Time Poverty Among Women in Ondo State, Nigeria: An Emperical Analysis

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ABSTRACT

Gender roles and socioeconomic factors are causes of time poverty that prevents economic empowerment of women and their ability to participate in paid employment, education, and professional development. The rural population lacks proper infrastructure and limited access to energy, health, clean water and education which adds to inequality. The sampling procedure adopted multistage sampling in which 150 respondents were selected in rural and urban community. Primary data were obtained through the use of structured questionnaire. Data were analysed using descriptive statistics, Foster-Greer-Thorbecke (FGT) model and probit regression model. The result revealed that age group with the highest representation was 41–50 years with an average age of 41.3(±1.0) years. Average ages were 37.9(±1.5) years for urban women and 44.6(±1.4) for rural women. Rural women, who worked mostly in informal, physically demanding jobs (92%), had higher time constraints than urban women (60%), although the latter were also experiencing time poverty due to unpaid family commitments. In addition, urban women spent a mean of 15.69 hours/day on various activities, while rural women spent a mean of 16.64 hours/day on various activities, with the overall mean of 16.17 hours/day on various activities indicating increased fatigue and stress on rural women. Using a time poverty threshold of 14.1 hour/day, 71.33% of the respondents were classified time poor. Time poverty was higher among rural women than their urban counterparts. This study applied a probit regression model to data from 150 women to examine time poverty. Age, household size and personal care were significant correlates of time poverty. Age reduced time poverty. Household size decreased time poverty. Personal care decreased time poverty. The study recommends improved rural infrastructure.

Keywords: Time poverty, Women, Ondo State, Nigeria.

Introduction

Women are very instrumental in the reproductive and productive activity of a number of communities, especially in the developing society like that of Nigeria. They usually have to take care of children, domestic chores, farming, and societal participation. Their participation in various activities of these spheres often makes women have to cope with multiple tasks at once, which is often referred to as multi-tasking. Women in Nigeria represent about half of the population and are known to make a very considerable contribution as mothers, workers, managers and as organizing the community. They have a dual role in productive and reproductive activities hence their contribution to the social and economic development of societies is greater than the role of men considering that they contribute over fifty percent of all these efforts United Nations

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Women, (UN) 2024. Time poverty is the persistent lack of time caused by multitasking, as people are not able to complete all the work properly (Giurge et al., 2020; Weiss, 2020). The other view defines it as the urge to operate long hours paid or unpaid to prevent monetary distress and possess minimal control over the diminishing workloads below a vital point (Rodgers, 2023). One of the main causes of time poverty is the liability of too much work employed or non-paid domestic chores that end up taking up time that could be used to relax or recreational activities. This encompasses both formal jobs and such tasks as childcare, domestic chores and in low-income neighborhoods, necessity survival tasks such as finding water or firewood. These insatiable pressures push people into overworking situations, depriving them of the opportunities to control their time and having minimal possibilities to reconcile personal demands with the daily necessities (Rodgers, 2023).

The household structural changes experienced in the industrialized world (such as the adoption of technologies that save labor when performing household chores) have not been realized in Africa (Dinkelman and Ngai, 2022). To further add to this, practices of patriarchy within the rural African societies have limited time-use of women and their rights to independently devote time to achieve individual ambitions, which is a vital aspect of empowerment (Eissler et al., 2022). According to Adeyeye et al. (2021), these dynamics increase the time poverty of women in African agriculture.

According to the statistics provided by the Food and Agriculture Organization, African women spend between 13 and 13 hours additional time at work than men, and rural women are characterized by an unproportionate amount of unpaid caregiving work relative to their counterparts in urban areas (Charmes, 2019). Female domestic workers cause majority time poverty gap, as women incur more of it than men do. No country has a higher number of males than women spend on household duties (Charmes, 2019). More than three-quarters of the unpaid household work falls to women around the world, with rural women representing one-third of the world and 43 percent of the agricultural laborers (Food and Agriculture Organization [FAO], 2023). Past research shows that temporal poverty in Africa and Nigeria show gender differences in unpaid care labor, though they often lack disaggregated data, socio-demographic variable, and an all-inclusive model.

There is a lack of studies on time strain in informal employment of women proposing essential socio-demographic characteristics such as marital status and household organization. It is based mostly on national statistics and it does not consider the variation at the community level thus limiting applicability of the policy. Also, not many studies have employed the profound models like FGT and probit regression to assess the level and time poverty gap depth.

The research fills the research gaps in the literature on time poverty among women especially women in informal employment in Ondo State through the application of FGT poverty index and Probit regression model. It highlights the role of marital status, education, household size, occupation and infrastructure on time use and time poverty. The results will be used to improve the academic literature and inform effective interventions so that the evidence can eventually be used to give effective recommendations to the government, NGOs and development partners to improve the time welfare and productivity of women.

