

School Leaders' Preferences on School Location In Sierra Leone

An individual and school level study

Date August 2022

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DOI 10.53832/edtechhub.0106



About this document

Recommended citation

Espinoza-Revollo, P., Ramirez, A., Atherton, P., & Mackintosh, A. (2022). *School Leaders' Preferences on School Location in Sierra Leone: An individual and school-level study* [Technical Report]. EdTech Hub. <https://doi.org/10.53832/edtechhub.0106>
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EdTech Hub is supported by UK Aid, the Bill & Melinda Gates Foundation, the World Bank, and UNICEF. The views expressed in this document do not necessarily reflect the views of UK Aid, the Bill & Melinda Gates Foundation, the World Bank, and UNICEF.

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Chris McBurnie (EdTech Hub)
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Abbreviations and acronyms

ASC	Annual School Census
HTC	Higher Teaching Certificate
PQTR	Pupil to Qualified Teacher Ratio
PTR	Pupil to Teacher Ratio
TC	Teaching Certificate
TSC	Teaching Service Commission

1. Introduction

Attracting qualified teachers to remote areas is a challenge in Sierra Leone. The pupil-to-qualified-teacher ratio in rural areas is 76:1, rising to 83:1 for schools located more than 15 km away from urban centres — well above the national target of 40:1 ([↑Mackintosh et al., 2020](#)). As equitable teacher deployment is crucial to ensure high-quality education, the Teaching Service Commission (TSC)¹ aims to increase the deployment of qualified teachers to the most remote areas of the country.

This paper describes a quantitative survey of school leaders' perceptions of what shapes school location preferences and what factors need to be in place (i.e., incentives) to address the imbalanced distribution of qualified teachers in the country.

We used data from a text message survey sent to school leaders around the country. This paper accompanies a qualitative inquiry on the same topic: *What Matters Most for Teacher Deployment? A case study on teacher school choice preferences in Sierra Leone* ([↑McBurnie et al., 2022](#)). Together with the qualitative study, our findings aim to address a gap in empirical evidence on teacher school preferences in Sierra Leone and contribute to a growing literature on teachers' preferences in low- and middle-income countries.

¹ The Teaching Service Commission (TSC) in Sierra Leone is responsible for all matters pertaining to teacher management, which include recruitment and deployment.

2. The context

As per the 2021 census, Sierra Leone has 12,168 schools. Of these, 16% are pre-primary, 61% are primary, and 23% are secondary (16% junior secondary and 7% senior secondary).

Across these schools, there are 80,559 teachers:

- Of these, just 40% receive a government salary
- One-third are women — the sixth-lowest share in the world
- One in five teachers is not qualified

The Pupil-Teacher and Pupil-Qualified-Teacher Ratios (PTR/PQTR) vary across districts. The PQTR is lowest in Bombali (37:1) and highest in Koinadugu (140:1). Remote schools are harder to staff with qualified teachers. The PQTR in non-private primary schools is 44:1 when the school is located less than 5 km from an urban centre, 76:1 for schools located between 5 and 15 km from an urban centre, and 83:1 when schools are located more than 15 km away from an urban centre.

3. Data and methodology

In this section, we present the survey and methodology we used for a descriptive exploration of school leaders' preferences regarding school location in Sierra Leone. We also explain the use of complementary data sources (Annual School Censuses) used to expand our analysis. As our survey is not representative of the population, we present a comparative analysis and derive considerations that should be kept in mind when interpreting the results.

3.1. The survey

We explore teachers' deployment preferences in Sierra Leone using data collected through EduTrac, a text-messaging-based data collection application rolled out by UNICEF (with the support of the Sierra Leone Ministry of Basic and Senior Secondary Education).

EduTrac collects data on key education indicators with the aim of informing decision-making and implementing corrective actions. To explore school leaders' preferences, we developed a structured survey on four topics:

1. School leader characteristics
2. Travel distance to school and nearest town
3. Location preferences
4. Overall satisfaction with current school location (see the survey in [Annex 1](#)).

