



**ENHANCING WOMEN'S LIVELIHOODS, LABOR FORCE
PARTICIPATION, PSYCHOSOCIAL WELLBEING, AND CHILD
DEVELOPMENT THROUGH THE CRÈCHE PROGRAMME IN
THARAKA NITHI COUNTY, KENYA**

**WOMEN'S LABOR FORCE PARTICIPATION IN THARAKA NITHI COUNTY,
KENYA**

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CHAPTER ONE: INTRODUCTION

1.0 Introduction

This research project responds to the observation that there might be a potential trade-off between women's participation in labor markets and home production, especially in the provision of goods and services that are inputs into child development. Thus, there is need to develop a framework of the relationship between women's market work and home production in the Kenyan context and test its predictions, especially with respect to how female market engagement affects human capital, wage earnings, entrepreneurial income (profit), marriage, child development, assets accumulation, and decision-making power within the household. Observational and experimental evidence on the above relationship is currently lacking in Kenya. The framework to be constructed will be estimated using observational and experimental data that the KU WEE Hub will begin to collect around March 2022 in Tharaka Nithi County. Since, like all other Kenyan counties, Tharaka Nithi County has high rates of Covid-19 infections, the Hub will collect data that can be used to analyze how the pandemic plus the measures implemented to contain it, affected labor supplies and other socioeconomic variables, such as schooling and participation in group networks – that both men and women use for job search and psychosocial support.

The KU WEE Hub data will be enriched with existing data from population censuses and household surveys to permit a broader analysis of labor force participation by age and gender. Depending on data availability, the spillover effects of women's market work on health and productivity of men will be analyzed. In the same vein, a parallel analysis as to the effects of men's market work on women's psychosocial wellbeing, and decision-making power within the home will be undertaken.

1.2 Study objectives

- a. To analyze the factors that influence labor force participation in Kenya
- b. To measure economic and non-economic consequences of female labor force participation, particularly the effects of market work on women's wages, profits, decision-making power, and psychosocial wellbeing, as well as on child development (health, physical growth, and learning).
- c. To estimate, where data allow, labor force participation rates by gender.
- d. To examine gendered impacts of Covid-19 on labor force participation and on related welfare outcomes in Tharaka Nithi County.
- e. To simulate effects of policy variables, such as public provision of childcare and property rights or ownership, on female labor supplies (e.g., entry into the labor market, and conditional on entry, number of hours worked), and on women's economic empowerment indicators, such as control of wage or profit income, and engagements in public affairs.

1.3 Research Questions

- a. What factors influence the labor force participation in Kenya?
- b. What are the economic and non-economic consequences of female labor force participation, and what are the effects of market work on women's wages, profits, decision-making power and psychosocial wellbeing?
- c. What is the rate of the gender participation, by gender, in Kenya?
- d. What were the gendered impacts of Covid-19 on labor force participation and on related welfare outcomes in Tharaka Nithi County?
- e. What are the effects of policy variables, such as public provision of childcare and property rights or ownership, on female labor supplies and on women's economic empowerment indicators, such as control of wage or profit income, and engagements in public affairs?

1.4 Justification

Little information exists on the relationship between female labor market work and home production in Kenya. This information is needed because market work has implications for home production by women, particularly the production of childcare by mothers. Moreover, home production can adversely affect women's careers and market incomes, which are necessarily pursued outside the home. To design public policies that promote both home production and women's economic empowerment, empirical information is needed on a unified labor force participation framework. Particularly regarding females, such a model is unified in the sense that it takes into account the market and non-market settings in which women in Kenya and other African countries operate. There is need to note that the new social context heralded by the Covid-19 cannot be ignored in Kenya or any other African country in an in-depth analysis of female labor force participation, because the pandemic and the measures used to contain it, hard hit the informal sector, the main source of livelihoods for the majority of women.

The aim of the study is to provide rigorous observational as well experimental evidence that can be used to design and implement policies that would work for women's economic empowerment in Kenya and beyond.

CHAPTER TWO - LITERATURE REVIEW

Despite a large literature on female labor force participation in developing countries (Quisumbing, 2003), theoretical or empirical literature on the unified model is limited in Africa. In Kenya, experimental and observational evidence, even on simple labor supply models, is missing. Evidence on how female labor participation rates have changed over time is also unavailable. However, there is some experimental evidence on effects of Covid-19 on labor force participation in Kenya (Population Council, 2020), showing that the pandemic forced women to substantially reallocate their market time to home production. A similar reallocation was made by men but men's engagement in household chores was proportionately much less than that for women. It is not clear the extent to which vulnerability of women to domestic violence during a crisis that forces people to seek refuge within the home, explains the gender gap in the time spent on home production, beyond the differential due to gender roles dictated by culture. In such a situation, women combine normal chores with additional childcare, as school children are also forced to stay at home. Empowering women to address the stress associated with elevated home production during disease pandemics is unexplored research issue.

In a study of male and female labor supplies in Ghana, it was found that correcting for the selection bias into the estimation of a wage function or self-employment yielded similar estimated wage functions for men or women in either work setting. There was little data on child care or elderly care in the Ghanaian survey (Schultz, 1993). There were substantial returns in earnings from schooling that increased with the level of schooling that can be used as indicators of women's empowerment. Since female labor market opportunities can be an incentive for schooling, the Ghanaian evidence suggests that women's economic empowerment can be promoted through establishment of day care centers, as they enable educated women to participate in market work.

Heckman's early work on returns from childcare emphasized the importance of fixed costs for women to enter the paid labor force which is a critical non-linearity that is neglected in the traditional labor supply models. The literature typically assumes that the participation cost is linear in the time the woman frees up to work (with the aid of childcare), when actually the barrier (cost) is loaded on the participation decision, which has been largely ignored. The idea behind the fixed cost of labor force participation is that before a woman decides to participate in the labor market, the number of hours worked is zero even if childcare is available to her – because she has not yet decided to work. The fixed cost of participation has two parts (i) the financial and non-monetary cost of using childcare, which must be incurred, even when the number of hours worked is zero, and (ii) the mother's psychic cost of a decision to leave a child at a day care, as she accepts market work, again a positive quantity even with zero labor supply. Since the cost of participation is fixed, the average cost participation – which includes the shadow value of the time freed by childcare center for market work, decreases with the number of hours worked. Thus, women who work a few hours per day, week or month, face very high participation cost per hour worked. The implication is that women with the same wage, face very different net wages because of differences in average participation costs. Thus women with few working hours will voluntarily quit jobs at a higher rate than women who work long hours, even at lower market wages. This is also why men

have longer market-work experience than women because of their low fixed costs of labor force participation.