Methodology

The study Area

The research was carried out in the southwest of Nigeria, Ondo State, which shares borders with Ekiti and Kogi states on the north, Edo state on the east, Oyo and Ogun states on the west and the Atlantic Ocean on the south. The state occupies the entire territory of the tropics and is surrounded by longitudes of 4deg30' and 6deg East and latitudes of 5deg45' and 8deg15' North and South (Omonijo and Matzarakis, 2014). Ondo is a new name of the former Western State established on February 3, 1976, and

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consists of 18 Local Government Areas (LGAs) that include three agricultural areas called Ondo, Owo/ Akure, and Idanre/Owena (Ondo State Agricultural Development Programme [OSSAPADEP], 2018; Adekunle et al., 2019). The 2006 census showed that the population of Ondo State was 3,460,877 (1,745,057 males and 1,715,820 females). The State Bureau of Statistics estimates the population currently to be 4,883,792 with 2,462,525 males and 2,421,267 females. Akure is the capital which in the past was the capital of the Akure Kingdom and today is a cultural and administrative centre. Yoruba is the language spoken by the indigenous population.

The state economically depends on the production of petroleum, cocoa, and asphalt and its long coastline promotes the sea activity. Agriculture is the main one, and the key crops include yam, cassava, maize, rice, plantain, and beans, as well as cash crops like cocoa and coffee (Ondo State Ministry of Information, 2016). The three agricultural regions represent regionalization of crop variety, which adds to the mixed economy of the natural resources, farming, and trade, in the state. This social economic environment probably influences time-use behavior especially in the countryside where farm work and household duties.

Data Collection

The primary data were gathered using questionnaire in a structured form to the women who lived in the cities as well as those living in the countryside. The questionnaire obtained: Socioeconomic features like (age, marital status, education, income levels etc.). Time-use patterns (household work, voluntary work, care giving work, paid work, and leisure work). In the survey, both closed and open ended questions were used to guarantee that a detailed information is gathered on time allocation of women and the factors that have been contributing to time poverty.

Sampling Technique

A multistage sampling technique was employed in this study.

Stage 1: The first stage involved a random selection of four local government areas out of the 18 local government areas in Ondo state. The LGAs include Akure North, Akure South, Ileoluji/Okeigbo, and Ifedore local government areas.

Stage 2: The second stage involved a random selection of ten communities from the four LGAs.
Stage 3: The third stage involves a random selection of fifteen individuals in each of the ten communities from the Local Government Area. The sample size was 150 (one hundred and fifty).

Population and Sampling Procedure

The study surveyed four (4) local government areas. The four LGAs were randomly selected from the 18 local government areas. Ten (10) communities were sampled from the four local government areas. Fifteen (15) respondents were sampled from each of the ten communities. The urban communities comprise of seventy-five (75) respondents while the rural communities comprise of seventy-five (75) respondents. This was to ensure equal comparison between urban and rural areas. The whole sample size was One hundred and fifty (150) respondents.

Data Analysis

Stata 2014 and Microsoft Word was used to carry out Statistical analysis. Analytical techniques employed to achieve the study's objectives include descriptive statistics, the Foster–Greer and Thorbecke 1984 (FGT) poverty index measure, and probit regression model. Descriptive statistics summarized the socio-economic characteristics of the respondents. FGT poverty index summarized the time poverty status of the respondents while probit regression model summarized the correlates of time poverty. This study adapts to time poverty and follows Diksha Arora who has made significant contributions to the study of time poverty, particularly through her application of the Foster-Greer-Thorbecke (FGT) model to analyze gender disparities in rural settings.

Model Specifications

Time poverty Measurement (FGT poverty Index)
Head Count Index of Time Poverty

In a time poverty framework, the headcount index (H) is calculated as the proportion of individuals in the population who are time poor. Mathematically, it is given by:

$$H = q/n \quad (1)$$

where:

q is the number of individuals who are time poor (i.e., those whose total working hours Y exceed the time poverty threshold Z).
n is the total population size.

Time Poverty Gap

The time poverty gap quantifies the average shortfall of working hours beyond the time poverty line, considering the entire population. It captures the intensity of time poverty by measuring how far, on average, time-poor individuals exceed the threshold. Mathematically, the time poverty gap is expressed as:

$$PG = \frac{1}{n}\sum_{i=1}^{q}\left(\frac{y_i - z}{z}\right) \quad (2)$$

Where:
PG is Time poverty gap
n is Total population size
q is Number of time-poor individuals
Z is Time poverty threshold
Y_i is Total working hours of individual iii (sum considered only for time-poor individuals)

The time poverty gap can also be expressed as the product of the headcount index of time poverty and the time gap ratio (I), i.e.:

$$PG = H \times I \quad (3)$$

Where:
H is Headcount index of time poverty
I is Time gap ratio

$$I = \frac{Yq - z}{z}$$

Where: $Yq = \frac{1}{q}\sum_{i=1}^{q} y$ = mean working hour of time-poor

$$cPG = \frac{Yq - z}{z}$$

Squared Time Poverty

The Squared Time Poverty Gap measures the severity of time poverty by squaring the excess hours individuals worked beyond a defined time poverty threshold (Z). The index uses heavier weights on those with very long working hours, unlike simpler metrics, so the weight of anyone having a workload way above the threshold has a disproportionate effect on the index.

$$SPG = \frac{1}{n}\sum_{i=1}^{q}\left(\frac{y_i - z}{z}\right)^2 \ldots\ldots\ldots\ldots \quad (4)$$

Normalization for Time Poverty Metrics
To standardize time poverty measures between 0 and 1, weekly hours can be normalized using the formula:

Normalized Gap = $\frac{Y - Z}{168}$

Y: Actual hours worked (paid + unpaid) per week by an individual.
Z: Time poverty line (e.g., maximum acceptable work hours per week).
168: Total hours in a week.

