutional reforms, and their effective implementation have been considered critical for the achievement of the desired goals of PR.

In Sierra Leone, the decade-old war ended in 2001, and there was an election in 2002, which was the second election since the rebel war broke out in 1991. The first democratic election since the war broke out was held in 1996, and four years prior to that, a military government was in governance, while from 1968 to 1992, one party was in governance (the APC), and a one-party system was established under the APC in 1978, which governed parliament and executive until 1992 when it was ousted in a military coup. However, in the 2002 election, youth participation was preached but not formalized, and promotion of women's participation was not on the discussion board. However, ahead of the most recent parliamentary elections in 2023, following the democratic capture of power by the SLPP in 2018, after ten years of democratic capture by the APC (2007 to 2018) from SLPP (1996 to 2007), the PR system was debated in Parliament in 2022, and the PR system, instead of the Winner-Takes-All framework, was adopted for parliamentary representation. The key feature is that the party list is expected to have 33% of women, coming from 2 men and 1 woman in order on a party list.

A prelude to the adoption of the Sierra Leone PR system was the Gender Equality Women Empowerment (GEWE) Act, introduced in 2022 as a major gender reform, with the main objective being to increase women's participation in politics, public administration, employment, and economic activities, but more importantly, to have women's participation in decision-making to be at least 30%.

Following the 2023 election, Sierra Leone has over 30% of its members of parliament as women, which compares favourably with about 12% in the then majoritarian system before the PR implementation in 2023. However, there are no domestic studies providing evidence from the perspective of the people in terms of whether there is support for PR based on expected women representation in parliament. Thus, the objective of this study is to investigate whether support for PR in Sierra Leone is driven by expected women's participation in parliament.

Such a study is important in order to gauge the perspective of society, as an independent study informs policy and society on practices and policies that can shape the PR system implementation for improved governance from an inclusive direction. While there are a number of cross-country studies on the role of gender gap in the support for PR in Africa, country case studies in Africa are thin in size, which include Longman

(2006) for Rwanda, Clayton *et al.* (2017) for Uganda and Bauer and Britton (2006) for Rwanda, South Africa, Uganda, Mozambique and Namibia. For Sierra Leone, since the adoption of the PR system favouring female participation in parliament in 2022 and its adoption in 2023, we are aware of only Ayuja and McClendon (2026), who focused on randomising the provision of information about the newly adopted framework, with focus on urban voters and found that the PR system increases women participation in election voting and reduces support for the abandoned plurality framework. However, whether people support PR because of expected women's participation in legislative governance is not considered by Ayuja and McClendon (2026). The rest of the paper is organised as follows. Section 2 is the literature review, Section 3 is the methodology, Section 4 is empirical results from the survey, and Section 5 is the conclusion.

2. Literature Review

2.1 Theoretical Literature

The focus of this part of the literature is the discussion of the theories of political representation. The theories of political representation through which the PR system is linked to more women in governance are diverse. This ranges from the theory of consensus democracy, critical mass, feminist institution to the modern theory. The theories emphasise that the PR system brings diversity into representation and maintain that women bring different perspectives as well as experiences into political debates and policy priorities, thus leading to the preference for the PR system.

The theory of consensus democracy (Lijphart, 2012) maintains that consensus democracy is characterised by the broad distribution of power, thereby being more inclusive with strong negotiation and coalition-building frameworks and thus promotes increased participation of women in governance. As the PR system is central to consensus democracies, on the basis that it encourages the representation of diverse social groups rather than concentrating power in a single majority, it encourages more women in governance through the consensus democracy channel. However, the majoritarian democracy system is characterised by the winner-takes-all principle, in which case, the minority groups, including women, often find it difficult to win the post first, if they even attempt to win the post and do not therefore participate strongly in legislative governance.

The critical mass theory maintains that the representation of women is more effective when the proportion of women is at or above a critical level. That is, at such a level, they are better able to influence national debates and also advocate for reforms that are gender bias. Kanter (1977) indicates that women in small numbers are considered as tokens and do not have influence but when the representation is up to 30%, they have a high ability to shape the way forward in debates and decision-making. Also, the seminar work of Dahlerup (1988) from the Scandinavian countries points out that this critical threshold is between 30% and 35%. However, Childs and Krook (2007), by applying this theory indicates the 30% threshold is indeed useful, but sometimes it does not matter.