The existing evidence indicates that access to day-care and preschool centers increases women's employment and income. Studies on impacts of access to childcare centers in Brazil, Ecuador, Kenya, and Nicaragua show positive employment and income effects (Evans et al., 2021). The same authors report positive impacts of childcare interventions on mothers' mental health and wellbeing in several African countries.

Our study will use data sets to be collected by the KU WEE Hub and the data available at the Kenya National Bureau of Statistics to fill the research gaps identified in the literature, while also attempting to corroborate the existing evidence on the impacts of day childcare centers on labor force participation, child development, women's livelihoods, empowerment, psychosocial health, and other dimensions of wellbeing.

CHAPTER THREE: METHODOLOGY

3.0 Introduction

The pilot survey on female labor force participation was conducted in Karingani in Chuka Sub-county, Chiakariga in Tharaka South Sub-county and Gatunga in Tharaka North Sub-county. The study sites were selected purposively based on the ecological zones in Tharaka Nithi county, after which the households were selected proportionately from the identified zones.

3.1 Data collection tools and procedures

Before commencing the actual pilot survey, the research team consisting of Tharaka Nithi County Government officials, Kenyatta University and Chuka University held stakeholders' engagement meetings at the county and sub-county levels where they explained the objectives Women Economic Empowerment Programme and Rapid Needs Assessment Survey.

The research team accompanied by the CHVs visited the homes of the respondents to administer the questionnaires. The researcher filled the questionnaire using both online and offline functionalities provided by the KoboCollect application.



Figure 1: A team of researchers in Gatunga, heading to a homestead accompanied by a CHV

3.2 The Model used

The labor supply models in Killingsworth and Heckman (1986) will be used to guide the development of the unified model of labor force participation for Kenya, in conjunction with approaches in newer studies (Bhalotra, et al., 2010, Gaston et al., 2021). The parameters of the model will be estimated using the methods in Heckman (1976) and Schultz (2004) and the RCT

approaches (Miguel and Kremer, 2004). Before outlining the issues involved in estimating labor supply models, it is helpful to provide a conceptual background from which hypotheses can be framed.

Elaboration of a labor supply model is a good starting point in an attempt to design and implement policies that empower women. Women's empowerment policies will not be fully effective unless they take into account the average productivity of women relative to men's, as this relative average suggests what can be done to close gender gaps in labor earnings. Furthermore, such policies would face challenges if they were to ignore the shadow value on the time women spend in non-market production and leisure because the shadow value shows what society must sacrifice to achieve broad-based female labor force participation.

It is plausible that an increase in women's labor market participation would enhance the women's contribution to society and therefore their empowerment. But while women increase their participation in the market labor force, they withdraw time from home production (from childcare, nutrition, health care, and schooling of children). These forms of diminished family human capital formation may be at least as valuable across generations as the returns from women's increased market production in each generation. A model is therefore needed that captures both the labor supply behavior of wives and husbands that can be estimated using conventional household survey data. Although these simplified approaches to the coordination of family labor supplies make strong assumptions, they might be adapted to capture more realistic assumptions for Kenya and other African countries.

An example of an intervention that can empower women is a village childcare center that would enable a larger fraction of local women to enter the market labor force, while also potentially improving child health and preschool learning that we expect could enable the benefiting children to complete more years of regular schooling and realize an increase in their life-cycle earnings. Furthermore, subsidizing investments in mobile phone technologies might improve women's access to mobile phones and improve women's business opportunities and could also provide the women with access to private savings accounts. The investment in mobile phone technologies has been widely adopted in Kenya and in many other African countries and can probably be linked to increases in earnings and savings of Kenyan women, both in agriculture and other sectors of the economy. The skills promoted for women would probably secure for women improved property rights, and strengthen their capacities to resolve more favorably, the marital conflicts and other family issues, as the gender economic empowerment gap narrows. Women can additionally use mobile phones to coordinate their engagements at crèches, and in marketplaces and home production.

The above discussion suggests that parents in similar socio-demographic and economic environments would invest similarly in themselves and their children. Thus, differences in labor market participation among women can be attributed to differences in their environments and constraints (Schultz, 1967). It is possible that provision of broadly accessible day care centers can substantially increase female labor supplies while improving child health and empowering women in a variety of social and economic domains in Tharaka Nithi County. Similar interventions can be extended to other counties to scale up the local WEE effects of crèches.

The main hypothesis suggested by the unified labor supply model is that day care centers for young children increase female labor force participation, enhance livelihoods, promote child development, and empower women. According to the literature, the null form of this hypothesis is expected to be rejected by both observational and RCT data to be collected in Tharaka Nithi County.

To start with, we plan to estimate the following labor supply model using data we collected in September 2021 from pilot surveys on livelihoods and crèches in Tharaka Nithi County.

(1) The labor supply equation for mothers (LS): $LS = \alpha + \beta CRE + \rho X + \varepsilon_1$,

Where, CRE is endogenous to LS because CRE is influenced by women's unobserved propensity to participate in market work. Thus, there is need to break the dependence between CRE and the error term, ε_1 ; otherwise, identification of the effect of crèche usage on labor supply is not straightforward. Moreover, since home production is an important determinant of female labor supply, a variable that captures this aspect of the labor market participation should be included in the LS equation. The number of children in the household below the age of five, is arguably one such variable. Even though the number of children is not exogenous in the labor supply function, that is not a problem (Stock, 2010)

(2) The creche demand equation (CRE): $CRE = a + bX + \delta \text{Distance to a creche} + \varepsilon_2$

Where, X are control variables (education, marital status, geographic zone, number of children below age 4). Distance is an instrument for CRE (crèche usage); and A, b, δ , α , β , and ρ are the coefficients to be estimated, with β being the parameter of policy interest. Replacement of CRE with CRE_hat (predicted value of CRE variable), yields the response of female labor supply, β , to availability and usage of child care services by mothers. Needless to say, control functions are the preferred procedures in a nonlinear set-up (Wooldridge, 2015).

