A gender comparison of factors associated with time use towards unpaid domestic, caregiving services and selfcare in Kenya

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Abstract

Surveys and respective research on time use and associated factors such as gender is well established, yet studies still lag on several countries in Africa. This has been a reality for Kenya which is ranked 14 and 77 on the continent and globally for in terms of Gender Gap Index. Using Kenya's first ever nationally representative time use survey; 2021 Kenya Time Use Survey (KTUS) this study examined factors associated with time allocation towards unpaid labour, and self-care. The study reveals that despite increased female labour market participation and gender-focused policies, women still dedicate more time to unpaid work and less to personal well-being. Key factors such as marital status, education, employment, and household structure are analysed, showing significant gender disparities in time use. The findings underscore the need for targeted policy interventions to address gender inequities in time use and promote well-being.

Introduction

Globally, there has been an increased initiative to ensure gender equity, yet immense gaps persist especially within distribution of time use. Several studies continue to identify the existence of burden women face regarding unpaid labour which ultimately has negative effects on aspects such as wellbeing, self-care, and socioeconomic position (Hyde et al., 2020; Zilanawala, 2016; Arora, 2015). This has continued to occur regardless of the increased participation of women within the labour market, and gender focused policies in recent years across countries (Dilli et al., 2018; Baxter & Tai, 2016). Structural and institutional factors have continued to be an impediment to progress more-so in Africa (Ahinkorah et al., 2021; Kenyatta, 2023).

In this context another layer has been the lack of critical data which could through research not only track inequalities and associated factors but also inform well-structured policy responses. Time poverty is an example of a critical area in which majority of African countries lack nationally representative data on issues such as time use to track progress and identify factors for policy structuring (Charmes et al., 2023). This has been the reality for Kenya which only recently initiated its first nationally representative time use survey recently (State Department of Economic Planning, 2023). Although there have been several indicators such as labour statistics, time use remained over the years unaccounted for in several surveys. Thus, this survey offers substantial information which lays ground for further analysis particularly the associated factors in time use of which studies lag on the continent.

In the wake of these intricate issues, this research sought to contribute to literature in several ways. Firstly, this forms to the best of knowledge of the author, the first study on a gender analysis of factors associated with unpaid work time use using the recent time use survey from Kenya. Secondly, the author contributes to growing literature in Africa on the magnitude of differences across different groups in terms of

time use. The study further offers a pathway for a more targeted and contextualised policy structuring instead of generic approaches. To explore these issues, the research article is structured as follows; a review of prior research is explored to discuss strides which has been made around associated factors of unpaid labour. Additionally, the methodological approaches, respective results, and conclusion of associated factors of unpaid labour and self-care in Kenya are presented.

Prior research on time allocation towards unpaid work

Previous literature has sought to identify the different variables associated with unpaid work and self-care. Gender is considered by far the main component with several findings that women are involved in more unpaid work even when controlling for other socioeconomic factors at varying degrees by country (Treas & Tai, 2016; Ervin et al., 2022). Expansion of this also shows that marital status plays a crucial role with married or cohabiting women engaging more in unpaid work than those who are married. Some studies also find a similar pattern amongst married men but with lessor differences compared to women (Espino et al., 2022). This is further exacerbated with children, and the elderly as studies find increased time allocation towards caregiving disproportionally for women (Stampini et al., 2020). Household size with composition of adults in some studies reduces this burden via redistribution of time use (Kalenkoski et al., 2005).

Excluding the issue of household structure, individual factors have also been found to be associated with unpaid work in different countries. Scholars in several countries have shown that education attainment, labour market participation, and age are crucial predictors of time allocation both amongst men, and women (Kolpashnikova & Kan, 2020; Yamamura & Tsutsui, 2019). Those who are educated and employed are identified to spend less time towards unpaid reproductive labour. Furthermore,

regardless of the equal participation in the labour market, women still allocate more time towards unpaid domestic and care work especially in less egalitarian countries.

Though research has been skewed towards European countries and USA, recent literature has diverted to also focus on the experience outside these regions. In Asia, gender analysis studies have shown that similar to some majority of studies, sociodemographic factors such as age, location, bargaining power, education and cultural factors are associated with house and care work albeit varying levels (Sinha & Sahai, 2021; Janiso et al., 2024; Yoon, 2010; Fengdan et al.,2016). Emerging literature in Latin America has also shown that individual and household characteristics are associated with unpaid work, although magnitude and relationship differ in some countries (Amarante & Rossel, 2017; Campaña et al., 2020). In African literature studies find that women are more time poor given the share reproductive work takes coupled with market labour (Nackerdien & Yu, 2022; Carmichael et al., 2023). These studies have mostly been based on either small-scale survey, longer time intervals, limited survey modules, or macro analysis due to limited extent of information in surveys (Dinkelman & Ngai, 2022; Charmes, 2015).

