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# The locational and gendered impacts of Livelihood Empowerment Against Poverty (LEAP) on children education in Ghana

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## Abstract

**Purpose** – This study seeks to identify locational and gendered determinants of inclusion of households in Livelihood Empowerment Against Poverty (LEAP) and estimate the respective impacts of LEAP on children education enrolment of beneficiary households in Ghana.

**Design/methodology/approach** – The study used secondary data of the Ghana Living Standard Survey Round 7 and employed the propensity score matching (PSM) model for the analysis of the objectives.

**Findings** – The PSM results established that different factors determine the inclusion of households in LEAP in rural and urban areas. Similarly, different factors determine the inclusion of male-headed and female-headed households in the programme. The impact of LEAP on children education is higher in urban areas compared to rural areas. The impact of LEAP on children's education is 10.4% higher in urban areas than in rural areas. Lastly, female-headed households are better at using the cash received from LEAP to take care of their wards' education relative to male-headed households.

**Practical implications** – The study recommends that different selection criteria should be used in selecting male-headed and female-headed as well as urban and rural poor households for inclusion in the LEAP programme. Female-headed households should be prioritised for benefiting from LEAP. The social welfare department disbursing the LEAP funds in rural areas should intensify education on the need for LEAP beneficiary households to enrol their wards in schools.

**Originality/value** – In this paper, the authors demonstrate that household inclusiveness of LEAP is influenced by locational and gendered factors. Also, the impact of LEAP on children education enrolment is relatively higher in urban areas than rural areas. Lastly, female-headed households relatively educate their wards with LEAP benefits than male-headed households.

**Keywords** LEAP, Gendered, Locational, Determinants, Impacts, Propensity score matching model

**Paper type** Research paper

## 1. Introduction

Social protection is very important for the less privileged, physically challenged and the aged. Social protection encompasses policies and programmes which are put in place to reduce poverty and vulnerability through the promotion of efficient labour markets, diminishing

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exposure to risks and enhancing their capacity to manage economic and social risks (World Bank, 2001). The importance of social protection is deeply rooted in the Sustainable Development Goals (SDGs) specifically Goal 1, which calls for an end to all forms of poverty. One of the indicators of the SDG 1 admonishes countries to "implement nationally appropriate social protection systems and measures for all" (OECD, 2017, p. 24), especially the children, unemployed persons, older persons, persons with disabilities, pregnant women, newborns, work-injury victims and the poor and the vulnerable. Currently, African countries have shown their commitment to achieving most SDGs by implementing various kinds of social protection programmes, and Ghana is not an exception.

Social cash transfers according to Yiridomoh *et al.* (2021) are income or consumption transfers offered through both private and public efforts to the poor and the vulnerable. Livelihood Empowerment Against Poverty (LEAP) is one of the social protection programmes implemented in Ghana. It was introduced in March, 2008 to cater for extremely poor households. LEAP provides cash transfer and health insurance support to extremely poor households in Ghana. As noted by Handa *et al.* (2013), the purpose was to alleviate short-term poverty and encourage long-term human capital development. It targets caregivers of orphans and vulnerable children (OVC), people living with disabilities (PWD) and the elderly (Amuzu *et al.*, 2010). The criteria used for selecting households for LEAP are as follows: aged 65 years and above without any form of support; severely disabled without productive capacity; orphaned and vulnerable children; and extremely poor or vulnerable households with pregnant women and mothers with infants (Ministry of Gender, Children and Social Protection [MoGCSP], 2014). Over the years, the beneficiaries of LEAP have used the money received to support their livelihoods and wards' education (Owusu-Addo, 2016). There is no doubt that there is a relationship between social protection programmes and education. A social protection programme must aim at addressing socio-economic problems, such as poverty, inequality and low education. Education is one of the ways of bridging the inequality gap by extension reducing household poverty, which is an ultimate aim of the SDG one. Although a social protection programme is a strategy to protect individuals or society from chronic poverty to have security for contingencies and vulnerabilities (Abebrese, 2011), it also provides beneficiary households with money to purchase books, pay school fees and buy school uniforms for their wards. Education of Orphan and Vulnerable Children (OVC) is an important aspect of LEAP. Households receiving LEAP benefits on behalf of these children are supposed to ensure that they attend school. Though the amount of cash usually received is small, some of the beneficiary households can use the money to purchase books, pay parent–eacher association (PTA) dues and buy school uniforms for their wards.

Many researchers have demonstrated that LEAP has had a significant positive impact on education in Ghana. For instance, a study by Park *et al.* (2012) revealed that beneficiary households of LEAP used the cash received to purchase food, pay for health treatment and provide necessary supports for their wards' education. Handa *et al.* (2013) also found that LEAP has increased secondary school enrolment by 7% and reduced grade or class repetition among both primary and secondary children in Ghana (FAO, 2015). Among primary aged children, LEAP reduced absenteeism by 10% (FAO, 2015). In a study conducted by Sulemana *et al.* (2018), on the assessment of LEAP in Karaga district, it was found that the programme is contributing to poverty reduction among the poor and vulnerable. They recommended that school children benefiting from LEAP should be exempted from paying extra expenses, such as examination and PTA fees. Besides, Handa *et al.* (2014) indicated that LEAP has increased access to schooling at the secondary level. At all levels, they observed an improvement in quality and access with fewer days missed and less grade repetition. However, Handa *et al.* (2013) earlier revealed that there are some

gender-differentiated impacts of LEAP on children. Secondary school enrolment impacts were limited to boys, but attendance impacts were bigger for girls.

What these researchers failed to empirically establish are locational factors determining the inclusion of households in LEAP in Ghana. The gendered factors explaining the inclusion of households in LEAP has not been unravelled. Though female-headed households are different from male-headed households in terms of gender composition and decision-making, the selection criteria have been similar. Similarly, urban poor and rural poor households are exposed to different social amenities, but the same selection criteria are applied. The question of whether or not LEAP has locational (rural and urban areas) influence on children education enrolment in Ghana has not been answered. Also, there is no empirical study on whether or not the impacts of LEAP on children education enrolment are gendered and locational specific, which is relevant to know. Knowledge of these research gaps is critical to designing sustainable exit strategies as well as designing policy responses for bridging the locational and gendered gaps in the country. Therefore, in response to the research gaps outlined above, this study seeks to specifically

(1) Identify the locational and gendered determinants of inclusion of households in LEAP in Ghana.