That is, being above 30% may not bring the desired outcome of women's performance in policy debates. However, the PR system smoothenes the process of achieving this threshold, as the party list can be tailored to meet this threshold.

Another theory of the PR system is the feminist institutional theory, which argues that political institutions are normally and historically biased towards a particular gender (that is, they are not gender-neutral), and this bias is towards males, which inadvertently creates a political platform with male dominance in legislative governance. Moreover, the electoral machinery of countries and political parties may be designed in such a way that the chance for female participation is low, while a PR system may be designed such that political party lists by design call for more female representation, unlike in a competitive First-Past-the-Post system, thus paving the way for more female participation in legislative governance.

In the modernization theory, economic development, urbanization, and increased education contribute to important factors that increase the support for gender equality and institutional reforms, including the PR system, facilitate the transmission of these important social changes into political outcomes through the creation of diverse opportunities for women, one of which is increased women's participation in governance.

2.1 Empirical Literature

There is a plethora of empirical studies on the increased participation of women in the outcomes of the proportional representation system of democracy. However, empirical evidence relating directly to increased women's participation as a driver of the preference for PR is not large, though it is on an increasing trend today. This includes the work of Lee and McClean (2026) in South Korea, whose work found that both women and younger voters favour more representation in favour of them and if this can be achieved at the cost of accountability, they are ready to forgo accountability.

The observation by Lee and McClean (2026) is consistent with the work of Banducci *et al.* (1999) for New Zealand, who investigated the attitude of voters towards electoral reforms, following the transition of New Zealand from the first-past-the-post system in 1993 to the mixed-member type of proportional representation, through a national referendum held in 1993, and then implemented the new system in 1996. However, the work of Banducci *et al.* (1999) is not specifically on women's participation, but on general fairness and support for proportional representation. The survey result shows that individuals evaluate fairness and partisan self-interest jointly, which serves as the basis for strong support for the PR.

In addition, Golder *et al.* (2017) used data from 126 electoral democracies in the world and investigated voter support for female candidates for various electoral systems to unearth the perception of gender representation. The result shows that the expectation of more female candidates is a factor that pushes up support for PR. The work of Gonzalez-Eiras and Sanz (2021) for Spain, on municipal elections, also focused on how electoral systems affect the presence of women, and the result shows that the closed-list electoral system (PR) delivers more female candidates and elected women than the open-

list. Belschner *et al.* (2025), for Lithuania, focused on preferences for male and female candidates in an open-list PR. It found that the preference for women is revealed differently across groups.

However, while support for PR is influenced by the expected increase in women's participation, studies have also revealed that it is not bias-free. For example, Ragauskas (2021) focused on gender bias in the open-list proportional representation system and found that the PR system is still not bias-free.

In Africa, the seminal work of Lindberg (2004) was on 127 countries, with a focus on the parliamentary elections, using cross-country quantitative analysis. Essentially, 202 election observations from multi-party elections were used for statistical comparison of the elections over time. The result shows that the majoritarian systems in Africa do not favour the representation of women, while a more proportional system has a larger proportion of women parliamentarians. The work of Tambe and Jormfeldt (2024) with Afrobarometer data across 32 African countries shows that the PR system reduces the gender gap in participation in governance, while it does not reduce the gender gap in non-electoral participations. It also reveals that the critical threshold for the desired gender gap reduction is 20%.

Yoon (2004) used 28 countries in Sub-Saharan Africa to determine how gender quota, electoral system and party system affect the participation of women in national legislatures. The dependent variable was the percentage of women in parliament, while the independent variables were the type of electoral system, the characteristics of the party system and gender quota. The result shows that the PR system brings more women in parliament than the majoritarian system; that multi-member districts within the PR system favour women more than the single-member district; and gender quotas are more favourable to the participation of women than otherwise. It also shows that large parliamentary parties are more likely to have more women in the party list. The result of Yoon (2004) is similar to Stockemer (2011), who also employed statistical analysis, with focus on the Ordinary Least Squares (OLS) to determine the factors influencing the proportion of women in national parliaments for 44 selected African countries, uses various electoral systems (FPTP, PR and Mixed PR), gender quota, level of democracy, level of corruption, GDP per capita, female labour-force participation and religion as the independent variables.