Time poverty Line or Time poverty Threshold

The time poverty line is a threshold used to distinguish between individuals who are time poor and those who are not, based on the amount of discretionary or free time they have in a day. It is the minimum amount of discretionary time considered necessary for rest, personal care, and leisure. People whose discretionary time falls above this threshold are considered time poor. Adapting the method of Srivastava and Floro (2017) – Time poverty and its determinants in developing countries whose time poverty line threshold was the 75th percentile of the total working hours and classifying those above the

threshold as time poor. In the study 25th percentile was chosen as the relative time poverty line. In the context of this study on time poverty, the coding logic is structured as follows:

Time poor (1) if total time use > 14.1

Non- time poor (0) if total time use ≤ 14.1

Time poverty Line (TPL) formula is given as:

Time poverty line (TPL) = Median Time Use – (σ x Median Absolute Deviation (MAD))

Where,

Median Time Use - Median Time Use is the median of total daily time available for personal use across the population.

MAD is the median of the absolute deviations from the median

MAD = median $(/x_i$ – median $(x)/)$

σ(alpha) is a constant (commonly 0.75 0r 1) chosen depending on the sensitivity desired.

$$\sigma = \frac{Median - TPL}{MAD}$$

MAD = median $(/x_i$ – median $(x)/)$

Where

x_i is individual total working hour per day (including work, care, chores and personal Care).

x is median of the data set or the whole population

MAD = median of the absolute deviations from the median

Probit Model

The probit model estimates the probability of being time poor as a function of the independent variable:

$P(Y_i=1|X_i) = \Phi(\beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_{4i} + \ldots\ldots\ldots. \beta_n X_n)$ (5)

Where:

Y= 1 if time poor and 0 otherwise

Φ is the cumulative distribution function (CDF) of the standard normal distribution.

X_i is a vector of independent variables for individual i.

β is a vector of coefficients to be estimated.

X_1 is Age in years

X_2 is Location (urban =1; Rural = 0)

X_3 isMarital status (married = 1; single = 0)

X_4 is Divorced (Yes = 1, No = 0)

X_5 is Widowed (Yes = 1, No = 0)

X_6 is Employment (employed = 1, unemployed = 0)

X_7 is Number of income sources

X_8 isHousehold size

X_9 is Number of infants (0 – 5) years

X_{10} is Number of children (6 – 14) years

X_{11} is Number of Adults (15 - 64) years

X_{12} is Number of aged (65 & above) years

X_{13} is educational qualifications (literate = 1; non – literate = 0)

X_{14} is Member of co-operative society (yes = 1; No = 0)

X_{15} is Personal care (yes= 1; 0 = otherwise)

Discussion of A-priori Expectation Table

Table 1 presents A-priori expectation table for time poverty model. These expectations are based on previous empirical and theoretical literature (e.g., Kes & Swaminathan, 2006; Crouch et al., 2024; Wooldridge, 2010; Greene, 2012).

The a priori expectation table depicts the hypothesised relationships between a few selected explanatory factors and women's likelihood of experiencing time poverty. These variables include a wide range of household, infrastructure, socioeconomic, and demographic factors believed to influence time poverty.

Marginal Effect

The coefficients (β) from the probit model do not directly represent the change in probability. Instead, marginal effects are used to interpret the impact of each independent variable on the probability of being time poor.

For a continuous variable Xk:

