



# DEMOGRAPHIC RESEARCH

*A peer-reviewed, open-access journal of population sciences*

---

## **DEMOGRAPHIC RESEARCH**

**VOLUME 47, ARTICLE 15, PAGES 415–452**

**PUBLISHED 15 SEPTEMBER 2022**

<https://www.demographic-research.org/Volumes/Vol47/15/>

DOI: 10.4054/DemRes.2022.47.15

*Research Article*

### **Women's economic empowerment in sub-Saharan Africa: Evidence from cross-national population data**

**Eunice Mueni Williams**

**Heini Väisänen**

**Sabu S. Padmadas**

© 2022 Williams, Väisänen & Padmadas.

*This open-access work is published under the terms of the Creative Commons Attribution 3.0 Germany (CC BY 3.0 DE), which permits use, reproduction, and distribution in any medium, provided the original author(s) and source are given credit.*

*See <https://creativecommons.org/licenses/by/3.0/de/legalcode>.*

## Contents

1	Introduction	416
1.1	Defining women's economic empowerment	418
1.2	Measuring women's economic empowerment: A conceptual framework	419
1.3	Research evidence in sub-Saharan African countries	421
2	Data and methods	422
2.1	Data	422
2.2	Variables and their measurement	423
2.3	Analytical strategy	426
2.4	Sensitivity analysis	427
3	Results	428
3.1	Country variation in individual WEE indicators	428
3.2	Women's economic empowerment composite score	430
3.3	Typology of WEE	431
4	Discussion	437
4.1	Country typologies help understand WEE	438
4.2	The importance of context	440
4.3	Strengths and limitations	440
5	Conclusions	441
6	Acknowledgments	441
	References	443
	Appendix	450

## **Women's economic empowerment in sub-Saharan Africa: Evidence from cross-national population data**

**Eunice Mueni Williams<sup>1</sup>**

**Heini Väisänen<sup>2</sup>**

**Sabu S. Padmadas<sup>3</sup>**

### **Abstract**

#### **BACKGROUND**

Women's economic empowerment (WEE) has attracted high-level policy interest, and is recognized as a central, cross-cutting outcome, and the cornerstone for achieving Sustainable Development Goals. However, it lacks a standardised definition and standard, measurable, and comparable indicators, and is plagued by large data gaps, particularly in sub-Saharan Africa (SSA).

#### **OBJECTIVE**

We examine the extent of WEE in SSA. Our goal is to identify WEE country typologies explaining the variation in and contributing domains of WEE in each country.

#### **METHODS**

Using recent DHS data in 33 countries, we apply principal component analysis to generate a WEE score based on 9 indicators in order to better understand the contributors underlying this score and derive country typologies.

#### **RESULTS**

Overall, WEE is low but it varies markedly by country. It is typically explained by educational attainment, employment, and land ownership among women alone or in combination with men. We identified 5 typologies of WEE: (1) instrumental agency explained by high educational attainment, (2) instrumental agency explained by land ownership, (3) individual economic advancement explained by high employment rates, (4) basic-level economic empowerment, and (5) low-level economic empowerment.

---

<sup>1</sup> Department of Social Statistics and Demography, University of Southampton, UK.  
Email: [e.m.williams@soton.ac.uk](mailto:e.m.williams@soton.ac.uk).

<sup>2</sup> Institut National d'Etudes Démographiques (INED), Aubervilliers, France; and Department of Social Statistics and Demography, University of Southampton, UK; and.

<sup>3</sup> Department of Social Statistics and Demography, University of Southampton, UK.

## **CONCLUSIONS**

The level of WEE in SSA varies by country. The factors affecting the level also vary and can be divided into 5 typologies characterising the type of WEE.

## **CONTRIBUTION**

Our results provide timely evidence for the increasing push to achieve WEE and highlight potential priority areas for policy and programme interventions.

## **1. Introduction**

The United Nations' Sustainable Development Goals (SDGs) call for efforts to achieve inclusive economic growth and improved lives for all by 2030. Specifically, SDG-5 focuses on gender equality and empowerment for women and girls, highlighting the need for equal access to economic resources including ownership and control of land and other property, and full and effective participation at all levels of decision-making (United Nations 2015). Women's economic empowerment (WEE) has been recognized as an end in itself, essential for human progress and economic development (Golla et al. 2011). It is a precondition for poverty reduction and sustainable development, and thus is a cornerstone for achieving the SDGs (United Nations 2016).

We focus on sub-Saharan Africa, as the region lacks research on WEE and has the highest gender inequality and poverty rates globally, particularly among women (World Bank 2020; 2022). More studies have been conducted in other regions such as Asia, but contextual differences limit the applicability of these earlier findings to the African context. Although there has been progress in women's access to education and health, women lag behind in the economic and political spheres. Women have lower economic and educational achievements and higher vulnerability to poverty than men, with many sub-Saharan African countries showing the poorest outcomes globally (World Bank 2018). Targeted economic policies and programmes are needed to achieve women's empowerment goals. Understanding the barriers to WEE and what drivers it is key to advancing this goal.

Pathways to economic empowerment depend on the wider sociocultural and economic context: for instance, improving the quality of employment; reducing unpaid work and care; improving access to assets and services including land, quality education and training; enabling institutional reforms and the necessary legal provisions; improving control of decision-making and decision-making choices; and increasing autonomy and leadership, including political representation (Kabeer 2011; 2012; Doss 2013; Buvinić and O'Donnell 2016; Hunt and Samman 2016; Quisumbing, Rubin, and Sproule 2016; United Nations 2016; Business for Social Responsibility 2017; Fox and Romero 2017;

Kabeer 2017; Martinez-Restrepo and Ramos-Jaimes 2017; Oxfam International 2017; Yount, Crandall, and Cheong 2018).

Three main challenges that limit our understanding of WEE in Sub-Saharan Africa are (1) lack of a standardised definition; (2) lack of standard, measurable, and comparable indicators; and (3) data gaps. We aim to advance both the measurement and the knowledge of the concept by focusing on Sub-Saharan Africa using cross-national analysis of Demographic and Health Survey (DHS) data. We investigate the heterogeneity of WEE in the region by constructing a score that measures the extent of WEE. We also classify countries into typologies based on the main domains contributing to WEE. Typologies group countries with similar drivers of WEE, strength of WEE, and constraints on WEE, thus helping to target interventions. Identifying WEE typologies and constructing a composite WEE score are the main contributions of this paper. WEE typologies are needed to guide policies and programme implementation. No previous study has developed such typologies, although Ewerling et al. (2017) have examined country groupings of general empowerment.

This paper does not examine women's general empowerment, encompassing economic, socio-cultural, political, and psychological dimensions, because this approach risks overlooking the economic empowerment dimensions where women lag behind (World Economic Forum 2021). In addition, the inclusion of WEE in overall empowerment measurement is often limited to a few economic indicators such as income and asset ownership, leaving out key indicators such as economic agency. Access to economic resources alone does not guarantee that economic empowerment will follow (Kabeer 1999). Rather, these resources form the first step towards achieving WEE. When women transform these resources into opportunities and economic benefits with better access to and control over income their strategic choices are expanded and their economic empowerment subsequently improves (Abril 2009; Kabeer 2009). Given the centrality of WEE to the achievement of the SDGs and as a tool in development interventions, there is need for targeted studies on WEE, particularly in regions where such studies are limited, such as sub-Saharan Africa. Therefore, WEE must be reduced to a tangible and measurable element if its contribution to achieving the SDGs is to be quantified and applied in policy programmes.

Many of the barriers to economic empowerment that women face have their roots in the household, where social norms dictate that women are the primary caregivers, thus limiting their participation in education, the labour market, and decision-making (Kabeer 2009; Abril 2009). The power imbalance between men and women within the household limits women's autonomy in decision-making. Therefore, if women are empowered by dismantling these barriers within the household, their chances of becoming economically empowered outside the household will increase as well. Challenging the practices within

households that maintain women's subordinate status in society will advance women's human rights and social justice, as well as empower them more generally (Kabeer 2009).

We set out to answer three research questions: (1) What is the extent of WEE in sub-Saharan African countries? (2) Which domains contribute to WEE? and (3) How can countries be classified into typologies based on the explanatory factors of WEE?