The survey design was informed by the findings of the qualitative study ([↑McBurnie et al., 2022](#)). The survey was sent to 10,803 school leaders in the country in May 2022, for whom mobile phone information was available.²

Text message surveys have the advantage of collecting data quickly and inexpensively. However, a fundamental limitation is that they have to be short and lack detail. Questions are limited to a certain number of characters; therefore, they have to be shortened, often making them less clear for the respondents. Our survey had 12 questions, each limited to 160 characters.

To expand our knowledge of the schools and to check how representative the sample is, we linked our survey with the Annual School Census data from 2021 ([↑Ministry of Basic and Senior Secondary Education, Forthcoming](#)), which we can also link backwards to 2019, the last year when school leader information

² This represents 90% of the entire school leader population.

was fully completed.³ This allowed us to extend the analysis to explore school- and classroom-level characteristics such as school size that might be driving school leaders' choices regarding school and location.

3.2. Sample characteristics and sample balance

The survey was completed by 447 school leaders located in all the 16 districts in Sierra Leone. While this low response rate (4.1%) is typical in text messaging surveys, it raises concerns over sample selection bias. In this sub-section, we describe who the respondents are and where they work, while comparing them to the population of school leaders in the country to check for sample balance.

To compare individual characteristics, we used the 2019 Annual School Census (ASC; ([Ministry of Basic and Senior Secondary Education, 2019](#))), which contains complete information on teachers' positions, and allowed us to select the school leaders.⁴ The 2019 ASC contained a total of 8,879 school leaders.⁵ The differences in mean characteristics, alongside tests for statistical significance, are presented in [Table 1](#).

Table 1. *Characteristics of school leaders in the survey and population*

	ASC 2019	Survey	Diff		t-statistic
<i>Female</i>	24.5%	21.3%	3.3%		1.575
<i>On payroll</i>	58.1%	77.6%	-19.5%	***	-8.215
Qualifications					
<i>None</i>	13.3%	5.6%	7.8%	***	4.765
<i>TC</i>	42.9%	46.3%	-3.4%		-1.435
<i>HTC</i>	32.3%	39.4%	-7.1%	**	-3.118
<i>Bachelor</i>	9.2%	7.4%	1.8%		1.318
<i>Post-grad/Master/ PhD</i>	2.3%	1.3%	0.9%		1.303
N	8,879	447			

***p<0.01, **p<0.05, *p<0.1

³ In both 2021 and 2020 data, the school leader information was only collected for primary schools.

⁴ The Annual School Census 2021 only has this information for primary school teachers.

⁵ School leaders in the sample include principals, school heads and school leaders in the ASC 2019.

Respondents to our survey were typically male school leaders (78.7%) and on the government payroll (77.6%). Most reported having a Teaching Certificate (TC) qualification (46.3%). The next most frequent qualification reported is a Higher Teaching Certificate (HTC) qualification (39.4%), but 5.6% have no qualification at all. According to the ASC 2019, a high proportion of school leaders (92.4%) also reported teaching at least one hour per week.

Compared to the overall population, we have similar shares of male and female school leaders, but our sample has a significantly higher share of school leaders on the government payroll and a lower proportion of unqualified school leaders (5.6% and 13.3% in the survey and 2019 ASC, respectively) and a higher share of school leaders with an HTC qualification.⁶

We compared the schools where our school leaders work and the population of schools. Here we used the most recent data — the Annual School Survey 2021. Out of the 447 school leaders in our sample, 39 work in more than one school. We excluded them from the analysis as there is no way of knowing to which school their answers to the survey refer to; this leaves us with 408 schools. The comparison is presented in [Table 2](#).

