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# Impact of Rural Electrification on Ugandan Women Empowerment: Evidence from Micro-data

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## To cite this article:

Niyonshuti Emmanuel, Kwitonda Japhet. Impact of Rural Electrification on Ugandan Women Empowerment: Evidence from Micro-data. *International Journal of Economy, Energy and Environment*. Vol. 7, No. 1, 2022, pp. 24-31. doi: 10.11648/j.ijeee.20220701.13

**Received:** April 3, 2021; **Accepted:** April 16, 2021; **Published:** January 24, 2022

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**Abstract:** Access to electricity has been revealed to fast-track occasions for women by moving them into more profitable exercises, however whether development in financial results likewise norms from change gender standards and practices inside the family unit stays indistinct. This study analyses the linkages between electricity access and women strengthening, utilizing two waves 2010/2011 and 2011/2012 panel data from the Uganda Bureau of Statistics (UBS). Based on Fixed Effect models, the study revealed that electricity access improves all indicators of women's strengthening. The results showed that income and assets values are higher in Electricity users compared to Household with no access to electricity, the total hours used up in those home-based accomplishments are less for Electricity users compare to electricity non-users and electricity users are more likely to use contraception methods. This study suggests that electric energy access can be a significant for policy makers aimed improving the equity and gender equality for social transformation.

**Keywords:** Uganda, Rural Electrification, Micro-data, Fixed-effects, Women Empowerment

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## 1. Introduction

Today, 770 million people have no access to electricity and hundreds of millions live with unreliable access to it. People with access to electricity increased from 1990, around 71% of the world's population had access to electricity, then increased to 86% in 2016 which means that 13% of the world didn't have access to electricity in 2016 [1] (IEA, 2016). However the progress remain uneven as 75% of people who can't access live in sub Saharan, where Uganda our country of interest belongs too. Distinguishing the noteworthiness of women strengthening, the United Nation notwithstanding "Accomplish sex fairness and engage all ladies and young ladies" in its 17 Sustainable Development Goals. The absence of electricity access is experienced particularly by individuals and includes various outcomes. The comparable applies for admittance to electricity which impacts ladies and men in fluctuating manners. Toward the beginning of the 1970s, rural electricity access was viewed as a critical need and the aftereffects of its mediations were believed to be a preferred position for the family units all in all, to construct occupations and to improve family well-being. In any case,

concerns were raised about the impacts of remote area electricity access on earnings and family well-being during the 1980s, linkages that had been set up between remote area electricity access and poverty lightening, preparing, prosperity, earnings and business must be minded.

The policy in Uganda has been to give electricity to those communities that are progressively gainful and all the more densely populated, however to urge all households to connect to the grid once it is accessible in the community. Uganda's Rural Electricity access Project (REP) has the objective of accomplishing a 10% rural electricity access rate, a net increment of 400,000 households, by 2015. The essential goal was to decrease imbalances in access to electricity and associated opportunities for expanded social welfare, education, health, wellbeing, and income generation [2].

Empirically, electricity access disproportionately benefits ladies and young ladies, like [3] in south Africa has found that access to electricity in rural areas has raised women employment in their community by 9.5% because it released them from domestic activities and allow them to participate in microenterprises; another study in [4] demonstrates that access to reliable electricity allow rural

women to work outside home by 23% due to more efficient home production in the form of lighting and modern cooking appliances, improving these basics conditions will allow women to participate in local economy whereas informed individuals, Healthy, safe, are more appropriate to be productive.

The study done by [5, 3] in South Africa about the contribution of women through adoption of electricity access opportunity showed that women employment increase by 9.5% on IV results. The study showed that adoption of electricity increase work especially on the intensive margin for women. This is because in districts with the average increase in electricity access over the period (15 percent), women work about 8.9 more hours per week, a 3.5 percent increase. On other side, the study showed that male employment rises are insignificantly in electrifying areas, although to a lesser degree than for females [6].

In Nicaragua, electric energy caused a day by day efficient in gathering fuel of around 60 minutes (ladies: 45 minutes, men 65 minutes) where men invested twice as much energy in this movement than ladies before electric energy access [7]. In this last case, the move in cooking advancement was a documented explanation for the decline in drudgery, while in the Nicaraguan case the makers suggest that the reduced time used to assemble fuel might be associated with a creating take-up of gas cooker [7].