During the fieldwork in Tharaka Nithi County, we learned that there is a law governing enrollment of children in Early Childhood Development Centers (ECDE). The ECDEs are located in public and private primary schools. Essentially, ECDE centers are crèches for children between ages 4 and 6 inclusive, but strictly exclude children below 4 years of age. The law that stipulates this requirement, which is strictly enforced by ECDE centers and primary schools, was assented by the President on March 22, 2021 and published in Kenya Gazette in March 26, 2021, with the commencement date being April 9, 2021 (Republic of Kenya, 2021). By the time of our pilot surveys, the law was in force. Its enforcement excludes all children below the age of 4 from enrolling in ECDE centers. Thus, the legal minimum age of ECDE enrollment (four years), separates children between the age group 0-6 years from those who can use crèches from those who cannot use them. Stated differently, the law randomly assigns children who are at least 4 years but less than 7 years at the beginning of the school year to ECDE centers, with younger children remaining at home under the care of their mothers or relatives. Thus, a child who is at least four years can be assumed to be enrolled in an ECDE crèche, while a child less than 4 years old is

assumed to be cared for primarily by the mother at home. The ‘age four’ dummy seems to be a good proxy for crèche usage in Equation (1). Thus, we can formulate the equation for welfare outcomes (women’s economic empowerment indicators) as follows:

$$(3) \text{ Labor supply equation for mothers (LS): } LS = a_0 + a_1 \text{Age_4} + a_2 X + v_1$$

Where, *Age_4* is an exogenous proxy for crèche usage (uncorrelated with v_1), which, as before, is strongly associated with the female labor supply (*LS*).

The impact of female labor supply on women’s economic empowerment (WEE) indicator (including child development measures) can be estimated from the following WEE equation:

$$(4) W_i = \beta_0 + \beta_1 X + \beta_2 LS_hat + v_2$$

Where, *LS_hat* is the predicted value for *LS*; W_i is a WEE indicator i , such as wage income, entrepreneurial income, asset ownership, a mother’s psychosocial wellbeing, a child’s health or learning score, to name a few. In Equation (4), β_2 is the parameter of policy interest for each i , which can be given a causal interpretation, in view of the assumption underlying the **Age_4** variable in equation (3). When experimental data become available, β_{2i} , will be estimated using experimental methods (see e.g., Schultz, 2004, Gertler, 2004, Miguel and Kremer, 2004).

The home production variables, as well as the Covid-19 variables, captured by the vector X in the above equations will be specified after a review of related literature in Africa. The Covid-19 variables include factors specific to the pandemic and the policy measures implemented to contain the pandemic and mitigate its effects.

An important point to note at this stage is that the effects of different containment measures cannot be estimated because the measures were typically implemented together at the same time, e.g., school closures happened at the same time with curfews, travel restrictions, cash transfers and campaigns to wear masks. However, a coefficient on the dummy for the period when these measures were implemented can be estimated. Since the predicted coefficient would typically vary from observation to observation, it is possible to check whether it varies with values of a particular policy measure. For example, to determine whether the school closure had an effect on learning (test scores), the test scores in a sample of schools spanning pre-covid and the covid periods can be correlated with the number of days that the schools were open before and during the covid pandemic. A statistically significant negative correlation between the number of days the schools were closed and the estimated coefficients on the dummy for the containment measures across schools is some evidence of an association between school closures and learning. Further regression analysis can be conducted to ascertain the association. A similar exercise can be conducted for each of the containment measure employed against the pandemic.

To investigate the effect of the pandemic itself on labor supplies and on welfare outcomes (learning, health, income), data will be collected directly from households through questionnaires regarding exposure to Covid-19 or the associated deaths

CHAPTER FOUR: THE STUDY FINDINGS

4.0 Introduction

There are various interrelated factors that influence women's decisions to supply labor as they assess the expected return to market work relative to non-participation. Individual characteristics, such as educational attainment, childcare burden, religion and household structure, clearly shapes this decision, as these determine the potential earnings in the marketplace relative to the return to household work.

Participation decisions are also shaped by even more short-lived changes in labor demand, such as those due to the impact of the Covid-19 pandemic.

The results reported in the ensuing sections are based on data collected in a pilot survey conducted in Tharaka Nithi September 2021.

4.1.1 Analysis of Women Labor Participation in Relation to Ecological Zones

In Tharaka Nithi county women's labor participation is defined by the three agro- ecological zones, high and mid altitudes are inhabited by Chuka and Maara people who mainly plant tea, coffee, maize, avocados and also keep dairy livestock among others. Low altitudes are inhabited by Tharaka community who plant such plants as green grams, peas, millet, sorghums, cow peas among others. This zone is characterized by long spells of dry season and hot sun. The livestock in this zone comprises goats, sheep, traditional cows, donkeys and chicken. There is therefore a huge variation in labor force participation activities between the three zones. In the three ecological zones women also engage in other economic activities which includes, wage employment, business and mixed activities.

Economic activities and how they vary based on Ecological Zones

Command: *bysort ward: tab primaryinc_source2*

-> ward = Karingani

primaryinc_ source2	Freq.	Percent	Cum.
1	17	14.53	14.53
2	40	34.19	48.72
3	25	21.37	70.09
4	35	29.91	100.00
Total	117	100.00	

-> ward = Chiakariga

primaryinc_ source2	Freq.	Percent	Cum.
1	53	48.62	48.62
2	25	22.94	71.56
3	18	16.51	88.07
4	13	11.93	100.00
Total	109	100.00	

-> ward = Gatunga

primaryinc_ source2	Freq.	Percent	Cum.
1	82	60.74	60.74
2	19	14.07	74.81
3	17	12.59	87.41
4	17	12.59	100.00
Total	135	100.00	

KEY TO TABLES

- 1= Agriculture
- 2= Wage employment
- 3= Business
- 4= Mixed activities

High percentage of women in the low altitudes, that is Chiakariga and Gatunga, where the pilot study was conducted, engage in agriculture, which is represented by 48.62 % and 60.74% of responses, respectively as compared to Karingani ward which has 14.53% of in agriculture. This is due to the difference in availability of the farming land and population density between these zones. The percentages of women who are in wage employment also vary as per the same reason. Karingani displays the highest percentage of women in the wage employment which is 34.19%. This is due to its urban setup and availability of different institutions such as Chuka referral hospital , Chuka university among others as compared to Chiakariga and Gatunga whose setup is still marginalized and hence the low representation of 22.94% and 14.07% respectively.

4.1.2 Analysis of Women Engaged in Waged Employment per ward

Female labor force participation (FLFP) is the prime indication of the extent to which females participate in the economic activities of society.