Table 2. *Characteristics of schools in survey sample and population*

	School Population	Survey	Difference	t-statistic	
School size (average)					
Number of pupils	256.0	300.7	-44.7	***	-3.525
Number of teachers	6.6	7.4	-0.8	**	-2.619
Number of classrooms	5.0	5.3	-0.3		-1.882
PTR	47.4	50.8	-3.4		-1.429
School type					
Pre-primary	16.6%	5.3%	11.3%	***	5.707
Primary	60.7%	79.8%	-19.2%	***	-7.337
Junior secondary	15.8%	13.7%	2.1%		1.065
Senior secondary	6.9%	1.1%	5.8%	***	4.293
School ownership					
Community	12.4%	9.2%	3.2%		1.799
Government	14.6%	18.8%	-4.2%	*	-2.204
Mission / religious	55.6%	68.3%	-12.7%	***	-4.767
Other	0.1%	0.3%	-0.2%		-0.819
Private	17.2%	3.4%	13.9%	***	6.918

⁶ A Pearson Chi-squared test of the distribution of teacher's qualifications also shows significant differences between the distribution of sample and the population.

Distance school to HQ (km)

In town	49.70%	47.90%	1.80%	0.669
Less than 5 km	7.24%	6.44%	0.80%	0.575
5–10 km	9.74%	11.20%	-1.47%	-0.920
11–20 km	9.63%	7.84%	1.79%	1.130
21–20 km	11.95%	12.89%	-0.94%	-0.537
More than 50 km	11.75%	13.73%	-1.98%	-1.141

N 1,837 408

***p<0.01, **p<0.05, *p<0.1

School leaders in our sample work in bigger schools: with more students (on average, 44 students more) and marginally more teachers — with the PTR greater but not significantly different. Most of the school leaders in our sample work in primary schools (79.8%), followed by junior secondary (13.7%), pre-primary (5.3%) and senior secondary (1.1%). This means primary schools are over-represented, while pre-primary and senior secondary schools are underrepresented.

In relation to the overall population, our sample has significantly fewer school leaders in pre-primary (a difference of 11.3%) and in senior secondary (5.8%), and a significantly larger share in primary (19.2 percentage points more than the population).

The majority of respondents were from religious or mission schools (68.3%). This is significantly larger than the share of these schools in the population (55.6%). School leaders in private schools in our sample also show significant differences — 3.4% in our sample compared to 17.2% in the overall population.

Finally, in both the survey and the population, about half the schools are located in the same town as the district headquarters. There are no significant differences between the groups in terms of distance from school to the headquarters.

In sum, there are several points that should be considered when interpreting the quantitative findings of this study:

- Text messaging surveys typically have low response rates; in our case, this is 4.1%.
- There may be a self-selection bias among school leaders who answered the survey; the school leaders in our sample are more educated and mostly on the government payroll (two characteristics that are usually correlated).

- While there are some significant differences in the mean characteristics of the schools where the school leaders work (i.e., more school leaders in mission / religious schools and in primary than in the overall population), there is no apparent reason to assume that these characteristics will affect their school deployment preferences.