In the Philippines, there was the significant reduction in total drudgery (firewood included) by one hour per day. In certain states in India, where women without electricity spent twice as much time collecting fuel as men spent on this activity, both genders decreased their time allocated by 3.3 hours per month [8].

In Afghanistan women said that their daughters would support them in the nightfall (carpet weaving and other chores) and go to school during daytime as a result of the coming of the electric light [9]. Likewise, an econometric study from India proposed that a reallocation of girls' home duties from daytime to the evenings resulted to girls' increased enrolment in school, by this means reducing parents' opportunity cost of sending their daughters to school [10]. In contrast, girls in Madagascar the electricity access didn't change the degree to what they help their mothers, but with their study time reallocation from daytime to the evenings, when they would get help from their parents [11]. Lastly, as new technologies turn out to be available the 'gender' of traditional practices may change and in turn lead to more interest of time-saving technologies, Some men engaging in cooking and ironing as result of the introduction of electric appliances from the two studies from South Africa [5] women in Bangladesh reportedly increased their income by 0.44% USD per year by using electrified tools for income generating activities [12] On other side, In study done in two Indian cases showed that electrification did not affect women's income as indicated by outcome found by [13].

Women empowerment do not only provided by financial

support towards electricity access but also the way of getting opportunities to the other services. The review of literature made on lighting service showed that it is men slightly than women who have a tendency to choose on and be accountable for payments to the grid and they demonstrated also that a reduction of domestic activities promote women to watch television and use mobile phones and finally they gain enough time to relax and to interact with others [14]. Women and men tend to improve their communication [13]. Electricity also will facilitate women's mobility outdoors because it will stimulate security around homesteads [15].

Finally, other study has shown that access to electricity also benefits the women who tried to create such business. These include hairdressing, ironing services, phone charging and other private businesses based on electronic devices. These help those to move from extreme poverty as demonstrated inside regions associated by a small scale grid organization in Ghana [16]. Current literature made by different researchers had only evaluated accessibility to grid electricity services and micro enterprise development, drivers and obstructions to rural electrification, influences of access to electrical energy to rural enterprises. However, their research did not cover entire continent towards women empowerment in family unity through electricity access especially in Sub-Saharan Africa countries like Uganda, Kenya, Rwanda, and others. Little has been done to identify the impact of electrification to the women empowerment in rural family units. Therefore, this study on Uganda attempts to channel such knowledge gap in literature and it will consider women's empowerment as a procedure towards gender equality, hence this will be a concept that requires analytic consideration regarding to females and males.

## 2. Research Methods

### 2.1. Modelling

To achieve our objective and derive the linkage between Electricity access and Women Empowerment for achieve the study objective we estimate the following equation since there are repeated observations both at the household and community level, we will use a fixed-effects (FE) method to estimation Evaluating the effect of electrification on women empowerment includes estimating the following conditional outcome equation

$$Y_{\pi t} = \alpha^y_{\pi} + \beta^y X_{\pi t} + \gamma^y V_{\pi t} + \delta E_{\pi t} + \varepsilon^y_{\pi t} \quad (1)$$

The above equation for fixed effects (community and survey year), Where  $Y_{\pi t}$  is outcome variables of interest (Household assets, Household income, Formal education for female, Number of hours spent in home activities, Number of hours spent on fetching water, Number of hours spent on farming activities, number of hours spent in firewood collection and lastly Contraception adopt to use) of a given household from the community or village. The term  $\pi$  is a community fixed

effects while  $t$  denotes for survey year fixed effect. The community effect absorbs all time invariant observable and unobservable village attributes that could affect electricity access in the community these may include social norm, distance from household to grid. On the other hand, the year fixed effect is being used to account for time varying characteristics which can influence Electricity access. Another variable of interest  $E_{\pi t}$  (Whether a household have electricity or not). The model contains also the time varying household and community characteristics represented by  $X_{\pi t}$  and  $V_{\pi t}$  respectively. The household characteristics include (Age of the household Head, age of Woman/wife within the household, Household size, Gender of the household head, Household location Urban/rural and the number of Dependence) and  $\varepsilon_{\pi t}^y$  is unobserved factors affecting the women empowerment indicator  $Y_{\pi t}$ .