Based on the pilot study conducted in all ecological zones within Tharaka Nithi on female labor force participation (FLFP) / paid work in the three wards where the study was conducted, the results show that a high number of percentage of women does not engage in any paid work. More

mothers are engaged in paid work in Gatunga (about 21%) less than in Chiakariga (about 37%) and Karingani (36%).

Table 1: The number of women who engage in paid employment per ward

Ward	Yes	No
Chiakariga	40 (36.7%)	69 (63.3%)
Gatunga	29 (21.4%)	106 (78.5%)
Karingani	42 (35.9%)	75 (64.1%)

The sources of income for these mothers can be depicted as shown below:

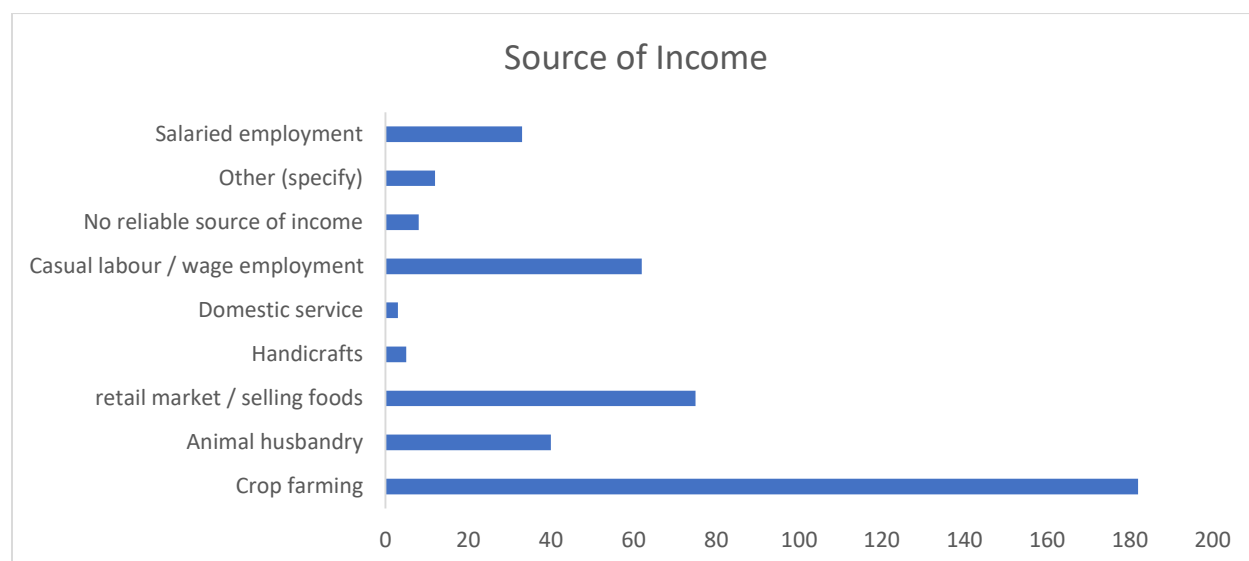


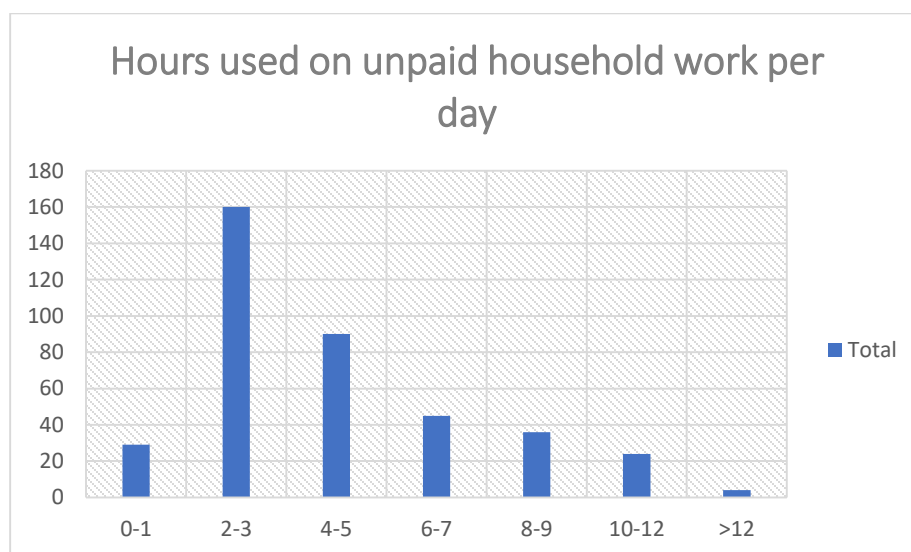
Figure 2: The sources of income for the income earning women

4.1.3 Analysis of Time used by women on wage Employment

Women are productive agents who possess at least equal potential productivity as men. That is why several economic gains can be made from the productivity of women by increasing their participation in the labor force. Generally, high female participation in the labor market implies two things; advancement in the economic and social position and empowerment of women and hence promoting equity and increased utilization of human potential, which can help in building a higher capacity for economic growth and poverty reduction. It is however noted that women spend lots of their time on unpaid labor as shown below.

Hours used on unpaid household work

Range of Hours	Number of respondents
0-1	29
2-3	160
4-5	90
6-7	45
8-9	36
10-12	24
>12	4



4.1.4 Analysis of time spent by women on childcare & other household chores

It is often believed that there is a natural distribution of gender roles, with women being better suited to domestic and child-rearing responsibility and men to working outside of the home. Such assertions lack compelling evidence and more importantly, perpetuate a status quo that limits the choices available to both men and women. Female participation in labor markets tends to increase when the time-spent on unpaid care work is reduced.

On average, mothers spend about 13 hours on childcare in both Chiakariga and Gatunga whereas in Karingani they spend 10 hours per day. In Chiakariga mothers spend more hours (10 hours) in household chores than in Gatunga and Karingani who spend 5 hours each.

Table 2: Time spent on child care activities and household chores

Ward	Average time spent on childcare activities (mean in hours) per day	Average time spent on household chores (mean in hours) per day
Chiakariga	13	10
Gatunga	13	5
Karingani	10	5

4.1.5 Correlation between the marital status and female labor force participation

Marriage seems to reinforce traditional gender roles, since women's employment even to this day is shaped by domestic and caregiving responsibilities in a way that men's is not. According to this pilot study, it is the unmarried women who participate more in the labor market.