4. Findings

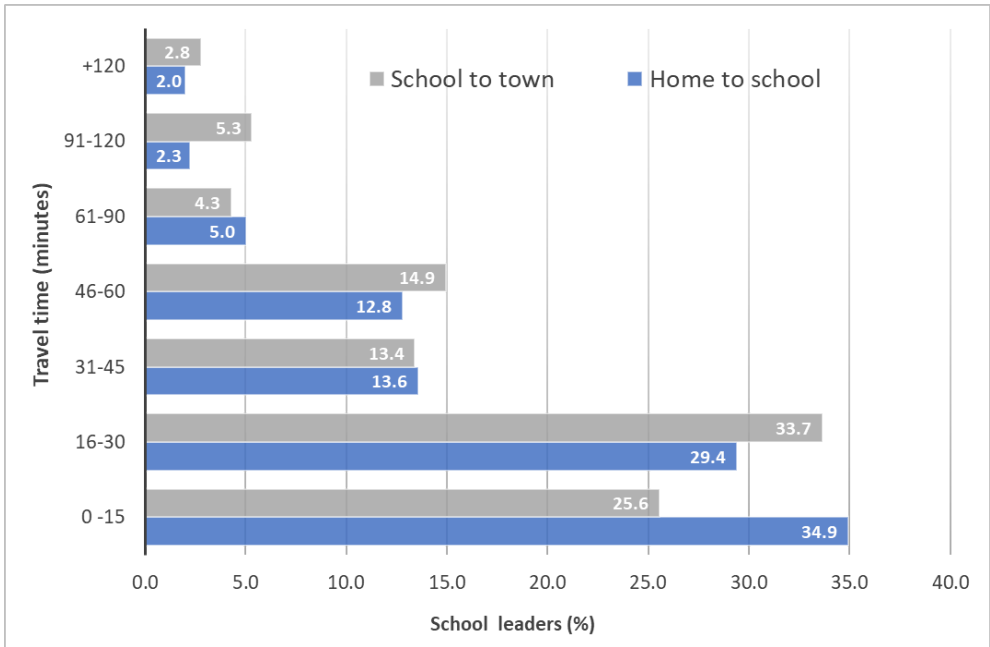
This section presents the findings of the descriptive analysis of our expanded survey (i.e. preferences survey and 2021 ASC). We focus on the main areas covered in the school leaders’ preferences survey and discuss our results in relation to the ones in the qualitative study.

4.1. School location, travelling time, and satisfaction

An accompanying qualitative study found that the proximity of teachers’ residences to their schools is an essential factor in teacher school choice preferences ([↑McBurnie et al., 2022](#)). This is explained by two main reasons: the need to be close to families and the costs of travelling to school (by public transport).

In our sample, 64.3% of school leaders live between 0 and 30 minutes from their schools, and only 9.3% live more than an hour away. The survey also asked about the distance between the school and the nearest town. In our sample, most school leaders (59.3%) work in schools within 30 minutes of the nearest town, and less than 12.5% work in schools located more than an hour away from the nearest town. [Figure 1](#) illustrates these figures.

Figure 1. Travel time to school and from school to the nearest town



Walking (46.5%) and travelling by Okada — motorbikes used for public transport (44.0%) — are the most common modes of travelling to schools. [Table 3](#) shows means of travelling by distance to school. For those with short journeys (less than 15 minutes), walking (54.7%) is the most common mode of

travel, suggesting that the school is located close to where the school leaders live. Similarly, however, of those who travel for longer than 90 minutes, about 70% walk to their schools, suggesting public transport is not available in the area or that it is unaffordable.

Table 3. Means of travelling to school by travel time (%)

Travel time (mins)	Bicycle	Car	Walking	Keke (rickshaw)	Okada (motorbike)	Poda poda (bus)	Total	N
0–15	0.7	3.6	54.7	0.0	39.6	1.4	100.0	139
16–30	2.6	4.3	33.3	0.9	58.1	0.9	100.0	117
31–45	1.9	1.9	44.4	3.7	44.4	3.7	100.0	54
46–60	3.9	0.0	54.9	2.0	31.4	7.8	100.0	51
61–90	5.0	0.0	30.0	5.0	50.0	10.0	100.0	20
91–120	22.2	0.0	66.7	0.0	0.0	11.1	100.0	9
+120	0.0	0.0	75.0	0.0	25.0	0.0	100.0	8
Total	2.5	2.8	46.5	1.3	44.0	3.0	100.0	398