2.2. Data Source

This study consists of examining the link between electricity access and women empowerment we used Two waves (2010/11, 2011/12) information. The UNPS is implemented by Uganda Bureau of Statistics (UBS) with support of World Bank Living Standard Measurement Study. For the household level examination, aggregate community level panel dataset is built from 2010 up to 2018 Uganda statistics information from Human Development Surveys (HDS), which were mutually completed by analysts from the Uganda National Household Survey (UNHS) in Kampala, for this study we use the sample of 4015 households that have been surveyed between 2010 and 2012. In wave one the number of surveyed household was 1555 and in wave two it was 2460.

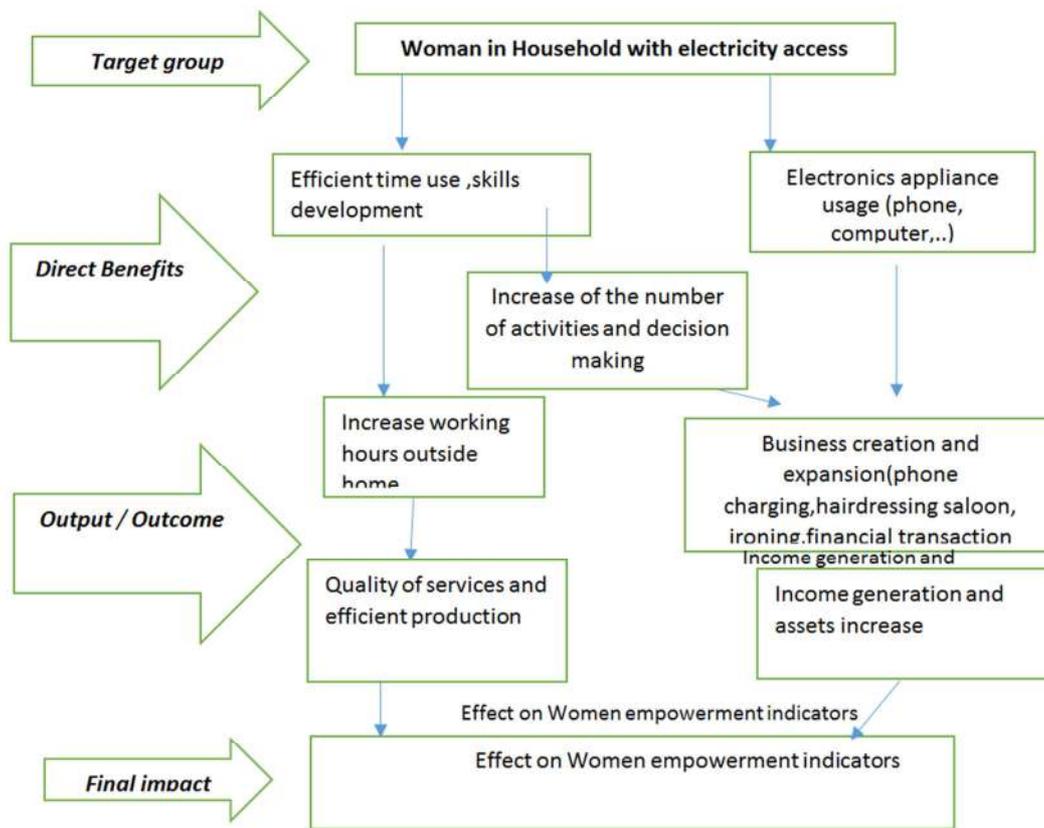


Figure 1. Theory of Change from Electricity to Women empowerment.

