

Where have all the (qualified) teachers gone? Implications for measuring sustainable development goal target 4.c from a study of teacher supply, demand and deployment in Liberia

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ABSTRACT

This paper analyzes data collected in the 2013 Liberian Annual School Census undertaken as part of the Educational Management Information System and supplemented by information gathered from teacher education program organizers as well as from samples of graduates from preservice and inservice C-Certificate granting programs undertaken in Liberia in during 2007 to 2013. The authors report that the percentage of “qualified” primary school teachers (that is, those with at least a C-Certificate, which Liberian policy sets as the minimum qualification) expanded dramatically after the education system was decimated during the years of civil war (1989 to 2003). We also indicate that in government primary schools in 2013, the pupil-teacher ratio (24.8) and even the pupil-qualified teacher ratio (36.2) was lower – that is, better – than the policy goal of 44 pupils per teacher. However, teacher hiring and deployment decisions led to large inequalities in these input measures of educational quality. At the same time, the authors discovered that the findings from the analysis of Liberia’s 2013 EMIS data did not fully answer the question of where the (qualified) teachers are, in that we were not able to locate in the EMIS database substantial numbers of graduates of the various C-Certificate teacher education programs. However, contrary to the EMIS database findings, when telephone interviews were conducted with samples of these graduates, it was learned that many, but not the majority, of them had been employed in the education sector in 2013. The sources of this inaccuracy include: a) the principals of some schools had not been invited to the workshop where they were oriented to filling out the Annual School Census questionnaire; b) some principals, who attended, did not return the questionnaire; and c) some female and male teachers had used different names when enrolled in the C-Certificate program than they were using as teachers in 2013. The authors conclude by discussing the implications of the limitations of the EMIS data for reporting key indicators in Liberia and in other countries in relation to monitoring the global Sustainable Development Goal #4.

Keywords: Qualified teachers, Liberia, measurement issues, sustainable development goal target 4.c.

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INTRODUCTION

With apologies to Peter, Paul, and Mary, who popularized the song in the 1960s, and Pete Seeger, who wrote the song in 1955,¹ we have substituted “(qualified) teachers”

for “flowers” in the title for this article. Other lyrics of the song also seem relevant to the theme of this article, in

¹ According to Wikipedia (https://en.wikipedia.org/wiki/Where_Have_All_the_Flowers_Gone%3F), “Seeger found inspiration for the song ... [from

a] traditional Cossack folk song “Koloda-Duda”, referenced in the Mikhail Sholokhov novel *And Quiet Flows the Don* (1934), which Seeger had read [previously].”

that some of the female teachers who left the profession did so because they got married (“gone for husbands”) and, unfortunately, some male teachers previously left their classroom roles to become soldiers (“gone for soldiers”) and some of these teachers as well as those who contracted diseases, including more recently Ebola, died (“gone to graveyards”). Moreover, we hope that this article will help to answer the question posed in the song – “when will they [teachers, teacher educators, community members, and policy makers] ever learn?”

In this article, the authors first discuss the importance of teachers for achieving educational outcomes and then review literature addressing issues of recruitment, deployment, and retention of school teachers. The authors next present the findings from studies conducted by the Monitoring, Evaluation, and Research team of USAID-funded Liberia Teacher Training Program in collaboration with staff from the Educational Management Information System and Monitoring and Evaluation units of the Ministry of Education (Goyee et al., 2014; Morris et al., 2014; Tuowal et al., 2014).

In these studies, the authors discovered that they could not locate substantial numbers of graduates of the various C-Certificate teacher education programs in the 2013 EMIS database. Nevertheless, when telephone interviews were conducted with samples of these graduates, it was learned that many – but not the majority – of them had been employed in the education sector in 2013. Thus, in our conclusion, it was discussed why policy makers, practitioners, and researchers should problematize their “trust in numbers,” as Porter (1996) titles his book which critically analyzes “the pursuit of objectivity in science and public life.” That is, we discuss why official statistics, such as pupil-qualified teacher ratios, and other numbers should not be considered as objective facts but rather as “contingent social products” that are “co-produced” in specific context by particular human actors (Vavrus, 2017).

THE IMPORTANCE OF TEACHERS FOR ACHIEVING EDUCATIONAL OUTCOMES

One of the means of implementation of the UN’s Sustainable Development Goal (SDG) 4, “ensure inclusive and equitable quality education and promote lifelong learning opportunities for all,” states: “4c: By 2030, substantially increase the supply of qualified teachers, including through international cooperation for teacher training in developing countries, especially least developed countries and small island developing states” (UN, 2015).² And the *Incheon Declaration and*

² Note that the indicator (4.C.1) for this means of implementation target is: Proportion of teachers in: (a) pre-primary; (b) primary; (c) lower secondary; and (d) upper secondary education who have received at least the minimum organized teacher training (e.g., pedagogical training) pre-service or in-service required for teaching at the relevant level in a given country (UN, 2015).

Framework for Action (UNESCO et al., 2015, which informed the establishment of the SDG Goal 4 emphasizes that:

Teachers are the key to achieving all of the Education 2030 agenda ... As teachers are a fundamental condition for guaranteeing quality education, teachers and educators should be empowered, adequately recruited and remunerated, motivated, professionally qualified, and supported within well-resourced, efficient and effectively governed systems. (UNESCO et al., 2015: 21)

Of course, this is only the most recent example of international policy statements stressing the importance of teachers for achieving educational outcomes. For instance, the ILO and UNESCO (1966, para 4, p. 21) *Recommendation Concerning the Status of Teachers* expresses: “It should be recognized that advance in education depends largely on the qualifications and ability of the teaching staff in general and on the human, pedagogical and technical qualities of the individual teachers.” And such policy pronouncements have been reinforced by an extensive body of empirical investigations undertaken in a variety of societies, documenting the link between teachers’ qualifications and behavior and educational outcomes, such as the learning and attainment of female and male students (Aslam and Kingdon, 2007; Barber and Mourshed, 2007; Carnoy et al., 2009; Darling-Hammond, 2000; Haugen et al., 2011, 2014; Herz and Sperling, 2004; Huisman and Smits, 2009; Khandker, 1996; Kingdon, 2006; Leu and Price-Rom, 2006; Lloyd et al., 2000; Nilsson, 2003; Nye et al., 2004; Rihani, 2006; Rivkin et al., 2005; Spreen and Fancsali, 2005; UNESCO, 2004; UIS, 2006, 2010, 2014; Altinyelken and Verger, 2013).

Thus, there is a solid foundation on which a key staff member of Education International states that “the achievement of Education for All targets ... depends, to a very large extent, on the availability of properly trained and qualified teachers. The educational quality imperative cannot be met without quality teachers” (Sinyolo, 2007:16). Arguments for recruiting more teachers, particularly those with at least the requisite minimum qualifications, stem in part from the demand created as efforts to expand access to schooling. This was an issue in the 1960s, in the early 2000s, as well as more recently as the global movement for education for all approached another milestone in 2015:

- In view of the rapid expansion of ... education ..., the shortage of teachers takes on grim proportions. ... [And], in addition to supplying more teachers to accommodate the Addis Ababa Plan, Africa must train people to replace the poorest qualified teachers now practicing, and suitable provision must be made for up-grading

those who will remain in the classroom (Smyke, 1961: 334, 339)³.

- To achieve universal primary education, 180 million children in Africa will be enrolled in primary school by 2015 and more than 3 million public primary teachers are needed in Africa ... The contradiction between the massive requirements of teachers and the necessity to have qualified teachers will be difficult to solve for many countries within the limited budget frames (Nilsson, 2003:12, 24).

- Improving the quantity of teachers will not be enough; quality needs improvement, too, with teachers well trained and motivated. Many countries have expanded teacher numbers rapidly by hiring people without the proper qualifications and training (UNESCO, 2015:197).

Another way to describe this issue is one of seeking to insure that the ratio of pupils to teachers (pupil-teacher ratio or PTR) or the ratio of pupils to qualified teachers (pupil-qualified teacher ratio or PQTR) is achieved and maintained at a level specified in government policy.⁴ PTR and PQTR reflect, though not always directly, the average size of the classes for which teachers are responsible. In that regard, the ILO & UNESCO *Recommendations Concerning the Status of Teachers*, "class size should be such as to permit the teacher to give the pupils individual attention" (ILO and UNESCO, 1966, para 86, p. 35).⁵

From a gender perspective, the issue is not only about recruiting and retaining more teachers, but about doing so such that the teaching force includes appropriate proportions of female as well as male teachers. Haugen et al. (2011) provide an overview on this issue:

- Increasing the number of women teachers is often cited as a major strategy for promoting girls' education, especially in developing countries. [M]any researchers recommend more female teachers as one answer to addressing some of the serious access, quality, and equity issues girls face when trying to receive an education (Rugh, 2000; World Bank, 2001; Nilsson, 2003; Rihani, 2006; Roby et al., 2009).
- Despite strong evidence that female educators make a difference to a girl's education, in many

countries there are relatively few females in the teaching force. Women make up 62% of the primary teaching force and 53% of the secondary teaching force worldwide, [but] in sub-Saharan Africa ... women make up [only] 46 and 26% the primary and secondary teaching forces respectively (UIS, 2010). ... Women teachers make the largest impact in areas where girls face the largest cultural barriers, but ... those areas that need female teachers the most have the fewest available (Herz and Sperling, 2004; UIS, 2010).