Note. Excluding school leaders working in more than one school

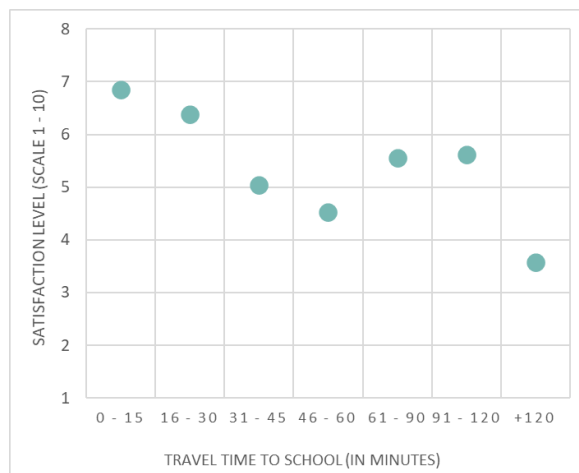
The qualitative study also found that the proximity between a school and a teacher's residence is strongly correlated with reported levels of location satisfaction. We explore this quantitatively using a satisfaction-with-school-location measure collected on a 10-point scale.⁷

In [Figure 2](#) below, we plot the average satisfaction levels by travel distance to school and from school to the nearest town. Panel A in [Figure 2](#) shows a clear negative correlation between satisfaction with school location and travel time to school, particularly at the extremes. There are higher levels of satisfaction when travelling to school takes less than 30 minutes. Where travel takes more than two hours, the average level of satisfaction is the lowest. The correlation is also negative, although tenuous, when looking at satisfaction levels and travelling time from school to the nearest town — Panel B; this implies that living close to school weighs more when considering satisfaction with school location. However, It is important to note that more than half of the sample of school leaders work in schools located in the same town as the district headquarters or within 5 km (see [Table 2](#) above). This, together with the lack of information on the characteristics of the *nearest town*, makes it difficult to draw conclusions about how it affects satisfaction with school location.

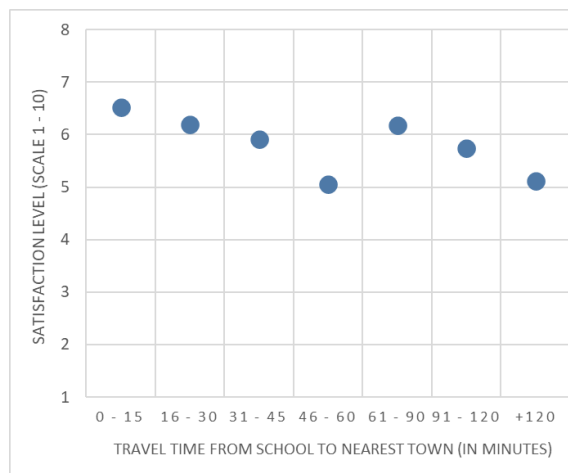
⁷ On the scale, 10 means very satisfied and 1 means not satisfied.

Figure 2. Satisfaction with school location by travel time to school and from school to the nearest town

A. Home to school



B. School to the nearest town



4.2. Most important factors when choosing where to teach

The survey asked school leaders about the factors that were the most important when selecting a school. Respondents were able to select one option from the following list:

- A. being close to family
- B. school conditions
- C. school location
- D. training
- E. all of the above

Almost half of the sample (47.5%) stated that all the options were equally important when selecting a school, followed by school location (26.0%), school conditions (18.1%), being close to family (5.9%), and training (2.6%).

We explored these responses, noting differences in teachers' characteristics, and found no significant differences between males and females, payroll status, or level of qualification.

Interestingly, unlike the survey results, *being close to family* and *training* were factors that were highlighted as important in the qualitative study. These differences could be explained partly by the fact that the survey had an option that included all factors. In addition, school leaders in Sierra Leone usually have more qualifications than teachers, and the school leaders in our sample are

more educated than the overall population; this might explain why training alone is not regarded as the most important factor in choosing where to teach.