3. Result and Discussions

3.1. Descriptive Statistics

Table 1 present Mean values attributes of electricity users and non-users in rural Uganda for all waves (2010/11 and 2011/12) and Average values of the key variables respectively used in this study. As shown in table it provides more details descriptive statistics of household characteristics (Age of the household Head, age of Woman/wife within the household, Household size, Gender of the household head, Household location Urban/rural and the number of

Dependence) and outcomes variables (Household assets, Household income, Formal education for female, Number of hours spent in home activities, Number of hours spent on fetching water, Number of hours spent on farming activities, number of hours spent in firewood collection and lastly Contraception use adopt). In wave 1 the average of the age of household was 41 for non-users of electricity and 43 for users while in wave2 the average for users was 43 and for the non-users was 47; this illustrates that an increase in age of the head of the household will lead to a decrease of access to electricity. Same way for the age of woman or wife within the Household in wave one for electricity users the average was 35 and 37 for non-users while in wave two the average

was 38 for electricity users and 42 for non-users. dependence is the ration between household size over the number of children born within the Household it shows that the average number of dependence will increase by 0.5 point percentage and by 0.69 point percentage in wave one and for wave two it will increase by 0.38 point percentage in electricity users household and by 0.54 point percentage in non-users, it illustrates that having access electricity will depend on less number of dependants within the Household. Women who live in households in urban regions are more likely to use electricity as show in wave one the chance of access to electricity living in urban areas has increased by 0.73 point percentage and by 0.15 for non-users which is the same case in wave two where the chance of access to electricity living in urban areas has increased by 0.68 point percentage and 0.14 point percentage for non-users of electricity. Women who live electrified households are more likely to have both higher total household income and total household assets value, total average annual income in wave 1 for electricity users' households is higher (3536USD) and lower for

electricity non users (1137USD) and in wave 2 for electricity users the average of asset value is (3914USD) while in non-users it is (805USD). For Assets to the electricity users Household in wave one the average of value of asset is (45420USD) and (7283USD) for non-users. Women are more likely to have no formal education if they have no access to electricity as shown it he table it has increased by 0.16 point percentage for electricity users and by 0.17 point percentage for electricity non users. The number of hours working in different home activities such as fetching water, firewood collection, food processing and other domestics activities women in electricity users spends less hours than the ones in non- electricity users because they spend more time in some other income earning activities. women are slightly more likely to use contraception in wave one by 0.44 point percentage if they reside in households with access to electricity and by 0.33 point percentage if they have no access to electricity w, the same in wave the users the probability of using contraception will increase by 0.43 point percentage while for non-users will increase by 0.31.

**Table 1.** Mean values attributes of electricity users and non-users in rural Uganda.

Variables	Wave 1 (2010/2011)			Wave 2 (2011/2012)		
	users	non-users	T-test	users	non-users	T-test
Women empowerment indicators						
Household assets/UGX	77500000	12400000	-7.63	69200000	13800000	-13.26
Total household income/UGX	6035965	1941235	-6.96	9439790	1942684	-15.63
Household assets/USD	45420	7283	-7.63	28710	5727	-13.26
Total household income/USD	3536	1137	-6.96	3914	805	-15.63
No formal education for female	0.16	0.17	0.15	0.20	0.17	-1.27
hours in domestics activities	15.21	16.55	1.41	14.95	14.46	-0.63
hours in fetching water	1.32	5.18	7.89	1.28	3.70	7.92
hours in farming activities	1.72	8.71	7.86	1.88	10.02	10.37
hours in firewood collection	0.17	2.19	10.45	0.25	2.23	10.10
hours in food processing	0.00	0.54	3.43	0.20	0.78	3.97
contraception use	0.44	0.33	-2.96	0.43	0.31	-3.72
Household characteristics Variables						
Age of the household head	41.17	43.25	2.04	43.85	47.66	4.17
Age of the woman in household	35.41	37.59	2.33	38.56	42.69	4.35
gender of household head	0.74	0.73	-0.36	0.72	0.69	-0.75
household location Urban or rural	0.73	0.15	-20.55	0.68	0.14	-23.94
Dependence rate	0.50	0.69	5.09	0.38	0.54	5.23
Number of households	1555			2460		

### 3.2. Analytical Results

The result from table 2 to table 4 as well as all figure describe the Equation (1) results, the results are summarized into 3 parts first is electricity access on household assets and income in (4.1) with assets (1) and income (2), second is Electricity access and time allocation in (4.2) which presents the number of hours spent in home activities, fetching water (1), farming activities (2) firewood collection (3), food processing (4) and other domestic activities (5) association with electricity access using fixed effect as has been described in equation (1) and the third electricity access with contraception use in (4.3) which describe the association of electricity access and contraception method adopt.