While there are a number of cross country studies on the role of gender gap in the support for PR in Africa, country case studies in Africa, for Sierra Leone, since the adoption of the PR system favouring female participation in parliament in 2022 and its adoption in 2023, we are aware of only Ayuja and McClendon (2026), who focused on randomising the provision of information about the newly adopted framework, with focus on urban voters and found that the PR system increases women participation in voting in elections and reduces support for the abandoned plurality approach, but not on whether people support PR because of expected women participation in legislative governance.

3. Methodology

3.1 Model Specification

Following Banducci *et al.* (1999) for New Zealand, Gallego *et al.* (2014) and Boyle (2024), we specify a model of proportional representation as a function of demographic and social characteristics of individuals. Also, in order to account for the role of the expected increase in women's participation in legislative governance in Sierra Leone, as a reason for supporting PR, a dummy variable taking 1 for the belief in increased women's participation and zero otherwise is introduced. Thus, the region of location of the respondent in Sierra Leone (East, North, North-West, South and West), gender, age, education and employment status are included as independent variables.

To account for the role of expected improvement in development as a source for supporting PR, a dummy variable taking the value of 1 for individuals with this belief and zero, otherwise, is introduced. Moreover, the role of an individual's plan to be a member of parliament in future, the belief that proportional representation can bring political stability, the belief that it can make votes to matter to the electorate, the belief that PR can increase youth participation in governance and that PR cannot strengthen accountability are all introduced in the model as control variables as they are in theory sources for supporting or not supporting a PR system. Political factors, especially party interest (for example, Boyle (2024) have also been used in the literature. However, political interests are often not discussed by most people in a national survey. Hence, we do not consider it in the model.

As we are investigating the determinants of support for proportional representation and the variable takes only two outcomes, which are support or no support, we have a binary choice situation. Thus, the probit model or the logit model is appropriate. But because the probit model predicts the probability of supporting an outcome or having various particular characteristics, while the logit model predicts the odds ratio of supporting the outcome or having various given characteristics, we apply the probit model.

In general, the probit model is given as in equation (1).

$$P(PR_i = 1/X_i) = \varphi(\beta_0 + \beta_1 X_{1+...} \beta_k X_k) \quad (1)$$

Where:

PR_i is proportional representation choice, 1 implies support for PR. When there is no support, then $PR_i = 0$.

φ is the cumulative distribution function of the standard normal distribution.

The X s are the independent variables explaining proportional representation support.

Hence, the model estimated is given as in equation (2).

$$P(PR_{Dummy} = 1) = \beta_0 + \beta_1 Region + \beta_2 Gender + \beta_3 Age + \beta_4 Education + \beta_5 Employment +$$

$$\beta_3 WomenPart + \phi i \sum Dummy_i + u \quad (2)$$

Where $PR_{Dummy} = 1$ is support for proportional representation in Sierra Leone. When the dummy is zero (0), then the individual does not support proportional representation in Sierra Leone. **Region** is the location of the individual respondent, **Gender** is the gender of the individual, **Age** is the age (age category) of the individual, Education is the level of education of the respondent, **Employment** is the employment category of the respondent, **WomenPart** is the dummy representing whether a respondent considers PR as a factor that increases women's participation in legislative governance and $\sum Dummy_i$ refers to all the control factors, such as expected improvement in development as a source of support for PR (a dummy variable taking the value of 1 for individuals with this belief and zero otherwise); plan to be a member of parliament in future; the belief that proportional representation can bring political stability; the belief that PR can make votes to matter to the electorate; the belief that PR can increase youth participation in governance and that PR cannot strengthen accountability. The model error term is represented by u.