## **1.1 Defining women's economic empowerment**

There are several definitions of WEE. Eyben and colleagues (2008) define WEE as the capacity of women to participate, contribute, negotiate, and benefit from growth processes, while being able to recognize their contributions and exercise agency and choice (Eyben, Kabeer, and Cornwall 2008). WEE is a process that increases women's power over economic decisions that influence their lives and priorities. It can be achieved through equal access to and control over critical economic resources and opportunities, and the elimination of structural gender inequalities within the society (Tornqvist 2009). The International Centre for Research on Women (ICRW) defines economic empowerment as both the ability to succeed and advance economically (enabling resources) and having the power to make and act on economic decisions (voice and agency) (Golla et al. 2011). Laszlo et al. (2017) add that WEE enables women to exercise agency and decision-making powers to the benefit of all areas of their lives (Laszlo et al. 2017). WEE is a process of moving from being disempowered to being empowered by expanding agency, decision-making, and wellbeing. This process entails questioning, challenging, and changing regressive behaviours, norms, and institutions, whether the intended change is achieved or not (Hanmer and Klugman 2016).

Agency involves the ability to set goals and act on them and is determined by actions that challenge power relations (Kabeer 1999; Donald et al. 2017). Agency is both intrinsic and instrumental. Intrinsic agency is the ability of a woman to question or reject normative beliefs that promote gender inequality and to have confidence in her capabilities (power within), while instrumental agency is the ability to exercise capabilities and choices through influence or control over decision-making (power to) (Kabeer 1999; Yount et al. 2016; Donald et al. 2017; Martinez-Restrepo and Ramos-Jaimes 2017).

Agency is related to empowerment, but empowerment is broader (Donald et al. 2017): thus there is a need for resources, which in Kabeer's (1999) framework are referred to as preconditions for empowerment. Transformative decision-making can contribute to the deconstruction of unequal gender relations, while strategic resources can provide women with a greater agency, choice, and wellbeing (Kabeer 2005). Intrinsic economic agency is often measured by women's views on societal norms, including

women's participation in paid work, equity in domestic work, and gender segregation of work (Golla et al. 2011; Filgueira and Martinez Franzoni 2017; Martinez-Restrepo and Ramos-Jaimes 2017). Instrumental economic agency entails participation in economic decisions within the household (Hanmer and Klugman 2016; Yount et al. 2016; Donald et al. 2017; Yount, Crandall, and Cheong 2018; Yount et al. 2020).

## **1.2 Measuring women's economic empowerment: A conceptual framework**

Despite its policy relevance, there is no standardised measure of WEE. This is not only due to the nuance and complexity of WEE, but also because it is context-specific, and thus the use of universal indicators is challenging (Buvinic 2017; Fox and Romero 2017; Buvinic et al. 2020). Furthermore, measuring a process (of change) and agency are challenging because both relate to intrinsic states, thus relying on self-reported interpretations of change. To capture change requires longitudinal data, which is lacking in most LMICs. Nevertheless, economic empowerment should be measured as an outcome in its own right (Buvinic 2017). The most commonly used indicators of WEE are employment status, financial access and inclusion (incorporating access to credit), asset ownership, educational attainment, decision-making within the household and in the community, autonomy, and leadership roles, including political representation (Kabeer 2012; Doss 2013; Quisumbing, Rubin, and Sproule 2016; Fox and Romero 2017; Kabeer 2017; Martinez-Restrepo and Ramos-Jaimes 2017; Yount, Crandall, and Cheong 2018). Most tools for measuring empowerment combine decision-making and achievement approaches. Achievement reflects the final outcome of the empowerment process and consists of both objective and subjective indicators of empowerment and wellbeing.

We adopted the definition of WEE by Golla et al. (2011), who developed a conceptual framework based on economic empowerment with two interrelated components: power/agency, and economic advancement. As noted above, agency is the ability to set goals and act on them. Economic advancement entails economic gain and success, and is measured using productivity and earnings in terms of increased income, savings or a good quality job, and business growth (Buvinic 2017; Buvinic et al. 2020). Economic advancement can be viewed as the 'achievements' or 'outcomes' in Kabeer's (1999) framework. Both components are influenced by resources, norms, and institutions.

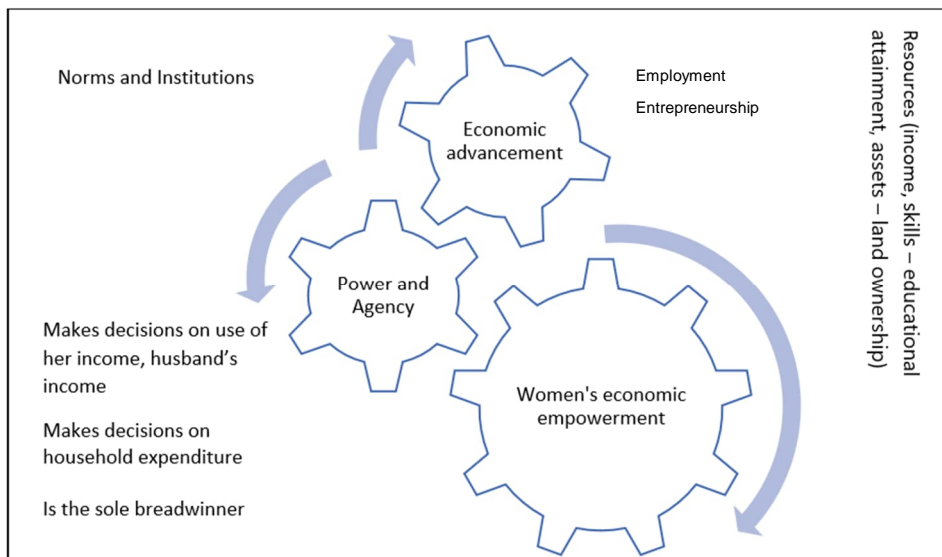
Resources are the medium through which agency is expressed (Kabeer 1999). They constitute the building blocks (enabling environment) at the individual or community level and include both tangible and intangible assets. Kabeer (1999) argues that resources and agency form people's capabilities; that is, the ability to live the lives they want. Lack of resources, which is pervasive among the poor, compromises freedom of choice. In

addition, people who occupy privileged positions, including men in patriarchal power structures, have better access to resources than the less privileged.

Norms and institutions reflect the context and affect how resources are distributed and used. Institutions are the rules of game: they govern activities and mediate relations between the individual and the social and economic environment. They include legal and policy structures, economic systems, and market structures, as well as marriage, inheritance, and education systems, among other things. Kabeer (2012) observed that these norms, values, and practices become formalised in public institutions and reflect and reproduce preconceived notions of masculinity and femininity in their routine rules, procedures, and practices. Thus, discriminatory social institutions limit women's voice in society and influence over policies (Kabeer 2012).

Figure 1 illustrates our operationalisation of Golla et al.'s (2011) framework, showing the factors contributing to economic advancement and how they enhance economic empowerment. Participation in decision-making at both the individual and household level shows power and agency. The manifestation of WEE is influenced by norms and institutions, which if they are discriminatory have to be challenged and changed to achieve empowerment. Since WEE is a process, improvement in any of the indicators will enhance WEE.

**Figure 1: Conceptual framework of women's economic empowerment**



Source: Adapted from Golla et al. 2011: p.4.



Although we recognise that WEE is a process, the cross-sectional DHS data we use does not enable us to measure it as such. Nevertheless, we can measure, at one point in time, indicators relevant to the framework, such as economic decision-making and access to and control of strategic resources such as education, land ownership, and employment. Nor, due to data limitations, can we measure intrinsic agency (i.e., societal norms regarding women's economic agency). Nevertheless, we include most elements typically used to measure WEE. The main strength of the DHS is its standardised multi-country comparable data on economic empowerment indicators at one point in time (Hanmer and Klugman 2016), and thus we chose this data source as the only one providing comparable data across a wide range of African countries. Our results can provide a comparison point for future studies tracking the progress of WEE in the region.

The WEE score proposed in the current study focuses on direct and indirect indicators of economic empowerment and can be adapted to many datasets. In addition, it can be expanded to include subjective indicators of economic empowerment (i.e., intrinsic agency) not currently captured in the WEE score due to data limitations. So far two main indices to measure women's empowerment have been developed. Alkire et al. (2013) proposed the Women's Empowerment in Agriculture Index (WEAI). Although this index includes measures of intrinsic agency, its main focus is women's empowerment in agricultural production. In addition, it uses data from bespoke surveys, thus making its use with secondary data difficult (Alkire et al. 2013). Another example is the Survey-based Women's emPOWERment index (SWPER), which is somewhat similar to the WEE score developed for this study in that it was created using the DHS and Principal Components Analysis (PCA) (Ewerling et al. 2017). However, it is a more broadly framed index and only three of its constituent indicators (employment, education, and decisions regarding large household purchases) focus on economic empowerment as defined by a recent review of WEE tools (Buvinic et al. 2020).