The need to recruit and deploy qualified female and male teachers also derives not only from issues of teacher recruitment but also from issues affecting teacher attrition (Boyd et al., 2009; Chapman, 1994; Imazeki, 2005; Ingersol, 2001; McEwan, 1999; ILO and UNESCO, 2012; UNESCO, 2010). As explained by the South African Council of Educators (2010:17), "the attrition rate is affected by deaths, resignations, retirement, dismissals and temporary exits out of the profession." And the International Task Force of Teachers for EFA (2015:40) elaborates:

A growing body of evidence shows that teacher attrition and low motivation are closely linked to factors such as work and employment conditions, remuneration, career prospects, administrative support to teachers (for example, paying salaries on time), PTRs/class sizes, living conditions (especially housing and transport), access to health care (Bennell, 2004; Bennell and Akyeampong, 2007; Mulkeen, 2010; Mulkeen and Chen, 2008; VSO, 2002; VSO, 2008).

Moreover, the challenges of reaching goals for reducing the pupil-teacher ratio (PTR) or, more crucially, the pupil-qualified teacher ratio (PQTR) are not only in terms of overall PTR or PQTR, but also the specific ratios in various subnational regions. This represents a challenge of deployment, both recruiting and retaining teachers to work in various locations (International Task Force on Teachers for EFA, 2015; Mulkeen, 2010; UNESCO, 2015). OECD (2005:5), for instance, points to the problems of the "inequitable distribution of teachers among schools" and, especially, ensuring that "students in disadvantaged areas, [including rural communities,] have the quality teachers that they need." While unequal PTRs and PQTRs may result from favoritism in central government policies or other decisions, they also arise because of individual teacher decisions:

[E]ven after choosing teaching as a profession, the individual has to make a choice of a geographic location to work in ... That decision is affected by both the financial and non-financial

³ More recently, Glewwe and Kremer (2006:961) report that "developing countries ... respond to the scarcity of trained teachers by hiring more untrained teachers. Whereas almost all teachers in developed countries are trained, in low-income countries, only 90 percent [in sub-Saharan Africa the figure is 69%; UNESCO (2003) source] of primary school teachers and 69 percent of secondary school teachers are trained."

⁴ UNESCO (2015:198) reports that "between 1999 and 2012, pupil/trained teacher ratios declined in 44 out of 50 countries with data."

⁵ Furthermore, as explained by the International Task Force on Teachers for EFA (2015:62), "class size is a significant factor in teacher workload and job satisfaction or dissatisfaction. Larger classes are associated with lower levels of professional satisfaction in a number of countries (UNESCO, 2010)."

rewards of being in teaching in that particular geographic location.” (South African Council for Educators, 2010:7)

Addressing issues of recruitment, deployment, and retention of teachers requires accurate and timely information. As the World Bank (2010:14) observes: “Teacher deployment presents a very significant challenge when management and information systems rarely provide information for authorities to assess how teachers are deployed, let alone approach questions of redeployment to achieve more equitable distribution.” This point is echoed by the International Labor Organization (2012:14-15): “Deployment strategy, based on current needs, requires reliable, up-to-date information about the characteristics, needs and preferences of both teachers seeking deployment and schools seeking teaching staff.”

In relation to having access to such data in Liberia, it is noteworthy that USAID/Liberia (2010:13) noted that “one institutional weakness of the [Ministry of Education] was in the area of educational statistics, notably the lack of a robust Education Management Information System (EMIS).” Thus, the Request for Proposals specifies that the Liberia Teacher Training Program II, 2010-2015 would “assist the MOE in establishing a robust, but very user-friendly EMIS ... and build capacity to gather, analyze and use data to inform decision making, forecasting, and planning and policy development.”⁶ However, before examining data on teacher recruitment, deployment, and retention in Liberia, it may be helpful to provide some information on the societal context.

Context

Indigenous Africans sold some land in 1821 to the first contingent of black former American slaves who, with the help of the American Colonization Society, sought to establish a settlement in West Africa. After a series of armed struggles with various indigenous African groups, the ex-slave settlers (subsequently known as Americo-Liberians) expanded the boundaries of this American colony, and in 1847 proclaimed the independence of the Republic of Liberia (Ciment, 2013). From 1847 to 1980 the Americo-Liberian minority governed the nation, through “intimidation and suppression” of the various indigenous African groups, who collectively constituted 95% of the population (League of Nations, 1931). Indeed, indigenous Liberians were only granted voting rights in 1963.

However, in April 1980, Samuel Doe led a *coup d’etat*

⁶ During an interview Johnson Odharo, who served as Chief of Party for LTTP II, stated that “although EMIS work was originally to involve a minor modification, subsequently the MoE [Ministry of Education] asked for a fully blown EMIS, but initially USAID was not willing to fund this” (Interview with Johnson Odharo, 11/16/2010; quoted in Ginsburg and Arrington, 2014:173).

and became the first indigenous Liberian to rule the country. Subsequently, conflict erupted between Doe and other indigenous ethnic groups, which eventually led to civil wars, 1989-1996 and 1999-2003 (Adebajo, 2002; Daniels, 1994; Gerdes, 2013).

While the civil war interrupted and weakened the functioning of the education system, it is worth noting that the system was struggling even before 1989. With respect to teacher supply, for instance, Bansa (1967) reports in *Attracting, Recruiting, and Retaining Teachers in Liberian Schools* that the main reasons for Liberian teachers leaving the profession were low salary, irregular payment of salaries, and poor working conditions. And, according to Liberia’s 1988 *Education and Human Resource Sector Assessment* (Republic of Liberia et al., 1988):

- i. [Of the] 4,872 teachers ... in public primary schools ... approximately 73.4 percent have high school education or less and are regarded by the MOE as underqualified” (p. 1-18), that is, they did not possess a C-Certificate or higher level qualification (p. 4-13).
- ii. There has been a dramatic decline in students entering teacher education and a high attrition of students enrolled in those programs. Teacher education students who do graduate do not enter or remain in teaching. (p. 1-11)
- iii. While no data are available on teacher attrition, some Ministry officials believe it may be as high as 20 to 30 percent annually, particularly among the most qualified teachers. (p. 4-13)
- iv. While the 1984 teacher-student ratio was 1:35, the 1987 ratio is estimated at 1:28 in government [primary] schools ... Further, class size varies dramatically by location ... Conditions in the rural areas generally are less favorable due to the lower level of resources available to rural schools ... (p. 4-16).

Whatever weaknesses existed in the system before 1989, there is no doubt that “the lengthy civil war in Liberia led to a virtually complete breakdown of the educational system” (AED and IRC, 2006:9; Daniels, 1994). Not only were nearly 80 percent of the schools destroyed (Shriberg, 2008; Stromquist et al., 2013), but “many teachers were killed or fled to other countries” (Davidson and Hobbs, 2013:284). Moreover, the [three] rural teacher training institutes (RTTIs) were “in various states of disrepair” (USAID/Liberia, 2006:8).

Based on its assessment of the education sector in Liberia, USAID funded the Liberia Teacher Training Program (LTTP I, 2006-2010, and LTTP II, 2010-2015) to work “with the Ministry of Education to comprehensively address the needs of teacher training and support system for basic education” (USAID Liberia, 2006:2). The EQUIP2 consortium⁷ implementing LTTP I focused

⁷ The EQUIP2 (or Educational Quality Improvement Program 2) consortium was funded by USAID (2003-2012) and carried out a number of activities agreed to by Washington (leader award) as well as a number of associate

helping to re-establish “professional development programs ... for current and future teachers, including an increasing number of female teachers, to upgrade their qualifications” (AED et al., 2007:7; Ginsburg and Arrington, 2015).⁸ LTTP staff in collaboration with the MoE, educators, and other stakeholders developed standards for teachers and for teacher education programs as well as a new curriculum for the preservice and inservice C-Certificate teacher education programs (Rodriguez et al., 2009). These teacher education programs were launched in 2008-2009 and 2007-2008, respectively (AED, 2010). The LTTP preservice C-Certificate program involved 5 cohorts of participants between 2008 and 2013 yielding 2531 (384 female and 2147 male) graduates. The LTTP inservice C-Certificate program also involved 5 cohorts of participants between 2007 and 2013, yielding 1607 (248 female and 1359 male) graduates.