(2) Estimate the locational and gendered impacts of LEAP on households' children education enrolment.

## 2. Materials and methods

### *2.1 Study area*

This study was conducted in Ghana. The country is located along the Gulf of Guinea and the Atlantic Ocean, in the sub-region of West Africa. The country covers a total land area of 238,535 $km^2$ with an estimated population of a 30.8 million in 2021 (Ghana Statistical Service, 2021). Ghana lies between latitude 9° 15′ 10° 02′ north and longitude 0° 53′ and 1° 25 west. The country shares boundaries with Ivory Coast in the west, Burkina Faso in the north, Togo in the east and the Gulf of Guinea and the Atlantic Ocean in the south.

### *2.2 Sampling technique and sample size*

The study used households' data from Ghana Living Standard Survey 7 (GLSS 7). GLSS 7 was conducted in 2016/2017. The survey covered 15,000 households in 1,000 enumeration areas (EAs), consisting of 561 (56.1%) rural EAs and 439 (43.9%) urban EAs and 15,000 households. Out of 15,000 households covered in GLSS 7, 357 were LEAP beneficiaries. Currently, the total number of LEAP beneficiaries in Ghana stands at 250,000 households (http://mogcsp.gov.gh/index.php/projects/livelyhoodempowerment-against-poverty-leap/). With this population and a 6% margin of error, 278 beneficiary households were obtained using the sample size determination formula (Yamane, 1967) as indicated below. However, this study used a sample size of 713 households comprising 328 LEAP beneficiaries and 385 non-beneficiaries. It is important to point out that data from 29 LEAP beneficiary households were not used because of non-existence information on some of the required variables for this study.

$$n = \frac{N}{1 + Ne^2} \tag{1}$$

$$n\,(\text{LEAP beneficiaries}) = \frac{250000}{1 + (250000)(0.06)^2} = 277.47 \approx 278 \tag{2}$$

*2.3 Conceptual framework for impacts of LEAP on children education*

Figure 1 shows the conceptual framework depicting the impacts of LEAP on children education. As noted by Zhang (2020), education is a cardinal intervention that can help eradicate poverty. According to Xie (2012), the theory of system poverty explained and believed that poverty is affected by many factors, namely macro-level natural conditions, historical starting points, economic development policies, environmental and cultural qualities, and micro-level family and school education. This implies that school education is a very important factor in eliminating poverty and hence the need for LEAP beneficiaries to spend some proportion of the cash transfer on their wards' education within the household. Therefore, examining the effects of LEAP on children education within the household supports the theory of system poverty. The findings from the current study will support or reject the theory of change as indicated in a review work by Bastagli *et al.* (2016) that cash transfer, such as LEAP, is expected to increase school attendance and decrease school absenteeism.

*Meanwhile, c*ertain socioeconomic factors determine the inclusion of households into the LEAP programme. Among these factors predetermined by the programme are households caring for orphans, elderly headed households, households caring for the severely disabled person and households with an infant or pregnant mother. Aside from these, the probability of location and gender having effects on whether one household is included in LEAP or not is very high.

Households who are included in LEAP automatically have the opportunity to receive cash transfers for household upkeep. As part of the requirements, beneficiary households are expected to use the money to support children education. One of the channels of the theory of change of the programme is that the intervention will reduce the participation of children in manual labour for household upkeep and hence an increase in children enrolment in school and education progression. To buttress this point, Yiridomoh *et al.* (2021) in a study found that farming is the number one area where the LEAP beneficiaries invest their money. With this, the engagement of children in farming activities will be reduced thereby offering them more opportunities to be in school. An increase in children enrolment in school and education progression are expected to be influenced by household characteristics, location-specific and gender-related factors. Other channels in the theory of change of LEAP identified by Handa *et al.* (2014) are food security and investment effects.

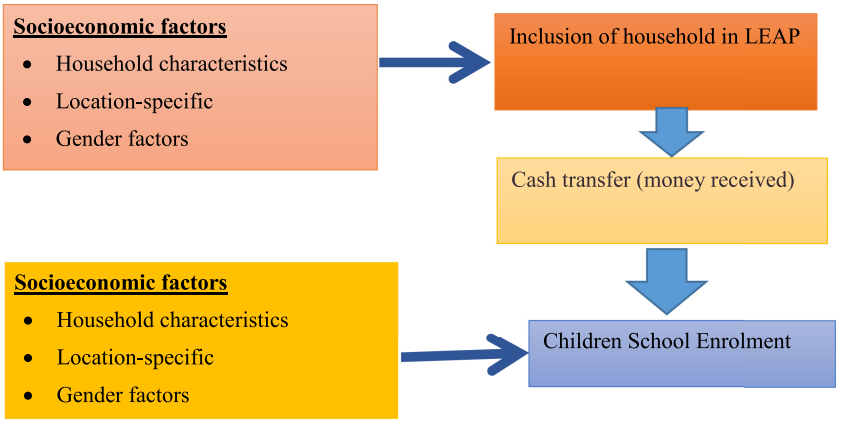


**Figure 1.**
Conceptual framework for impacts of LEAP on children education

*2.4 Data analysis*

In this study, the Welch *t*-test was used to test the difference among socioeconomic variables. To answer the first and the second research questions of this study, propensity score matching (PSM) was employed. It was employed to identify determinants of inclusion of households in LEAP as well as estimate the locational and gendered impacts of LEAP on children education enrolment.

*2.4.1 Children education enrolment.* The Household Gross Education Enrolment Index (HGEEI) was estimated to represent children education enrolment. In the UN Human Development Index report, the education index is a component of the human development index. According to United Nations Development Programme [UNDP] (2019), the education index tells the relative achievement of a country in adult literacy and combined gross enrolment in primary, secondary and tertiary education. Following the same concept, the household education index can be estimated by calculating the proportion of adult household members who are literate (can read and write) and adding it to the proportion of combined gross enrolment of household members who enrolled in primary, secondary and tertiary education. The proportion of combined gross enrolment of household members who are enrolled in primary, secondary and tertiary education is called HGEEI (UNDP, 2019). In this study, children education enrolment for a household was measured using the HGEEI.