In Kenya research has followed a similar trend as other African countries with most research being focused on specific regions or demographics (Williams et al., 2022; Jagoe et al., 2020; Agesa & Agesa, 2019). These studies showed the positive impact of technologies in reducing time poverty, the gender gap in domestic and paid work amongst youth in Nairobi, and increased time poverty due to activities such as fetching water. Global studies which account for indicators have further identified that some improvements have occurred in Kenya such as labour market participation of women, yet the country remains ranked 14th and 77th in Africa, and globally respectively in terms of the global gender gap index (World Economic Forum, 2023). Given this

review in composite there is clearly a lack of studies in terms of African countries. Furthermore, unlike other countries which had extensive time use surveys, these are scarcer on the continent. The recent 2021 Kenya Time Use Survey (KTUS) is the first of its kind in the country and offers critical data for further analysis on factors which have been complex to capture in years prior. This study shifts to analyse these factors in the following section, firstly introducing the analytical approach.

Data and analytical approach

The study utilises data from 2021 KTUS which was initiated by Kenya National Bureau of Statistics (KNBS). The study was the first nationally representative survey with a sample based on the Kenya Household Master Sample Frame (K-HMSF). Age groups covered by the survey include those aged 15-64 with 24 002 individuals used in this study. Sociodemographic information was collected within the survey including time use which is presented as minutes per day allocated towards different activities. In terms of gender proportions, the data includes 51% and 49% female, and male groups when considering survey person-day weights (KNBS, 2023). Excluding time use and gender, modules on marital status, education attainment, household structure, and county are also considered.

To analyse the respective dataset the study employs the Poisson regression for time use considering survey complex design. This is because time use is non-negative and skewed for which OLS does not account for, whilst Tobit assumes censoring (Wooldridge, 2010; Nichols, 2010). Within complex design adjustments for person-day weights are included to adjust for days in which there is a general decrease in time allocated to a particular activity and allowing for inference. In terms of the general form of the regression the dependent variable includes time spent in minutes on unpaid domestic, care or self-care work per day within the household or for family members by

a respondent. And the respective independent variables which include gender, marital status, education, labour market participation, religion, and household characteristics. All estimates throughout this study include state controls, and complex survey design considerations. Adopting this method the next section presents findings.

Results

Table 1: Poisson estimates for unpaid services, and self-care (IRR)

Variable	Domestic services for household and family members			Caregiving services for household and family members			Self-care and maintenance		
	Full sample	Male	Female	Full sample	Male	Female	Full sample	Male	Female
Male	1.00000			1.00000			1.00000		
	(.)			(.)			(.)		
Female	4.81959***			6.02439***			0.97750***		
	(0.12644)			(0.50061)			(0.00345)		
Age	1.02279***	1.02564***	1.02002***	1.05027***	1.04202	1.06446***	0.99801***	1.00039	0.99641***
	(0.00304)	(0.00870)	(0.00302)	(0.01339)	(0.03262)	(0.01571)	(0.00054)	(0.00086)	(0.00065)
Age^2	0.99968***	0.99974***	0.99971***	0.99917***	0.99947	0.99894***	1.00004***	1.00002*	1.00006***
	(0.00003)	(0.00009)	(0.00003)	(0.00016)	(0.00036)	(0.00019)	(0.00001)	(0.00001)	(0.00001)
Education	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000
(Base: None)	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)
Primary	1.01539	1.16013	1.03696	1.08048	0.93095	1.04800	0.98715**	0.97929*	0.98563**
	(0.02879)	(0.14610)	(0.02873)	(0.10000)	(0.24576)	(0.10022)	(0.00642)	(0.01152)	(0.00705)
Secondary	1.03124	1.37212**	1.03834	1.00669	0.74201	0.98261	0.96245***	0.95085***	0.96318***
	(0.03252)	(0.16919)	(0.03227)	(0.10115)	(0.21203)	(0.10327)	(0.00691)	(0.01167)	(0.00807)
Mid-level/University	0.94876	1.38764**	0.91013**	1.32492**	1.29441	1.24205*	0.96698***	0.96164***	0.96131***
	(0.03847)	(0.19159)	(0.03616)	(0.16281)	(0.39097)	(0.16149)	(0.00855)	(0.01363)	(0.01003)
Other	1.00029	1.30978	1.02526	1.11249	1.10080	1.06586	0.96625**	0.97185	0.93592***
	(0.06839)	(0.26272)	(0.07302)	(0.19654)	(0.70599)	(0.18935)	(0.01340)	(0.02002)	(0.01713)
Employment	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000
Base (Employed)	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)
Unemployed	1.42257***	1.46733**	1.41929***	1.53720***	1.69670	1.52229***	1.09413***	1.11084***	1.07638***
	(0.05394)	(0.26802)	(0.05036)	(0.17661)	(0.59920)	(0.18389)	(0.01006)	(0.01682)	(0.01245)
Not in Labour force	1.21808***	1.38192***	1.17097***	1.70647***	1.68119	1.73393***	1.04608***	1.03894***	1.05000***
	(0.02587)	(0.09821)	(0.02426)	(0.11759)	(0.69594)	(0.11523)	(0.00513)	(0.00863)	(0.00626)
Religion	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000
(Base: Christian)	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)
Islam	1.04507	1.23799*	0.97888	0.79156**	0.80898	0.78231**	0.99629	0.98338	1.00930
	(0.05098)	(0.14973)	(0.04304)	(0.07959)	(0.26182)	(0.07533)	(0.00973)	(0.01660)	(0.00972)
Other	0.92743	0.88561	0.93749	1.00200	0.58508*	1.14814	1.01247	1.00784	1.01736
	(0.04293)	(0.09653)	(0.04746)	(0.15808)	(0.16329)	(0.20647)	(0.00887)	(0.01133)	(0.01538)
Marital status	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000