In addition to USAID’s LTTP initiative, during the period of 2000 to 2013, other organizations developed and implemented inservice teacher education programs designed to qualify individuals who were already teaching in primary schools, that is, to provide them with a C-Certificate:

- i) UNICEF organized an inservice C-Certificate program from 2000 to 2004, yielding 1370 (267 female and 1103 male) graduates.
- ii) The *European Commission Support for Education in Liberia* (ECSEL) organized an inservice C-Certificate program from 2009 to 2012, yielding 401 (32 female and 369 male) graduates.
- iii) The *National Teacher Association of Liberia* (NTAL) organized an inservice C-Certificate program from 2010-2012, yielding 89 (24 female and 65 male) graduates.
- iv) The *Christian Foundation for Liberia* (CFL) organized an inservice C-Certificate program from 2010 to 2013, yielding 715 (185 female and 530 male) graduates.

Research questions

Liberia’s *Education Reform Act* of 2011 sets the policy goal for the pupil-teacher ratio (PTR) in government (and non-government) primary schools to be 44 (Republic of

awards received from USAID missions in various countries (www.EQUIP123.net). The consortium was led by the Academy for Educational Development (AED, which later became part of FHI 360) and included the following organizations: Aga Khan Foundation, American Institutes for Research, CARE, Center for Collaboration and the Future of Schooling, East-West Center, Education Development Center, International Rescue Committee, Joseph P. Kennedy, Jr. Foundation, Michigan State University, Mississippi Consortium for International Development, ORC Macro, Research Triangle Institute, University of Minnesota, University of Pittsburgh Institute of International Studies in Education, Women’s Commission for Refugee Women and Children.

⁸ As mentioned above, LTTP II also included a focus on helping to develop and building the capacity to implement an Education Management Information System (EMIS).

Liberia, 2011; see also MoE, 2011:24). Importantly, however, the 2011 *Education Reform Act* also specifies that the minimum formal education qualification for teachers in government (and non-government) primary schools should be a C-Certificate. In combination this policy on teacher qualifications and the policy of having a pupil-teacher ratio of 44 indicate that the overall policy goal for the pupil-qualified teacher ratio (PQTR) in government primary schools is 44. That is, the policy goal is to have at most 44 pupils for each teacher who has at least the minimum qualification (that is, a C-Certificate).

As noted above, between 2000 and 2013 the Government of Liberia along with international agencies and nongovernmental organizations invested significant financial and human resources in preparing or upgrading primary school teachers so that they possess the minimum qualification (i.e., a C-Certificate) as stipulated in the 2011 *Education Reform Act* (Republic of Liberia, 2011) and the *Liberia Education Regulations* (MoE, 2011). These initiatives have had an impact; for instance, the overall percentage of “qualified” primary school teachers increased from 40% in 2010 (ALU, 2012) to 63.5% in 2013 (MoE, 2013:43). However, this overall national figure does not indicate to what extent the PTRs and PQTRs vary between government and non-government primary schools or to what extent these statistics vary across the 15 counties of Liberia.⁹ Moreover, the noted increase in the percentage of primary school teachers who possess the minimum required qualification does not clarify the degree to which graduates of the various C-Certificate programs were actually working (that is, they gained employment and remained employed) as primary school teachers in 2013.

Thus, this study sought to address the following research questions:

1. What were the pupil-teacher and pupil-qualified-teacher ratios for government and non-government primary schools in various counties in Liberia in 2013?
2. What were the percentages of (government and non-government) primary school teachers who possess the policy-stipulated minimum qualification (that is, a C-Certificate)?
3. What was the employment status of graduates of different C-Certificate programs (conducted between 2000 and 2013) who were found in the 2013 EMIS database?
4. What percentage and number of graduates of the different C-Certificate programs (conducted between 2000 and 2013) were not in the 2013 EMIS database?
5. To what extent did LTTP-supported (preservice and

⁹ For example, with respect to the issue of gender parity in 2013: a) of the 10,852 government primary school teachers, 12.0% were female, but this percentage ranged from 3.9% in Grand Kru County to 36.5% in the Montserrado Consolidated School System; b) of the 4,836 non-government primary school teachers, 20.2% were female, but this percentage ranged from 5.6% in River Gee County to 28.7% in Maryland County (Goyee et al., 2014:15-17).

inservice) C-Certificate program graduates, who were not in the 2013 EMIS database, report that they were actually employed in the (government and non-government) school system?

RESEARCH METHODS

To address these issues the study relies on data collected as part of the 2013 Annual School Census which were used to populate Liberia's 2013 Education Management Information System (EMIS) database. We augmented the 2013 EMIS database by inserting information on which individuals previously participated in one of the cohorts of the above-noted preservice or inservice C-Certificate programs. Addressing these issues, however, was complicated by the fact that not all government and non-government primary schools provided data for the 2013 Annual School Census and the assumption that at least some teachers would be using names different than what they used when they participated in the C-Certificate program.

The authors analyzed the augmented 2013 EMIS database to address questions 1-4. To address question 5, the authors conducted a telephone survey, interviewing samples of graduates of the LTTP-supported preservice and inservice C-Certificate programs whose names (on the graduation lists) were not found in the 2013 EMIS database. There have been five cohorts of each program, including both females and males. Because of the disproportionate number of female and male graduates, the authors sought to interview 40% of the female graduates and 20% of the male graduates (who were not found in the 2013 EMIS database). That is, the sample of graduates consisted of a disproportionate, stratified random sample. The sample was stratified by program, cohort, and gender. The exceptions to these percentages were for cohorts 4 and 5 of the preservice program graduates, given the larger numbers of graduates whose names we were unable to find in the 2013 EMIS database. For cohorts 4 and 5 of the preservice program, the authors sought to sample 20% of the females and 10% of the males ("planned" sample figures in Table 1).

Table 1. Planned (and actual) samples by program, cohort, and gender (graduates of LTTP-supported preservice and inservice C-Certificate programs who were not in the 2013 EMIS database).

Cohort	Females per cohort	Males per cohort	Total samples per cohort
Preservice teacher training program graduates			
Cohort 1	4 (0)	33 (0)	37 (0)
Cohort 2	10 (0)	36 (5)	46 (5)
Cohort 3	14 (19)	47 (45)	61 (64)
Cohort 4	15 (22)	42 (84)	57 (106)
Cohort 5	25 (42)	51 (118)	76 (160)
Preservice Subtotal	68 (83)	209 (252)	277 (335)
Inservice teacher training program graduates			
Cohort 1	5 (0)	20 (0)	25 (0)
Cohort 2	5 (0)	19 (0)	24 (0)
Cohort 3	4 (0)	21 (0)	25 (0)
Cohort 4	8 (0)	18 (5)	26 (5)
Cohort 5	10 (12)	24 (40)	34 (52)
Inservice Subtotal	32 (12)	102 (45)	134 (57)
Total	100 (95)	311 (297)	411 (392)

However, the *actual* sample (see figures in parentheses in Table 1), differed from the planned sample in several respects:

- i. First, because of lack of contact information, data collectors were not able to include in this part of the study any of the graduates of either cohort 1 of the preservice program or cohorts 1-3 in the inservice program.
- ii. Second, data collectors were not able to reach any of the female graduates and only five of the male graduates

of cohort 2 of the preservice program, even after replacing those included in the initial (randomly sampled) lists with those in the back-up (randomly sampled) lists.

- iii. Third, because of the difficulty in reaching graduates of cohorts 1 and 2, data collectors attempted to contact all female and male graduates of cohorts 3-5 of the preservice program who were either on the initial (randomly sampled) lists or the secondary (randomly sampled) lists. This meant that data were collected from more of these graduates than was initially planned

(compare planned and actual figures in Table 1).

iv. Fourth, data collectors were not able to reach any of the female graduates and only five of the male graduates of cohort 4 of the inservice program, even after replacing those included in the initial (randomly sampled) lists with those in the back-up (randomly sampled) lists.

v. Fifth, because of the difficulty in reaching graduates of the other cohorts of the inservice program, data collectors attempted to contact all female and male graduates of cohort 5 of the inservice program who were either on the initial (randomly sampled) lists or the secondary (randomly sampled) lists. This meant that data were collected from more of the cohort 5 graduates than was initially planned (compare planned and actual figures in Table 1).

Thus, the *actual* sample included 411 individuals, 335 graduates from the preservice program and 57 graduates from the inservice program (figures in parentheses in Table 1). The differences between the planned and the actual samples constitute a limitation to generalizations of the findings from this study. The authors have attempted to work around the majority of these limitations in this part of the study by reporting findings disaggregated by program cohort (preservice cohorts 2-3, preservice cohorts 4-5, and inservice cohorts 4-5) and by gender (female and male).