Since LEAP was implemented in March, 2008, it is important to determine how it has impacted the HGEEI. The money received from LEAP could have been used to pay for school fees or purchase educational materials for the wards of the beneficiary households. The component on adult literacy will be difficult to attribute to LEAP since it deals with household members who have already completed school and hence the use of HGEEI in this study.

*2.4.2 Locational and gendered impacts of LEAP on children education enrolment: a PSM approach.* As indicated earlier, for decision-making variables, PSM was used to identify the determinants and estimate locational and gendered impacts of LEAP on children education enrolment. PSM is widely used for the assessment of the impact of an intervention on an outcome variable. This econometric model can compare the impacts of an intervention or a decision on the observed outcome of participants with counterfactual outcomes of non-participants (Heckman and Vytlacil, 2005). The model works on the conditional independence assumption which means that, for given observable covariates, the potential outcomes in the presence and absence of treatment do not statistically depend on each other (Takahashi and Barrett, 2013). It ensures individuals with the same observable characteristics have a positive probability of being in both groups (Heckman *et al.*, 1998). Also, the model is underpinned by the common support condition, which requires substantial similarities in covariates between treated and untreated groups (Takahashi and Barrett, 2013). This suggests that the households in the treated group and the untreated group have a common probability of being both beneficiaries and non-beneficiaries or in urban and rural areas. Matching ensures that any differences between the treatment and the control groups are not a result of differences in the matching variables.

PSM compares the treatment group with the control group and can address the obvious bias due to selection on observables (Awotide *et al.*, 2015). The selection on observables in this study is the obvious explanatory variable that forms the qualification criteria for selection into the LEAP. Therefore, PSM is able to adjust for differences in pre-treatment variables (qualification selection variables into LEAP). To deal with non-comparability between LEAP beneficiaries and non-beneficiaries, this study used PSM to match each participant with an otherwise identical non-participant based on observed pre-treatment characteristics before measuring the average differences in the HGEEI as employed by Haughton and Haughton (2011).

This technique helps to adjust for initial differences between a cross-section of beneficiaries and non-beneficiaries of LEAP by matching each unit based on similar

observable characteristics. Similarly, it can adjust for initial differences between a cross-section of rural and urban households by matching each unit based on similar observable characteristics.

PSM is a two-stage procedure. In this study, the first stage models the determinants of inclusion of households in LEAP as a choice variable using the binary logit model. After the choice modelling, the propensity score of the choices for each observation was calculated.

In this study, the matching was done, and the average treatment effect on the treated (ATT) was calculated. ATT is the mean HGEEI between the treatment group (beneficiary households) with the untreated group (non-beneficiary households) who are balanced on the propensity scores and fall within the regions of common support. The mean impacts of LEAP on the HGEEI between LEAP beneficiary and non-beneficiary households can be specified as follows:

$$\tau_i = Y_i(D_i = 1) - Y_i(D_i = 0) \tag{3}$$

where $i$ is the treatment effect (effect due to being a LEAP beneficiary), $Y$ is the HGEEI and $D_i$ is whether household $i$ has got the treatment or not (i.e. whether a household was a LEAP beneficiary or not). However, one should note that $Y_i\ (D_i = 1)$ and $Y_i\ (D_i = 0)$ cannot be observed for the same household at the same time. Depending on the position of the household in the treatment, either $Y_i\ (D_i = 1)$ or $Y_i\ (D_i = 0)$ is an unobserved outcome (called counterfactual outcome). Due to this, estimating individual treatment effect $\tau_i$s is not possible, and one has to rather estimate the average treatment effects of the population than the individual one. The $ATT$ on the treated is specified as follows:

$$ATT = E[Y_i(1) - Y_i(0)/D_i = 1] = E[Y_i(1)/D_i = 1] - E[Y_i(0)/D_i = 1] \tag{4}$$

From Equation (4), whilst outcome variable for LEAP beneficiaries, $E\,[Y_i\,(1)\,|D = 1]$ can be observed, the counterfactual outcome (had they not benefited) $E\,[Y_i\,(0)\,|D = 1]$ cannot be observed. Hence, estimating $ATT$ with Equation (4) may lead to bias estimates (Takahashi and Barrett, 2013). As already explained, since PSM relies on conditional independent and common support assumptions, Equation (4) can still give an unbiased estimate when these assumptions are met. It is important to point out that, PSM cannot correct for unobservable covariates, but it can only deal with observed characteristics to the extent that they are accurately estimated (Shiferaw *et al.*, 2014).

There is no way to get LEAP beneficiaries with the same score as its counterfactual(s) since the propensity score is a continuous variable. If household L is a LEAP beneficiary, the counterfactual is the situation when the same household L is assumed to be a non-beneficiary. Counterfactual is the expression of what has not happened but is assumed to have happened. Thus, there is the need to search for counterfactual(s) that matches each LEAP beneficiary depending on its propensity score. Over the years, researchers have used different matching methods due to sensitivity to the exact specification and matching methods (Imbens, 2004). The commonly used ones are nearest neighbour matching, Kernel matching, radius matching (caliper) and stratification matching. For robustness check, this study used nearest neighbour matching.

Table 1 depicts the measurements and *a priori* expectations of the variables expected to determine the inclusion of households in LEAP in the logit model of PSM.