3.2 Model Estimation Strategy

As the dependent variable is a binary choice variable, where it takes a value of 1 if the individual supports PR in Sierra Leone and zero if the individual does not support PR, the appropriate model is the probit or the logit model, unlike the traditional Ordinary Least Squares, which under estimate the power of the model and assumes the model to be linear in probability, which is not the case in a binary model. However, the logit model considers the error term to follow a logistic distribution and models the log of the odds of PR (the log of the probability of support for PR divided by support for the majoritarian system). The probit model error term is considered to follow a normal distribution, as in the Ordinary Least Squares (OLS) model, and it can provide the marginal effect from the model's estimated coefficients. It can also provide the predictive probabilities and their p-values for significance tests.

3.3 Data Issues

The data for the study were obtained from a national survey of the five regions of Sierra Leone. The survey considers that the population in the headquarters towns of the districts in each region are more knowledgeable about political system types and gains than the rural towns and villages. Hence, the focus is on the headquarters towns. The total sample size is selected to have a margin of error of 3 percentage points with a 95 % confidence level. That is, if 100 independent samples are collected, 95 % of them will have the same results as ours, with a margin of ± 3 percentage points. Thus, if 55% support PR from our sample, 95 out of 100 samples will reveal that the true proportion of the population of Sierra Leone supporting PR is between 52 % and 58 %.

The average growth of Sierra Leone's population per year from 2020 to 2025 is 2.1 % (World Bank's World Development Indicator, 2025). In the 2022 voter registration for the

2023 election in Sierra Leone, the total registered vote was 3,374, 258. Thus, this number was used with an average growth of 2.1 % per annum (assuming the population growth is the same as the adult population growth rate), bringing the estimated voter population to 3,591,332 at the end of December 2025. Using the size of the registered votes as a proxy for the adult population gives the required sample size of 1067. Thus, the sample size used was 1200, with the margin of error corresponding to this being ± 2.83 % effectively.

In terms of the distribution of questionnaires per district and, hence, per region, the structure of the registered votes in the 2022 voter registration of Sierra Leone was used for the distribution of the questionnaires per district. The distribution was done such that attention was paid to fairness in the choice of females and males, as well as the youth and the elderly.

4. Empirical Results from the Survey

4.1 Demographic Characteristics of Respondents

In this subsection, we provide a short description of the demographic characteristics of the survey respondents. This involves the description of the distribution of region, gender and age, respectively. Tables 4.1, 4.2 and 4.3 provide the distribution of the respondents by region of location, gender and age. Table 4.1 shows that 27.5% of the respondents were from the western region, followed in descending order by Southern (22.3%), Eastern (20.1%), Northern (16.0 %) and North-West (14.2%) region, respectively.

Table 4.1: Distribution of Respondents by Region

Region	Frequency	Percent (%)
East	241	20.1
North	192	16.0
North-West	170	14.2
South	267	22.3
West	330	27.5
Total	1200	100.0

Table 4.2 shows that 38.7% of the respondents are females and 61.3% are males; and Table 4.3 shows that 35.0% of the respondents are in the ages of 36 years to 45 years, followed in descending order by those between 26 years and 35 years, with 23.2 %; those in the category of 46-55 years with 17.3%, those in 18 years to 25 years category, with 9.3%; 50-50yeas being 8.8%; and the retiree age of 60 and above accounts for 6.3%.

Table 4.2: Distribution of Respondents by Gender

Gender	Frequency	Percent (%)
Female	464	38.7
Male	736	61.3
Total	1200	100.0

Table 4.3: Distribution of Respondents by Age

Age	Frequency	Percent (%)
18-25	112	9.3
26-35	278	23.2
36-45	420	35.0
46-55	208	17.3
56-60	106	8.8
60 and above	76	6.3
Total	1200	100.0

4.2 Reference Categories and the Predictive Probabilities

The reference or base categories used for the dummy variables are shown in Table 4.4, together with the model predictive probabilities for the reference categories.