### **1.3 Research evidence in sub-Saharan African countries**

Countries in sub-Saharan Africa have the worst economic performance globally, including high levels of poverty, poor education, and gender inequality. Yet, to the best of our knowledge, hardly any empirical multi-country analyses examine the extent of WEE in sub-Saharan Africa, in part due to insufficient data. Most studies in the region focus on women's empowerment in general as opposed to WEE, on micro-finance and/or micro-credit as a narrow measure of WEE, or draw mainly on evaluation reports and studies of specific interventions (van Rooyen, Stewart, and de Wet 2012; Jennings et al. 2014; Ewerling et al. 2017; Asaolu et al. 2018; Miedema et al. 2018). Although these studies include some economic empowerment indicators they lack specific WEE

dimensions, with the exception of Jennings et al. (2014), who identify three empowerment dimensions: economic, social, and legal, providing a score for each. Their measurement of the extent of WEE in sub-Saharan Africa is limited to 8 countries, whereas our analysis covers 33 sub-Saharan African countries.

Numerous qualitative studies have explored the contribution of women's employment – particularly in the garment industry – to household economy in Asian countries (Scott et al. 2016). However, unlike in Southwest Asian countries such as India and Bangladesh, in SSA women earning an income is both expected and desired, and often women manage household consumption and produce low revenue commodities such as chicken (Mayoux 1999; Njuki, Kruger, and Starr 2013). In addition, women's mobility outside the home to work or run a business is not restricted in the way it is in Asian countries. Because of these contextual differences, the applicability of the findings from Asian countries to the African context may be limited.

## **2. Data and methods**

### **2.1 Data**

We use DHS data covering different geographic regions in sub-Saharan Africa. The primary DHS respondents are women of reproductive age (15–49 years). We include all possible countries with a DHS since 2010. For countries with multiple surveys since 2010 we use the most recent. To ensure comparability of data we use only post-2010 surveys in order to capture countries that used the two most recent DHS questionnaire revisions.

Of the 48 sub-Saharan Africa countries, 43 have ever conducted a DHS, of which 34 took place in 2010 or later. Equatorial Guinea's data are not publicly available; thus 33 countries were finally included (Appendix A-1). To explore economic agency we use the women's empowerment module, which has questions on women's participation in household decision-making, autonomy in use of earnings, ownership of houses and land, and attitudes towards domestic violence. Unfortunately, these questions were only asked of women in a marital or cohabiting union, and hence our findings are only applicable to partnered women. Although the questions on domestic violence may capture intrinsic agency in the domain of overall empowerment, they are excluded from our score because we are interested in economic agency. Unfortunately, elements of intrinsic economic agency are not captured in the DHS. Our analytic sample includes an average of 8,902 women of reproductive age per country but ranges between 2,841 in South Africa and 27,250 in Nigeria. South Africa's sample is small because only 33.4% of the survey sample were in a union. In Kenya the empowerment module was only implemented

among a sub-sample of partnered women (47.4%,  $n = 19,036$ ), and thus our analysis was limited to this sub-sample (Appendix A-1).

Generally, women included in the sample are on average older (30 years vs. 26 years), have more children (3.8 vs. 1.1), are less-educated (4.5 years of education vs. 6.8), and are more often employed (69.5% vs. 52.0%) than those excluded from the sample (for details, see Appendix A-1). It is possible that including unpartnered women in WEE measurement would give slightly different results for each country. However, all studies of empowerment using the DHS suffer from the same limitation and thus we believe our results will nevertheless be of interest.

## **2.2 Variables and their measurement**

Our primary outcome is women's economic empowerment. We use indicators similar to previous studies measuring WEE: labour market outcomes (employment status, income), access to resources (education, financial, land ownership), and economic decision-making (who makes decisions regarding use of the woman's income and her husband's income, and about household expenditure on large household items) (Buvinic 2017; Salem, Cheong, and Yount 2018; Yount, Crandall, and Cheong 2018; Buvinic et al. 2020). Employment and income operationalise economic advancement, while autonomy in use of income and deciding household item expenditure operationalise agency (Golla et al. 2011). Educational attainment and land ownership are strategic resources that drive both economic advancement and agency.

We created an individual-level score as a sum of 9 indicators based on 8 individual questions in the DHS, as shown in Table 1. All indicators were equally weighted, meaning we assumed that they are equally important for women's empowerment. This may not always be the case, as some WEE indicators can give women higher agency than others, which should be examined in the future with qualitative or mixed method studies. We also assumed that there is a specific cut-off point for each indicator, after which the woman becomes empowered, although empowerment is a continuous rather than a binary process in which women move through a continuum from being disempowered to becoming empowered. Yet the fact that we combine a set of binary indicators mimics this process better than using one or two indicators alone, as every resource or skill acquired moves women along this continuum. Moreover, despite its limitations, using the DHS provides the best possibility to study WEE in a comparable cross-country setting in Africa.

**Table 1: Economic empowerment variables, measurement, and coding**

Variable	DHS Question	DHS response categories
<b>Education and literacy</b>	What is the highest level of school you attended?	No education Primary Secondary Higher
	Now I would like you to read this sentence to me	Cannot read at all Able to read only parts of sentence <i>Able to read whole sentence</i> No card with required language Blind/visually impaired
<b>Working status</b>	Have you done any work in the last seven days, do you have any job or business from which you were absent for leave, have you done any work in the last 12 months?	No <i>In the past year</i> Currently working <i>Have a job, but on leave last 7 days</i>
<b>Type of earnings</b>	Are you paid in cash or kind for this work or are you not paid at all?	Not paid Cash only Cash and in-kind In-kind only
<b>Decision on respondent's earnings</b>	Who usually decides how the money you earn will be used?	<i>Respondent alone</i> Respondent and husband/partner Husband/partner alone Someone else
<b>Decision on partner's earnings</b>	Who usually decides how your (husband's/partner's) earnings will be used?	<i>Respondent alone</i> Respondent and husband/partner Husband/partner alone Other Husband/partner has no earnings
<b>Women's income relative to partner</b>	Would you say that the money you earn is more than what your partner earns, less, or about the same?	<i>More than him</i> Less than him <i>About the same</i> Husband/partner doesn't bring in money Don't know
<b>Sole breadwinner</b>	Would you say that the money you earn is more than what your partner earns, less, or about the same?	More than him Less than him About the same <i>Husband/partner doesn't bring in money</i> Don't know
<b>Decision on large household purchases</b>	Who usually makes decisions about making major household purchases?	<i>Respondent alone</i> Respondent and husband/partner Husband/partner alone Someone else
<b>Land ownership</b>	Do you own any agricultural or non-agricultural land either alone or jointly with someone else?	Does not own <i>Alone only</i> Jointly alone <i>Both alone and jointly</i>

Note: Categories in italics were coded as empowered.  
Source: DHS Questionnaire.

Each individual was assigned a score of 0 (not empowered) or 1 (empowered) for each indicator. WEE scores thus ranged from 0 to 9, with 9 representing the most empowered women. Women were coded as economically empowered if they had post-primary education and could read fluently, were currently working or had worked in the

previous year, and earned cash or both cash and in-kind payments. We excluded payment in-kind only (typically food) because in this case women cannot choose how to spend their earnings. We count only those with post-primary education as empowered because this level of education has more potential to transform women's lives than lower levels by enabling access to formal employment, as well as increasing their sense of worth, capabilities, and awareness of women's rights, leading to questioning patriarchal social norms, increased decision-making power, and leadership (Kabeer 2011; Khatri 2016). Although primary-level education is necessary for empowerment, often it is not sufficient by itself as it is unlikely to address structural inequalities between men and women, and for outcomes such as full-time labour-force participation and living standards there is little difference between primary-level and no education (Kabeer 2009; Wodon et al. 2018).

Women who made decisions alone or jointly with their partners on the use of their own earnings, their partners' earnings, and on large household purchases were coded as economically empowered. Women who earned more than or as much as their partners were also considered empowered, as it shows parity with husband. Regarding land ownership, only women who owned at least some part of their land on their own were considered economically empowered (Table 1), because although women could be land co-owners through marriage they cannot use that land as, for example, collateral to access credit, or mechanize it for agricultural production without involving their husbands. According to Kabeer (1999), resources should be strategic to provide women with greater capacity for agency and choice. We chose land ownership (instead of house ownership, for example) as a WEE indicator because it can be used as a proxy for access to agricultural production resources (Doss et al. 2015).

Finally, to capture women who are sole breadwinners, we identified women who earned cash or both cash and in-kind payment, but whose partners were not employed and not earning an income at the time of survey. Thus, the woman was the sole household earner and their income was included as an indicator of WEE. While in industrialised countries female breadwinner households have been shown to be economically fragile compared to male breadwinner households (Kowalewska and Vitali 2021), having female breadwinners may also imply increasing gender equity, challenging the traditional view of men as the sole breadwinner, especially in sub-Saharan Africa where gender equality lags behind other world regions (Akanle and Nwaobiala 2020). We did not include indicators on gender norms that hold back women's economic opportunities, as this data was not collected in the DHS. We also excluded indicators of financial inclusion because such data was only available for six countries.