## 3. Results

### *3.1 Differences in household socio-demographic characteristics*

The differences in household characteristics were tested using the Welch $t$-test. The Welch $t$-test is appropriate since the variances for rural and urban areas are unequal. Similarly, the

| Variables | Measurements | A priori expectations |
|---|---|---|
| Widowed household head | 1 = yes, 0 = otherwise | + |
| Years of education of household head | Years | − |
| Sex of household head | 1 = male, 0 = female | − |
| Age of household head | Years | + |
| Household size | Number of adults and children in a household | + |
| Number of children in school | Number of persons | + |
| Number of people with disability in household | Number of persons | + |
| Years of education of couple | Years | − |
| Household head occupation | 1 = formal, 0 = non-formal | − |
| Household size of adult | Number of persons | + |
| Number of literate adults | Number of adults in a household | − |
| Children in school enjoy government school feeding | 1 = yes, 0 = no | + |
| Total expenditure on education | Ghana cedi | + |
| Household income | Ghana cedi | − |
| Access to healthcare | 1 = yes, 0 = no | + |
| Household head has a bank account | 1 = yes, 0 = no | − |
| Number of people in a household who has a bank account | Number of persons | − |
| Amount of remittances received (Gh₵) | Ghana cedi | − |
| Christian religion | 1 = yes, 0 = no | − |
| Islamic religion | 1 = yes, 0 = no | − |
| Location | 1 = rural, 0 = urban | + |

**Table 1.**
Description of variables to be used in the models

sample size for female-headed households is not equal to that of male-headed households. Table 2 shows that the mean age of household heads in urban areas is lower than those in rural areas. Also, whilst 88% (12%) of the households in urban areas are headed by males (females), 92% (8%) in rural areas are headed by males (females). Whilst 40% of the household in urban areas have their wards enjoying school feeding programme, 38% of the households' wards enjoy school feeding in rural areas. There is a statistically significant difference between the number of households who are Christians and Muslims in rural and urban areas. As much as 88% of the households in urban areas are Christians as against 53% in rural areas. The reverse is true for those who profess the Islamic region. Whilst 23% of the households in rural areas are Muslims, only 8% in urban areas are Muslims. There are significant differences in education variables between rural and urban households. Households' heads in urban areas are more educated than those in rural areas. This is the same for their spouse. As expected, households in urban areas have twice literate adults as compared to those in rural areas. Statistically, households in urban areas spend as much as Gh₵1907.64 annually on education, and this is statistically and significantly different from Gh₵832.32 that rural households expend on annually. The number of children in rural households is much more than those in the urban household. Also, household heads in urban areas are much older than those in rural areas.

As shown in Table 2, 62 and 71% of the households in rural areas are female- and male-headed, respectively. Female household heads are much older than male household heads. The number of female-headed households (82%) who are Christian is statistically more than male-headed Christian households (61%). The reverse is the case for households who profess the Islamic religion. Female-headed households spend more years in education than their counterparts. On the other hand, the number of years of education of spouse of male-headed

| Variables | Urban-rural households | | | Male-headed-female-headed households | | |
|---|---|---|---|---|---|---|
| | Urban (210) | Rural (503) | *t*-test | Female (65) | Male (648) | *t*-test |
| Proportion of male-headed household head | 0.88 | 0.92 | 1.7* | | | |
| Enjoy school feeding | 0.4 | 0.38 | 10.0*** | 0.11 | 0.30 | 3.3*** |
| Household income (Gh¢) | 719.56 | 538.73 | 1.1 | 294.92 | 621.78 | 1.3 |
| Access to health care (yes) | 0.35 | 0.32 | 0.7 | 0.31 | 0.33 | 0.4 |
| Christianity religion (yes) | 0.88 | 0.53 | 9.4*** | 0.82 | 0.61 | 3.2*** |
| Islamic religion (yes) | 0.08 | 0.23 | 5.2*** | 0.09 | 0.18 | 1.9* |
| Employed (formal) | 0.20 | 0.09 | 4.4*** | 0.14 | 0.12 | 0.5 |
| Education years of household head | 2.78 | 0.40 | 11.2*** | 2.32 | 1.02 | 3.7*** |
| Education years of spouse | 3.40 | 0.65 | 11.7*** | 1.03 | 1.50 | 1.2 |
| Number of children in a household | 1.09 | 2.83 | 8.4*** | 0.35 | 2.52 | 6.4*** |
| Age of household head | 65.33 | 55.02 | 8.0*** | 65.43 | 57.32 | 3.8*** |
| Number of people in a household with bank account | 1.66 | 0.89 | 7.9*** | 0.48 | 1.18 | 4.4*** |
| Household head has a bank account | 0.80 | 0.40 | 10.6*** | 0.38 | 0.53 | 2.3** |
| Number of disable people in a household | 0.10 | 0.13 | 1.1 | 0.09 | 0.12 | 0.7 |
| Number of literate adults | 1.69 | 0.80 | 8.5*** | 0.58 | 1.14 | 3.4*** |
| Non-widowed household heads | 0.57 | 0.67 | 2.6*** | 0.09 | 0.70 | 10.4*** |
| Household expenditure on education | 1907.64 | 832.32 | 5.6*** | 438.82 | 1220.28 | 2.5** |
| Location (rural) | | | | 0.62 | 0.71 | 1.8* |

**Note(s):** *, **, *** are statistically significant at 10%, 5% and 1% respectively
**Source(s):** Computed from GLSS 7 dataset by authors (2019)

**Table 2.** Differences in household characteristics

household is more than that of female-headed households. Statistically, there are more literate adults in the male-headed household than female-headed households. Whilst male-headed households spend as much as Gh₵1220.28 annually on education, the female counterparts spend just Gh₵438.82.

*3.2 Determinants and locational impacts of inclusion of households in LEAP*

*3.2.1 Determinants of inclusion of households in LEAP in rural and urban areas.* Table 3 shows the factors that determine the inclusion of rural and urban households in LEAP. The estimated logit models for rural and urban areas are both statistically significant at 1% as indicated by likelihood ratio values of 207.3 and 83.7, respectively. This implies that all the explanatory variables jointly and significantly explain the variations in whether or not a household is included in LEAP. The pseudo R-square values show that 32 and 78% variations in whether or not a household is included in the LEAP programme are, respectively, explained by the variations in the explanatory variables of rural and urban households.