A member of the LTTP Monitoring, Evaluation and Research Team contacted the sampled graduates by telephone and conducted individual interviews covering specific issues, using an interview protocol comprised of open-ended and close-ended questions. The tablet-version of the interview protocol was designed so that certain questions were asked only if they were relevant to a given respondent, based on how the respondent answered prior questions.

The interviewer sought to contact each graduate in the sample, seeking updated telephone numbers of other members of the sample from graduates who were successfully contacted and interviewed. When a graduate was successfully contacted, the interviewer explained the purpose and nature of the study and solicited the graduate's *oral agreement* to participate in the interview. For graduates who agreed to participate, the interviewer asked the relevant questions included in the interview protocol and recorded the respondent's answers on an electronic form, which is identifiable only by the ID number assigned to the respondent.¹⁰

Given the questions to be answered through this study, the data were analyzed using descriptive statistics, mainly frequencies and percentages. When analyzing the

¹⁰ The list of names and ID numbers were kept in a locked, secure location in the LTTP Monitoring, Evaluation and Research office. Only members of the team had access to the list, and they did so only in preparation for conducting an interview (to obtain the name, ID, and contact information). This strategy was designed to protect the confidentiality of responses, despite the fact that the interviewers were aware of the names of the graduates they were contacting.

data from the follow-up interviews, weighting was used to adjust the frequencies in accord with the disproportionate sampling procedures employed. That is, weighting was used to correct for the disproportionate under-sampling of males and the disproportionate under-sampling of graduates in cohorts 4 and 5 of the preservice program. However, the main findings are reported for male or female graduates of specific cohorts of the preservice or inservice program, and thus weighting is not necessary. Thus, percentages for each program cohort-by-gender strata (as identified in the sampling frame) were calculated and are presented in the findings section below.

FINDINGS

Here, the authors present the findings to answer each of the research questions.

Question 1: PTRs and PQTRs for government and non-government primary schools

In Figure 1, it can be observed that the national average for the pupil-teacher ratio (PTR) and for the pupil-qualified teacher ratio (PQTR) in *government primary schools* are, respectively 24.8 and 36.2, both of which are well below (that is, better than) the policy target of 44 pupils per teacher. However, both the PTR and the PQTR vary substantially across counties. That is, Sinoe County had the lowest PTR (17.5) and Grand Bassa had the highest PTR (40.8), while Nimba had the lowest PQTR (28.3) and Grand Bassa had the highest PQTR (80.1).¹¹

In Figure 2, it can be observed that the national average for the PTR and for the PQTR in *non-government primary schools* are, respectively 21.6 and 39.0, both of which are below (that is, better than) the policy target of 44 pupils per teacher as well as being approximately equal to the corresponding figures for government primary schools. However, both the PTR and the PQTR vary substantially across counties. That is, River Cess County had the lowest PTR (10.6) and Margibi had the highest PTR (33.2), while River Cess had the lowest PQTR (24.8) and River Gee had the highest PQTR (139.9).¹²

Question 2: Percentage of primary school teachers with at least a C-Certificate

Figure 3 shows that 68.6% of the *government* primary school teachers included in the 2013 annual school census possessed the policy-stipulated minimum

¹¹ As reported by Goyee et al. (2014), there are even greater variations across districts within counties as well as across schools within districts.

¹² As reported by Goyee et al. (2014), there are even greater variations across districts within counties as well as across schools within districts.

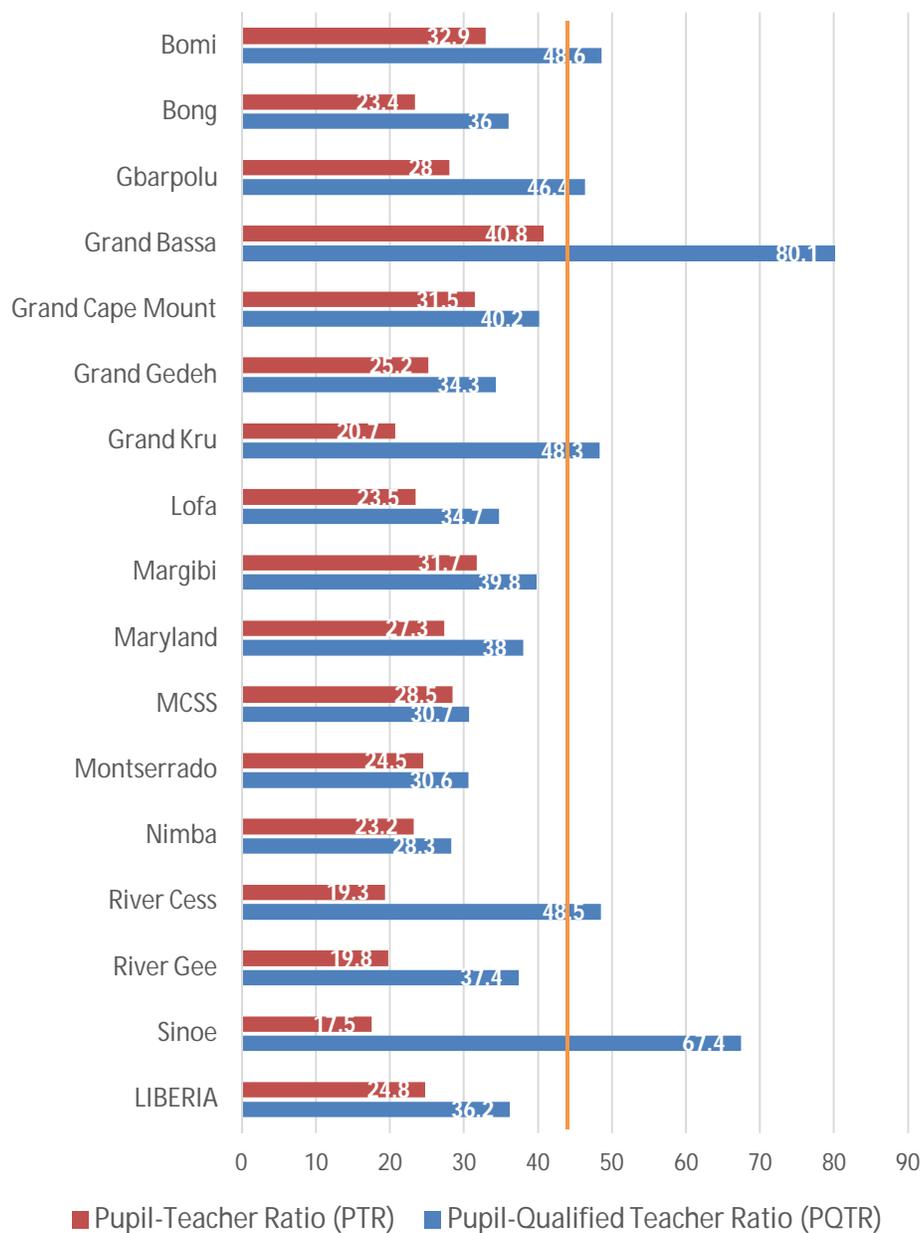


Figure 1. PTR and PQTR for *Government* primary schools by county.

qualification (that is, at least a C-Certificate). However, as shown in Figure 3, one notes that this percentage varied considerably across counties, from a low of 25.9% in Sinoe to a high of 92.7% in the Monrovia Consolidated School District (MCSS).

Among non-government primary school teachers included in the 2013 annual school census, overall, 55.3% possessed the policy-stipulated minimum qualification (that is, at least a C-Certificate) (Figure 3). It is noteworthy that this overall figure and most of the county-level figures for non-government primary school teachers are lower than the corresponding figures for government primary school teachers; that is, non-

government primary school teachers are somewhat less likely to have earned a C-Certificate than their government primary school counterparts. Moreover, as shown in Figure 3, the percentage of non-government primary school teachers possessing a C-Certificate varied considerably across counties, from a low of 19.4% in River Gee to a high of 77.4% in Margibi.