#### 3.2.1. Access to Electricity on Household Assets and Income

From table 3 reports that when the household use the electricity the total estimated value of all the assets owned by the household is increased by 100.0 points percentage and 89.8 points percentage increase in household's income, With one addition year on household head age is associated with significantly an increase of 1.3 point percentage in the total estimated value of asset but with the decline in the income for household by 0.1 point percentage while one additional year on the age of the spouse within the household is associated with an increase of 0.9 point percentage on the total household's asset with a decrease of 0.1 point percentage on the household's total income, also one unit increase on the total number of household

members is associated with the significantly rise of 15.1 points percentage on the household's total asset with a significantly increase of 12.5 points percentage on the household's total income.

Not surprisingly, The household head with no formal basic education is associated with the decrease of 18.6 points percentage in total estimated value of the household's assets and is also associated with the decrease of 10.2 points percentage in the household's total income, If the household head is female there was a significantly increase of 57.7 points percentage on the household's total assets and is associated with an increase of 4.2 points percentage on the household's total income and hence this implies directly the

women empowerment with in the household, as expected with the households living in the urban areas this was associated with the increase of 5.6 points percentage on the total estimated value of household asset and there was associate with a significantly increase of 28.5 points percentage on the household's total income. With an increase of one dependent on the household's dependence (the proportion of the number of children to the total household size) this is associated with a significantly decline of 26.3 points percentage on the household's total asset and this is also associated with a significantly decline of 12.2 points percentage in the household's total income.

*Table 2. Access to electricity, household assets and income.*

VARIABLES	(1)	(2)
Household with electricity access (yes=1)	1.000*** (0.126)	0.898*** (0.109)
Age of household head	0.013*** (0.005)	-0.001 (0.005)
Age of spouse within household	0.009 (0.005)	-0.001 (0.005)
Number of Household member	0.151*** (0.010)	0.125*** (0.009)
Gender of the household head	0.577*** (0.090)	0.042 (0.076)
Formal education for women (no formal=1)	-0.186** (0.086)	-0.102 (0.078)
Location of the household (urban=1)	0.056 (0.105)	0.285*** (0.090)
Dependence	-0.263*** (0.081)	-0.122** (0.060)
Constant	5.183*** (0.158)	5.015*** (0.137)
Survey year FE	YES	YES
Ethnicity FE	YES	YES
Observations	3,457	3,457
R-squared	0.256	0.199

Source: Author's computation based on UNPS data for (2010/2011) and (2011/2012)

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

*Table 3. Electricity access and time allocation for woman in the household.*

	(1)	(2)	(3)	(4)	(5)
Household with electricity access (yes=1)	-0.372*** (0.049)	-0.629*** (0.070)	-0.351*** (0.034)	-0.037** (0.018)	-0.021 (0.066)
Age of household head	-0.002 (0.002)	0.004 (0.004)	-0.003 (0.002)	0.000 (0.001)	-0.002 (0.003)
Age of spouse within household	-0.013*** (0.003)	-0.003 (0.004)	-0.002 (0.002)	0.000 (0.002)	-0.010*** (0.003)
Number of Household member	-0.035*** (0.005)	0.033*** (0.008)	-0.008** (0.004)	0.002 (0.003)	0.004 (0.006)
Gender of the household head	0.131*** (0.046)	0.106 (0.068)	0.156*** (0.036)	0.031 (0.026)	0.109** (0.052)
Formal education for women (no formal=1)	-0.098** (0.043)	-0.034 (0.065)	-0.038 (0.034)	-0.058** (0.025)	0.046 (0.054)
Location of the household (urban=1)	-0.117*** (0.044)	-0.798*** (0.063)	-0.514*** (0.033)	-0.061*** (0.021)	-0.155*** (0.054)
dependence	0.122*** (0.031)	0.183*** (0.051)	0.120*** (0.027)	0.010 (0.018)	0.237*** (0.039)
Constant	1.925*** (0.079)	1.044*** (0.122)	1.006*** (0.064)	0.191*** (0.043)	2.700*** (0.096)