From Table 3, factors such as widowed household head, household size, number of people with disability, education of couple, occupation of household head, access of wards to the school feeding programme, expenditure on education, household income, number of household members with bank accounts, Christianity and Islamic religions are statistically significant in the rural area model. On the other hand, widowed household head, sex of household head, education of couple, access to healthcare services and ownership of bank accounts by household head were statistically significant in the urban area model. It is

| Variables | Rural area | | Urban area | |
|---|---|---|---|---|
| | Coefficient | *P*-Value | Coefficient | *P*-Value |
| Widowed household head | 0.3659*** | 0.0000 | 2.2362** | 0.0320 |
| Years of education of household head | –0.0336 | 0.6930 | –0.1068 | 0.7470 |
| Sex of household head | –0.1266 | 0.7840 | 6.0293* | 0.0620 |
| Age of household head | –0.0106 | 0.1690 | 0.0709 | 0.3370 |
| Household size | 0.3060*** | 0.0000 | 2.0277 | 0.2880 |
| Number of children in school | –0.0112 | 0.9850 | –1.7575 | 0.5900 |
| Number of people with disability in household | 0.7691** | 0.0450 | 0.5425 | 0.8320 |
| Years of education of couple | –0.1737** | 0.0180 | –1.3673* | 0.0760 |
| Household head occupation (1 = formal, 0 = non-formal) | 1.1767** | 0.0160 | –1.2566 | 0.6470 |
| Number of adults in the household | 0.0093 | 0.9460 | 1.5062 | 0.6300 |
| Number of literate adults | 0.0698 | 0.6360 | –2.5774 | 0.2230 |
| Children in school enjoy school feeding | 0.5074* | 0.0660 | 4.4225 | 0.2430 |
| Total expenditure on education | –0.0003*** | 0.0020 | –0.0083 | 0.1870 |
| Household income | –0.0124* | 0.0850 | 0.2418 | 0.2810 |
| Access to health care | 0.1451 | 0.5870 | 4.5645* | 0.0630 |
| Household head has a bank account | –0.7898** | 0.0210 | 33.0287*** | 0.0000 |
| Number of people in a household who has a bank account | –0.6435*** | 0.0000 | –38.3963 | . |
| Amount of remittances received (Gh¢) | –0.0003 | 0.3290 | –0.2736 | 0.2280 |
| Christian religion | –0.7868** | 0.0200 | –2.6299 | 0.7210 |
| Islamic religion | –0.8017** | 0.0270 | –4.1048 | 0.5870 |
| Constant | 0.3044 | 0.7060 | –19.8639 | 0.1240 |
| Number of observations | 503 | | 210 | |
| LR $chi^2(20)$ | 207.26*** | | 83.72*** | |
| Prob > $chi^2$ | 0.0000 | | 0.0000 | |
| Pseudo R-Square | 0.3186 | | 0.7790 | |
| Log likelihood | –221.6602 | | –11.8772 | |

**Note(s):** *, **, *** are statistically significant at 10%, 5% and 1% respectively
**Source(s):** Computed from GLSS 7 dataset by authors (2019)

**Table 3.**
Determinants of inclusion of household in LEAP in rural and urban areas

expected that a household whose head has a bank account is not a poor household and hence might not be selected to benefit from LEAP. This might be the reason why the bank account of the household head has a negative relationship with the inclusion of a member in LEAP.

*3.2.2 Locational impact of LEAP on children education enrolment.* To avoid selectivity biases, the study matched the households such that the only difference in their HGEEI was solely influenced by LEAP participation. PSM was used to balance the treatment and control groups on some covariates to ensure that LEAP participation is the major and significant difference between the groups. Table 4 shows the locational impact of LEAP on HGEEI. To

| Sample | Treated | Controls | Difference | Standard error |
|---|---|---|---|---|
| | | **Rural area** | | |
| Unmatched | 0.1677 | 0.1571 | 0.0106 | 0.0153 |
| ATT | 0.1676 | 0.1521 | 0.0155 | 0.0206 |
| | | **Urban area** | | |
| Unmatched | 0.2152 | 0.1133 | 0.1019*** | 0.0096 |
| ATT | 0.2166 | 0.1124 | 0.1042*** | 0.0109 |

**Note(s):** *** is statistically significant at 1%
**Source(s):** Computed from GLSS 7 dataset by authors (2019)

**Table 4.**
Locational impacts of LEAP on children education enrolment (HGEEI)

ensure the quality of the matching process, a diagnostic test was performed after estimating the impact of LEAP on the HGEEI. A histogram can be used to indicate the extent of matching to validate the common support condition (see Figure A1 in Appendix). The more the matching techniques can construct a resemblance of mirror image between the treated and the control group conditioned on the covariates, the more reliable the control group is to the treated group (Danso-Abbeam, 2018).

Figure A1 in Appendix shows propensity score distribution and common support for urban area households. In the graph (Figure A1), "treated on support" indicates that LEAP beneficiary households in urban areas can suitably be compared to non-beneficiary households in urban areas meaning they have similar characteristics. There was no off-support, and this suggests that the data are suitable for the use of PSM. Also, Figure A2 shows that all the propensity score values for rural area households meet the common support assumption. Therefore, LEAP beneficiary households are suitably compared with non-beneficiary LEAP households in rural areas. As shown in Table 4, whilst there is a statistically significant impact of LEAP on HGEEI in urban areas, the reverse is true for rural areas. The results confirm the hypothesis that LEAP has heterogeneous locational impacts on children education progression.

### *3.3 Determinants and gendered impacts of inclusion of households in LEAP*

#### *3.3.1 Determinants of inclusion of male-headed and female-headed households in LEAP.*

Table 5 shows the factors that explain male-headed and female-headed households' inclusion in the LEAP programme. The diagnostic test shows that 74.3 and 46.5% of the variations in