This can also be attributed to the educational levels of the married women, significantly shown by the pilot study that majority of these women drop out of school at the primary level and probably get married. This make the married women to be in majority in the agricultural activities for they practice subsistence farming to cater for their families.

Additionally, data suggests that women are the main food providers in families (237 frequencies 55.24 % which means that most of their production goes to family consumption. Additionally, women are key providers of family clothing (256 frequencies 59.67 % as opposed to men's provisions, 206 frequencies, 48.02 %). Women also provide 62% of childcare responsibilities as opposed to men's 20 %. In addition, women appear not to be the main decision makers considering that majority of their families (296 frequencies 69%) are headed by their husbands. A combination of these factors plus the fact that these roles do not change (241 frequencies, 56.18 %), contribute to the vicious cycle of poverty that dramatically limits married women from labor participation and economic empowerment.

Table 3: Marital status of the respondents across the three wards

Marital status	Ward			Total
	Chiakariga	Gatunga	Karingani	
Cohabitation	2 (1.9%)	2 (1.5%)	5 (4%)	9 (2.5%)
Married	74 (68%)	115 (86%)	77 (67%)	266(75%)
Separated	2 (1.9%)	4 (3%)	2 (1.7%)	8 (2.2%)
Single	27 (25%)	11 (8%)	30 (26%)	68 (19%)
Widowed	3 (2.7%)	2 (1.5%)	1 (0.9%)	6 (1.6%)
Total	108 (100%)	134 (100%)	115 (100%)	357 (100.0%)

As depicted by the table above, Karingani had the highest number of mothers (4%) who were cohabiting. Gatunga had highest number of married mothers with 86% followed by Chiakariga and Karingani at 68% and 67% respectively.

Interestingly, respondents in high income brackets (>75,000) of paid employment were observed to be married.

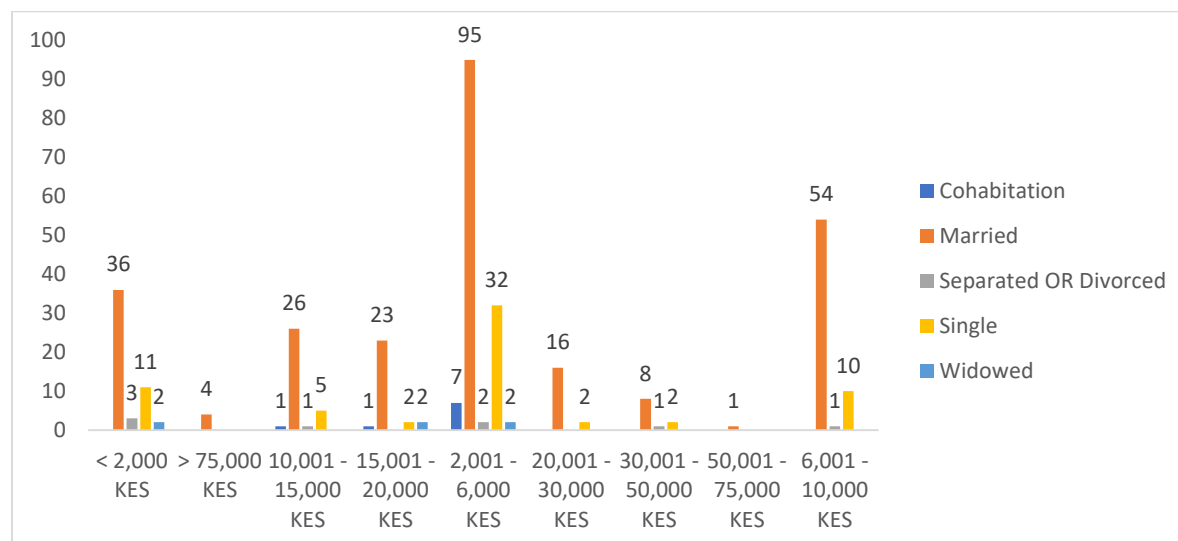


Figure 3 Graph showing comparison of income brackets of women of different marital status

4.1.6 Relationship Between Age and the Female Labor Force Participation

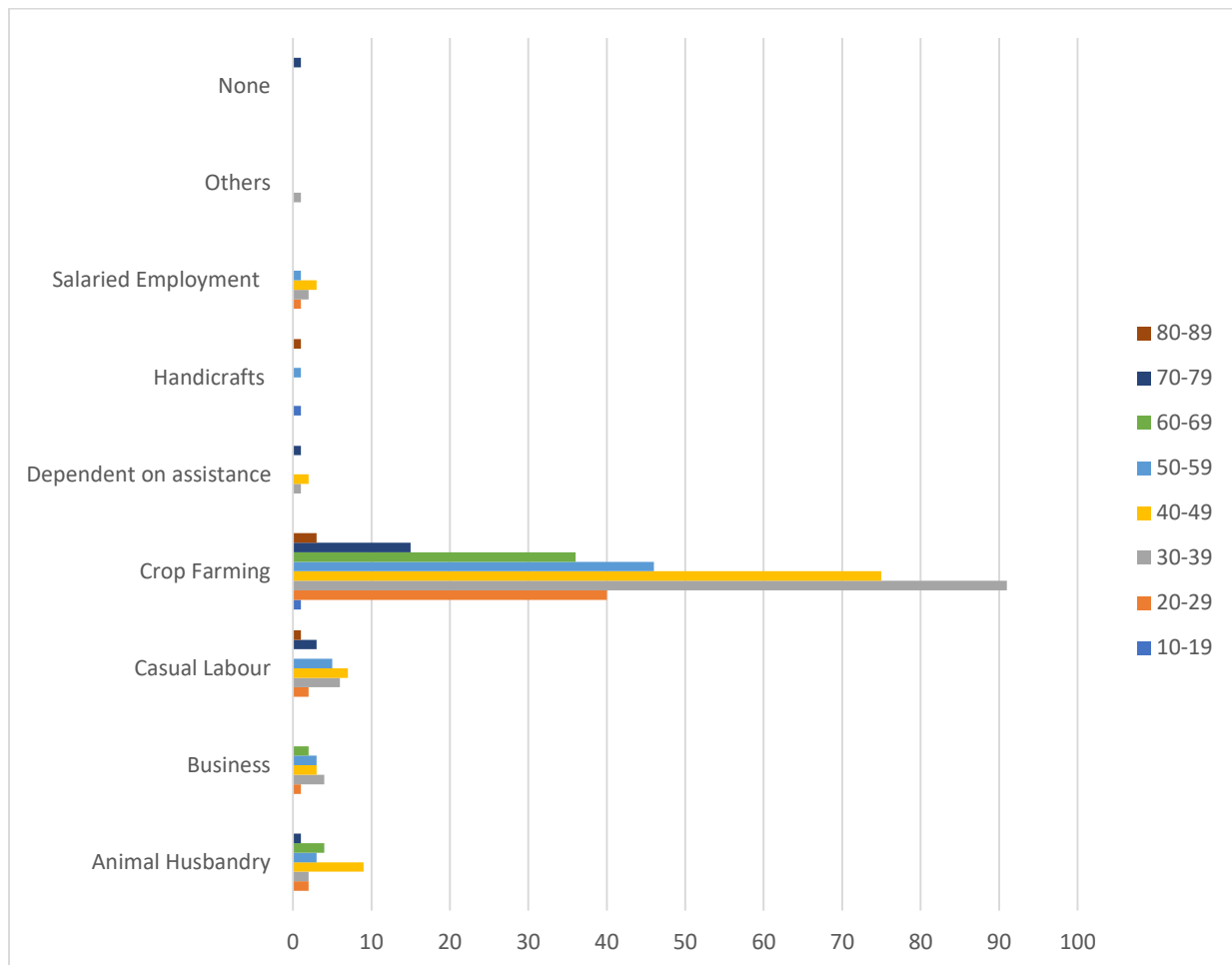
In any society, there is a close correlation between age and labor participation. Younger people are unlikely to participate due to schooling involvement. Older people are less like to participate in labor force due to the process of aging. This is confirmed by our pilot study where majority of labor participation are in the ages between 30 and 46 as shown in the table below.