(Base: Married)	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)
Not married	0.93285***	1.88469***	0.78441***	0.35585***	0.18347***	0.40144***	1.00017	1.01354**	0.99387
	(0.01586)	(0.11495)	(0.01522)	(0.02695)	(0.04179)	(0.03164)	(0.00386)	(0.00671)	(0.00481)
Children in HH	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000
(Base: not below 6)	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)
Child aged < 6	1.07863***	0.94187	1.07153***	1.72478***	1.50498**	1.74069***	0.99779	0.99275	1.00284
	(0.01953)	(0.09876)	(0.01824)	(0.09977)	(0.27202)	(0.10341)	(0.00489)	(0.00693)	(0.00612)
Children in HH	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000
(base: not [6-14])	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)
Child aged [6-14]	1.03570*	1.04716	1.02723	1.04206	0.98603	1.03660	0.98274***	0.99326	0.97614***
	(0.01916)	(0.09017)	(0.01904)	(0.06316)	(0.17762)	(0.06782)	(0.00474)	(0.00690)	(0.00561)
70+ Elderly in HH	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000
Without	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)
Elderly 70+	1.07154	1.00512	1.07877*	1.44660**	1.18753	1.53075**	1.02628***	1.02590**	1.02238**
	(0.04563)	(0.11884)	(0.04848)	(0.23166)	(0.54763)	(0.26315)	(0.00778)	(0.01186)	(0.01059)
HH head	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000
(base: Female)	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)
Male-headed HH	1.29200***	1.66123***	1.08525***	1.01088	0.96564	1.04443	0.98243***	0.97472***	0.99623
	(0.02643)	(0.09539)	(0.02221)	(0.07031)	(0.18483)	(0.07688)	(0.00458)	(0.00589)	(0.00621)
HH size	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000
(Less than 7)	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)
HH size ≥ 7	0.90162***	0.66649***	0.96138*	1.30852***	1.66097*	1.25530***	0.99641	0.99649	0.99416
	(0.01780)	(0.06027)	(0.02008)	(0.10071)	(0.46561)	(0.09130)	(0.00505)	(0.00759)	(0.00564)
Area of Residence	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000
(base: Rural)	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)
Urban	0.97607	1.01321	0.96965	1.15277**	0.96217	1.18047***	0.97727***	0.96359***	0.99442
	(0.01979)	(0.05958)	(0.01869)	(0.06499)	(0.19368)	(0.06515)	(0.00494)	(0.00675)	(0.00567)
County controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
n	24002	10417	13585	24002	10417	13585	24002	10417	13585

Notes: *p<0.1, ** p<0.05, *** p<0.01. Source: Author's compilation based on KNBS (2023)

The estimates for the study are presented in Table 1. In context of gender, the results support global literature in context of Kenya with women spending significantly more time on unpaid domestic and caregiving services after controlling for other factors. Contrarily, in terms of self-care and maintenance, women disproportionally spend less time in comparison to males. Further analysis[1] in Table A1 also shows that being a woman is associated with a decrease in time spent on leisure, socialising, and

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[1] Further analysis provided in Annexure.

employment. Comparison of results shows that the magnitude of associated differences between gender in terms of employment is lower than domestic services. Thus, Kenyan women significantly spend more time towards unpaid domestic services and providing care for others regardless of market participation with less time remaining for allocation towards personal wellbeing, socialising, and leisure leading to time poverty. This is supported by and further supports small scale studies in Kenya as nationally representative (Williams et al., 2022; Agesa & Agesa, 2019).