| Variables | Female-headed households | | Male-headed households | |
|---|---|---|---|---|
| | Coefficient | *P* > z | Coefficient | *P* > z |
| Widowed household head | 1.6236* | 0.0610 | 0.3596*** | 0.0000 |
| Age of household head | 0.1141* | 0.0710 | –0.0151** | 0.0410 |
| Household size | 0.2084 | 0.8220 | 0.2492*** | 0.0000 |
| Number of people with disability in household | 2.2563 | 0.5460 | 0.5868* | 0.0920 |
| Years of education of couple | –2.6712** | 0.0100 | –0.1970*** | 0.0020 |
| Household head occupation (1 = formal, 0 = non-formal) | 8.7035** | 0.0180 | 0.9867** | 0.0160 |
| Household size of adult | –3.0480 | 0.1820 | 0.0029 | 0.9800 |
| Children in school enjoy school feeding | 8.8802 | 0.2050 | 0.5114* | 0.0550 |
| Total expenditure on education | –0.0022** | 0.0280 | –0.0003*** | 0.0010 |
| Household income | –0.0073 | 0.4200 | –0.0006** | 0.0330 |
| Household head has a bank account | –5.1181** | 0.0160 | –1.7896*** | 0.0000 |
| Amount of remittances received (Gh¢) | 0.0136 | 0.1790 | –0.0002 | 0.5380 |
| Christian religion | –3.4797 | 0.2470 | –0.4829 | 0.1270 |
| Islamic religion | 7.0286 | 0.1050 | –0.7503** | 0.0310 |
| Location (rural = 1) | 12.7829** | 0.0170 | 2.1801*** | 0.0000 |
| _cons | –31.7969 | 0.0250 | –3.6988 | 0.0000 |
| Number of observations | 65 | | 648 | |
| LR chi2(15) | 65.46*** | | 415.14*** | |
| Prob > chi2 | 0.0000 | | 0.0000 | |
| Pseudo R2 | 0.7425 | | 0.4649 | |
| Log likelihood | –11.3503 | | –238.8819 | |

**Note(s):** *, **, *** are statistically significant at 10%, 5% and 1% respectively
**Source(s):** Computed from GLSS 7 dataset by authors (2019)

**Table 5.** Determinants of inclusion of male-headed and female-headed households in LEAP

the inclusion of households in the LEAP programme is explained by the explanatory variables included in female-headed and male-headed households, respectively. The joint significant effects of explanatory variables for female-headed and male-headed households are indicated by the likelihood ratio test values of 65.5 and 415.14, respectively.

The results of the study indicate that whether a household head is widowed or not, age of household head, years of education of couple, occupation of household head, ownership of bank account and location are the factors that statistically explain both inclusions of male-headed and female-headed household in the LEAP programme. Household size, number of people living with disability, wards' access to the school feeding programme, household income and Islamic religion are only statistically significant in the male-headed household logit model. Though the ages of female and male household heads are statistically significant at 10 and 5%, respectively, the sign of the coefficient in the male-headed household model does not meet the *a priori* expectation. The signs of the coefficients imply that widowed and rural households are more likely to be included in the LEAP programme for both male-headed and female-headed households than their counterparts with otherwise features. An increase in the age of a female household head by one year will result in an 11.4% increase in the probability of being included in LEAP.

*3.3.2 Gendered impact of LEAP on children education enrolment (HGEEI).* Table 6 shows the impact of LEAP on HGEEI of male and female-headed households. Figure A3 in Appendix shows that the propensity score distribution of male-headed households meets the on-support assumption. This implies that male-headed LEAP beneficiary households can be compared with their counterpart male-headed non-beneficiary LEAP households because they are all under an equal pedestal. A similar result is depicted in Figure A4 for female-headed households. As shown in Table 6, there is no statistically significant difference in the impact of LEAP on children education between male-headed beneficiaries and non-beneficiaries. On the other hand, there are significant impacts of LEAP on children education in female-headed households.

## 4. Discussions

### *4.1 Inclusion of households in LEAP*

*4.1.1 Urban against rural areas.* From the results of the study, widowed household heads, household heads with a low level of education of couple and households whose household heads who do not have bank accounts have a high probability of being included in LEAP programmes in both rural and urban areas. For rural areas, households that have large household size, more disabled people, children benefiting from a school feeding programme, less expenditure on education, low income, few members having a bank account and households belonging to religions other than Christianity and Islamic have a high probability of being included in the LEAP programme. As noted by Dako-Gyeke and Oduro (2013),

| Sample | Treated | Controls | Difference | Standard error |
|---|---|---|---|---|
| **Male-headed households** | | | | |
| Unmatched | 0.1620 | 0.1618 | 0.0001 | 0.0139 |
| ATT | 0.1622 | 0.1418 | 0.0204 | 0.0258 |
| **Female-headed households** | | | | |
| Unmatched | 0.2152 | 0.0836 | 0.1316*** | 0.0164 |
| ATT | 0.2147 | 0.0817 | 0.1330*** | 0.0173 |

**Note(s):** *** is statistically significant at 1%
**Source(s):** Computed from GLSS 7 dataset by authors (2019)

**Table 6.**
Gendered impact of LEAP on children education enrolment (HGEEI)

the number of children increases household expenditure and hence the need for their inclusion in the LEAP programme to enable them to use the cash transfer to support their wards' education.

In urban areas, male-headed households and households who have access to healthcare have a high propensity to be beneficiaries of LEAP. Men are usually decision-makers and often relegate women to the background when it comes to participation in any intervention and hence the finding that men have a higher probability of being included in the LEAP programme. Though the occupation of household head in the rural area model was statistically significant, it did not meet the *a priori* expectation.

Some of the households with low income and large family size are perceived to be poor and hence are sometimes to be annexed in the LEAP programme as extreme poverty is an eligibility criterion for selecting one to be a beneficiary of LEAP (http://leap.gov.gh/eligibility-criteria/). From the results, household heads belonging to a religion other than Christianity and Islamic were more likely to be included in LEAP than their counterparts because Christians and Muslims usually support their colleagues who are vulnerable and less privileged. Sometimes, members of these two religions form groups and contribute to support their members who are as vulnerable as a form of charity, which is enshrined in the holy books, the Bible and the Quran. The messages that are preached also admonish their members to work hard. An increase in the number of children in a household increases household expenditure, which makes households incapable of meeting basic needs, such as education, health, food and shelter, and thereby require external support, such as LEAP. One of the eligibility criteria for inclusion in the LEAP programme is having vulnerable people, such as people with disability. Therefore, as shown in the results, households with more disabled people are more likely to be included in the LEAP programme in rural areas.