Income against Age bracket

Main Income_source	Age Bracket								
Income Source	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	Grand Total
Animal Husbandry		2	2	9	3	4	1		21
Business		1	4	3	3	2			13
Casual Labour		2	6	7	5		3	1	24
Crop Farming	1	40	91	75	46	36	15	3	307
Dependent on assistance			1	2			1		4
Handicrafts	1				1			1	3
Salaried Employment		1	2	3	1				7
Others			1						1
None							1		1
Grand Total	2	46	107	99	59	42	21	5	381

Unfortunately the most productive age group women are involved in the very low paying crop production (see figure below). Data has shown that these type of labor participation as is currently is not yielding much income.

Labor force participation by age



There is the critical need to provide support system for these active age groups to increase their agricultural outputs. Such support may include smart farming education, provision of water in dry areas, provision of markets for the produce. It also appears that an encouragement is needed for children to get into other carriers.

4.1.7 Relationship between the level of education and the female labor force participation

Education is a source of information and knowledge which equips people with skills to analyze situations and apply relevant skills. Education provides a competitive edge in dealing with complex issues. Education is an empowerment tool in socio economic and political sectors. Education plays a major role in career preparedness and economic growth.

Increase in female education has been an important factor in the increased female labor force participation, particularly into relatively high-paying jobs. Economists have long noted a positive correlation between education and female labor force participation in most developing countries.

The factor analysis carried out to see how various variables are associated with female labor market participation confirm the important role of education. Our pilot study sought to find out the education level of the respondents and its impact on their labor participation. The figure below indicates that majority of the respondents across all age groups obtained either primary education or none.

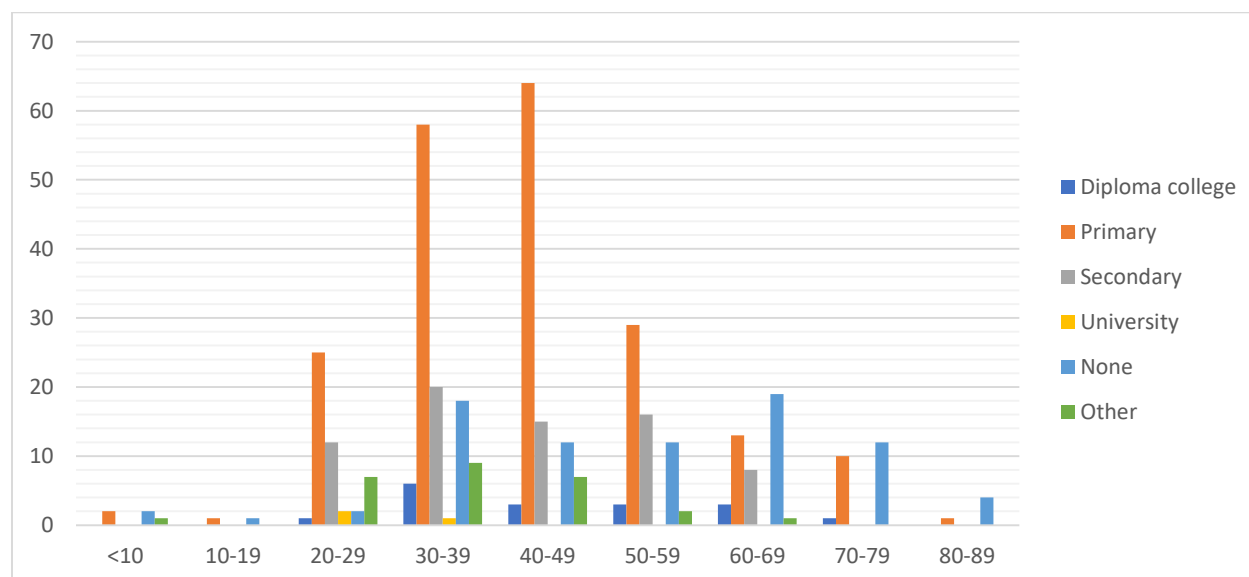


Figure 4 Graph depicting the level of education of women by age groups

The levels of education clearly correspond with the labor participation as shown in the table below. Findings indicate that indeed higher educational attainment increases the female's predicted probability of participating in the labor market.

Looking more broadly at improving women's access to quality employment, a critical policy area is enhancing women's educational attainment beyond secondary schooling.