4.3. Monetary incentives and job security

Being on the government payroll means higher wages and greater job security for teachers. When asked whether they would be willing to move to a remote area if they were put on the payroll, 79.7% of school leaders said 'yes'. This figure increases to 85.2% when we consider only those not on the payroll.⁸ This result is in line with the accompanying qualitative study's findings on teachers' preferences regarding deployment. However, it also highlights that it is not the sole reason for school selection, as nearly 15% of school leaders not on the government payroll would not move to a remote area even for this incentive.

Table 4 shows average individual and school level characteristics for school leaders by their willingness to move to remote areas. Except for travel times, the satisfaction scale, and PTR, most variables are categorical and have been dichotomised.

⁸ This proportion is not significantly different from the one for school leaders on the government payroll. The T-test shows a difference of 6.9% between the two groups with a t of 1.3750 ($p = 0.1699$).

Table 4. *Characteristics of school leaders who would be willing or unwilling to move to a school in a remote area if they were put on the government payroll*

	Not willing to move	Willing to move	Diff		t-statistic
Individual characteristics					
Female	27.3%	16.2%	11.1%	*	2.253
On payroll	84.4%	77.2%	7.2%		1.375
Qualifications					
None	5.2%	5.6%	-0.4%		-0.142
TC	44.2%	49.2%	-5.0%		-0.786
HTC	41.6%	38.3%	3.3%		0.525
Bachelor / Masters / PhD	9.1%	6.9%	2.2%		0.647
School characteristics					
School type					
Pre-primary	7.5%	3.8%	3.7%		1.306
Primary	80.6%	80.8%	-0.2%		-0.043
Junior secondary	10.4%	14.7%	-4.2%		-0.892
Senior secondary	1.5%	0.8%	0.7%		0.572
School ownership					
Community	11.9%	8.3%	3.7%		0.936
Government	11.9%	19.9%	-8.0%		-1.511
Mission / religious	68.7%	69.2%	-0.5%		-0.081
Other	0.0%	0.4%	-0.4%		-0.501
Private	7.5%	2.3%	5.2%	*	2.140
PTR	55.4	50.3	5.1		0.758
Other					
Satisfaction with school (1–10)	6.0	6.0	0.0		-0.050
Travel time to school (min)	30.5	35.4	-4.9		-1.047
Travel time school to town (min)	33.8	42.3	-8.5		-1.633
N	380				

***p<0.01, **p<0.05, *p<0.1

Within the individual characteristics, we have significant differences in terms of gender. That is, female school leaders are significantly less likely to be willing to move to a school in a remote area even if they were put on the government payroll. Likewise, within school-level characteristics, school leaders working in private schools are less likely to be willing to move. This could be explained by the fact that private schools tend to be in urban and more affluent areas and tend to pay higher salaries.

Notably, those willing to relocate currently have to contend with longer travel times to school and from school to the nearest town, and hence their satisfaction levels with the location of their schools are lower. However these differences are not significant.

5. Conclusions and recommendations

This paper has used a unique SMS-based survey to study school leaders' preferences for school location. Linking our survey to the 2021 ASC provides a richer exploration of the school-level factors shaping location preferences. Our findings are informative for teacher deployment policies in Sierra Leone. In particular:

- Putting school leaders on the government payroll or increasing their pay could be considered an incentive when aiming to deploy them to remote areas.
- Female school leaders / teachers are significantly less willing to move to a school in a remote area. In order to address the gender imbalance in the country, more incentives need to be provided to female teachers.
- Proximity to home is fundamental for school leaders' / teachers' satisfaction with school location. Considering this in teacher deployment could have a positive impact on teacher retention in remote areas.
- Affordable transport needs to be made available in remote areas.
- School leaders / teachers in private schools are less willing to move to remote areas.
- More research is needed on the interaction of teacher preferences, movement patterns, and retention.