*4.1.2 Gender dynamics in the inclusion of households in LEAP.* As indicated in the results in Table 5, the probability of female household heads being included in LEAP increases with increasing age. This finding corroborates the findings of Amuzu *et al.* (2010) that elderly people are the target for the LEAP programme. Also, both male and female household heads without bank accounts have a higher likelihood of being included in the LEAP programme than their counterparts with bank accounts. The magnitudes and signs of the coefficients mean that male-headed and female-headed households who own bank account are, respectively, 179.0 and 511.8% less likely to be annexed in LEAP than those without. Having a bank account suggests that one is relatively financially included and hence need not be a beneficiary of LEAP, a social intervention programme meant for the extremely poor in society. Most at times, widowed and aged household heads are vulnerable and hence meet the criteria for selection into LEAP. Also, the results in Table 5 show that female-headed and male-headed households in rural areas are, respectively, 127.8 and 218.0% more likely to be included in the LEAP programme than their counterparts in urban areas.

Households with large family sizes have many dependents to feed. This incapacitates the household head from being able to take proper care of the children. This sometimes results in school dropouts, social vices and hence calls for their inclusion in the LEAP programme. The disability of household members is also one of the cardinal selection criteria for one's inclusion in LEAP. It is not however surprising that as the number of disable persons in a male-headed household increases by 1 person, the probability of the household being included in LEAP increases by 59%. This is in line with the assertion by Amuzu *et al.* (2010) that LEAP targets caregivers of orphans and vulnerable children (OVC), people living with disabilities (PWD) and the elderly. Male-headed households whose children benefit from the school feeding programme have a 51% probability of being included in the LEAP programme compared to those whose children do not benefit. As noted by Abebrese (2011), the Ghana school feeding programme was introduced in 2005 to encourage poor people to enrol their wards in school. If a male-headed household income increases by GH₵1.00 (US$

0.18), the household has a 0.06% probability of being excluded from the LEAP programme. Male-headed households of other religions than Islam have 75% more probability to be annexed in LEAP than their counterparts.

*4.2 Spatial and gender impacts of LEAP on children education enrolment*

The HGEEI in urban areas has increased by 10.4% due to inclusion in LEAP. This means that LEAP beneficiary households would have attained 10.4% HGEEI lower if they had not been included in the programme. This is a clear indication that the difference in characteristics of rural households is not so wide as compared to urban households. Generally, the income inequality in rural areas is always narrower than that of urban areas. Hence, the impact of LEAP on urban poor is much higher than rural poor. As noted by Sackey (2019), LEAP is bedevilled with irregularities, such as insufficiency of the cash amount given and difficulty in accessing the complementary services, and these irregularities have reduced the impact of the programme on the beneficiaries. It is important to note that beyond access to education, poor households, who are beneficiaries of LEAP, use the money received to purchase required educational materials (Dako-Gyeke and Oduro, 2013).

The study found that, although male-headed households had an increase of HGEEI due to their inclusion in LEAP, this increase was not statistically significant. In the case of female-headed households, the increase in the HGEEI due to their inclusion as against exclusion was statistically significant at 1%. Female-headed households included in LEAP would have had their HGEEI reduced by 13.3% if they had not been beneficiaries of LEAP. The positive impact of LEAP on children education enrolment of female-headed households is a confirmation of the assertion by Owusu-Addo (2016) that the money received by LEAP beneficiaries can be used to support their wards education. It also confirms the work of Kilburn *et al.* (2020) that social protection interventions can improve the lives of young women.

## 5. Conclusions and recommendations

The results from this paper established that different factors determine the inclusion of households in LEAP in rural and urban areas. It can also be concluded that different factors explain the gendered inclusion of households in LEAP. There is no doubt as established in this paper which also confirmed the previous studies that LEAP in Ghana has impacts on education. The uniqueness of the current study is that LEAP has heterogeneous gender impacts as well as special heterogeneous impacts. The impact of LEAP on children's education is 10.4% higher in urban areas than in rural areas. This implies that LEAP has more impacts on children education in urban areas than in rural areas. Also, female-headed households are better at using the cash received from LEAP to take care of their wards' education than male-headed households. Perhaps, women are relatively good managers and do not spend the money on drinking and other activities that directly do not benefit the entire household as compared to their men counterparts.

The selection of either female-headed or male-headed households to be included in LEAP should be based on widowhood or widower hood. Meanwhile, following the key findings and conclusions, it is therefore recommended that different selection criteria should be used in selecting urban and rural poor, aged and vulnerable households for inclusion in LEAP. For instance, the unavailability of schools with government feeding programmes should be included in selecting rural households. Female-headed households should be prioritised for benefiting from LEAP since they are better at using the cash received to take care of their wards' education than males.

It is also recommended that LEAP beneficiary households should be empowered in their existing economic activities to enable them to increase households' income to supplement the

cash received to support their children's education. The social welfare department disbursing the LEAP funds in rural areas should intensify education on the need for LEAP beneficiary households to enrol their wards in schools. The compulsory component of the Free and Compulsory Universal Basic Education (FCUBE) programme should be enforced, especially in rural areas.