### **2.3 Analytical strategy**

We first describe the percentage distribution of each economic empowerment variable by country. The proportion of empowered women in each variable per country was computed by dividing the number of empowered women by the number of women in the analytic sample per country. We then show average WEE scores per country. All results were weighted using survey sample weights provided by the DHS. The data were analysed using Stata 17.0 (Stata Corporation, College Station, TX).

To examine its generalizability (external validity), we correlated the composite country WEE score with two country-level indexes, the human development index (HDI) and the gender inequality index (GII), developed by the United Nations Development Program (UNDP). The HDI measures human development achievement in three key areas: health, education, and national income, which indicate a country's living standards (United Nations Development Programme 2020). The GII shows gender gaps in key areas of human development, including reproductive health, empowerment, and employment. Empowerment in the GII is measured as the share of women in parliamentary seats and the proportion of the population aged 25 years and older with secondary and higher education (United Nations Development Programme 2020). Employment and education level are thus common indicators in both the WEE score and the GII, although the GII measures education differently.

The correlation between the WEE score and the HDI was high and positive (0.71); thus countries with a high HDI were more likely to have a high WEE score. This is expected, as men and women in countries with high human development have higher educational achievement, one of the indicators used for measuring WEE. The WEE score was moderately and negatively correlated with the GII (-0.45). High GII levels indicate that men and women do not have the same opportunities in employment, education, and public representation. The correlations with both the HDI and the GII were significant and imply that the derived WEE score is valid and provides a reliable measure of the extent of economic empowerment among women.

We used principal component analysis (PCA) to derive key contributors to the composite WEE score and to explore country typologies (clusters) of WEE based on the identified components. PCA is a statistical procedure for dimension reduction and clustering visualization (Jolliffe 2002). The first principal component accounts for as much of the variability within the data as possible, while the succeeding components explain as much of the remaining variability as possible. PCA has been used in previous studies to derive a woman's empowerment score (Phan 2016; Ewerling et al. 2017). Cross-country comparability of the scores derived from PCA loadings has been questioned, particularly those developed for the SWPER index (Richardson 2018). However, Asaolu et al. (2018) and Miedema et al. (2018) have applied factor analysis and confirmed consistency of cross-national measurement of most of the indicators used

in our analysis, including employment, education, economic decision-making, and land ownership in sub-Saharan Africa countries (Asaolu et al. 2018; Miedema et al. 2018). We used the proportion of women empowered under each variable for each country as input data for PCA. Four countries (Angola, Cameroon, Liberia, and South Africa) had missing data on land ownership, and thus were dropped from PCA analysis, leaving a total of 29 countries. Because of the small proportion of women identified as sole breadwinners this item was dropped, and thus 8 empowerment items were included in the PCA.

We plotted the retained PCA components against each other to identify clusters of countries with similar factors driving the observed WEE score.

## **2.4 Sensitivity analysis**

For sensitivity analysis, we varied the number of indicators included in the measurement of WEE to examine whether the indicators used changed the country WEE scores. Since high levels of labour force participation may not imply economic empowerment (because of the low quality of jobs/economic activities women engage in), we computed WEE excluding employment status. In addition, we computed WEE excluding land ownership because some of the countries in the analytical sample had no data on land ownership. In both instances there were no major differences in country ranking: for example, the first two and last four countries remained the same. Fluctuations in ranking were observed for countries with high employment rates (Rwanda and Burundi) and high land ownership levels (Malawi and Comoros, whose ranking dropped by six positions when land was excluded from the score). Four countries with missing data on land ownership (Angola, Cameroon, Liberia, and South Africa) did not change their rankings depending on whether land ownership was included or not in operationalizing WEE.

Further, we compared the 5-year age group distribution across all included countries to identify potential differences in the population age structure that would influence our WEE score. This is because some of the indicators used to measure WEE may vary with age, including higher educational attainment by age. The distributions were robust, as they did not show any considerable age skewness that would affect the computed WEE scores.

For sensitivity analysis of selected indicators, we compared the PCA results with and without the sole breadwinner indicator. There were no major changes, and hence we could drop it without losing much information. For sensitivity analysis of identified clusters, K-means cluster method was used. K-means is a partition clustering method that breaks the observations into a number of disjoint or non-overlapping groups where each data point belongs to only one group (Jin and Han 2010; Makles 2012).

### **3. Results**

#### **3.1 Country variation in individual WEE indicators**

On average, about 70% of women in each country were employed, although this ranged from 28.7% in Niger to 94% in Rwanda and Burundi (Table 2). Despite being in employment, many women were not remunerated in cash (on average 49.1% were paid in cash).

Participation in decision-making was high in most countries, particularly in decisions on large household purchases (52.9% of women, which is the second highest indicator of WEE among the variables considered). Slightly more than two-fifths of women decided how their own (42.9%) or their husband's (42.0%) earnings were used. Notably, in Eastern and Southern Africa more women had a say in the use of their husband's earnings than their own, which could be due to fewer women having their own earnings. Secondary and higher education attainment among women was generally low. Only seven countries, all middle-income level based on World Bank classification, had more than 50% of women attaining secondary or higher education. On average, for all countries, only 1 in every 4 women had attained post-primary education (Table 2).

Women scored low on the other three empowerment items: earning more than their husbands, being sole breadwinners, and being landowners. On average, less than 10% of women earned more than their husband, ranging from 2.7% in Niger and Burkina Faso to 20.7% in Rwanda. Women breadwinners were almost non-existent (0.9% on average), with Lesotho showing the highest percentage (7.3%). Although land ownership among women was very low in almost all countries, Malawi and Comoros stood out, with about half of the women owning land.

From these results, we can conclude that labour market participation is the most common contributor to the aggregate WEE in the majority of the countries, as most women are engaged in some form of employment. Participation in decisions on household purchases and earning cash are also common indicators of economic empowerment in SSA.