$$XK = \frac{\partial P(Y=1|X)}{\partial Xk} = \phi(X'\beta)\beta k$$

Table 1: A-priori Expectation Table for Time Poverty Model

Code	Variable	Description of Variable	Expected Sign	Supporting Literature
X1	Age (in years)	Continuous	±	Kes & Swaminathan, 2006
X2	Location (Urban = 1; Rural = 0)	Dummy	−	Crouch *et al.*, 2024
X3	Marital status (Married = 1)	Dummy	+	Giurge *et al.*, 2020
X4	Divorced (Yes = 1)	Dummy	+	Hirway, 2017
X5	Widowed (Yes = 1)	Dummy	+	Blackden & Wodon, 2006
X6	Employment (Employed = 1)	Dummy	+	Kes & Swaminathan, 2006
X7	Number of income sources	Discrete	+	Giurge *et al.*, 2020
X8	Household size	Discrete	+	Budlender, 2008
X9	No. of infants (0–5 years)	Discrete	+	Ilahi, 2000
X10	No. of children (6–14 years)	Discrete	+	Kes & Swaminathan, 2006
X11	No. of adults (15–64 years)	Discrete	−	Blackden & Wodon, 2006
X12	No. of aged (65+ years)	Discrete	+	Budlender, 2008
X13	Educational qualification (Literate = 1)	Dummy	−	Hirway, 2017
X14	Member of cooperative society (Yes = 1)	Dummy	−	Blackden & Wodon, 2006
X15	Religion (Christian = 1; Islam = 0)	Dummy	±	—
X16	Occupation (Self-employed = 1)	Dummy	+	Ilahi, 2000
X17	Secondary occupation (Yes = 1)	Dummy	+	Kes & Swaminathan, 2006
X18	Monthly income (₦)	Continuous	−	Giurge *et al.*, 2020
X19	Indigene (Yes = 1)	Dummy	±	—
X20	Farm size(Hectares)	Continuous	+	Ilahi, 2000
X21	Personal care (Yes = 1)	Dummy	−	Blackden & Wodon, 2006
X22	Source of water (Improved = 1)	Dummy	−	Budlender, 2008
X23	Cooking energy (Gas = 1)	Dummy	−	Kes & Swaminathan, 2006
X24	Farm enterprise (Yes = 1)	Dummy	+	Ilahi, 2000

Source: Compiled by the author from various literature, including Kes & Swaminathan (2006), Crouch *et al.* (2024), Wooldridge (2010), Greene (2012), Adisa & Okunade (2005), etc.

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where ϕ is the probability density function (PDF) of the standard normal distribution.

For a binary variable Xk, the marginal effect is the difference in probabilities when Xk changes from 0 to 1.

Definition of Time Poverty Line using Dual Threshold (25th and 75th percentile), Middle-Range (Median) Classification.

Four categories based on my data:

1. Severe Time Poverty: Working more than 75th percentile (18.65) hours per day
2. Time-poor: Working between the median (16.33 hours/day) and 75th percentile (18.85) hours per day.
3. Time Adequate: Working between 25th percentile (14.1 hours/day) and median (16.33) hous per day.
4. Time Rich: Working fewer than 25th percentile (14.1 hours/day) and below.

This is in line with Blackden and Wodon's 2010. World Bank paper on gender, time use, and poverty in Sub-Saharan Africa (English), which provides evidence for the use of median, 25th, and 75th percentile time poverty classification in my research work

Results

Socio-Economic Characteristics of Respondents

Table 2 shows the distribution of respondents according to their Socio-economic Characteristics. The majority of respondents (32%) were between the ages of 41 and 50, with an average age of 41.3(±1.0) years. Urban mean age was 37.9(±1.5) years while rural mean age was 44.6(±1.4) years. Majority of urban women (58%) were married while rural women, 52% were married. Overall, 55.3% of all respondents were married. Majority of rural women (92%) were employed, compared to 78.7% of urban women. Overall, 85.3% of all respondents were employed. Majority 54.67% of urban women had tertiary education, compared to 34.67% of their rural counterparts. Overall, tertiary education was reported by 44.67% of the all respondents. A larger proportion (65.33%) of the rural women do not belong to any cooperative society, while 64% of the urban women were members of a cooperative society. Also, the majority (50.67%) of the all respondents does not belong to any cooperative society. Majority of the rural respondents (61.5%) have a household composition of adults (15-64 years) with an average age of 32.28, while urban women respondents have a composition of adults (15-64 years) with an average age of 29.66. The majority (59.1%) have a household

Table 2: Distribution of Respondents According to their Socio-economc Characteristics

Age (years)	Urban Frequency	Percentage (%)	Rural Frequency	Percentage (%)	All Frequency	Percentage (%)
21 – 30	27	36.0	8	10.7	35	23.3
31 – 40	16	21.3	28	37.3	44	29.3
41 – 50	24	32.0	24	32.0	48	32.0
51– 60	4	5.3	7	9.3	11	7.3
61 – 70	4	5.3	8	10.7	12	8.0
71 & bove	0	0.0	0	0.0	0	0.0
Mean	37.9(±1.5)		44.6(±1.4)		41.3(±1.0)	
Total	**75**	**100**	**75**	**100**	**150**	**100**

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Table 2: Distribution of respondents according to their Socio-economic Characteristics

Marital status	Urban		Rural		All	
	Frequency	Percentage (%)	Frequency	Percentage (%)	Frequency	Percentage (%)
Single	19	25.3	12	16.0	31	20.7
Married	44	58.6	39	52.0	83	55.3
Divorced	6	8.0	10	13.3	16	10.7
Widow	6	8.0	14	18.7	20	13.3
Total	**75**	**100**	**75**	**100**	**150**	**100**