Table 4: Income sources against the highest level of education

Income source	Diploma college	None	Primary	Secondary	University (Degree)	Other	Grand Total
Animal Husbandry	1	1	13	5		1	21
Business	1		8	4			13
Casual Labor		6	12	6			24
Crop Farming	12	64	153	52	2	24	307
Dependent on assistance		2	1	1			4
Handicrafts		3					3

None			1				1
Others			1				1
Salaried Employment	2	2	1	1	1		7
Grand Total	16	78	190	69	3	25	381

From the pilot data it can be observed that many women are involved in crop farming (307 and animal farming (21). These accounts for 86% of the total activity. All other activities represent 14%. It is no wonder then because data indicate that majority of the women hold primary level education (203 frequencies or 47.32%) or none (82 frequencies or 19.11 %). There appears to be a correlation between the low level of education and the stated activities i.e., farming. Whereas attention is needed for all activities, more attention is needed in agricultural activities. Such attention may include education related to improving agriculture in an increasingly digital economy, increase agricultural inputs, support system to provide markets for produce and even general education to mention a few.

Although frequencies for certain activities appear to be low such as business (13), salaries employment 7, and handcrafts 3, there is need to review the potential for these businesses and where necessary encourage integration of them to strengthen the level of economic activities.

There appears to be a correlation between salaried employment (7) and education (203 frequencies in primary education and 82 which translates to 19.11% have no education) while only 3 which is 0.7% have university degree. These data suggests that the low-level education could explain these low participations in salaried employment. In order to improve salaried employment, there is need to provide more access to formal/tertiary education. This is particularly important because only 71 (17% have secondary level education and 17 (4 %) have diploma level education. The relatively high number of women (24 or 7% engaging in casual/wage labor suggests the need to review skill set of those seeking salaried employment to be compliant with changing economic realities.

Majority of women spend too many hours on agricultural activities. Ideally more time spent on activities should yield more produce and more income. However, in this case it is the reverse. The income obtained does not correspond to the time spent as majority of women's income is way below ten thousand Kenyan shilling.

4.1.8 The effect of childcare burden on female labor force participation

It is evident that more mothers would increase their earnings and seek new paid job opportunities if they were relieved the burden of childcare. Today, many families with young children must make a choice between spending a significant portion of their income on child care, finding a cheaper, but potentially lower-quality care option, or leaving the workforce altogether to become a full-time caregiver.

Table 5: Average hours spent on household chores unrelated to childcare

	N	Minimum	Maximum	Mean	Std. Deviation
In the past week, how many hours on average did you spend per day on household chores unrelated to childcare?	352	0	80	6.48	8.769
Valid N (list wise)	352				

According to Table 5 above, women spent on average six hours per day on household chores.

Table 6: Average number of hours spent per day on child rearing activities

	N	Minimum	Maximum	Mean	Std. Deviation
In the past one week, how many hours on average did you spend per day on child rearing activities?	355	0	112	12.51	13.441
Valid N (list wise)	355				

Childcare challenges have become a barrier to work, especially for mothers, who disproportionately take on unpaid caregiving responsibilities when their family cannot find or afford child care.

4.1.9 Religiosity and female labor force participation

Religious affiliations could have an effect on an individual's choice of a livelihood activity and religion continues to be salient for many people in spite of its varying significance over time and place. Religious beliefs can influence individual preferences in general, and that individuals belonging to a religious group behave in a particular way.

Table 7: Respondent's religion in the three wards

Religion	Ward			Total
	Chiakariga	Gatunga	Karingani	
Catholicism	34	59	23	116
Protestantism	74	74	83	231
Islam	0	0	7	7
None	0	1	2	3

However, religiosity, as all other non-economic factors are taken into account as preferences and assumed exogenous when trying to explain economic behavior.

4.1.10 Position in the Family and its effect on Labor Force Participation

Households are characterized by hierarchies of power where the household head is accorded very high status. This is also linked to access to and control of resources, both which have a locus on one's economic outcomes. Due to patriarchy, household head in many communities is usually a man. In the absence of a male head, either a woman or her male child may serve as the head of the household. Being the head of a household can be advantageous to a woman as she makes major economic decisions.

Table 8: Heads of households

Household Head	Ward			Total
	Chiakariga	Gatunga	Karingani	
No Response	1(0.9%)	0(0%)	0(0%)	1(0.3%)
Another person	1(0.9%)	1(0.7%)	3(2.6%)	5(1.4%)
Her father	7(6.5%)	9(6.7%)	11(9.6%)	27(7.6%)
Her father-in-law	1(0.9%)	0(0%)	2(1.7%)	3(0.8%)
Her husband	71(66%)	115(86%)	75(65%)	261(73%)
Her mother	6(5.6%)	0(0%)	10(8.7%)	16(4.5%)
Respondent herself	21(19%)	9(6.7%)	14(12%)	44(12%)

86%, 65% and 66% of households in Gatunga, Karingani and Chiakariga are headed by husbands. The female headed households at Chiakariga accounts for 19% while at Gatunga and Karingani, they account 6.7% and 12% respectively.

4.1.11 Relationship between Proximity to Childcare Facilities and Female Labor Force Participation

Availability of reliable and cost-effective non-parental childcare is closely related to the female labor force participation and other outcomes in the labor market because of the conflicting demand for women's time on both, work and care activities.

Table 9: Mothers' utilization of daycare services

		Ward			Total
		Chiakariga	Gatunga	Karingani	
Mothers' utilization of daycare services before (for any of your children, including the older ones)	N/A	4(100%)	0(.0%)	0(.0%)	4(100%)
	No	88(28.8%)	119(38.9%)	99(32.4%)	306(100%)
	Yes	16(34%)	15(31.9%)	16(34%)	47(100%)
Total		108(30.3%)	134(37.5%)	115(32.2%)	357(100%)

Childcare facilities relieve the mothers the time constraint associated with child care, hence allow the mother to have more time to engage in paid employment.

Table 10: Mothers currently using daycare service

		Ward			
		Chiakariga	Gatunga	Karingani	Total
Mothers currently using daycare service for your children under the age of four	N/A	3(75.0%)	0(.0%)	1(25%)	4(100%)
	No	101(29.6%)	130(38.1%)	110(32.3%)	341(100%)
	Yes	4(33.3%)	4(33.3%)	4(33.3%)	12(100%)
Total		108(30.3%)	134(37.5%)	115(32.2%)	357(100%)

Affordable and conveniently located child care facilities (those that are close to the household) plays a big role in ensuring that mothers with young children have time to engage in paid work.