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Annex 1. EduTrac survey questions

#	Question	Category
	Welcome to MBSSE EduTrac Survey on Teacher Preferences. This survey has 12 questions, please answer all and reply with numbers only. To start, please send '1'	Introduction
1	Please SEND the NEW EMIS CODE NUMBER of the school you are working for (If you don't know, please ask your Head Teacher). REPLY with NUMBER ONLY	School ID
2	Are you 1-Female or 2-Male? 'Please reply with number only'	Gender
3	What teaching qualifications do you have? 1=None, 2=TC, 3=HTC, 4=Any Bachelors in Ed, 5=Any Master's or PhD in ED. 'Please reply with number only'	Qualification
4	Are you on the government payroll? 1=Yes, 0=No 'Please reply with number only'	Payroll
5	If you have the option to be on payroll in another school, would you like to move? 1=Yes, 0=No 'Please reply with number only'	Payroll - allocation
6	How do you travel to school from where you live (the main method if multiple)? 1=Foot/Walking, 2=Car, 3=Bicycle, 4=Okada, 5=Keke, 6=Podapoda	Travel
7	How many minutes does it take you to travel to school from where you live? 'Please reply with number only'	Travel
8	How many minutes would it take you to travel from your school to the nearest town? 'Please reply with number only'	Remoteness
9	Which factor is MOST important for selecting a school? 1=school location, 2= school conditions (water, electricity, etc) 3=training, 4=being close to family	Multiple
10	Which factor is LEAST important for selecting a school? 1=school location, 2= school conditions (water, electricity, etc), 3=training, 4=being close to family	Multiple
11	Would you be willing to work in a school in a more remote area, if you were put on the government payroll (or if you already are on payroll)? 1=Yes 0=No	Remoteness
12	From 1 to 10, being 10 very satisfied and 1 not satisfied: How satisfied are you with the location of your school? 'Please reply with number only'	Satisfaction

Annex 2. Sample and population characteristics

		Total				On payroll			
		Population		Sample		Population		Sample	
		N	%	N	%	N	%	N	%
	Total	8,879	100	452	5.09	4,255	100	347	100
Gender	Male	6,701	75.5	354	78.3	4,013	94.3	270	77.8
	Female	2,178	24.5	97	21.5	1,147	27.0	77	22.2
	Other	0	0.0	1	0.2				
District	Bo	760	8.6	31	6.9	491	11.5	24	6.9
	Bombali	507	5.7	35	7.7	325	7.6	27	7.8
	Bonthe	215	2.4	9	2.0	135	3.2	8	2.3
	Falaba	250	2.8	4	0.9	115	2.7	2	0.6
	Kailahun	470	5.3	27	6.0	325	7.6	22	6.3
	Kambia	433	4.9	43	9.5	316	7.4	30	8.6
	Karene	340	3.8	9	2.0	196	4.6	8	2.3
	Kenema	669	7.5	69	15.3	432	10.2	58	16.7
	Koinadugu	298	3.4	5	1.1	185	4.3	5	1.4
	Kono	593	6.7	38	8.4	312	7.3	25	7.2
	Moyamba	574	6.5	13	2.9	389	9.1	11	3.2
	Port Loko	760	8.6	44	9.7	482	11.3	33	9.5
	Pujehun	293	3.3	19	4.2	235	5.5	16	4.6
	Tonkolili	754	8.5	28	6.2	552	13.0	24	6.9
	Western Area Rural	762	8.6	32	7.1	185	4.3	22	6.3
	Western Area Urban	1,201	13.5	46	10.2	485	11.4	32	9.2
Qualifications	Untrained	1,185	13.3	25	5.5	135	3.2	9	2.6
	TC	3,806	42.9	207	45.8	2,455	57.7	160	46.1
	Bachelor in Ed	2,867	32.3	176	38.9	1,942	45.6	145	41.8
	HTC	819	9.2	33	7.3	503	11.8	28	8.1
	Masters / PhD in Education	202	2.3	6	1.3	125	2.9	5	1.4
Payroll	No	3,719	41.9	104	23.0				
	Yes	5,160	58.1	347	76.8				