Employment Status	Urban		Rural		All	
	Frequency	Percentage (%)	Frequency	Percentage (%)	Frequency	Percentage (%)
Employed	59	78.7	69	92.0	128	85.3
Unemployed	16	21.3	6	8.0	22	14.7
Total	**75**	**100**	**75**	**100**	**150**	**100**

Level of Education	Urban		Rural		All	
	Frequency	Percentage (%)	Frequency	Percentage (%)	Frequency	Percentage (%)
No formal Education	7	9.3	12	16.0	19	12.7
Primary Education	6	8.0	13	17.3	19	12.7
Secondary Education	18	24.0	23	30.7	41	27.3
Tertiary Education	41	54.7	26	34.7	67	44.7
Others	3	4.0	1	1.3	4	2.7
Total	**75**	**100**	**75**	**100**	**150**	**100**

Membership of Cooperative society	Urban		Rural		All	
	Frequency	Percentage (%)	Frequency	Percentage (%)	Frequency	Percentage (%)
Yes	48	64.0	26	34.7	74	49.3

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No	27	36.0	49	65.3	76	50.7
Total	75	100	75	100	150	100

Household Composition (Age in years)	Urban Frequency	Percentage (%)	Rural Frequency	Percentage (%)	All Frequency	Percentage (%)
Number of infants (≤ 5)	62	14.7	39	11.1	101	13.0
Number of children (6 – 14)	89	21.1	64	18.1	153	19.7
Number of Adults (15 – 64)	241	57.1	217	61.5	458	59.1
Number of Aged (65 and above)	30	7.1	33	9.4	63	8.1
Total	**422**	**100**	**353**	**100**	**775**	**100**

Farm size (Hectares)	Urban Frequency	Percentage (%)	Rural Frequency	Percentage (%)	All Frequency	Percentage (%)
(0.1-0.5)	50	66.67	55	73.33	105	70
(0.51-1.0)	15	20	15	20	30	20
(1.1-1.5)	10	13.33	5	6.67	15	10
Total	**75**	**100**	**75**	**100**	**150**	**100**

Location	Frequency	Percentage (%)
Urban	75	50.0
Rural	75	50.0
Total	**150**	**100**

Note: Standard deviation in parenthesis. *Urban mean age = 37.9(1.5) years; Rural mean age = 44.6(1.4) years; All mean age = 41.3(1.0) years*
Source: Computed from Field Survey 2024

composition of adults (15-64 years) with a mean age of 30.97. The result from the table showed that 50% reside in urban areas and 50% in rural areas.Time Poverty Status of The Respondents

Table 3 shows the categorization of time poverty using 75th percentile, median and 25th percentile. The result from the table revealed that majority (71.05%)

of the rural women face severe time poverty while (28.95%) of the urban women face severe time poverty. Majority (52.78%) of the urban respondents were time poor while (47.22%) of the rural respondents were time poor. Majority (60.53%) of the urban women respondents were time adequate while 39.47% of the rural respondents were time adequate.

Table 3: Time Poverty Categories Using 75th, Median, and 25th Percentile Thresholds

Variable (Location)	Severe Time Poverty (18.65-24)hr/day (freq/percent)	Time poor (16.33-18.65) hours per day Freq/percent	Time Adequate (14.1 – 16.33) hours per day Freq/percent	Time Rich (14.1-0) hour per day Freq./percent	Total Freq./percent
Urban	11 (28.95%)	19 (52.78%)	23 (60.53%)	22 (57.89%)	75 (50%)
Rural	27 (71.05%)	17 (47.22%)	15 (39.47%)	16 (42.11%)	75 (50%)
All	38 (100%)	36 (100%)	38 (100%)	38 (100%)	150 (100%)

Source: Computed from Field Survey, 2024

Majority (57.89%) of the urban women were time-rich while (42.11%) of the rural women were time-rich.Time Poverty Status Analysis: Headcount, Gap, and Squared Gap Index

Table 4 shows the FGT Time Poverty Indices (Head count Index, Time Poverty Gap and Squared Time Poverty Gap.

The FGT headcount index revealed that 71.33% of women were classified as time poor, using the 25th percentile threshold of 14.1 hours per day. Time poverty was more prevalent among rural women (78.67%) than urban women (64%), indicating greater time constraints in rural areas due to limited resources. This is in agreement with the results of Kahn et al. (2020) who also stated that the high levels of time poverty have a negative effect.

The time poverty experienced by both urban and rural women takes 2.64 hours a day to overcome. Rural women require an extra 3.04 hours in a day, and urban women 2.23 hours in a day. This follows the time poverty research study by Arora (2014) in

titled Gender Differences in Time Poverty in Rural Mozambique, which states that rural women tend to experience more time poverty than urban women. This was further supported by the fact that the squared time poverty gap was more in rural regions (0.0774 as compared to urban regions 0.05711 hours per day) implying that time poverty is worse in rural areas. The results highlight the importance of policy interventions to deal with time poverty, particularly in the rural communities. This is in line with Kahn et al. (2024). This study shows that policies and initiatives targeted at reducing time poverty should emphasize strengthening rural infrastructure and services in order to alleviate the time burden, particularly on women.