**Table 2: Weighted average percentages of women empowered under each indicator in SSA countries**

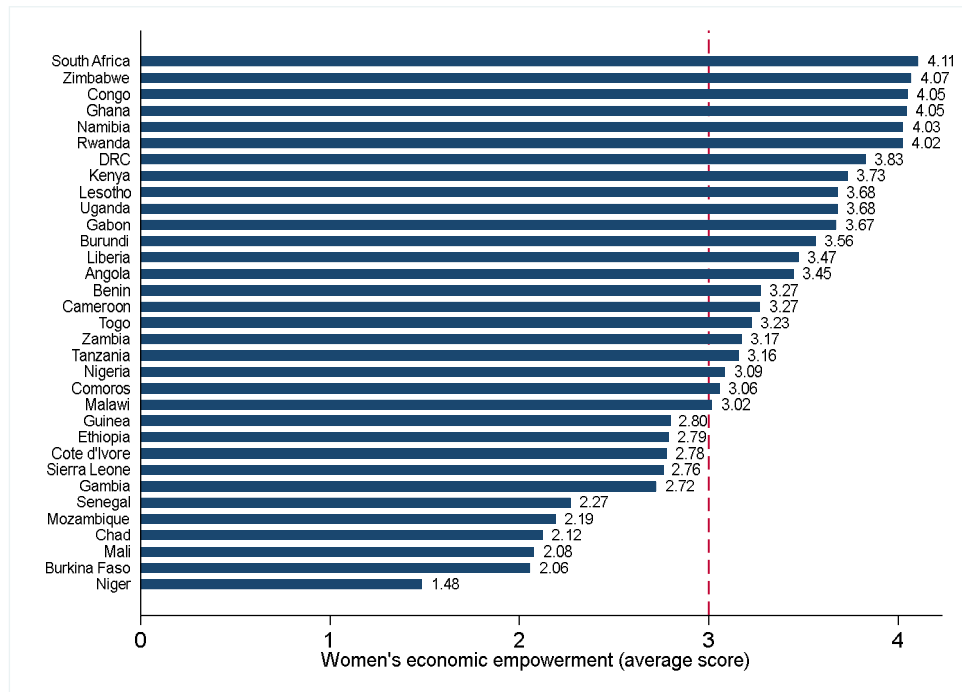
Country	Survey year	Secondary and higher education	Employed	Earns cash	Decides on use of own cash	Decides on use of husband's cash	Earns more than husband	Sole earner	Decides on household purchases	Owns land solely
Angola	2015/6	26.0	74.7	50.4	41.3	58.0	11.1	2.2	80.9	
Benin	2017/8	13.4	84.4	71.4	65.7	25.9	10.6	0.8	47.2	8.2
Burkina Faso	2010	6.9	81.5	38.0	35.3	7.0	2.7	0.2	20.0	14.2
Burundi	2016/7	10.9	93.5	43.5	38.1	63.7	10.5	0.5	69.3	26.4
Cameroon	2011	35.2	75.5	62.8	58.5	38.6	8.5	0.6	47.6	
Chad	2014/5	9.9	52.8	34.3	31.7	16.8	3.2	0.9	39.9	18.9
Comoros	2012	36.7	49.3	34.3	22.3	45.4	12.8	0.9	53.0	51.4
Congo	2011/2	66.1	76.3	69.4	60.8	47.6	12.2	0.2	59.8	12.8
Cote d'Ivoire	2011/2	11.9	60.3	49.7	49.7	25.4	5.0	0.3	38.1	10.9
DR Congo	2013/4	38.9	81.1	68.0	47.3	55.8	17.1	0.6	59.9	14.2
Ethiopia	2016/7	9.8	48.4	20.3	18.6	75.6	7.5	0.6	78.2	19.8
Gabon	2012	68.1	57.6	50.3	45.8	49.8	8.1	0.6	73.1	14.3
Gambia	2013	25.8	58.8	54.2	49.6	22.7	4.6	1.5	48.9	6.2
Ghana	2014	31.1	87.3	71.9	68.1	43.9	12.5	0.7	73.9	15.2
Guinea	2012	9.9	81.9	51.7	44.3	20.8	10.2	0.2	47.3	13.4
Kenya	2014/5	55.0	74.7	56.8	51.5	56.3	13.6	1.0	72.5	10.5
Lesotho	2014	54.3	49.5	41.8	39.9	71.4	10.1	7.3	88.8	5.0
Liberia	2013	28.3	66.1	45.0	37.7	72.2	14.5	1.4	82.3	
Malawi	2015/6	20.9	72.0	26.9	20.3	54.1	5.9	1.5	55.4	44.9
Mali	2012/3	11.3	61.1	43.1	38.0	12.7	3.7	0.7	20.3	17.1
Mozambique	2011	11.9	49.5	18.5	15.3	49.4	4.2	0.2	58.8	11.4
Namibia	2013	69.6	53.9	49.4	44.7	65.5	11.0	3.2	82.3	23.1
Niger	2012	5.1	28.7	26.2	24.2	18.0	2.7	0.4	20.1	23.3
Nigeria	2013	32.4	71.3	66.2	59.3	26.6	6.6	0.5	37.6	8.1
Rwanda	2014	13.0	94.2	64.1	55.7	73.5	20.9	1.3	73.2	6.6
Senegal	2017	16.9	62.7	49.7	46.7	19.6	5.4	1.0	21.0	4.0
Sierra Leone	2013	14.7	85.2	35.2	25.6	43.4	5.6	0.5	55.3	10.4
South Africa	2016	81.0	47.3	46.0	43.7	80.6	16.4	3.8	91.89	
Tanzania	2015/6	14.8	83.6	47.1	43.0	58.7	13.8	0.5	46.0	8.3
Togo	2013/4	23.6	85.0	67.8	65.6	16.5	9.2	0.3	47.2	7.6
Uganda	2016	26.8	83.8	63.2	57.5	48.7	14.2	0.7	63.7	9.2
Zambia	2013/4	34.1	59.3	37.6	31.4	66.0	10.7	0.9	66.4	11.2
Zimbabwe	2015	65.6	54.7	50.8	48.0	80.2	14.1	1.5	86.8	5.3
Average		25.8	70.0	49.1	42.9	42.0	8.8	0.89	52.9	13.4

Source: Authors' calculations using DHS data.

### 3.2 Women's economic empowerment composite score

The extent of WEE in sub-Saharan Africa is low, but with considerable variation in the distribution. Out of a possible WEE score of 9, the average for all countries was 3.0. South Africa scored highest at 4.1, and Niger the lowest at 1.5 (Figure 2).

**Figure 2: Women's economic empowerment score in sub-Saharan Africa countries**



Source: Authors' calculations using DHS data

Generally, countries in Southern and Eastern Africa had a higher WEE score than other regions. Of the seven countries where over 50% of the women had secondary and higher education, only Gabon was not among the top 10 countries in Figure 2. Notably, the WEE score reflects countries' economic development, albeit with a few exceptions such as Rwanda and DR Congo. The countries with the lowest WEE scores are among the poorest in Central and Western Africa.

### 3.3 Typology of WEE

In the PCA, all variables except land ownership loaded positively and strongly under the first component (Table 3). Thus, we labelled the first component ‘overall economic empowerment’. This means that both components identified in the WEE framework by Golla et al. (2011) – economic advancement and participation in household decisions (instrumental agency) – contribute to women’s overall economic empowerment. The second component differentiated between economic advancement and household-level instrumental agency variables. Employment, earning cash, and making decisions on use of own earnings were negatively correlated with the second component. Education and land ownership, indicators of a woman’s bargaining power within the household, and decision-making at the household level (use of husband’s earnings and household purchases) were highly and positively correlated with the second component. Accordingly, we labelled the second component ‘instrumental agency’. In this study we define instrumental agency as the ability to exercise one’s capabilities and choices through influencing or controlling decisions within the household. Although decisions on use of own earnings indicates agency, it might not be at the household level unless the household income is pooled. This could explain why decisions on use of own income are negatively correlated with the second component.

**Table 3: Principal component analysis loadings for each of the eight indicators under the three components**

Variable	Overall empowerment	Instrumental agency	Economic independence
Secondary and higher education	0.31	0.30	-0.54
Employed/working	0.30	-0.31	0.61
Earns cash	0.44	-0.34	-0.08
Decides use of own earnings	0.43	-0.35	-0.18
Decides husband's earnings use	0.26	0.52	0.17
Woman earns more than husband	0.45	0.17	0.33
Decides large HH purchases	0.33	0.46	0.00
Woman owns land	-0.24	0.27	0.41

Source: Authors' calculations using DHS data.

The third component was strongly and positively correlated with employment, earning more than the husband, and land ownership. This component showed economic independence and may differentiate empowerment mainly in rural areas in countries where land ownership and employment, especially in the agricultural sector, is high. Educational attainment may not play a big role in such settings. With land ownership, women may be more responsible for agricultural production than their husbands, which is a possible explanation of the positive correlation of women earning more than their

husbands and the third component. Given these attributes, we labelled this component 'economic independence'.

Thus, the original eight economic empowerment items were refined into three components that explained 85% of the variation in the data. The first component explained 42% of the variation, while the second and the third components explained 31% and 12% respectively. We only considered items that loaded with sufficient magnitude on any component (loadings above 0.3 or below -0.3) when interpreting the components.

To identify WEE typologies, we plotted the three components against each other (Figures 3–5). These figures show the combination of factors driving WEE in each country. Countries that appear in the top right quadrant in each figure show the best performance under the plotted components, while countries in the lower left quadrant perform the worst.

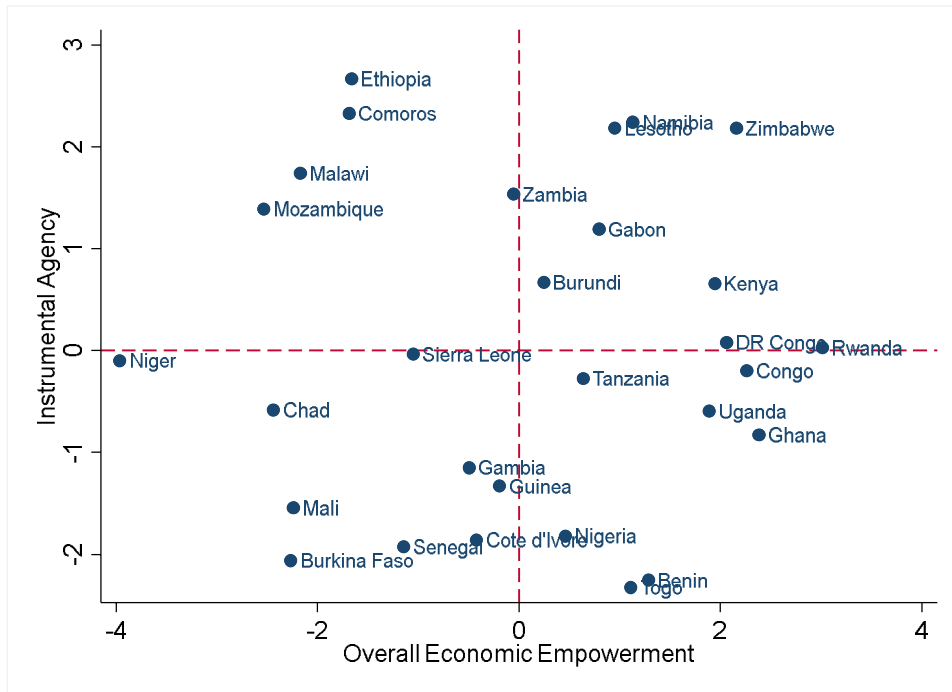
In Figure 3, Lesotho, Namibia, Zimbabwe, Gabon, and Kenya perform well in both overall economic empowerment and instrumental agency. Malawi, Comoros, Ethiopia, and Mozambique have high instrumental agency, but women lack overall empowerment, meaning that the second component of WEE – economic advancement at the individual level – is constrained. Zambia lies on the border between these two groups of countries. Rwanda, Congo Brazzaville, DR Congo, Ghana, and Uganda exhibit high overall empowerment but limited instrumental agency, meaning that observed empowerment is explained more by the second component of WEE (economic advancement). Other countries mainly in the Western and Central Africa show negative scores in both categories, an indicator of low WEE regardless of domain.