This pattern tends to be more pronounced amongst married or cohabiting women with those who are not married spending significantly less time on unpaid domestic services and caregiving. An interesting aspect is that when considering men in Kenya, those not married significantly use their time towards domestic services in comparison to those who are married. However, this does not trickle to self-care significantly. This means that those who have never married spend insignificantly less time on self-care across gender. This could be explained by the fact amongst those not married majority are in their youth and never married. According to the survey this group also allocates a higher proportion of their average time towards learning, and culture, leisure, mass-media, and sports practices thereby reducing self-care time.

On the issue of age, the results show that age follows an inverted U shape which is presented in terms of domestic services across gender. This means that increase in age leads to more unpaid domestic responsibilities although due to old age these deplete. Contrarily in terms of caregiving, only age^2 is significant and negatively related to time spent for those who are female although the pattern of inverted U shape follows with a caveat of insignificant positive relation of age and time across gender. Similar to the issue of gender, and marital status the opposite occurs in context of self-care, with a U-shaped relationship whereby increments in age lead to significantly less time spent on

self-care with a positive relation only being at an older age for women in their later years.

In terms of education and labour market participation, at an aggregate level those with primary and secondary education dedicate significantly more time towards domestic services than those with lesser schooling whilst those with a university qualification significantly dedicate less time. At a gender level, the primary and secondary education component holds in terms of association for both male and female, but differences exist at higher schooling levels. Whilst for men, those with a university qualification more time is allocated for domestic services the opposite holds for women. Amongst women, those educated spend significantly more time towards employment, and related activities than those without which could be due to higher rates of labour participation. Interestingly, across gender, higher levels of education are also significantly associated with decline in allocated time towards self-care, and maintenance even for other forms of education which include informal education. Results show that across estimates, unemployment, or lack of participation in the labour market is associated with an increase in unpaid labour time compared to those who are employed. Due to lack of jobs, individuals who are not working have more time to allocate to other activities which include unpaid household services, leisure, socialising, and self-care. It is also critical to note that for women the increase in time spent on unpaid domestic and caregiving services whilst unemployed is extremely higher than that of unemployed and out of labour market men.

The last component which accounts of household structure shows the extent to which different structures lead to increased unpaid labour particularly for women coupled with decline in self-care. In households were there are children, elderly aged above 70, and male-headed there is significant increase in time spent by women on

unpaid labour within the household coupled with decline in self-care. An interesting

aspect is that for those who are male, domestic services is on average significantly

higher when within a male-headed household than female-headed. Literature shows that

female-households include those who do not have a partner or have partners who

migrated to economic centres in Kenya (Mwangi, 2018; Njau, 2017; Kassie, Ndiritu &

Stage, 2014). Thus, males within such households also includes children or the elderly

who are more likely to be cared for than care for the households or spend their time

towards leisure, and learning. Six et al. (2018) found that in Kenya unlike countries

such as Belgium, the elderly are more active in family activities such as caring for

children, burden remains especially when the elderly need more care which reduces

time allocated to employment and resources given higher rates of poverty in Kenya.

Research also shows that in relation to children women face more burden, and that

provision of resources add to its reduction (Clark et al., 2018; Muraya et al., 2021).

Household size is also significantly associated with unpaid domestic and care

services with larger households being associated with less time spent on domestic

services than smaller households. In contrast, when considering care work, time spent

increases for women in households with more than 6 individuals. Thus, although

domestic services could be distributed in a larger household, this does not apply in

terms of care work as women still face the burden. Self-care shows that in larger

households' self-care declines for both genders but mostly for men albeit being

statistically insignificant.

The last variables accounted for in the results include religion and location. In

terms of religion which accounts for the two most dominant religious positions in

Kenya, the results show insignificant association in comparison to Christianity. The

only significant difference is in terms of care work amongst women, with women who

fall within Islam spending significantly less time towards care work whilst its insignificant for other religious positions. In terms of location, significant difference on average appears in self-care with those in urban areas across gender spending less time towards self-care than those in rural areas. The decline is much more pronounced for urban men who in many cases spend more time towards participation in the labour market and other activities than men in rural areas.