Correlates of Time Poverty

Table 5 shows the probit regression model used to examine the correlates of time poverty in urban and rural women. Time poverty, assessed as a binary outcome (time poor = 1; non-time poor = 0), was modeled with data from 150 women, a statistically

Table 4: FGT Time Poverty Indices (Head count Index, Time Poverty Gap and Squared Time Poverty Gap.

Time poverty Indices	Urban	**Rural**	**All**
Head count Index (Non-time poor = 1)	0.36	0.2133	0.2867
Time-poor (0)	0.64	0.7867	0.7133
Time poverty Gap	-0.15817	-0.21597	-0.18719
Squared Poverty Gap	0.05711	0.0774	0.06711

Time poverty gap x time poverty line 14.1= number of hours require to escape from time poverty.

Source: Computed from Field Survey, 2024

significant sample size which aligns with (Long & Freese, 2014). The model performed well, with a log-likelihood of -61.4861 and a Likelihood Ratio Chi-square of 84.55 (p <.0001), indicating that explanatory factors considerably improve the model over a null specification. A Pseudo R^2 of 0.4074 explains 40.74% of the variance in time poverty, indicating good explanatory power in a cross-sectional study which aligns with (Menard, 2002). The positive and very significant constant term (6.5358, p <.0001) indicates a considerable baseline propensity for time poverty.

Age, household size, and personal care consumption were the factors that were statistically significant. Age had a negative connection (Coefficient = -0.0494, p =.001), showing that older women are less likely to face time poverty, which is consistent with the findings of Kalenkoski, Ribar, and Stratton (2011) and Bardasi and Wodon (2010), who found that caring costs decrease with age. Household size has a negative impact on time poverty (Coefficient = -0.8179, p <.001), corroborating Ilahi's (2000) theory that larger households distribute domestic work. This however runs against the warning by Blackden and Wodon (2006) that excessive number of dependents can increase time poverty. As Wright (2017) and Kes and Swaminathan (2006) stipulate, there is a strong negative relationship between personal care consumption (Coefficient = -1.4257, p <.001) and self-care accessibility is an important factor in

reducing time poverty.

On the contrary, the sources of income, number of dependents, and monthly income did not contribute significantly, in accordance with the results of Kes and Swaminathan (2006) and Zick and Bryant (1996) since they opined that financial gains alone would not create time freedom in the absence of the underpinning infrastructure.

These disparities between urban and rural areas were also reflected: the access to personal care benefited urban women but had smaller families whereas rural women remained susceptible because of inadequacy of the infrastructural facilities (Blackden and Wodon, 2006).

Altogether, the conclusions provide an understanding that such a holistic approach as time-saving infrastructure, childcare provision in the community, personal well-being programs, and age-sensitive policies can help women in overcoming time poverty and lead to wider socioeconomic development.

Table 4 also indicates the marginal effects (dy/dx) of the probit regression model on time poverty correlates in women. The results indicate that age, household size and consumption of personal care can significantly influence or determine how women are likely to suffer time poverty. There is a negative marginal impact of age (-0.0114, p < 0.001), which

reduces the chances of being time poor by 1.14 per year. This conclusion can be achieved since Bardasi and Wodon (2010) have indicated that younger women are faced with a bigger time poverty since they are burdened with more responsibilities, which include domestic and caregiving roles, but older women show the opposite scenario as they become less burdened with responsibilities as they age.

The household size has a negative impact (-0.1886, p < 0.001), as an additional individual decreased the probability of time poverty by about 18.86. This observation substantiates that Blackden and Wodon (2006) mentioned that bigger households tend to promote job sharing and lower individual time burden particularly in rural families where large family systems are the norm.

The marginal effect of personal care consumption was negative (-0.3288, p < 0.001), which means that an investment in self-care reduces the probability of time poverty by 32.88. This is in line with Kes and Swaminathan (2006) who emphasized that access to personal care and wellness services of women were crucial in enhancing time management, especially urban areas.

Other variables like number of sources of income, number of children, number of infants, number of adults, and number of elderly dependents, monthly income were not significant influencing time poverty. This paper upholds the observation by Bardasi and Wodon (2010) that the financial gains or other sources of revenue do not guarantee time poverty autonomy in the regions that are underdeveloped in terms of infrastructure.

Personal care access gave a greater mitigating impact to urban women as Kes and Swaminathan (2006) discovered, whereas household size had a greater impact in reducing time poverty among the rural women. However, severe baseline time poverty persisted in rural areas because of infrastructural constraints like inadequate water, energy and childcare facilities just as Charmes (2006) did.