Figure 4 plots instrumental agency and economic independence scores. Burundi, Malawi, Comoros, and Ethiopia score well under both components. This implies that economic resources including land ownership, employment, and the woman earning more than the husband play an important role in instrumental agency in these countries. Rwanda scores well on economic independence but not on instrumental agency. In the lower-right quadrant, Kenya, Gabon, Namibia, Mozambique, Zambia, Zimbabwe, and Lesotho score well on instrumental agency, but not on economic independence, implying that economic empowerment in these countries is likely explained by factors other than employment and land ownership, both of which are low in these countries. Countries in Central and West Africa, including Senegal, Niger, Gambia, Chad, and Mali score poorly on both components.

Figure 5 plots overall economic empowerment and economic independence. Countries with high scores for employment rates are in the upper-right quadrant, while those that score high on land ownership are in the upper-left quadrant. In the right-lower quadrant, Kenya, Congo Brazzaville, Zimbabwe, Namibia, Lesotho, and Gabon, which have low scores on economic independence, have one factor in common: high

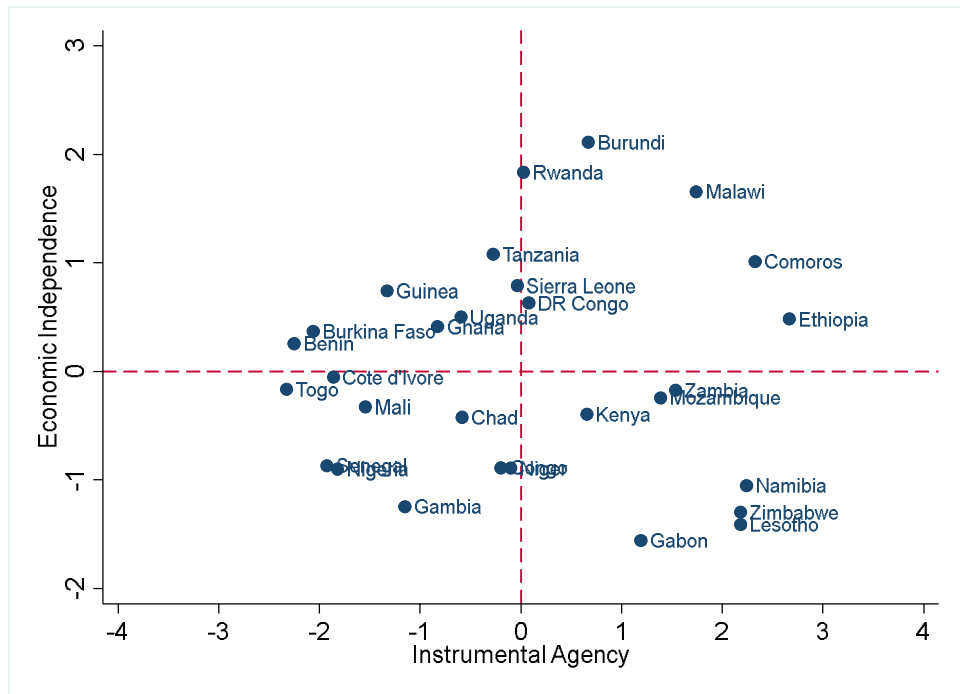
educational attainment. Thus, WEE in these countries seems to be explained by educational attainment. Again, Niger, Gambia, Senegal, Chad, and Mali score poorly in both components.

**Figure 3: Country clusters based on instrumental agency and overall economic empowerment**



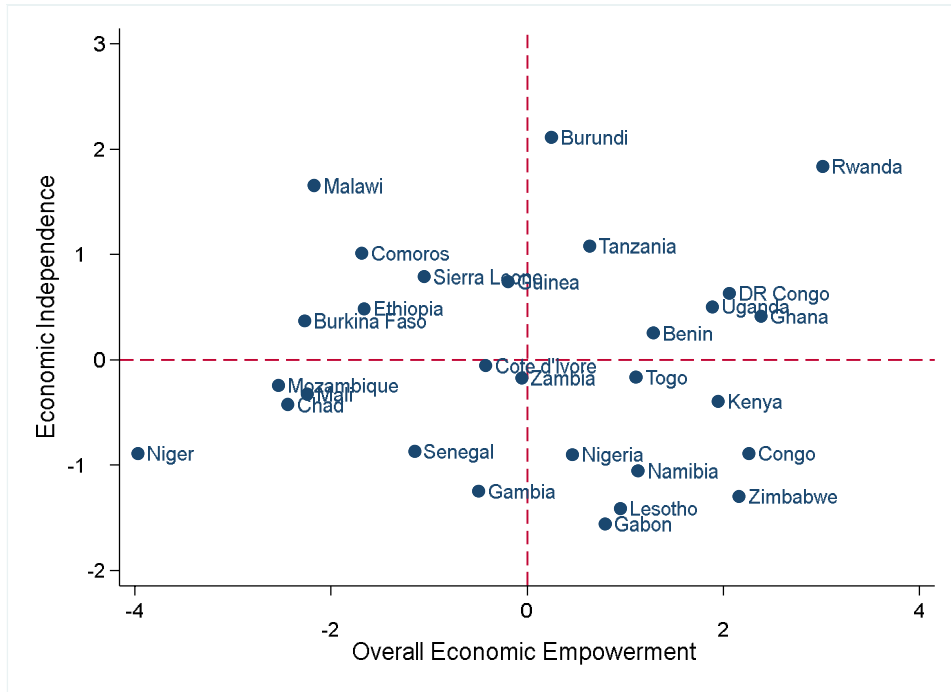
Source: Authors' illustration.

**Figure 4: Country clusters based on economic independence and instrumental agency**



Source: Authors' illustrations.

**Figure 5: Country clusters based on economic independence and overall economic empowerment**



Source: Authors' illustrations

Based on Figures 3–5, we identified five country typologies of WEE: (1) instrumental agency explained by high educational attainment (strategic resource), (2) instrumental agency explained by land ownership (strategic resource), (3) economic advancement explained by high employment, (4) basic-level economic empowerment, and (5) low economic empowerment.

Table 4 shows the list of countries in each category. The countries with high educational attainment, Lesotho, Namibia, Zimbabwe, Gabon, Kenya, and Congo Brazzaville, fall into the first category (instrumental agency explained by high educational attainment). WEE in these countries is characterized by high overall economic empowerment, mainly at the household decision-making level; thus women both influence and have autonomy in economic decisions. Since these countries do not score high on labour market outcomes or exhibit high land ownership among women, but

do have high educational attainment, we concluded that the observed empowerment in this group is mostly explained by high educational attainment.

**Table 4: Typologies of women's economic empowerment in sub-Saharan African countries**

1. Instrumental agency driven by educational attainment	2. Instrumental agency driven by land ownership	3. Economic advancement driven by high employment	4. Basic-level economic empowerment	5. Low economic empowerment
Lesotho	Malawi	Rwanda	Cote d'Ivoire	Niger
Namibia	Comoros	DR Congo	Sierra Leone	Mali
Zimbabwe	Ethiopia	Burundi	Guinea	Chad
Gabon		Ghana	Nigeria	Gambia
Kenya		Uganda	Togo	Senegal
Congo		Tanzania	Burkina Faso	
		Benin		

Source: Authors' calculations.

The second category (instrumental agency and land ownership) comprises Malawi, Comoros, and Ethiopia. Land ownership explains WEE in these countries and is important for decision-making at the household level. The three countries show high participation in household-level decision-making, but low individual economic advancement in employment and income. Thus, land ownership (and by extension agricultural production) likely improves women's bargaining power, allowing them to better participate in economic household decisions.