Question 3: Employment of C-Certificate program graduates (in 2013 EMIS Database)

Although the national pupil-qualified teacher ratio is

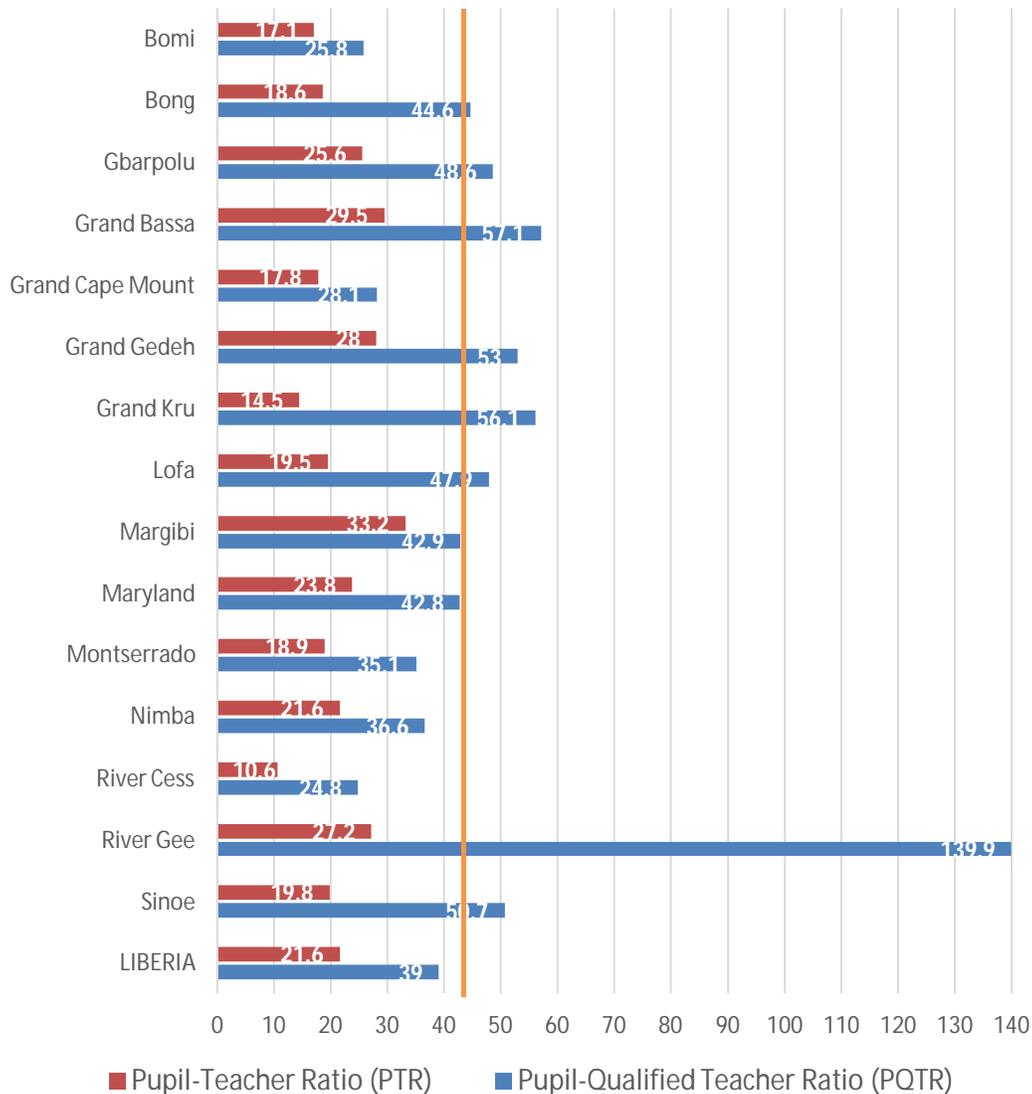


Figure 2. PTR and PQTR for *Non-Government* primary schools by county.

below the policy-stipulated minimum, it was observed that this figure was higher in some counties. Moreover, it was noted that a sizeable minority of primary school teachers nationally did not possess the minimum policy-stipulated qualification (that is, a C-Certificate), and in some counties the majority of primary school teachers were not qualified. Thus, the question of interest is the extent to which graduates of preservice and inservice teacher education programs organized between 2000 and 2013 were teaching primary school in 2013. To the extent that these graduates were not teaching in government and non-government primary schools represents a loss for the investment of these programs. The “loss” is less problematic if the graduates were serving as primary school administrators and, arguably, if they were serving as secondary school teachers or administrators.

However, the contribution of these programs is certainly less strong to the extent that the graduates never became teachers or left the profession.

Table 2 presents the findings from our analysis of the 2013 EMIS database, focusing only on those graduates whose names were found in the database (note that even though these graduates represent only a portion of all graduates – ranging from 23.1 to 65.7% as shown in Table 2, we postpone until addressing questions 4 and 5 to conclude how many of the graduates not in the 2013 EMIS database were actually not employed in the education sector). One sees that the majority of LTTP-supported preservice program graduates were teaching in government primary schools (74% of females and 55.7% of males), with a small proportion (1.3% females and 2.5% males) teaching in non-government primary

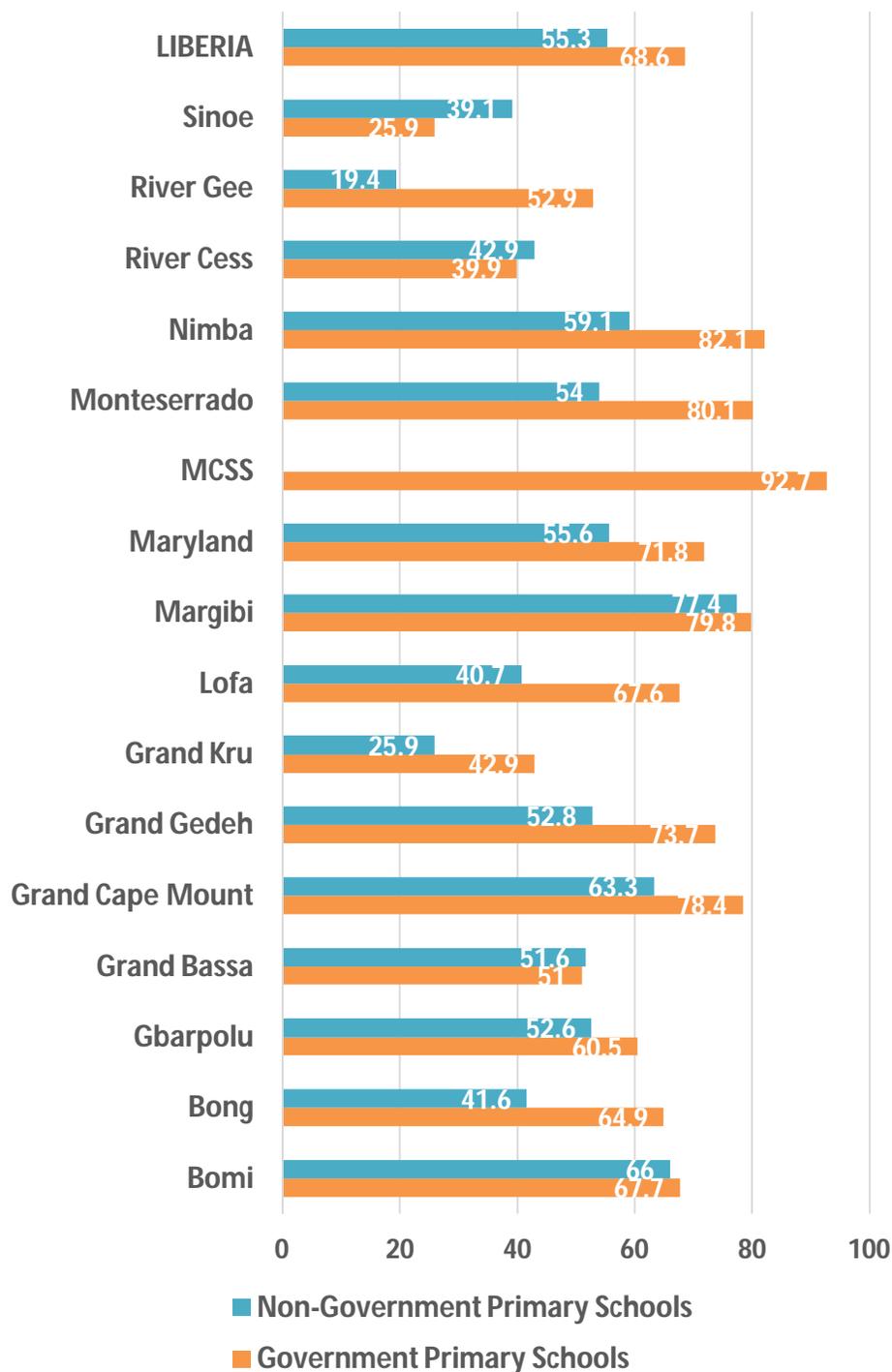


Figure 3. Percentage of primary school teachers with C-Certificates by county.

schools.¹³ This pattern is similar for the graduates of the LTTP-supported inservice program, with 61.9% of females and 41.9% of males teaching in government

¹³ Note that among graduates of the LTTP-supported preservice program, 12.1% of males and 28.2% of females were serving as administrators in government primary schools, while 2.6% of females and 0.9% of males were serving as administrators in non-government primary schools.

primary schools and 1.8% of females and 3.5% of males teaching in non-government primary schools.¹⁴

However, the picture of other (inservice) C-Certificate

¹⁴ Note that among graduates of the LTTP-supported inservice program, 12.3% of females and 24.3% of males were serving as administrators in government primary schools, while 0% of females and 0.8% of males were serving as administrators in non-government primary schools.