Discussions

Socio-Economic Characteristics of Respondents

Table 2 points out the socioeconomic factors that initiate time poverty. Most respondents (36.0% in urban area) were aged between 21-30, 41-50 (32.0% and 21.3% respectively). Conversely, the rural region recorded the highest number of the people in the age bracket of 31 and 40 (37.3%), and 41 and 50 (32.0%) with the lowest number of the population being 10.7%. It is interesting to note that the percentage of rural location slightly higher (20.0) was compared to the urban location (10.6). On the whole, this trend demonstrates that urban citizens are younger in comparison with rural ones, which are older. The age difference can be attributed to the nature of migration, employment or other socioeconomic factors that determine population structures in the two destinations. All the respondents were averaged to be (32) years between 41-50 years of age with a (32) percentage of urban women and a (32) percentage of rural women in this age bracket. This is not an isolated case as Ogunlela and Mukhtar (2009) observed that younger women move to urban areas in search of improved education and job opportunities yet older women stay in the rural areas.

There were equal distributions of urban and rural territories (50-50). This even division makes it possible to make a comparative analysis of the level of time poverty in these two settings, with equality in representation. This distribution is consistent with more general trends of data shared by the World Bank (2021), as it is crucial to compare urban and rural poverty dynamics to make interventions in policies more equitable.

The result showed that most of the rural women (92) were working, unlike 78.7% of the urban women. On the whole, 85.3 percent of the total population of respondents were employed. This implies that women living in the rural areas are more apt to work in informal, labour-intensive, and poorly remunerated jobs, whereas women living in urban areas have more organised work hours and access to time-saving

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Table 5: Probit Regression Result for Correlates of Time Poverty Using Lower Threshold (14.1) hours per day and Marginal Effects (dy/dx) For Correlates of Time Poverty (Delta-Method)

Variables	Coefficient	Standard error	Z	dy/dx
Age	-0.0494	0.0147	-3.37	-0.0114***
Number of income sources	0.1821	0.2243	0.81	0.0420
Household Size	-0.8179	0.1677	-4.88	-0.1886***
Number of Infants (0-5) years	0.0055	0.03472	0.16	0.0013
Number of Children (6-14)	-0.2294	0.1582	-1.45	-0.0529
Number of Adults (15-64) years	-0.0199	0.1694	-0.12	-0.0046
Number of Aged (65 & above)yr	-0.0267	0.0186	-0.14	-0.0062
Monthly Income (Naira)	$-1.10e^{-07}$	$3.12e^{-06}$	-0.04	-2.53e-08
Personal Care	-1.4257	0.3831	-3.72	-0.32880.***
Constant	6.5358	1.1455	5.71	000***
Number of observations				
LR Chi^2(9)	150			
Prob > chi^2	84.55			
Pseudo R^2	0.0000			
	0.4074			
Number of observations				
	150			

Significant at 10% =; 5% = **; 1% = ****
Source: Computed from Field Survey, 2024

technologies. Although it can lead to improvement in the work-life balance, it can also make time poorer, as domestic and caregiving factors are not paid. Such results agree with Hirway (2010) who discusses the topic of time poverty at length especially in women in informal and unpaid labor. She highlights that rural females have more chances to work in physically straining, unstable, and unpaid jobs, which are deprived of social protection and economical monetary foreseeability. Rural women were found to have bigger households (70.67%), which is in line with the International Labour Organization (ILO) (2020). Has lower tertiary education attainment (34.67%), which corresponds with Makama (2013).

Having a lower cooperative membership (34.67%), consistent with (Mequanent, A. G. 2022). They were more involved in crop farming (37.33%) than urban women, who had 54.67% tertiary education and 64% cooperative membership.

Time Poverty Status of the Respondents

The result showed a significant difference between the mean daily hour spent by urban women and rural women. Urban women spent a mean of 15.69 hours/day on various activities, while rural women spent a mean of 16.64 hours/day on various activities, with the overall mean of 16.17 hours/day on various

activities indicating increased fatigue and stress on rural women.

Following Blackden and Wodon's (2010) World Bank study on gender, time use, and poverty in Sub-Saharan Africa, which supports the use of median, 25th, and 75th percentile classifications.

Time poverty status was categorized using the 75th percentile, median and 25th percentile as severe time poverty group, time poor group, time adequate and time rich group.

The extremely time-starved group has a serious shortage of time to do what is vital to their health and well being and probably this includes health, well-being, and participation in a social or economic opportunity. The time poor segment are able to complete basic chores but very little to no time to do personal or leisure activities implying an unhappy balance of responsibilities. Time adequate group states that the time distribution is neutral and no pressure activities are combined with a certain amount of leisure time, which may positively affect mental health and quality of life.

Time rich group possesses excess time that can enable them to utilize the time in different activities other than the survival ones which will enable personal growth and socialization. The great proportion of women experiencing severe time poverty and being time poor could be connected to stress, lower well-being, and insufficient possibilities to become personally developed and be involved in the community. The evidence shows that there is a possibility that the targeted interventions are necessary to improve the way of management of time, including community programs or resources, which reduce the burden of domestic chores.