Table 4.4: Reference Categories for categorical variables with multiple categories

Category or Dummy Variable	Reference Category	Predictive Probabilities of Reference Model
Region	West	53.5 (0.000)
Gender	Female	59.7 (0.000)
Age	18 - 25	59.2(0.000)
Education	Primary	54.6 (0.000)
Employment	Not Employed	57.5 (0.000)
Dummy for Plan for MP Role (No)	No plan	52.4 (0.000)
Dummy for Developmental Role	No Development	47.1 (0.000)
Dummy for PR bringing Political Stability	Not	57.9 (0.000)
Dummy for PR making Votes Matter	Does Not	56.0 (0.000)
PR leads to Increased Women Participation	Does Not	43.5 (0.000)
PR leads to Increased Youth Participation	Does Not	64.0 (0.000)
PR Strengthening of Accountability Dummy	Does Not	59.8 (0.000)

Note: p-values for significance of predictive probabilities are in parentheses.

The result for the predictive probabilities shows that all the probabilities of the reference categories as predicted by the model are significant. These predictive probabilities are important because the probit model coefficients themselves are not interpreted directly, but the marginal values are obtained and interpreted in terms of whether they are higher or lower than those of the base categories (Table 4.4).

4.3 The Estimated Probit Model

In this section, we present the results of the estimated probit model. This covers the coefficients and their significance as well as the marginal values from the model, since the coefficients are used only to determine the signs, while the marginal values tell the gap between the likelihood of supporting PR by a category and the likelihood of the base category supporting PR. Table 4.5 shows the estimated Probit model of proportional representation (PR) support from the survey. The dummy variables for these categories

were not included in the regression in order to avoid the dummy variable trap, not have estimates of model coefficients due to perfect multi-collinearity among variables.

4.3.1 The Effect of Expectation of Women's Participation in Governance on Support for PR

The model result shows that support for PR in Sierra Leone is driven by the expected increase in female participation in governance, as judged by the positive coefficient of the women participation dummy in the estimated probit model and the significance of this coefficient at the 1 % level of significance, with a p-value of 0.000. Moreover, the expected increase in female participation in governance as a reason is 17.6 % more likely to be the reason why PR is supported than no impact on female participation.

Table 4.5: Results of the Probit Model Estimates

PR	Coefficient	P-Value	Marginal Value	P-value
Region Dummies				
East	1.394	0.000	0.377	0.000
North	-0.809	0.000	-0.281	0.000
North-West	-0.675	0.000	-0.240	0.000
South	0.906	0.000	0.285	0.000
Gender Dummy (Male)	-0.032	0.729	-0.009	
Age Dummies				
26-35	-0.003	0.988	-0.001	0.988
36-45	0.102	0.615	0.028	0.616
46-55	-0.259	0.225	-0.072	0.222
56-60	0.080	0.735	0.022	0.735
60 and above	0.064	0.805	0.018	0.805
Education Dummy				
Advanced Degree (Master's and above)	0.261	0.138	0.072	0.135
Degree (First)	0.209	0.165	0.058	0.163
Diploma)	0.451	0.003	0.123	0.002
No Formal Education	-0.159	0.498	-0.045	0.498
Secondary	0.182	0.162	0.051	0.161
Employment				
Government Employment	0.235	0.14	0.044	0.141
Private Sector Wage Employment	-0.195	0.233	0.046	0.234
Retired	-0.268	0.201	0.060	0.201
Self-Employment	0.210	0.198	0.045	0.198
Student	0.364	0.133	0.065	0.125
Dummy for Increased Women Participation (Yes=1)	0.636	0.000	0.176	0.000
Dummy for Plan for MP Role (Yes=1)	-0.174	0.131	-0.047	0.129
Dummy for Development Outcome (Yes)	0.507	0.004	0.141	0.004
Dummy for PR bring Political Stability (Yes)	0.055	0.769	0.015	0.770
Dummy for PR makes Votes Matter (Yes)	0.152	0.264	0.042	0.266
Increased Youth Participation (Yes)	-0.206	0.145	-0.055	0.138
Weak Accountability Dummy (Yes)	-0.047	0.666	-0.013	0.667
Constant	-0.994	0.001		
Pseudo R-Squared = 0.289				
Wald Test for Joint Significance: Wald Chi-Squared = 454.6, P-Value = 0.000				
Predictive Probability of Support for PR given that it increases Women Participation = 0.607				