Table 2. Employment categories of graduates found in the 2013 EMIS database.

Category of employment	LTTP-supported preservice program (2008-2013)		LTTP-supported inservice program (2007-2013)		UNICEF inservice program (2000-2004)		ECSEL inservice program (2009-2012)		NTAL inservice program (2010-2012)		CFL inservice program (2010-2013)	
Gov. Prim. Sch. Teach.	74.0%	55.7%	61.9%	41.9%	31.0%	26.4%	21.5%	20.7%	18.2%	25.0%	32.0%	26.7%
Gov. Prim. Sch. Admin.	12.1%	28.2%	12.3%	24.3%	10.5%	23.8%	7.1%	19.2%	9.1%	15.1%	5.9%	27.0%
Gov. Sec. Sch. Teach.	2.6%	7.3%	15.4%	18.5%	18.2%	11.6%	28.6%	20.7%	27.3%	25.0%	32.0%	17.1%
Gov. Sec. Sch. Admin.	0.0%	0.3%	7.3%	10.1%	7.4%	19.9%	7.1%	14.2%	9.1%	9.9%	5.9%	15.1%
Non-gov. Prim. Sch. Teach.	1.3%	2.5%	1.8%	3.5%	15.9%	7.2%	0.0%	8.0%	18.2%	9.9%	14.5%	5.8%
Non-gov. Prim. Sch. Admin.	2.6%	0.9%	0.0%	0.8%	6.3%	4.0%	0.0%	6.5%	9.1%	5.1%	3.0%	1.1%
Non-gov. Sec. Sch. Teach.	4.8%	1.6%	1.2%	1.0%	7.4%	5.1%	0.0%	7.1%	9.1%	5.1%	7.3%	5.1%
Non-gov. Sec. Sch. Admin.	2.6%	0.6%	0.0%	0.2%	3.1%	1.8%	0.0%	0.0%	0.0%	5.1%	1.3%	2.0%
TOTAL % of Graduates Included in 2013 Database	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Number of Graduates (in database/total)	81/351	696/2203	163/248	851/1359	94/267	306/1103	14/32	198/369	11/25	20/64	69/185	292/530
Percentage of Graduates Included in the 2013 Database	23.1%	31.6%	65.7%	62.6%	35.2%	27.7%	43.8%	53.7%	44.0%	31.3%	37.3%	55.1%

programs' graduates, who were found in the 2013 EMIS database, is quite different from those discussed above for the LTTP-supported programs. First, we observe that 32% or less of these graduates were serving as government primary school teachers.¹⁵ Second, we see that substantial percentages (ranging from 11.6% to 32%) of these graduates were serving as teachers in government secondary schools.¹⁶

¹⁵ Note that among graduates of the UNICEF, ECSEL, NTAL, and CFL programs, noteworthy percentages (ranging from 7.1 to 27.0%) were serving as administrators in government primary schools, while smaller percentages (ranging from 0 to 9.1%) were serving as administrators in non-government primary schools.

¹⁶ Note that among graduates of the UNICEF, ECSEL, NTAL, and CFL programs, noteworthy percentages (ranging from 5.9% to 19.9%) were serving as administrators in government secondary schools, while smaller percentages (ranging from 0 to 5.1%) were serving as administrators in non-government secondary schools.

Question 4: C-Certificate program graduates not in 2013 EMIS database

We now turn to the question of C-Certificate programs' graduates whom we were not able to find in the 2013 EMIS database. Figure 4 shows the percentage of male and female graduates of the various C-Certificate programs whose names we were not able to match with names in the 2013 EMIS database. As can be observed in Figure 4, 100% of LTTP-supported preservice program graduates (Cohorts 4 and 5), approximately 45% of LTTP-supported preservice program graduates (Cohorts 1-3), approximately 35% of LTTP-organized inservice program graduates, approximately 55% of CFL-organized inservice program graduates, 50% of ECSEL-organized inservice program graduates, approximately 60% of NTAL-organized inservice program graduates, and approximately 70% of UNICEF-organized

inservice graduates were not found in the 2013 EMIS database.¹⁷

As shown in Table 3, the combination of preservice and inservice C-Certificate programs' graduates who are not in the 2013 EMIS database equals 3,967 individuals. More specifically, there are 1,799 LTTP preservice program graduates and 2,168 inservice program graduates (593 LTTP + 353 CFL + 193 ECSEL + 31 NTAL + 971 UNICEF) who were not found in the 2013 EMIS database. Note that this means that across the various C-Certificate programs 59.1% (3,967/6,713) of their graduates were not found in the 2013 EMIS database.

¹⁷ Note that the percentages for male and female graduates are similar for most program groups. However, the percentages of graduates not in the EMIS database are somewhat higher for males for NTAL-organized in-service program (68.8% versus 56.0%) and somewhat higher for females for the CFL-organized in-service program (62.2% versus 46.4%).

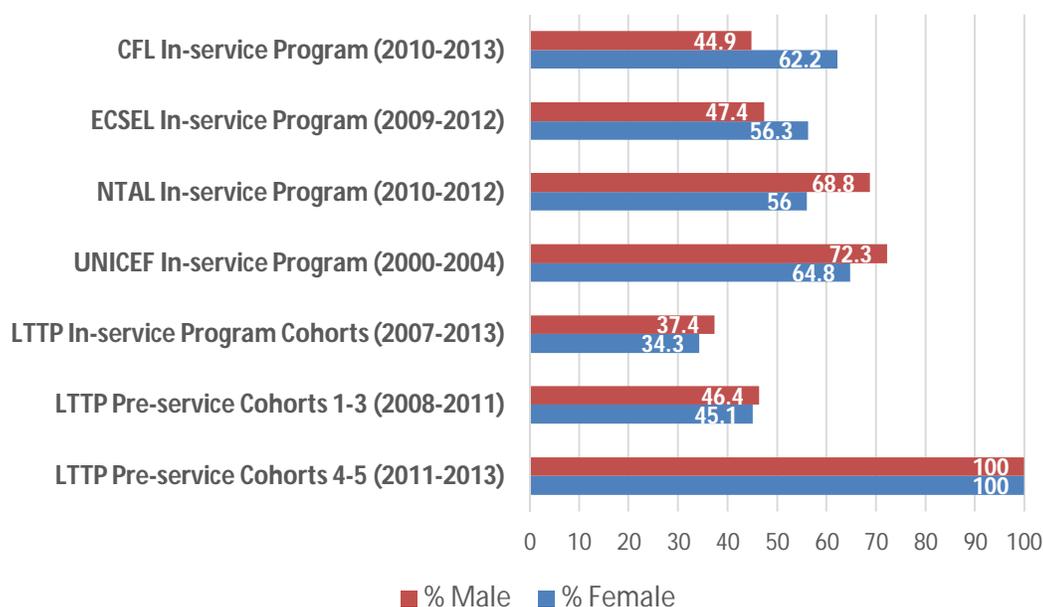


Figure 4. Percentage of graduates of various C-Certificate programs not in the 2013 EMIS database.

Table 3. Number of individuals with C-Certificates not in 2013 EMIS database.

Program	Females	Males	Total
LTTTP Preservice (Cohorts 1-3)	72	587	659
LTTTP Preservice (Cohorts 4-5)	198	942	1140
LTTTP Inservice	85	508	593
CFL Inservice	115	238	353
ECSEL Inservice	18	175	193
NTAL Inservice	14	44	58
UNICEF Inservice	173	797	971
Total	675	3292	3967

For the preservice program graduates, note that the 5th cohort of graduates of the LTTTP-supported preservice program were just completing their program when the 2013 annual school census was being conducted, and thus would not be expected to be included in the 2013 EMIS database. However, the finding that 100% of the graduates of the 4th cohort of the LTTTP-supported preservice program were not in the 2013 database reinforces concerns about the challenges they faced in obtaining employment as teachers, approximately one year after they completed their program.

Looking at the percentages of graduates from various inservice C-Certificate programs who are not in the EMIS database, one might conclude that substantial numbers of individuals, who were teaching at the time they participated in these programs, left the teaching profession at some point after completing their certification program. This conclusion makes sense, especially for the relatively large percentage of UNICEF-

organized inservice program graduates who are not in the EMIS database, in that this program operated approximately a decade prior to when the 2013 Annual School Census was conducted (that is, 2000-2004). Thus, many of the graduates of this program may have moved on from teaching posts they obtained during or immediately after the Second Liberia Civil War (1999-2003).

Question 5: Employment of LTTTP-Supported C-Certificate program graduates not in database

However, before concluding that Liberia had a substantial pool of “qualified” individuals who could be employed or re-employed in the education sector, either in government or non-government primary schools or even in government or non-government secondary schools, we decided to investigate the employment status of the C-

Certificate program graduates whose names we could not match with those in the 2013 EMIS database. This investigation offered an opportunity to check the validity of the conclusions (reached above) that: a) many preservice program graduates had either not obtained employment or had left the profession as well as that b) many inservice program graduates had left the profession after becoming qualified. Put another way, the follow-up interviews enabled us to learn the extent to which the graduates were indeed employed in the education sector, but either had not been counted in the Annual School Census or had been counted but in relation to a different name.