	(1)	(2)	(3)	(4)	(5)
Survey year FE	YES	YES	YES	YES	YES
Ethnicity FE	YES	YES	YES	YES	YES
Observations	3,457	3,457	3,457	3,457	3,457
R-squared	0.276	0.205	0.233	0.134	0.075

Source: Author's computation based on UNPS data for (2010/2011) and (2011/2012)

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

### 3.2.2. Access to Electricity and Time Allocation in Uganda

With the Ethnicity and survey year fixed effects, there leftovers a strong restrictive link between period used up in some activities and furthestmost useful with income generating accomplishments and family unit electricity access status.

Table 3 represents that, household consuming electric energy is accompanying with 2.1 point percentage decrease in hours spent by rural women on home activities, this electricity access for the household is associated with a decline of 37.2 point percentage in hours spent on fetching water and the household with electricity access was associated with a decrease of 62.9 percentage on hours spent in farming activities and the electricity access for the household was associated with a decline of 3.7 point percentage in hours spent on food processing while the household with electricity access was associated with a decrease of 35.1 point percentage in hours allocated for fire woods collection, ceteris paribus hold the study revealed that that electricity access is related with a generous decrease in time spent collection of firewood agree with those found by the other authors Heltberg (2003) and Heltberg (2004). As well, Dinkleman (2011) finds that electricity access in KwaZulu-Natal triggered a decline in the usage of wood for food preparation. From table 3 above represents that on more year additional on the age of household is associated with 0.2 point percentage decline in the hours spent on fetching water and this one year additional to the age of household is also associated with the increase of 0.4 point percentage on the time hours spent on farming activities and this one year additional is also associated with the decrease of 0.3 point percentage in the time hours spent on firewood collection and also associated with the decline of 0.2point percentage on the time hours spent in home activities while the one year additional to the age of household head has no effect on the time hours spent in food processing ceteris paribus hold. From table 3 reports that on more year additional on the age of spouse within household is associated with significantly decline of 1.3 point percentage decline in the hours spent on fetching water and this one year additional to the age of household is also associated with the decrease of 0.3 point percentage on the time hours spent on farming activities and this one year additional is also associated with the decrease of 0.2 point percentage in the time hours spent on firewood collection and also associated with a significantly decline of 1.0 point percentage on the time hours spent in home activities while the one year additional to the age of spouse within household has no effect on the time hours spent in food processing, ceteris paribus hold.

From table 3 reports that on more additional member on the total numeral of family unit members within household is associated with significantly decline of 3.5 point percentage decline in the hours spent on fetching water and this one additional member on the number of household members is also associated with the significantly increase of 3.3 point percentage on the time hours spent on farming activities and this one additional member on the number of household members is also associated with the significantly decrease of 0.8 point percentage in the time hours spent on firewood collection and also associated with an increase of 0.4 point percentage on the time hours spent in home activities while the one additional member on the number of household members has an increasing effect of 0.2 point percentage on the time hours spent in food processing, ceteris paribus hold. From table 3 reports that when household is headed by female is associated with significantly incline of 13.1 point percentage decline in the hours spent on fetching water and this household which is headed by female is also associated with the increase of 10.6 point percentage on the time hours spent on farming activities and this household which is headed by female is also associated with the significantly incline of 15.6 point percentage in the time hours spent on firewood collection and also associated with a significantly increase of 10.9 point percentage on the time hours spent in home activities while the household which is headed by female has an increasing effect of 3.1 point percentage on the time hours spent in food processing, ceteris paribus hold.

From table 3 shows that when household headed has no formal basic education is associated with significantly decline of 9.8 point percentage decline in the hours spent on fetching water and when household headed has no formal basic education is also associated with the decrease of 3.4 point percentage on the time hours spent on farming activities and this household headed with no formal basic education is also associated with the significantly decrease of 3.8 point percentage in the time hours spent on firewood collection and also associated with an increase of 4.6 point percentage on the time hours spent in home activities while household headed with no formal basic education has a significantly increasing effect of 5.8 point percentage on the time hours spent in food processing, ceteris paribus hold.