Table 11: Utilization of government crèche

		Ward			
		Chiakariga	Gatunga	Karingani	Total
Utilization of government crèche for your children (below four years of age)	N/A	2(1.9%)	1(.7%)	0(.0%)	3(8.0%)
	No	3(2.8%)	1(.7%)	3(2.6%)	7(2.0%)
	Yes	103(95.4%)	132(98.5%)	112(97.4%)	347(97.3%)
Total		108(100%)	134(100%)	115(32.2%)	357(100%)

According to table 11 above, three hundred and forty-seven (97.3%) of the respondents indicated they will utilize government crèche for their children below four years of age. This implies that most caregivers are keen to have their children enrolled in the government lead crèches.

Table 12: Effect of change in the working hours due to creche implementation

		Ward			
		Chiakariga	Gatunga	Karingani	Total
Change in hours of Workafter Creche intervention.	No Problems	4(3.7%)	1(.7%)	2(1.7%)	7(2.0%)
	No change	3(2.8%)	1(.7%)	4(3.5%)	8(2.5%)
	Significant decrease	2(1.9%)	1(.7%)	2(1.7%)	5(1.4%)
	Significant increase	82(75.9%)	126(94.0%)	87(75.7%)	295(82.6%)
	Slight increase	17(15.7%)	5(3.7%)	20(17.4%)	42(11.8%)
Total		108(100%)	134(100%)	115(100%)	357(100%)

As depicted in the table 12 above, majority 295 (82.6%) of revealed that working hours will increase significantly with the introduction of the crèche. Forty-two (11.8%) of the respondent however, only see a slight increase on the number of working hours.

4.1.12 Impacts of Covid-19 on labor force participation

That some older workers left their jobs during a pandemic and global recession is to be expected. Still, questions remain over whether these impacts are likely to dissipate as the pandemic recedes and the economy recovers – or whether a more permanent exodus from the labor force is to be anticipated in the coming years. The lockdown that came about due to the Covid-19 pandemic made job-search more difficult or impossible in certain cases.

Table 13: Those who had Covid 19 infections in their households

Did anyone in your household get infected with Covid-19?	No	350 (98.59%)
	Yes	5 (1.41%)

Among the respondents, 98.59% reported that there was no one in their household who got infected with Covid – 19.

4.1.13 Determinants of Female Labor Force Participation (The Wage Employment Participation Equation)

Female labor force participation (FLFP) is important for the enhancement and socio-economic development of a nation because it promotes efficiency and equity. Generally, high female participation in the labor market implies two things; advancement in the economic and social position, and empowerment of women. This promotes equity and increases utilization of human potential, which can help in building a higher capacity for economic growth and poverty reduction.

Understanding women’s decision to supply labor to the market, as well as the factors that can encourage them to either participate in or opt out from the workforce, is vital for policy makers in order to efficiently help any economy develop and remain healthy. The clear understanding of such factors and their effect on women’s propensity to participate plays a very important role in determining prospective growth and development of countries. It might help us come up with new ways to encourage female participation or address those problems that discourage females from participating in the labor market.

For women to be able to participate in the labor market, they have to have the time and opportunity to do so.

CHAPTER FIVE: CONCLUSION, LIMITATIONS AND IMPLICATIONS

5.0 Introduction

This chapter brings out the challenges experienced with regards to data collection as well as challenges related to female labor force participation. The chapter also presents the lessons learned and the recommendations.

5.1 Challenges experienced During Data Collection

- a) Some of the respondents were very reluctant in giving information relating to their monthly income, evidenced by exaggerated expenditure.
- b) Some of the respondents refused to be interviewed for private reasons, with the notion that their biodata would be used for political reasons.
- c) Some of the sampled households were not interviewed because they had relocated to other places.
- d) Many young respondents did not have identification cards (IDs), hence the field that required the ID number was recorded as zero.
- e) There was fear by the researcher of contracting the COVID 19 virus, as the study was conducted during the time when the virus was widespread in the country.

5.2 Lessons Learnt

Through the pilot survey, there was first hand field experience in collecting data, analyzing and reporting. This has greatly helped improve on most researchers' skills on use of observation and other data and analysis, coming up with GIS map work, report writing, among others. The importance of various stakeholders in the project became clear.

The importance of the familiarization meetings conducted by the study team before the start of the pilot survey was also noted. The meetings played a role in setting clear objectives, and availed opportunity for bonding with key stakeholders of the project.

5.3 Recommendations

To improve women's labor participation various interventions are critical

- a) The provision of the crèche and in close by distance as suggested by data (3 kilometers or less) will release women's time to allow them more time to participate
- b) Too many hours spent on agricultural activities which bring limited economic rewards are unsustainable. This can be improved through introduction of smart agriculture. Such models of agriculture can help feed the family but yet produce enough for sale. Agribusiness can also be empowering if it can integrate the use of technology.
- c) There is need for intervention policies to allow women real asset ownership and control. Data suggests that women state that they own things but when it comes to who hold ownership documentation and if they can sell any of those assets, then it becomes clear that they do not have any control over anything. Women will have more motivation to participate in labor force when they have confidence that they can own and control their

own products. In addition, it needs to be clear that women do more in the domestic sphere and that will always present a challenge regarding women's power versus men's power. This calls for a genuine call for equity rather than equality. A practical aspect of equity should involve and engage with men as allies in women's economic empowerment.

- d) In the light of the findings, we recommend that more effort, in addition to the existing constitutional provisions, be made to absorb females in the labor market.

5.4 Conclusion

As more women enter the labor force, economies can grow faster in response to higher labor inputs. At the same time, as countries develop, women's capabilities typically improve, while social constraints weaken, enabling women to engage in work outside the home. For this reason, policymakers need to understand the nature of women's labor supply and to monitor women's labor force participation. Looking forward, further investment in education, training, and activation policies can not only encourage women to be more active in the labor market, but also make the female workforce more resilient to global development

Data Sources

1. Kenya National Bureau of Statistics (Welfare Monitoring Surveys for 1994, 1997) and the Kenya Integrated Household Budget Surveys (2005/6), and 2015/16). The study will also rely on KNBS to obtain time use surveys; recent rapid household surveys, labor force surveys, and population censuses.
2. Household surveys on women's livelihoods and RCT baseline and end line surveys on labor force participation and crèche utilization in Tharaka Nithi County, collected by the KU WEE Hub, starting around March 2022.

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