4.3.2 The Effect of Regional Location on Support for PR

The Western region is used as the base category for the region, in order to compare how the probability of supporting PR in each region is different from it. The choice is based on the fact that it is the region with the capital (political and commercial) of Sierra Leone, Freetown. The Probit model results show that the East and South of Sierra Leone have a higher likelihood to support PR than the Western region, while the North and North West have a lower likelihood than the Western region of Sierra Leone, and these differences are significant at the 1 % level of significance. The East and South are 37.7 % and 28.5 % respectively more likely to support PR than the Western region, while the Northern and North-West are less likely to support PR than the West by 28.1 % and 24.0 % respectively.

4.3.3 The Effect of Gender on Support for PR

The coefficient of the male dummy shows that gender is not significant in determining support for the PR system in Sierra Leone. Thus, though male probability of support for PR is less than that for the female, as shown by the negative sign of the male dummy variable, its p-value of 0.998 implies that gender is not significant in determining support for PR in Sierra Leone. This suggests that the men in the sample support PR equally as men, as the support gap is not significant.

4.3.4 The Effect of Age on Support for PR

The result also shows that age does not determine the support for PR in Sierra Leone, as none of the age dummy variables are significant. That is, though ages 26 to 35 and 36 to 45 have higher probabilities of supporting PR than the reference age 18 to 25 years, and 45-55 and 56-60 have lower probability than the reference age, as measured by the marginal value, age does not matter in the support for the PR system in Sierra Leone.

4.3.5 The Effect of Education on Support for PR

The result for the education dummy shows that people with advanced-level degrees and those with no formal education are less likely to support PR than the reference category for education, which is primary education, while secondary, first degree and diploma education holders are more likely to support the PR system in Sierra Leone than the reference education category of primary education. However, it is only the dummy for diploma education that is significant, with a P-value of 0.003 (significant at the 5 percent level of significance). The joint test of significance (Table 4.6) shows that overall, education is significant as a factor that determines support for the PR system, with a p-value of 0.026. The significance of education is driven by the significance of education up to diploma level, suggesting that those who have completed secondary school and have obtained diploma certificates have a greater desire to learn and therefore consider the PR system to bring more policy predictability for more education, but once more education is achieved, there is no interest in PR support.

Table 4.6: Joint Test for Significance of Multiple Dummy Variables

Variables Jointly Tested	Chi-Squared	P-Value	Conclusion	Implication
Region Dummy Variables	277.96	0.000	Dummy Variables are significant	Location matters for support for PR
Education Dummy Variables	12.77	0.026	Dummy Variables are insignificant	Education matters for support for PR
Age Dummy Variables	8.63	0.125	Dummy Variables are insignificant	Age does not matter for choice of PR
Employment Dummy Variables	19.26	0.002	Dummy Variables are significant	Employment matters for support for PR
Overall Model Significance Test				
Variables Jointly Tested	LR Stat.	P-value	Conclusion	Implication
All model variables	454.6	0.000	Model variables are jointly significant	The Probit model well explains PR support in Sierra Leone

4.3.6 The Effect of Employment on Support for PR

The model result shows that government employees, the self-employed workers and students are more likely to support the PR system than the not-employed, which is the reference category, while the private sector wage workers and the retirees are less likely to support the PR system than the not-employed category. The joint test of significance, Table 4.6, shows that the employment dummy variables are jointly significant with a p-value of 0.002. Thus, employment matters for support for PR.

The result for private sector employees and the retirees could be attributed to the following reasons. The private sector worker relies on stable markets and predictable government policies, and they may therefore prefer a consistent policy path, which makes them less likely to prefer a PR system more than the not-employed that are searching for jobs and may want a change in order to give them more chances for getting jobs. Also, the retirees, with long-standing experience, may consider that a change may impact their social life and may consider that the system they know is better.