From table 3 shows that when household lives in the urban location is associated with significantly decline of 11.7 point percentage decline in the hours spent on fetching water and when household lives in the urban location is also associated with the significantly decrease of 79.8 point percentage on the time hours spent on farming activities and this household

living in the urban location is also associated with the significantly decrease of 51.4 point percentage in the time hours spent on firewood collection and also associated with a significantly decrease of 15.5 point percentage on the time hours spent in home activities while household living in the urban location has a significantly decreasing effect of 6.1 point percentage on the time hours spent in food processing, *ceteris paribus* hold.

From table 3 shows that one more additional dependent on household dependence in the urban location is associated with significantly increase of 12.2 point percentage decline in the hours spent on fetching water and when one more additional dependent on household dependence is also associated with the significantly increase of 18.3 point percentage on the time hours spent on farming activities and this one more additional dependent on household dependence is also associated with the significantly increase of 12.0 point percentage in the time hours spent on firewood collection and also associated with a significantly increase of 23.7 point percentage on the time hours spent in home activities while one more additional dependent on household dependence has a significantly increasing effect of 1.0 point percentage on the time hours spent in food processing, *ceteris paribus* hold.

### 3.2.3. Electricity Access and Contraception Use

*Table 4. Electricity access and contraception use.*

	(1)
Household with electricity access (yes=1)	0.074** (0.032)
Age of household head	-0.005*** (0.001)
Age of spouse within household	-0.004*** (0.001)
Number of Household member	0.009*** (0.003)
Gender of the household head	0.103*** (0.024)
Formal education for (no formal=1)	-0.028 (0.022)
Location of the household (urban=1)	0.089*** (0.026)
Dependence	0.086*** (0.018)
Constant	0.486*** (0.043)
Survey year FE	YES
Ethnicity FE	YES
Observations	3,092
R-squared	0.112

Source: Author's computation based on UNPS data for (2010/2011) and (2011/2012)

Robust standard errors in parentheses

\*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ .

From table 4 represents correlation between access of electricity and use of contraception the results of our study have highlighted the likelihood of contraception use among electricity users' vs. non electricity users. This could be explained by the access to health information from mass media (TV, Radios.) in addition to other public health education provided to general

population where non-electricity users belong. This was also further described in the Rwanda Demographic and Health Survey (RDHS-2015) showing mass media as a positive factor towards contraception use. The woman within household with electricity access is more like to use contraception method hence the reduce dependence (proportion of number of children to the total household size) since the high dependence leads to the increased numeral total hours over by that woman in different activities especially in-home activities.

From table 4 represents that one more year additional on the age of household head is associated with a significantly less likelihood to use contraception method by 0.5 point percentage, and the one more year additional on the age of spouse within household is associated with a significantly less likelihood to use contraception method by 0.4 point percentage, whereas one additional member on the household members within household is associated with a significantly more likelihood to use contraception method by 0.9 point percentage, worthwhile the household which is headed by a female is associated with a significantly more likelihood to use contraception method by 10.3 point percentage, but also when the household head has a formal basic education is associated with a less likelihood to use contraception method by 2.8 point percentage, while when the household lives in the urban location is associated with a significantly more likelihood to use contraception method by 8.9 point percentage and one additional dependent on the household dependence is associated with a significantly more likelihood to use contraception method by 8.6 point percentage hence the above outcomes give proof that accessing power positively affects all indicators for women's empowerment, *ceteris paribus* hold.

## 4. Conclusions

This study examines at the causal connection between admittance to electricity and women' strengthening utilizing an enormous gender disaggregated panel data collection from the Uganda. It shows that women in the households with access to electricity will not focus only in domestics activities such as cooking, raising kids, but she will be able to go and work outside home in other generating income activities such as hairdressing, phone charging, ironing services, she will also benefits having electricity in her home and find time to do extra hours and educating her children, by using phone and television she will get information easily and find time for leisure and relaxation which will allow good communication between household members, it will also save time for young ladies and ladies to seek after scholastic open doors as evidently the advancement of lady in Africa is altogether hindered by the overburden of home accomplishments. The additional time could then be spent grinding away through independent work or job creation which will lead to her economic development, to her household member as well as to her community. Women empowerment is essential in our community because when is empowered the society will be empowered. As recommendation this study suggests to consider woman

within Household by providing electricity because there will be a big change after as seen in the study results.