Conclusion

Nationally representative time use surveys in Africa remain scarce which has limited research in the area to identify the magnitude of associated factors particularly gender. Exploiting the latest and first time use survey in Kenya this study sought to identify associated factors of time use towards domestic work, care-work, and self-care in the country. Results emanating from this study show that several factors are associated with disproportionate time use towards unpaid labour with gender been an overwhelming factor. Being a woman is not only associated with increased time use towards unpaid labour but also less time use towards self-care and maintenance even when controlling for labour market participation. In terms of other factors marital status, age, household structure, and location are found to have varying effects across unpaid labour. Households with children, reduced household size and male-headed are significantly associated with increased unpaid domestic labour and reduced self-care especially for women.

For several years the Kenyan government together with both African Union and global partners have initiated projects, and policies advance inclusivity, human development, and gender equity. This study shows that these initiatives continue to leave much to be achieved as argued by prior literature in several areas such as gender. In terms of time use, there is clear lack of time for women towards other activities

which could improve wellbeing such as leisure, self-care, and education. Thus, increased intensity in programmes, and structural reforms to catalyse the trajectory of gender equity is needed. Scholars have also noted issues such as retrogressive social norms which add to the continued lack of progress (Gloria, 2023). This study only stands on these shoulders, and further provides evidence that much still needs to be done.

References

Agesa, R. U., & Agesa, J. (2019). Time Spent On Household Chores (Fetching Water) And The Alternatives Forgone For Women in Sub-Saharan Africa: Evidence from Kenya. *The Journal of Developing Areas*, *53*(2), 29–42. https://doi.org/10.1353/jda.2019.0019

Ahinkorah, B. O., Hagan, J. E., Jr., Ameyaw, E. K., Seidu, A.-A., & Schack, T. (2021). COVID-19 Pandemic Worsening Gender Inequalities for Women and Girls in Sub-Saharan Africa. *Frontiers in Global Women's Health*, *2*(1). https://doi.org/10.3389/fgwh.2021.686984

Amarante, V., & Rossel, C. (2017). Unfolding Patterns of Unpaid Household Work in Latin America. *Feminist Economics*, *24*(1), 1–34. https://doi.org/10.1080/13545701.2017.1344776

Arora, D. (2015). Gender Differences in Time-Poverty in Rural Mozambique. *Review of Social Economy*, *73*(2), 196–221. https://doi.org/10.1080/00346764.2015.1035909

Bargaining power and the household division of labour: Evidence from 2008 China time-use survey. (2016). *Asia-Pacific Population Journal*, *31*(1), 63–85. https://doi.org/10.18356/bb63671b-en

Baxter, J., & Tai, T. (2016). Inequalities in Unpaid Work: A Cross-National Comparison. In M. L. Connerley & J. Wu (Eds.), *Handbook on Well-Being of Working Women* (pp. 653–671). Springer Netherlands. http://dx.doi.org/10.1007/978-94-017-9897-6_36

Campaña, J. C., Giménez-Nadal, J. I., & Molina, J. A. (2020). Self-employed and Employed Mothers in Latin American Families: Are There Differences in Paid Work, Unpaid Work, and Child Care? *Journal of Family and Economic Issues*, *41*(1), 52–69. https://doi.org/10.1007/s10834-020-09660-5

Carmichael, F., Darko, C. K., Daley, P., Duberley, J., Ercolani, M., Schwanen, T., & Wheatley, D. (2023). Time poverty and gender in urban sub-Saharan Africa: Long working days and long commutes in Ghana's Greater Accra Metropolitan Area. *Journal of International Development*, *36*(1), 343–364. https://doi.org/10.1002/jid.3817

Charmes, J., 2015. Time use across the world: Findings of a world compilation of time use surveys. *Background Paper for Human Development Report*.

Charmes, J., Wieringa, S. E., Ruzvidzo, T., & Rosalie, G. (2023). The African Gender and Development Index: an engendered and culturally sensitive statistical tool. *Frontiers in Sociology*, *8*. https://doi.org/10.3389/fsoc.2023.1114095

Clark, S., De Almada, M., Kabiru, C. W., Muthuri, S., & Wanjohi, M. (2018). Balancing paid work and child care in a slum of Nairobi, Kenya: the case for centre-based child care. *Journal of Family Studies*, *27*(1), 93–111. https://doi.org/10.1080/13229400.2018.1511451

Dilli, S., Carmichael, S. G., & Rijpma, A. (2018). Introducing the Historical Gender Equality Index. *Feminist Economics*, *25*(1), 31–57. https://doi.org/10.1080/13545701.2018.1442582

Dinkelman, T., & Ngai, L. R. (2022). Time Use and Gender in Africa in Times of Structural Transformation. *Journal of Economic Perspectives*, *36*(1), 57–80. https://doi.org/10.1257/jep.36.1.57

Ervin, J., Taouk, Y., Alfonzo, L. F., Hewitt, B., & King, T. (2022). Gender differences in the association between unpaid labour and mental health in employed adults: a systematic review. *The Lancet Public Health*, *7*(9), e775–e786. https://doi.org/10.1016/s2468-2667(22)00160-8

Espino, I., Hermeto, A., & Luz, L. (2022). Gender differences in time allocation to paid and unpaid work: evidence from urban households in Guatemala, 2000–2014.