The results for government employees, the self-employed and students could be attributed to the idea that the government workers see their incomes as stable and are not worried about income instability and are therefore more open to systems that are more inclusive. Also, for the self-employed, which is dominated by small and medium enterprises in Sierra Leone, they may consider themselves underrepresented in a majoritarian system and stand a higher chance of being represented in parliament under PR. For the students, they tend to be more exposed to principles of democracy and consider the PR system as an improved way to represent their people once they enter the labour market.

4.3.7 The Effect of the Plan to be a Member of Parliament in Future on Support for PR

The result shows that the dummy for those who plan to be a member of parliament in Sierra Leone in future is less likely to support PR than those who do not plan to be a member of parliament. However, this variable is not significant at the conventional levels

of significance of 1 % and 5%. The gap in the likelihood is 4.7 %, as shown by the marginal value of the dummy capturing plan to be a member of parliament, in Table 4.5.

4.3.8 The Effect of Expected Enhanced Development on Support for PR

The result shows that improved development outcome in Sierra Leone is a more likely reason to support PR than otherwise, given a positive coefficient in the probit model, and the reason is significant at the 1 % level, given a p-value of 0.004. In addition, based on the marginal effects, PR is 14.1 % more likely to attract support based on the expected development outcome associated with it than otherwise.

4.3.9 The Effect of Other Model Variables on Support for PR

The model result shows that political stability, the idea that the people consider their votes to matter more, increased youth participation, and the impact on accountability of the members of parliament are not significant factors for the support for the PR system in Sierra Leone.

4.4 Model Validity Tests

4.4.1 Overall Significance

In order to determine whether the estimated model of PR is statistically reliable and correctly specified, thus making it useful for inferences or prediction, diagnostics tests were carried out. The overall model significance (the joint test), as indicated by the likelihood ratio (LR), reveals that the model variables are jointly significant, as the probability value (p-value) for the LR test is 0.000, implying they are jointly significant at the 1 % level. This result is shown at the bottom of Table 4.6.

4.4.2 Goodness of Fit

Judged by the Pseudo R-Squared, as the probit model is a non-linear model, the goodness of fit of the model is strong, with a Pseudo R-Squared of 0.289 (as it is more than 0.20).

4.4.3 Classification Analysis

We also consider the predictive accuracy or classification of the model. Table 4.7 shows the results of the classification tests. The classification rates indicate that the model is a good predictor of PR support probability, as indicated by the following: the overall predictive accuracy (correctly classified observations), the sensitivity, the specificity, the positive predictive value and the negative predictive value. In addition, all the false rates are small, with the highest being only 26.6%.

Considering the correctly classified observations (overall prediction accuracy), which deals with how well the model correctly predicts the support or no support for PR, it shows that the probit model correctly predicts 78.51% of the observations. Hence, it has a good predictive power. The sensitivity (true positive rate) assessment shows how well the model predicts support for PR. Thus, the result shows that 81.5% of the support for PR is predicted by the model. The specificity (true negative rate) assessment shows how

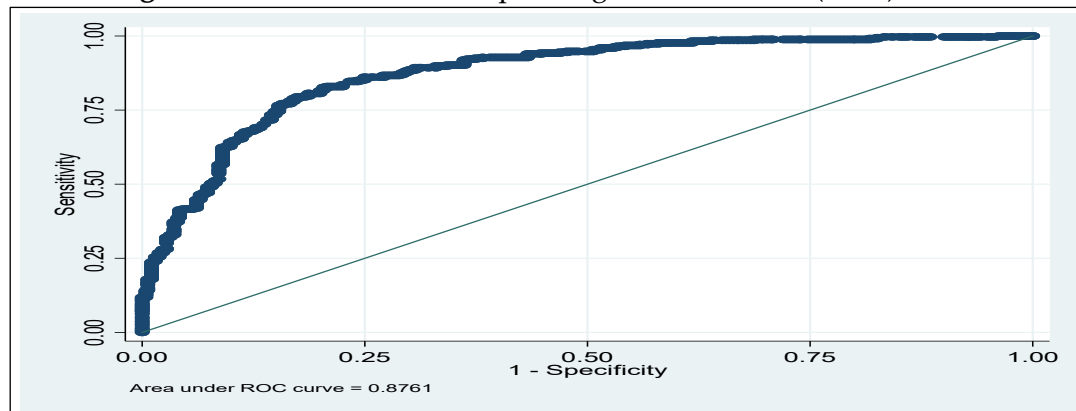
well the model predicts no support for PR. Thus, the result shows that 74.16 % of the individuals who do not support PR are predicted. The result of the positive predicted values (PPV) shows that out of the individuals that are predicted as having a preference for PR, 82.1% actually support PR, and the result of the Negative Predicted values (NPV) shows that out of the individuals that are predicted as having no support for PR, 73.39% actually do not support PR.