Seven countries, Rwanda, DR Congo, Uganda, Ghana, Burundi, Tanzania, and Benin, fall into the third category (economic advancement explained by high employment). Women's employment in these countries is more than 80%. However, instrumental agency is low, implying that high employment has not translated into increased decision-making at the household level.

The fourth category (basic-level economic empowerment) consist of countries exhibiting a limited level of economic empowerment in all three domains. Countries in this category cluster around the centres of Figures 3–5, and thus do not lean towards any specific explanation of economic empowerment. This category consists of six West African countries: Cote d'Ivoire, Sierra Leone, Guinea, Nigeria, Togo, and Burkina Faso. Both land ownership and employment contribute to the observed economic empowerment, but not enough for the countries to stand out. Educational attainment is generally low.

The last category (low economic empowerment) consists of countries with limited evidence of economic empowerment based on the three identified components. These are Niger, Mali, Chad, Gambia, and Senegal and are the countries where women are the least economically empowered in sub-Saharan Africa. Countries in this group show no clear tendency toward any of the identified components, although some of the countries show moderate levels of employment among women.



Mozambique and Zambia do not fall into any of these categories and are thus not included in Table 4. According to Figures 3–5, both have high levels of decision-making at the household level, but the WEE measurement indicators included in this study could not explain the factors resulting from the observed instrumental agency. Mozambique correlated negatively with both economic independence and overall economic empowerment, and Zambia showed a slight negative correlation with economic independence.

For sensitivity analysis of the identified typologies we used the K-means, a statistical clustering algorithm. Initially, we set  $k = 5$  groups following the pre-identified clusters in Table 4. We varied the number of groups to  $k = 4$ ,  $k = 6$ , and  $k = 7$  to identify which clustering was more reasonable. With  $k = 5$ , the resulting clusters did not differ much from the list of countries in Table 4. In K-means, Group 4 and 5 countries were merged together, while Mozambique, Zambia, and Ethiopia were grouped together. Although Ethiopia has high instrumental agency, its ownership of land by women (19%) is not as high as in Malawi (44.6%) and Comoros (51.3%), and thus the algorithm clustered it with Mozambique and Zambia. Since  $k = 5$  did not result in fundamentally different grouping than in Table 4, we retained our clusters.

## **4. Discussion**

In this study we describe the varying influence of access to employment, educational attainment, sole land ownership, and financial decision-making on WEE across sub-Saharan Africa. The study presents three key findings: (1) WEE is low overall in sub-Saharan Africa, but there is large variation between countries; (2) there are 5 typologies of WEE in the region, explained by one or more of the following factors: educational attainment, employment rate, and sole land ownership among women; (3) high educational attainment and sole land ownership contribute to instrumental agency, while high employment rates contribute to economic advancement with limited influence on decision-making power at the household level.

WEE in sub-Saharan Africa is generally low, likely because of the many barriers to women accessing and controlling economic opportunities as well as a high burden of unpaid care work (Ferrant and Thim 2019). Poor-quality education, unemployment or employment in the low-quality informal sector or running small income-generating enterprises, and limited ownership of property, including land and financial assets, are key barriers to economic empowerment. In addition, underlying socio-cultural norms and unequal gender relations and attitudes likely hold back women's agency, thus curtailing their empowerment (Kabeer 2005; 2012). These gendered barriers prevent women from benefiting from economic opportunities despite access to these opportunities (Brody and

Esplen 2007). In our study, countries where these barriers are widespread exhibited lower levels of economic empowerment, likely explaining the variation observed in the WEE score.

#### **4.1 Country typologies help understand WEE**

The main contribution of this study to the discussion on economic empowerment is the identified country typologies. The 5 typologies show the factors explaining the observed WEE for each set of countries, highlighting the areas that would likely further enhance WEE.

Women in the first group of countries have high educational attainment, which according to the literature on other geographical areas is a strategic resource that increases women's bargaining power at the household level. High educational attainment also implies less restrictive social norms and gender attitudes that promote education for girls (Kabeer 2012; UNESCO 2019). According to previous studies, the possible mechanisms linking education, particularly secondary and higher education, and WEE are increased access to formal employment, a sense of one's worth and capabilities, and awareness of women's rights. Education is viewed as the opening to the WEE pipeline, as it endows women with skills and knowledge that increase their employment participation and income, thus amplifying their voice and agency (Klugman et al. 2014). Our findings highlight the importance of education for WEE, as countries with high educational attainment were in the top ten for the overall WEE score and showed evidence of instrumental agency. This is despite most of them having some of the lowest employment and land ownership rates. Our results suggest that investment in education contributes significantly to WEE.

Land ownership is important in the second category. Women in these countries tend to have low employment rates and low educational attainment. Thus, increasing education and employment opportunities and modifying unequal gender attitudes would likely enhance WEE. Reducing barriers that limit women's access to production inputs and markets could also help women extract economic benefits from their land, such as better agricultural revenues. Sole land ownership by women is generally low in sub-Saharan Africa. In only two countries, Malawi and Comoros, about 50% of women have sole ownership of at least some land. This land ownership is explained by the existence of matrilineal societies in both countries, where land is passed on through the female side of the family. Women are typically involved in decision-making on the use and management of land and have control over production. In Malawi about 75% of the population is matrilineal (Peters 2010; Le Roy 2017), whereas in Comoros land inheritance is purely matrilineal (World Bank 2019). High land ownership tends to be

associated with high levels of bargaining power and decision-making in the household. Although Comoros and Malawi may not be a lesson for patrilineal countries in the region, in these two countries land ownership is a key indicator of economic empowerment, as women are highly involved in agricultural production. Sole land ownership allows women to use land as collateral for credit or to use better productive techniques without relying on their husbands.

In the third category a high employment rate is an important contributor to WEE. In some countries, particularly Comoros, Ethiopia, Lesotho, Mozambique, Niger, and South Africa, less than half of the women were employed. However, the DHS's single question about employment, either working for cash or in kind, may be biased and may underestimate women's involvement in work, particularly among the poor and poorly educated (Langsten and Salen 2008). Thus, if a different approach to measuring employment had been used in the DHS the WEE score might have been higher. Although the income women earn likely improves household welfare, this is not necessarily enough to transform their bargaining power at the household level. Often women also have limited access to strategic resources (land and education) that help enhance agency. This could be related to the types of jobs that many women engage in, which are mainly low-quality and small-scale enterprises that provide low (or no) income. This is corroborated by the fact that there were few female breadwinners, as most women earned less than men, and societal norms identify men as the breadwinners. Roxin (2011) argues that employment serves as an entry to economic empowerment (both economic resources and agency), which is in line with our findings (Roxin et al. 2011). While employment is important for economic empowerment, unfavourable labour market terms can limit empowerment. It is possible to increase women's access to jobs in ways that are demeaning and exploitative without substantially expanding their agency (Kabeer 2009). Thus, future studies should focus on examining whether WEE would be best improved by working on the quality of jobs and entrepreneurship opportunities for women.

The last two categories consist of countries where WEE is low to non-existent. In these countries, most women have low educational attainment and few own land, although some of these countries have relatively high employment levels. However, WEE is low even in countries with high employment, implying other underlying factors at play hindering agency. These same factors could also explain low education and ownership of land among women. Because most countries in these two categories are relatively conservative with low overall educational attainment, a high prevalence of early marriage among women and girls, and low women's employment rates, land ownership, and participation in individual or household-level decision-making, we conclude that the largest barriers to WEE are likely social norms and unequal gender relations. Although we did not have data on country contexts and social norms, undertaking a multi-country analysis and classifying countries into WEE typologies

helped identify different country clusters which likely correlate with social norms. While these might be challenging to change, laws providing equal opportunities for women, coupled with educating communities on the negative effects of discriminatory social norms, could help women achieve their economic potential.

## **4.2 The importance of context**

Our results are specific to SSA. As discussed in the introduction, the context of SSA is different from other regions of the world, and thus exactly the same set of indicators may not be relevant elsewhere. This is because WEE is context-specific (Buvinic 2017; Buvinic et al. 2020), and we should not sacrifice contextual variation to achieve standardised measures of empowerment (Richardson 2018). Our aim is to compare countries that are relatively similar; thus the focus on SSA. However, the methodology can be applied to other global regions to derive a WEE score and relevant typologies.

## **4.3 Strengths and limitations**

To the best of our knowledge, this study is one of the first to provide a comprehensive cross-national comparison of WEE among partnered women at the household level in sub-Saharan Africa, and to present country typologies based on contributors to economic empowerment. Understanding these contributors improves our understanding of WEE dynamics in this context and can help develop interventions to improve WEE.