Based on the results, a time poverty line of 14.1 per day was used. Based on the findings, 71.05 percent of rural women had severe time poverty of 28.95 percent of urban women and 52.78 percent of urban and 47.22 percent of rural women were time poor. Conversely, only 60.53 percent of urban women were time adequate as opposed to 39.47 percent of rural women and 57.89 percent of urban women were time rich, compared to 42.11 percent rural. This shows that urban women have a more even distribution of time, which helps them to maintain a healthy lifestyle and personal growth. This is consistent with the findings of Arora (2015) in rural Mozambique where 70 percent of women were said to be time poor, with 3-4 hours per day in rural women being more than urban women. Equally, Charmes (2019) established that rural women in Tanzania took 13.2 hours a day to be engaged in unpaid and paid jobs as opposed to 11.1 hours a day by urban women. This agrees with the mean of the current study of 16.64 hours a day of the rural women and 15.69 hours a day of the urban women. Bittman and Wajcman (2000) observed that, time poverty brings about poor mental health, stress and less social and economic participation, which is likely to be the same case with the severe and time poor groups in our study. In addition, Badasi (2022) applied the FGT model to the time-use data of South Africa and found the incidence of time poverty of 67.8% of rural women, which proves the hypothesis that the incidence of time constraints is higher in rural regions. Therefore, our work complements and develops existing literature, providing disaggregated information on the magnitude and intensity of time poverty in Ondo State supporting the necessity to conduct the specific and location-based measures of reducing the level of time stress and particularly in rural women. In their study, Bittman and Wajcman (2000) found that time poverty plays a significant role in the capacity of individuals to continue with family life, personal and growth as well as in the potential of keeping their mental well-being intact, especially in women who have to balance unpaid domestic chores and employment. Their analysis concluded that time-poor individuals experienced more stress levels, less satisfaction with their lives, and less social activity, which is in line with my research that significantly dates time-poor women have difficulties with carrying out significant tasks and possess poorer health. As Bittman and Wajcman (2000) discovered, time poverty has a very negative impact on the capacity of people to sustain a family life, personal growth, and

mental health especially when one has to do unpaid domestic jobs and work. Their research found that time-poor people had higher stress levels, less life satisfaction, and reduced social interactions, which is consistent with my results that severely time-poor women have difficulties with doing necessary tasks and are undermined in terms of their well-being. The ILO (2018) asserted that, in low-income countries, especially in rural regions, women are more exposed to burnouts and non-economic participation because of extended time on non-paid care and household chores. The OECD (2011) also stated that lack of leisure time is associated with decreased happiness and greater anxiety, which supports my conclusion that time adequacy contributes favorably to mental health and quality of life. Furthermore, Charmes (2019) stressed that rural women in Africa carry a disproportionate load of unpaid work, restricting their time for rest, education, and economic pursuits—similar to my observation that rural women in Ondo State suffer greater time deprivation than urban women.

Some urban respondents complained about insufficient time and lack of funds to go shopping. Others complained of a lack of time to engage in social activities. Some manage their time through multitasking and waking up early from bed, while the majority from rural areas complained of a lack of funds, bad roads, and lack of electricity. Challenges of access to time-saving technologies and connectivity were mentioned.

Time Poverty Status Analysis: Headcount, Gap, and Squared Gap Index

Table 3 shows the FGT Time Poverty Indices (Head Count Index, Time Poverty Gap and Squared Time Poverty Gap.

The headcount index of FGT showed that 71.33 percent of the female participants were time poor, with reference to 25 th percentile of 14.1 hours per day. Rural women (78.67) were worse off than urban women (64) who reported time poverty as rural women had more time constraints as they had limited resources. This is in line with the conclusions of Kahn *et al.* (2020), who also reported that extreme amounts of time poverty have adverse effects.

The women in the city and the rural women need 2.64 hours in a day to get out of time poverty. Rural women should have 3.04 hours more in a day, whereas urban women have to have 2.23 hours in a day. This aligns with Arora (2014) time poverty study on the book titled Gender Differences in Time Poverty in Rural Mozambique that indicates that women living in the rural areas are usually more time poor than those in the urban areas. Also the squared time poverty gap was greater in rural (0.0774) than in urban (0.05711 hours per day) which indicates that time poverty is high in rural areas. The results highlight why the problem of time poverty, particularly in rural settlements, requires specific policies to be mitigated. This is in line with Kahn *et al*. (2024). This paper demonstrates that interventions and legislation aimed at helping to mitigate the time poverty must focus on improving the rural infrastructure and services to ease the time burden, especially to the women.

Conclusion

This paper shows that there is a huge difference between urban and rural women in Ondo state of Nigeria on issues of time poverty with the rural women having a bigger burden in terms of unpaid labour and poor infrastructure. Time poverty in both urban and rural women takes an average of 2.64 hours everyday to escape. The rural females require extra 3.04 hours a day and the urban females need 2.23 hours a day.

Recommendations

The research suggests better rural infrastructures, encourage the adoption of time-saving technologies, enhance economic empowerment of women, encourages collective domestic responsibility and enhances community based child care, encourage larger and elder households, acknowledge and enhance personal time, and design location-specific

policies.

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