Community, Work & Family, *27*(2), 154–169.

https://doi.org/10.1080/13668803.2022.2130032

Hyde, E., Greene, M. E., & Darmstadt, G. L. (2020). Time poverty: Obstacle to

women's human rights, health and sustainable development. *Journal of Global Health*,

10(2). https://doi.org/10.7189/jogh.10.020313

Jagoe, K., Rossanese, M., Charron, D., Rouse, J., Waweru, F., Waruguru, M.,

Delapena, S., Piedrahita, R., Livingston, K., & Ipe, J. (2020). Sharing the burden: Shifts

in family time use, agency and gender dynamics after introduction of new cookstoves in

rural Kenya. *Energy Research & Social Science*, *64*, 101413.

https://doi.org/10.1016/j.erss.2019.101413

Janiso, A., Shukla, P. K., & Reddy A, B. (2024). What explains the gender gap

in unpaid housework and care work in India? *Development Policy Review*, *42*(1).

https://doi.org/10.1111/dpr.12730

Kassie, M., Ndiritu, S. W., & Stage, J. (2014). What Determines Gender

Inequality in Household Food Security in Kenya? Application of Exogenous Switching

Treatment Regression. *World Development*, *56*, 153–171.

https://doi.org/10.1016/j.worlddev.2013.10.025

Kenya National Bureau of Statistics (2023). Kenya Time Use survey 2021

(KTUS 2021). [dataset]. Version 001. Nairobi: Kenya National Bureau of Statistics

[producer], 2023. Nairobi: Kenya National Data Archive [distributor], 2023. Available

at: https://statistics.knbs.or.ke/nada/index.php/catalog/127

Kenyatta, G.N. (2023). Toward Inclusive Advancement: An Analysis of Gender

Equity in Kenya. *Journal of International Women's Studies*, *25*(2), 2-15. Available at:

https://vc.bridgew.edu/jiws/vol25/iss2/9

Kolpashnikova, K., & Kan, M.-Y. (2020). The gender gap in the United States: Housework across racialized groups. *Demographic Research*, *43(6)*, 1067–1080. https://doi.org/10.4054/demres.2020.43.36

Muraya, K., Ogutu, M., Mwadhi, M., Mikusa, J., Okinyi, M., Magawi, C., Zakayo, S., Njeru, R., Haribondhu, S., Uddin, Md. F., Marsh, V., Walson, J. L., Berkley, J., & Molyneux, S. (2021). Applying a gender lens to understand pathways through care for acutely ill young children in Kenyan urban informal settlements. *International Journal for Equity in Health*, *20*(1). https://doi.org/10.1186/s12939-020-01349-3

Mwangi, A.W., 2018. *A comparison of the socio-economic status of female-headed and male-headed households in Kenya: Use of Ordinal Logistic Regression* (Doctoral dissertation, University of Nairobi).

Nackerdien, F., & Yu, D. (2022). Defining and measuring time poverty in South Africa. *Development Southern Africa*, *40*(3), 560–579. https://doi.org/10.1080/0376835x.2022.2028606

Njau, P.K., 2017. *Single Mothers and Parenting in Kenya: the Case of Zimmerman, Nairobi County* (Doctoral dissertation, University of Nairobi).

Nichols, A. (2010). *Regression for nonnegative skewed dependent variables*. [Online] Available at: https://www.stata.com/meeting/boston10/boston10_nichols.pdf (Accessed: 5 March 2024).

Sinha, A. and Sahai, R., 2021. Factors Influencing Unpaid Domestic Work: Empirical Evidence from India. *IASSI-Quarterly*, *40*(3), pp.541-566.