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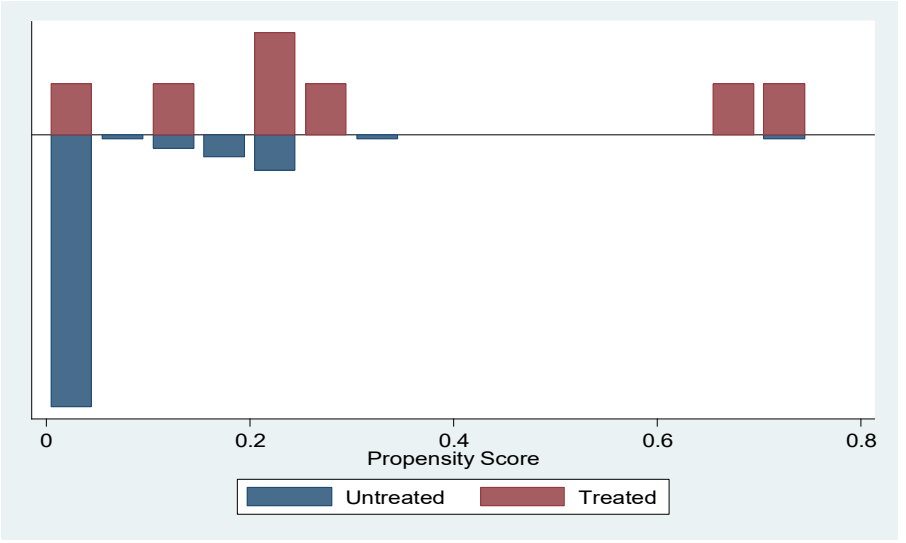
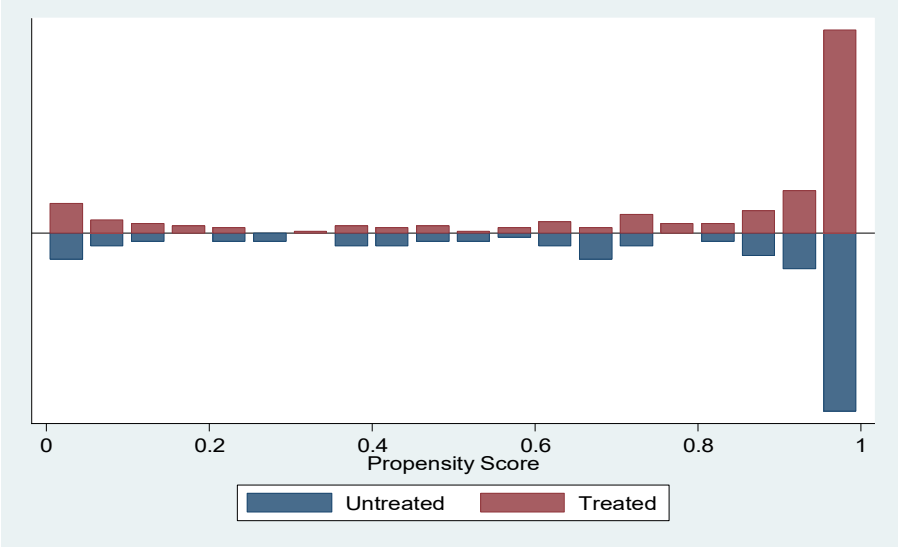
## Appendix




**Note(s):** The treated meets on support assumption and hence urban LEAP beneficiary households have a suitable comparison group (urban non-beneficiary LEAP households). There was no off-support

**Figure A1.** Urban area propensity score distribution and common support




**Note(s):** Treated: On support indicates LEAP beneficiary households in rural areas have a suitable comparison group (non-beneficiary LEAP households in rural areas). There was no off-support

**Figure A2.** Propensity score distribution and common support for rural area households

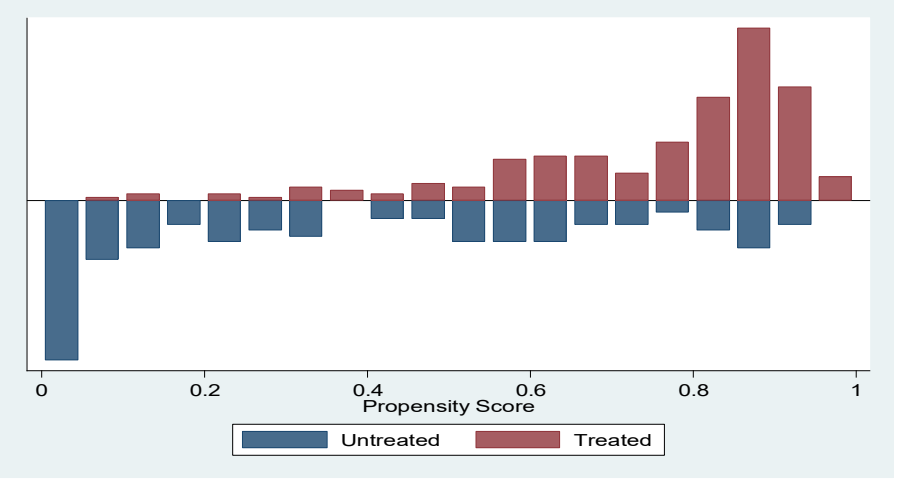



**Figure A3.**
Propensity score distribution of male-headed households and common support

**Note(s):** The treated group meet on support assumption and hence male-headed LEAP beneficiary households have a suitable comparison with their counterpart male-headed non-beneficiary LEAP households. There was no off-support

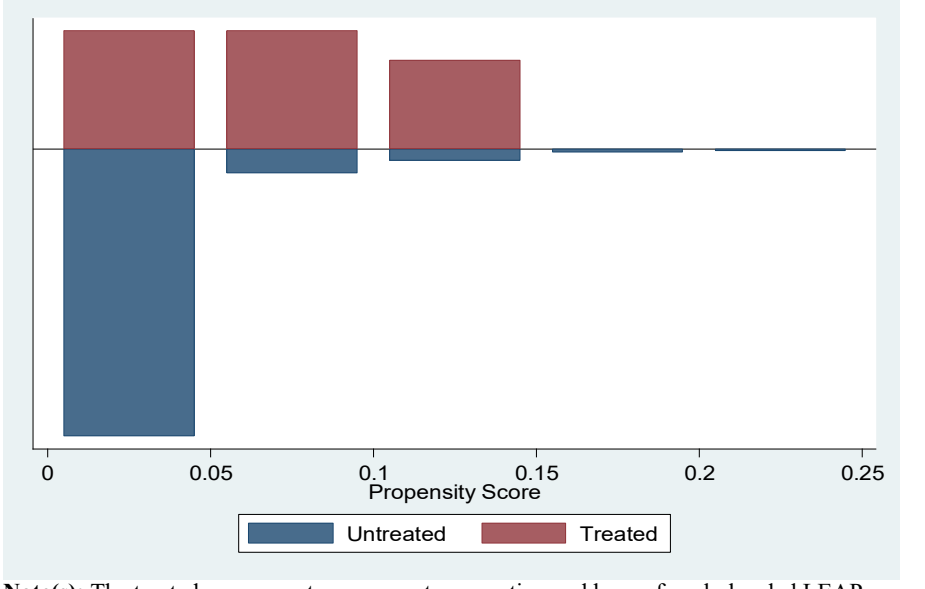



**Figure A4.**
Propensity score distribution of female-headed households and common support

**Note(s):** The treated group meets on support assumption and hence female-headed LEAP beneficiary households have a suitable comparison with their counterpart female-headed non-beneficiary LEAP households. There was no off-support