## Conflict of Interest

The authors declared that the study was carried out with any monetary and commercial relationships that might be the major source of conflict of interest.

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## References

- [1] "Data and projections of access to electricity," EIA, 2016.
- [2] Kelkar, G., and D. Nathan., "Gender Relations and the Energy Transition in Rural Asia. Report to DFID, KaR R 8346: Gender as a key variable in energy. New Delhi:," UNIFEM, South Asia Regional Office, new delhi, 2005.
- [3] T. Dinkelmann, "The Effects of Rural Electrification on Employment: New Evidence from South Africa.," *American Economic Review* 101 (7): doi: 10.1257/aer.101.7.3078, p. 3078–3108, 2011.
- [4] Salehi-Isfahani, D., and S. Taghvatalab., "Rural Electrification and Female Empowerment in Iran: Decline in Fertility.," in *IIEA Annual Conference, Boston College, October 2014*, Boston, 2014.
- [5] W. Annecke, "Whose turn is it to cook tonight? Changing gender relations in a South African township.," Collaborative Research Group on Gender and Energy (CRGGE)/the ENERGIA International Network on Gender and Sustainable Energy, 2005.
- [6] A. Panjwani, "Energy as a Key Variable in Promoting Gender Equality and Empowering Women: A Gender and Energy Perspective on MDG #3. [http://r4d.dfid.gov.uk/PDF/Outputs/Energy/R8346\\_mdg\\_goal3.pdf](http://r4d.dfid.gov.uk/PDF/Outputs/Energy/R8346_mdg_goal3.pdf) (2013-05-06).," p. Discussion Paper., 2013.
- [7] Grogan, L., and A. Sadanand., "Rural Electrification and Employment in Poor Countries: Evidence from Nicaragua", *World Development* 43 (C):, p. 252–265, 2013.
- [8] Khandker, S. R., H. A. Samad, R. Ali, and D. F. Barnes., "Who Benefits Most from Rural Electrification? Evidence in India," *Energy Journal* 35 (2). doi: 10.5547/ISSN0195-6574-EJ, p. 75–96, 2014.
- [9] K. Standal, "Giving light and hope in rural Afghanistan: Enlightening women's lives with solar energy.," *Lampert Academic Publishing.*, 2010.
- [10] D. M. R. V. M. a. G. K. Van de Walle, "Long-Term Gains from Electrification in Rural India.," *The World Bank Economic Review*. doi: 10.1093/wber/lhv057, p. 1–36., 2015.
- [11] Daka, K. R., Ballet, J., "Children's education and home electrification: A case study in northwestern Madagascar.," *Energy Policy*, 39, p. 2866–2874., 2011.
- [12] Samad, Hussain, and Fan Zhang., " Heterogenous Effects of Rural Electrification: Evidence from Bangladesh.," *World Bank Policy Research Working Paper 8102. Washington D.C*, 2017.
- [13] Standal, K., and T. Winther., "Empowerment through Energy? Impact of Electricity on Care Work Practices and Gender Relations.," *Forum for Development Studies* 43 (1): doi:10.1080/08039410.2015.1134642, p. 27–45., 2016.
- [14] Clancy, J., M. N. Matinga, S. Oparaocha, and T. Winther, "Social Influences on Gender Equity in Access to and Benefits from Energy.," *World Bank. Accessed 4 May 2017.*, 2017.
- [15] Standal, K., and T. Winther., "Empowerment through Energy? Impact of Electricity on Care Work Practices and Gender Relations.," *Forum for Development Studies* 43 (1). doi: 10.1080/08039410.2015.1134642., p. 27–45, 2016.
- [16] P. Africa, "what power africa means for Ghana.," Power africa, Accra, 2019.