Six, S., Musomi, S., & Deschepper, R. (2018). Are the Elderly Perceived as a Burden to Society? The Perspective of Family Caregivers in Belgium and Kenya: A

Comparative Study. *Journal of Transcultural Nursing*, *30*(2), 124–131.

https://doi.org/10.1177/1043659618784358

Stampini, M., Oliveri, M. L., Ibarrarán, P., Londoño, D., Rhee, H. J. (Sean), & James, G. M. (2020). *Working Less to Take Care of Parents?: Labor Market Effects of Family Long-Term Care in Latin America*. Inter-American Development Bank.

http://dx.doi.org/10.18235/0002738

State Department for Economic Planning (2023) *The First Kenya Time Use Survey Report launched Nairobi, 18th October, 2023*. [online] Available at:

https://www.planning.go.ke/the-first-kenya-time-use-survey-report-launched-nairobi-18th-october-2023/ [Accessed 13 Mar. 2024]

Treas, J., & Tai, T. (2016). Gender Inequality in Housework Across 20 European Nations: Lessons from Gender Stratification Theories. *Sex Roles*, *74*(11–12), 495–511. https://doi.org/10.1007/s11199-015-0575-9

Williams, A., Wood, S. N., Stuart, H. C., Wamue-Ngare, G., Thiongo, M., Gichangi, P., Devoto, B., & Decker, M. R. (2022). Gendered time use during COVID-19 among adolescents and young adults in Nairobi, Kenya. *eClinicalMedicine*, *49*, 101479. https://doi.org/10.1016/j.eclinm.2022.101479

Williams, A., Wood, S. N., Stuart, H. C., Wamue-Ngare, G., Thiongo, M., Gichangi, P., Devoto, B., & Decker, M. R. (2022). Gendered time use during COVID-19 among adolescents and young adults in Nairobi, Kenya. *eClinicalMedicine*, *49*, 101479. https://doi.org/10.1016/j.eclinm.2022.101479

Wooldridge, J.M. (2010). *Econometric Analysis of Cross Section and Panel Data*, 2nd ed. Cambridge, MA: MIT Press.

World Economic Forum. (2023). *Global Gender Gap Report 2023*. World Economic Forum: Cologny/Geneva, Switzerland. Available at: https://www3.weforum.org/docs/WEF_GGGR_2023.pdf

Yamamura, E., & Tsutsui, Y. (2019). Spousal age gap and identity and their impact on the allocation of housework. *Empirical Economics*, *60*(2), 1059–1083. https://doi.org/10.1007/s00181-019-01785-3

Yamamura, E., & Tsutsui, Y. (2021). Spousal age gap and identity and their impact on the allocation of housework. *Empirical Economics*, *60*(2), 1059–1083. https://doi.org/10.1007/s00181-019-01785-3

Yoon, J. (2010). Gender Norms, Housework, and Class: A Study of Korean Time Use Survey. *Asian Journal of Women's Studies*, *16*(3), 112–138. https://doi.org/10.1080/12259276.2010.11666094

Zilanawala, A. (2016). Women's Time Poverty and Family Structure. *Journal of Family Issues*, *37*(3), 369–392. https://doi.org/10.1177/0192513x14542432

Table A1. Poisson results for employment and leisure (IRR)