Table 4.7: Model Classification Test Results

Classified	True		Total
	D	~D	
+	564	123	687
-	128	353	461
Total	692	476	1168
Sensitivity		Pr(+ D)	81.50%
Specificity		Pr(~D)	74.16%
Positive predictive value		Pr(D +)	82.10%
Negative predictive value		Pr(~D -)	73.39%
False + rate for true ~D		Pr(+~D)	25.84%
False - rate for true D		Pr(- D)	18.50%
False + rate for classified	+	Pr(~D +)	17.90%
False - rate for classified	-	Pr(D -)	26.61%
Correctly classified			78.51%

In addition, the receiver operating characteristic (ROC) curve is plotted. It is useful because it shows how well the probit model distinguishes between support and no support for PR. It plots the sensitivity (true positive rate) against 1-specificity, which is the false positive rate. Essentially, it shows the performance of the model at different probability cut-off points. Figure 4.1 shows the ROC curve from the estimated model, which is closer to the upper-left corner than the 45-degree diagonal line, implying that the model has a good predictive performance. Also, the area under the curve being close to 1, at 0.8761, implies the predictive performance of the model is excellent. Thus, it implies that the model has 87.61% probability of correctly ranking or classifying a randomly chosen supporter of PR higher than a randomly chosen non-supporter of PR.

Figure 4.1: Model Received Operating Characteristics (ROC) Curve



5. Conclusion

The study sought to investigate the factors that support proportional representation in Sierra Leone. The focus was on whether support for proportional representation is determined by the expectation that it brings more women into governance, given its inclusive nature. A survey was conducted in the five regions of Sierra Leone, with questionnaires distributed in proportion to the distribution of the electorate in the 2023 election register.

A probit model of support for proportional representation was estimated. The result shows that support for proportional representation in Sierra Leone is determined by the expectation that it brings more women into legislative governance, the region of location of the individual, the educational level of the individual, the employment status category of the individual, and the expectation that it brings more development to the society. However, gender, age, the expectation of its contribution to political stability, increased participation of the youth in governance, the intention of the individual to be a member of parliament in future, PR not serving as a source of accountability and PR making votes matter are not found to be significant determinants of support for PR for Sierra Leone.

As the expectation that more women can enter into governance is a core factor that determines support for PR, and given that Sierra Leone adopted the district bloc PR system for electing parliamentarians to their district blocs and councillors to their wards in 2022, it is important that more women come out to join governance in parliament, as the opportunity has been created in Sierra Leone. Also, this result implies that healthcare, especially maternal and child health, education, especially girls' education, gender-based violence laws and their enforcement are important policies that ought to be paid strong attention to by the legislators of various districts, as these are core gender-based policies often advocated by women.

Enforcement of the Gender Equality Women Empowerment (GEWE) Act by the Political Party Regulation Commission (PPRC) and the Electoral Commission for Sierra Leone is very critical for the enhancement and sustainability of the district bloc PR system adopted in Sierra Leone in 2022 and implemented in the 2023 election. It is also important

to build institutions that facilitate this participation, especially the education of women, to put more effort into being in legislature governance. It is also imperative to do more research for institutional barriers to participation in legislative governance, in order to take advantage of the new normal in legislative governance representation procedure.

In addition, as a key factor for the support for PR in Sierra Leone is the expectation that it brings more developments, it is useful for the parliamentarians in governance to strongly initiate and support developments in their districts, as this is aligned with the expectation of the people.

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Conflict of Interest Statement

The views expressed in this paper are those of the authors but not their institutions of affiliation.

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