Thus, in May-July 2014 we contacted a sample of LTTP-organized C-Certificate program graduates, who we had been unable to find in the 2013 EMIS database, to check on their employment status in 2013 and more recently. Given the availability of contact information, we focused on three groups of graduates: a) cohorts 2 and 3 of the LTTP-supported preservice program, b) cohorts 4 and 5 of the LTTP-supported preservice program, and c) cohorts 4 and 5 of the LTTP-supported inservice program.

Table 4 presents the percentages in different employment categories of the graduates of cohorts 2-3 and cohorts 4-5 of the LTTP-supported preservice C-Certificate program as well as graduates of cohorts 4-5 of the LTTP-supported Inservice C-Certificate program, who were not found in the 2013 EMIS database and who were interviewed. First, while we noted above that approximately 46% of the graduates of preservice cohorts 1-3 were not found in 2013 EMIS database (Morris et al., 2014), Table 4 indicates that a sizeable proportion of the preservice cohorts 2 and 3 graduates reported that they were employed in 2013. That is, 78.9 and 44.0%, respectively, of female and male preservice cohorts 2 and 3 graduates, who participated in this follow-up study, reported being employed in one or another category in the education sector in 2013. Among preservice program graduates from cohorts 2 and 3 who reported being employed in 2013, they were mainly working in government primary schools, either as teachers (57.9% of females and 26.0% of males) or as school administrators (15.8% of females and 14% of males).¹⁸ Additionally, note that only a small proportion (0.0 and 8.0%, respectively) of the female and male preservice cohorts 2 and 3 graduates, who participated in this follow-up study, reported that they were not employed in March-April 2013, when the Annual School Census was conducted, but that they had previously worked in the education sector (Table 4 and Figure 1). That is, these individuals had left the teaching profession

¹⁸ Another important finding in Table 4 is that 15.8 and 44.0%, respectively, of the female and male preservice cohorts 2 and 3 graduates, who participated in this follow-up study, indicated that although they had not been employed in the education sector in 2013, they had gained employment between the time that the Annual School Census was conducted in March-April 2013 and this follow-up study was conducted in May 2014.

at some point.

Second, while we noted above that approximately 100% of the graduates of preservice cohorts 4-5 were not found in 2013 EMIS database (Morris et al., 2014), Table 4 indicates that a sizeable proportion of the preservice cohorts 4 and 5 graduates reported that they were employed in 2013. That is, 23.4 and 28.9%, respectively, of female and male preservice cohorts 4-5 graduates, who participated in this follow-up study, were employed in one or another category in the education sector in 2013. Among preservice program graduates from cohorts 4 and 5 who were employed in 2013, they were mainly working in government primary schools, either as teachers (20.3% of females and 17.4% of males) or, to a lesser extent, as school administrators (0.0% of females and 4.5% of males).¹⁹ Importantly, the preservice C-Certificate program graduates, who were not employed in the education sector, represented a sizeable group of qualified individuals who could have been hired as teachers. Additionally, note that only a small proportion (3.1 and 4.0%, respectively) of the female and male preservice program cohorts 4 and 5 graduates, who participated in this follow-up study, reported that they were not employed in March-April 2013, when the Annual School Census was conducted, but that they had previously worked in the education sector. That is, these individuals had left the teaching profession at some point.

Third, while we noted above that approximately 46% of the graduates of inservice cohorts 1-5 were not found in 2013 EMIS database (Morris et al., 2014), Table 4 indicates that a sizeable proportion of these inservice cohorts 4-5 graduates reported that they were employed in 2013. That is, 83.0 and 55.6%, respectively, of female and male inservice cohorts 4-5 graduates, who participated in this follow-up study, reported that they were employed in one or another category in the education sector in 2013. Among inservice program graduates from cohorts 4 and 5 who reported being employed in 2013, they were mainly working in government primary schools, either as teachers (50.0% of females and 28.9% of males) or as school administrators (33.3% of females and 22.2% of males).²⁰ Importantly, the inservice C-Certificate program graduates, who were not employed in the education sector, represented a sizeable group of qualified individuals who could have been hired back as teachers.

¹⁹ Another important finding in Table 4 is that 25.0 and 25.9%, respectively, of the female and male preservice cohorts 4 and 5 graduates, who participated in this follow-up study, indicated that although they had not been employed in the education sector in 2013, they had gained employment between the time that the Annual School Census was conducted in March-April 2013 and this follow-up study was conducted in May 2014.

²⁰ Another important finding in Table 4 is that 16.7 and 42.2%, respectively, of the female and male inservice cohorts 4 and 5 graduates, who participated in this follow-up study, indicated that although they had not been employed in the education sector in 2013, they had gained employment between the time that the Annual School Census was conducted in March-April 2013 and this follow-up study was conducted in May 2014.

Table 4. Employment status of interviewed graduates not found in 2013 EMIS database.

Category of employment	Preservice cohorts 2-3		Preservice cohorts 4-5		Inservice cohorts 4-5	
	% Female	% Male	% Female	% Male	% Female	% Male
Government Primary School Teacher in 2013	57.9	26.0	20.3	17.4	50.0	28.9
Government Primary School Administrator in 2013	15.8	14.0	0.0	4.5	33.3	22.2
Government Secondary School Teacher in 2013	0.0	0.0	0.0	1.5	0.0	2.2
Government Secondary School Administrator in 2013	0.0	2.0	0.0	0.0	0.0	0.0
Non-government Preschool (Nursery or Kindergarten) Teacher in 2013	0.0	0.0	0.0	0.0	0.0	0.0
Non-government Preschool (Nursery or Kindergarten) Administrator in 2013	0.0	0.0	0.0	0.0	0.0	0.0
Non-government Primary School Teacher in 2013	5.3	0.0	3.1	3.0	0.0	0.0
Non-government Primary School Administrator in 2013	0.0	0.0	0.0	0.0	0.0	0.0
Non-government Secondary School Teacher in 2013	0.0	0.0	0.0	2.0	0.0	2.2
Non-government Secondary School Administrator in 2013	0.0	0.0	0.0	0.0	0.0	0.0
Other education sector job in 2013	0.0	2.0	0.0	0.5	0.0	0.0
<i>Not employed in education sector in 2013, but YES previously</i>	0.0	8.0	3.1	4.0	0.0	2.2
<i>Not employed in education sector in 2013, but YES in 2014</i>	15.8	44.0	25.0	25.9	16.7	42.2
<i>Not employed in education sector in 2013, and NEVER employed in education</i>	5.3	4.0	48.4	41.3	0.0	0.0
Graduates (total %)	100%	100%	100%	100%	100%	100%
Total number of graduates	19	50	64	201	12	45

Additionally, note that only a small proportion (0.0 and 2.2%, respectively) of the female and male inservice program cohorts 4 and 5 graduates, who participated in this follow-up study, reported that they were not employed in March-April 2013, when the Annual School Census was conducted, but that they had previously worked in the education sector. That is, these individuals had left the teaching profession at some point.

DISCUSSION

The findings presented above offer insights regarding the extent to which Liberia, by 2013, had addressed the issue highlighted in the means of implementation target (4C) for the Sustainable Development Goal adopted in 2015 (UN, 2015): “4. By 2030, substantially increase the supply of

qualified teachers, including through international cooperation for teacher training in developing countries, especially least developed countries and small island developing states.” More specifically, the findings are relevant to an aspect of the indicator adopted for this target, specifically: Proportion of teachers in: ... (b) primary ... education who have received at least the minimum organized teacher training (e.g. pedagogical training) pre-service or inservice required for teaching at the relevant level in a given country.”²¹

Based on our analysis of Liberia’s 2013 EMIS database, we found that two and one-half years before the Sustainable Development Goals were

²¹ As noted previously, the more general target (4.C.1) also focuses on preprimary, lower secondary, and upper secondary school teachers.

adopted:

- i. Overall, Liberia had a sufficient number of *qualified* primary school teachers (given its policy goal of PQTR=44), but they are not equitably deployed, with Grand Bassa and Sinoe counties especially lacking in numbers of qualified primary school teachers.
- ii. Nevertheless, Liberia had a substantial number of unqualified primary school teachers (ranging across counties from 7.3 to 74.1% in government primary schools and from 22.6 to 80.6% in non-government primary schools).
- iii. Moreover, Liberia had a notable shortage of females serving as primary school teachers (constituting between 5% and 23% of the primary school teaching force across counties).
- iv. Additionally, there was pool of “qualified” female and male graduates of preservice teacher

certification programs who it appeared were NOT employed in the education sector in 2013.