Variable	Employment and Related Activities			Culture, leisure, mass-media, and sports practices			Socializing, community participation and religion		
	Full sample	Male	Female	Full sample	Male	Female	Full sample	Male	Female
Male	1.00000			1.00000			1.00000		
	(.)			(.)			(.)		
Female	0.60584***			0.69038***			0.81930***		
	(0.01049)			(0.00842)			(0.01573)		
Age	1.07343***	1.05907***	1.07998***	0.99285***	0.99165***	0.99307***	1.02074***	1.02256***	1.02028***
	(0.00425)	(0.00538)	(0.00666)	(0.00178)	(0.00271)	(0.00237)	(0.00272)	(0.00435)	(0.00359)
Age^2	0.99910***	0.99922***	0.99902***	1.00016***	1.00015***	1.00017***	0.99988***	0.99984***	0.99990***
	(0.00005)	(0.00006)	(0.00007)	(0.00002)	(0.00003)	(0.00002)	(0.00003)	(0.00004)	(0.00004)
Education	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000
(Base: None)	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)
Primary	1.19192***	1.26401***	1.12098**	1.01476	1.07764**	1.00610	1.03253	0.97684	1.06422*
	(0.04930)	(0.08374)	(0.06057)	(0.02230)	(0.04018)	(0.02840)	(0.02870)	(0.04042)	(0.03927)
Secondary	1.29401***	1.31981***	1.29243***	1.03236	1.11123***	1.00514	1.09532***	1.01662	1.15571***
	(0.05536)	(0.08840)	(0.07521)	(0.02489)	(0.04383)	(0.03220)	(0.03471)	(0.04630)	(0.05071)
Mid-level/University	1.28177***	1.20073***	1.42329***	1.20920***	1.30523***	1.17625***	1.17269***	1.15514***	1.16771***
	(0.05798)	(0.08366)	(0.08880)	(0.03272)	(0.05614)	(0.04286)	(0.04514)	(0.06197)	(0.06438)
Other	1.30579***	1.34182***	1.32289***	0.96086	1.05870	0.88550	1.12634*	1.00738	1.24726**
	(0.09133)	(0.12704)	(0.14310)	(0.05023)	(0.07432)	(0.07218)	(0.07244)	(0.08907)	(0.11628)
Employment	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000
Base (Employed)	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)
Unemployed	0.19716***	0.35142***	0.08921***	1.70838***	1.63674***	1.74611***	1.62244***	1.82315***	1.46317***
	(0.01928)	(0.03754)	(0.01691)	(0.05376)	(0.08070)	(0.07041)	(0.08556)	(0.14717)	(0.10203)
Not in Labour force	0.07219***	0.09399***	0.05994***	1.48864***	1.42645***	1.53220***	1.18727***	1.22349***	1.17584***
	(0.00444)	(0.00865)	(0.00493)	(0.02395)	(0.03863)	(0.03130)	(0.02685)	(0.04691)	(0.03489)
Religion	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000
(Base: Christian)	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)
Islam	1.01042	1.01297	1.03968	1.00457	1.00223	1.01302	1.26496***	1.32473***	1.21341***
	(0.03525)	(0.04160)	(0.06606)	(0.03148)	(0.04540)	(0.04407)	(0.04869)	(0.07912)	(0.06047)
Other	1.13590***	1.09247**	1.26933**	1.08133**	1.05484	1.12412*	0.91151*	0.92825	0.86484
	(0.04765)	(0.04870)	(0.13858)	(0.04109)	(0.04886)	(0.07234)	(0.05127)	(0.06645)	(0.07648)
Marital status	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000
(Base: Married)	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)
Not married	1.07797***	0.85543***	1.28787***	1.02291*	0.99799	1.04027**	0.99096	0.96776	1.00194
	(0.01927)	(0.02149)	(0.03707)	(0.01331)	(0.02222)	(0.01864)	(0.01977)	(0.03380)	(0.02745)
Children in HH	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000
(Base: not below 6)	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)
Child aged < 6	1.02120	1.10917***	0.92038**	0.94997***	0.96853	0.93952***	0.86125***	0.85724***	0.87591***
	(0.02331)	(0.03160)	(0.03407)	(0.01636)	(0.02544)	(0.02140)	(0.02166)	(0.03357)	(0.02878)

Children in HH	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000
(base: not [6-14])	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)
Child aged [6-14]	0.95792*	0.96196	0.98128	0.97657	0.97848	0.97741	1.01403	1.04234	0.99938
	(0.02253)	(0.03057)	(0.03356)	(0.01595)	(0.02389)	(0.02139)	(0.02347)	(0.03769)	(0.02996)
70+ Elderly in HH	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000
Without	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)
Elderly 70+	0.93711	1.03057	0.86968	1.06283**	1.08876**	1.02689	0.91986**	0.97246	0.87618**
	(0.06417)	(0.09290)	(0.09255)	(0.02772)	(0.04321)	(0.03513)	(0.03915)	(0.06503)	(0.04882)
HH head	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000
(base: Female)	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)
Male-headed HH	1.02592	1.15929***	0.97121	0.91177***	0.89357***	0.98201	0.89647***	0.87826***	0.97664
	(0.01950)	(0.02638)	(0.04263)	(0.01375)	(0.01793)	(0.02399)	(0.02181)	(0.02816)	(0.03895)
HH size	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000
(Less than 7)	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)
HH size ≥ 7	0.91461***	0.93840*	0.91244**	0.97980	0.95402*	1.01063	0.98692	1.01817	0.94720*
	(0.02561)	(0.03271)	(0.04212)	(0.01727)	(0.02384)	(0.02490)	(0.02260)	(0.03344)	(0.03064)
Area of Residence	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000
(base: Rural)	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)
Urban	1.64302***	1.48619***	1.80402***	1.08230***	1.03507	1.13126***	0.91599***	0.89781***	0.92944***
	(0.02947)	(0.03201)	(0.05645)	(0.01519)	(0.02172)	(0.02120)	(0.01916)	(0.02805)	(0.02615)
County controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	24002	10417	13585	24002	10417	13585	24002	10417	13585

Notes: *p<0.1, ** p<0.05, *** p<0.01. Source: Author's compilation based on KNBS (2023)