However, these findings rest on certain assumptions.

The first assumption is that the definition of “qualified” primary school teacher was fixed. As noted, though, this was not the case. That is, in Liberia programs that were designed to provide individuals with an opportunity to obtain a C-Certificate, the policy-specified minimum qualification, included programs organized during the 2000-2013 period that ranged from three weeks to nine months. Moreover, discussions were underway in 2015 to increase the preservice C-Certificate program to 15 months.²²

The second assumption is that the process for collecting data on the number of (qualified) teachers yielded accurate information. Although we have not been able to document the extent to which it is the case, the accuracy of the findings may be limited because of the existence of “ghost” teachers (IMF, 2011:39; Mulkeen, 2010:131; Sherman, 2011:313), that is, people whose names are listed as teachers to be paid in specific schools, but who are not in fact working as teachers in those schools. To the extent that such “ghost” teachers existed in Liberia and were included in the Annual School Census in 2013, the findings presented above are not accurate. For example, the PTRs and PQTRs presented here are exaggerated.

Furthermore, as we have seen, though, there are some questions about the comprehensiveness of the database. Specifically, of the many graduates from the LTTP-supported (preservice and inservice) C-Certificate programs, who were not included in the 2013 EMIS database, a sizeable number of these individuals interviewed in 2014 reported that they were employed as teachers in government and non-government primary schools as well as serving in other capacities in the education sector.

Part of the explanation for these C-Certificate program graduates not being found in the 2013 EMIS database, although they reported that they were employed in the education sector, is because the database does not include information on some schools. According to the *Education Statistics Bulletin* (MoE, 2013:142), questionnaires were not received from 202 of 3,051 (6.6%) of the primary and secondary schools whose principals participated in the workshops designed to prepare and encourage them to complete and submit the required information for the Annual School Census; moreover, three counties had more than 10% of their schools not reporting: Grand Bassa (10.4%), Montserrado (14.9%), and Sinoe (20.3%). However, it is

unlikely that the 3,967 C-Certificate program graduates whose names we did not find in the 2013 EMIS database were employed only in these 202 schools.

Another reason that we were unable to find the C-Certificate program graduates in the 2013 database is because the name they used when attending the program was different than the name they used during their employment in 2013. Based on the interviews we conducted, we found that:

- i. 1 out of 15 (6.7%) of the female and 2 out of 22 (9.1%) of the male preservice program (cohorts 2-3) graduates, who reported being employed in 2013, indicated that they used different names;
- ii. 1 out of 15 (6.7%) of the female and 0 out of 59 (0%) of the male preservice (cohorts 4-5) graduates, who reported being employed in 2013, indicated that they used different names; and
- iii. 4 out of 10 (40%) of the female and 6 out of 25 (24%) of the male inservice program (cohorts 4-5) graduates, who reported being employed in 2013, indicated that they used different names.

We may assume some degree of underreporting here, because respondents may have been reluctant to admit they were employed under a different name, but there still appear to be other reasons we did not find the names of many (preservice and inservice) C-Certificate program graduates in the 2013 EMIS database.

One of the other possible reasons for not finding these graduates in the 2013 EMIS data base is that some school principals seem not to have been invited to the above-referenced workshops and, thus, did not receive nor could they submit the questionnaires for the Annual School Census. While the EMIS team, composed of MoE and LTTP staff, worked with county and district education officers to identify all government and non-government, primary and secondary schools in Liberia, it appears that some schools were not identified and thus the principals were not invited to the workshop. Evidence of this is provided by the fact that, when comparing the 2013 and 2014 EMIS datasets, we detected important differences in the schools included. For example, 1,955 of 2,477 (78.9%) of the government primary schools and only 621 of 1,587 (39.1%) of the non-government primary schools that were included in *either* dataset are included in *both* datasets (Goyee et al., 2015).²³

The omission of schools (and other shortcomings) in Liberia’s EMIS datasets obviously limits the accuracy of the statistics reported above. Nonetheless, the 2013 annual school census represents an important improvement in the process compared to previous years’

²² Similarly, based on her experiences in Tanzania in 2006-2007, Vavrus (2017:10) reports that in the context of a need for increasing the secondary education teaching force to meet the demand of expanding student enrollments, what had been a required two-year preservice program was reduced to programs of three to nine months.

²³ Note that: a) of the 2,477 *government primary schools* included in either dataset, 102 (4.1%) government primary schools are only included in the 2013 dataset and 420 (16.9%) are only included in the 2014 data set; b) of the 1,587 non-government primary schools included in either dataset, 108 (6.8%) are only included in the 2013 dataset and 858 (54.1%) are only included in the 2014 dataset.

efforts. As noted in the Mid-Term Assessment, in discussing sub-result 1.3, policy and programmatic decisions are based on data from an information management system, policy analyses and research:

The LTTP II has provided a key input required to satisfy this SR, namely, the development of an EMIS that has the potential of motivating educational policies and policy-based decisions, as well as helping the MOE to make strategic program choices. ... While acknowledging the great start made by EMIS, there is a further need to develop additional data concerning access, service quality, deployment of personnel, school facilities and perhaps, most importantly, reliable unit cost estimates for the fundamental service to be delivered. ... However, these additions should in no way diminish the fundamental finding that the EMIS is an excellent tool for which LTTP II should be justifiably proud (Bassie et al., 2013: 30-31)²⁴.

However, the shortcomings highlight Porter's (1996) point that we need to problematize our "trust in numbers" and be cautious in our interpretation of statistics, such as pupil-(qualified) teacher ratios. This is because data collection, such as those undertaken for annual school censuses and EMIS, necessarily involves "social processes" (Porter, 1996:11). Those undertaking Liberia's 2013 Annual School Census encountered challenges that we have described at least partly. But some of these challenges are not unique to Liberia (World Bank, 2010). For instance, the EMIS team relied on county and district education officers to identify all the schools in their areas so that the principals could be invited to the workshop designed to orient them and encourage them to complete the annual school census questionnaires. That this social process yielded less than complete coverage of schools is perhaps understandable, given the challenges that education officers face (Ansari et al., 2015), and not only in Liberia (LeCzel and Ginsburg, 2012). The challenges faced in this social process in the education sector in Liberia in 2003 seem interestingly analogous to the challenges faced in the social process of conducting the census in France in the early 19th century, which Porter (1996:35) describes:

A particularly interesting and ambitious attempt at a census ... was carried out in France in 1800-1801 ... The Bureau de Statistique ... sent out questionnaires to the prefects in each department asking for a wealth of information, most of it quantitative. ... The prefects, newly installed and badly overworked, were baffled and overwhelmed by these demands. They had been told to fill out a table that was several pages long, and they commanded nothing like the bureaucracy that would have been necessary to do so.

Conclusion

The conclusion here is not that we should treat educational statistics as a form of prevarication, as implied in the title of Wheeler's (1976) book – *Lies, Damn Lies, and Statistics*.²⁵ Instead, our conclusion is that we should be cautious in interpreting statistics, including ones to be produced by governments or international organizations in relation to Sustainable Development Goal #4. In Wheeler's (1976:15) terms, we should not "become mesmerized by the measurement." That is, we should not routinely treat such statistics as objective descriptors of reality until we have examined carefully the social processes through which they were produced. In this regard, Porter's (1996:42) warning is apt:

The dependence of categorization [and measurement] on particular circumstances would seem to imply that the categories [and measures] are highly contingent, and hence weak. Once put in place, though, they can be impressively resilient. ... Having become official, then, they become increasingly real.

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²⁴ According to the LTTP Final Report, project staff and MoE personnel continued to improve the process and comprehensiveness of the data collection after 2013: "From 2012-2015, LTTP successfully built the capacity of the [MoE] EMIS team to conduct the Annual School Census. ... LTTP designed the census questionnaire and "trained the trainers" in each of Liberia's 98 districts. Selected trainers then, in turn, trained all Liberian principals to correctly complete the census form. Numbers of schools captured in the census grew over time (virtually increased by 250% from 2012 to 2015) as EMIS gathered additional information on public, private, religious/mission, community, and technical and vocational education and training (TVET) schools across the country" (FHI 360, 2016: 39).

²⁵ Wheeler (1976, p. viii) states that his title is informed by a statement attributed to both British Prime Minister Benjamin Disraeli and Mark Twain: "There are three kinds of lies—lies, damn lies, and statistics." Nevertheless, according to Wikipedia (https://en.wikipedia.org/wiki/Lies,_damned_lies,_and_statistics), "the term was popularised in United States by Mark Twain (among others), who attributed it to the British Prime Minister Benjamin Disraeli ... However, the phrase is not found in any of Disraeli's works and the earliest known appearances were years after his death. Several other people have been listed as originators of the quote, and it is often erroneously attributed to Twain himself."

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