Although a strength of this study is that the DHS data provides standardised multi-country comparable data on women's empowerment, the surveys have some limitations. First, they only provide limited indicators of economic empowerment and thus we could not study financial resources (level of earnings, income, savings, and credit), women's preferences or motivations regarding economic choices, and gender norms. The inclusion of such indicators would provide a more comprehensive measurement of WEE. Second, the empowerment module focuses on partnered women aged 15–49 years, omitting women who are unmarried or older adults. Although our results are not generalizable beyond this population, the score can be applied beyond this group whenever such data are available. Third, although these cross-sectional data did not enable us to measure WEE as a process, the results serve as a baseline for future studies that seek to do so. Finally, we created our WEE score based on equally weighted binary indicators, which means that we assumed that each indicator is equally important for women's empowerment score. Future studies should evaluate the relative importance of each indicator to develop more nuanced WEE scores. Despite these challenges, DHS data is

valuable for monitoring women's empowerment because of its wide geographical and measurement scope (Hanmer and Klugman 2016).

There is contextual diversity between and within SSA countries beyond what we could capture in this large-scale study, which aims to examine the overall situation in SSA. Due to the large number of countries included in this analysis, we were not able to discuss the detailed contextual nuances in each country or analyse sub-national contexts separately. Such an approach would require in-depth description of each country context, which is beyond the scope of this paper. However, future research focusing on a single country or a smaller subset of countries should examine sub-national and regional differences to better understand the nuances of WEE within each country context.

## **5. Conclusions**

We measured the extent of WEE in sub-Saharan Africa and identified country typologies showing likely contributors to economic empowerment. We showed that WEE is generally low in the region. In most countries, education, land ownership, and employment were the key factors contributing to the observed WEE. The main contribution of this study is the 5 typologies of WEE in sub-Saharan Africa, which can also serve to identify specific areas of intervention for each typology. These typologies are: (1) instrumental agency explained by high educational attainment; (2) instrumental agency explained by land ownership; (3) economic advancement explained by high employment; (4) basic-level economic empowerment with some empowerment in all three domains; and (5) low economic empowerment with no clear tendency toward any of the three domains. We provide timely evidence for the increasing policy and programme interest in WEE, as the typologies can be used to identify areas for policy intervention.

## **6. Acknowledgments**

We gratefully acknowledge the Commonwealth Scholarship Commission (CSC) of the United Kingdom for providing financial support for Eunice Williams to undertake this research. An earlier version of the paper was presented at the 2019 British Society of Population Studies (BSPS) Conference, held at Cardiff University (9–11 September 2019) and the 8<sup>th</sup> Africa Population Conference (APC), held in Entebbe, Uganda (18–22 November 2019).

Eunice Williams was supported by the Commonwealth Scholarship Commission (CSC) as part of her PhD studentship. Heini Väisänen and Sabu Padmadas received no specific funding for this work.

## References

- Abril, M.E.R. (2009). Women's economic empowerment in conflict and post-conflict countries. Stockholm: SIDA. <https://cdn.sida.se/publications/files/sida51910en-womens-economic-empowerment-key-issues-and-policy-options.pdf>.
- Akanle, O. and Nwaobiala, U. (2020). Changing but fragile: Female breadwinning and family stability in Nigeria. *Journal of Asian and African Studies* 55(3): 398–411. doi:10.1177/0021909619880283.
- Alkire, S., Meinzen-Dick, R., Peterman, A., Quisumbing, A., Seymour, G. and Vaz, A. (2013). The women's empowerment in agriculture index. *World Development* 52: 71–91. doi:10.1016/j.worlddev.2013.06.007.
- Asaolu, I.O., Alaofe, H., Gunn, J.K.L., Adu, A.K., Monroy, A.J., Ehiri, J.E., Hayden, M.H. and Ernst, K.C. (2018). Measuring women's empowerment in sub-Saharan Africa: Exploratory and confirmatory factor analyses of the Demographic and Health Surveys. *Frontiers in Psychology* 9: 994. doi:10.3389/fpsyg.2018.00994.
- Brody, A. and Esplen, E. (2007). Putting gender back in the picture: Rethinking women's economic empowerment. Report prepared at the request of the Swedish International Development Cooperation Agency (Sida). Stockholm: SIDA.
- Business for Social Responsibility (2017). Women's economic empowerment in sub-Saharan Africa: Recommendations for business action. Available at: [https://www.bsr.org/reports/BSR\\_Womens\\_Empowerment\\_Africa\\_Main\\_Report.pdf](https://www.bsr.org/reports/BSR_Womens_Empowerment_Africa_Main_Report.pdf).
- Buvinic, M. (2017). Measuring women's economic empowerment: Overview. Data2x. [https://www.data2x.org/wp-content/uploads/2017/06/Measures\\_Overview.pdf](https://www.data2x.org/wp-content/uploads/2017/06/Measures_Overview.pdf).
- Buvinić, M. and O'Donnell, M. (2016). Revisiting what works: Women, economic empowerment and smart design. Washington, D.C.: Center for Global Development. <https://www.cgdev.org/sites/default/files/CGD-Roadmap-Update-2016.pdf>.
- Buvinic, M., O'Donnell, M., Knowles, J.C., and Bourgault, S. (2020). Measuring women's economic empowerment: A compendium of selected tools. Washington, D.C.: Center for Global Development. <https://www.cgdev.org/sites/default/files/measuring-womens-economic-empowerment.pdf>.
- Donald, A.A., Koolwal, G.B., Annan, J.R., Falb, K., and Goldstein, M.P. (2017). Measuring women's agency. (Policy Research working paper 8148). Washington, D.C.: World Bank. doi:10.1596/1813-9450-8148.

- Doss, C. (2013). Intrahousehold bargaining and resource allocation in developing countries. *The World Bank Research Observer* 28(1): 52–78. doi:10.1093/wbro/1kt001.
- Doss, C., Kovarik, C., Peterman, A., Quisumbing, A., and van den Bold, M. (2015). Gender inequalities in ownership and control of land in Africa: Myth and reality. *Agricultural Economics* 46(3): 403–434. doi:10.1111/agec.12171.
- Ewerling, F., Lynch, J.W., Victora, C.G., van Eerdewijk, A., Tyszler, M., and Barros, A.J.D. (2017). The SWPER index for women's empowerment in Africa: Development and validation of an index based on survey data. *The Lancet Global Health* 5(9): e916–e923. doi:10.1016/S2214-109X(17)30292-9.
- Eyben, R., Kabeer, N., and Cornwall, A. (2008). Conceptualising empowerment and the implications for pro poor growth. Paper prepared for the DAC Poverty Network. Brighton: IDS. <https://www.ids.ac.uk/download.php?file=files/dmfile/conceptualisingempowermentpaperforPOVNET.pdf>.
- Ferrant, G. and Thim, A. (2019). Measuring women's economic empowerment: Time use data and gender inequality. (OECD Development Policy Papers February 2019 – 16). Washington, D.C.: OECD Publishing.
- Filgueira, F. and Martinez Franzoni, J. (2017). The divergence in women's economic empowerment: Class and gender under the pink tide. *Social Politics* 24(4): 370–398. doi:10.1093/sp/jxx014.
- Fox, L. and Romero, C. (2017). In the mind, the household or the market? Concepts and Measurement of women's economic empowerment. (Policy Research working paper WPS 8079). Washington, D.C.: World Bank. doi:10.1596/1813-9450-8079.
- Golla, A.M., Malhotra, A., Nanda, P., and Mehra, R. (2011). Understanding and measuring women's economic empowerment: Definition, framework and indicators. Washington, D.C.: ICRW. <https://www.icrw.org/wp-content/uploads/2016/10/Understanding-measuring-womens-economic-empowerment.pdf>.
- Hanmer, L. and Klugman, J. (2016). Exploring women's agency and empowerment in developing countries: Where do we stand? *Feminist Economics* 22(1): 237–263. doi:10.1080/13545701.2015.1091087.
- Hunt, A. and Samman, E. (2016). Women's economic empowerment: Navigating enablers and constraints. London: Overseas Development Institute. <https://cdn.odi.org/media/documents/10683.pdf>.



- Jennings, L., Na, M., Cherewick, M., Hindin, M., Mullany, B., and Ahmed, S. (2014). Women's empowerment and male involvement in antenatal care: Analyses of Demographic and Health Surveys (DHS) in selected African countries. *BMC Pregnancy and Childbirth* 14(1): 297. doi:10.1186/1471-2393-14-297.
- Jin, X. and Han, J. (2010). Partitional clustering. In: Sammut, C. and Webb, G.I. (eds.). *Encyclopedia of machine learning*. Boston, MA: Springer US: 766–766. doi:10.1007/978-0-387-30164-8\_631.
- Jolliffe, I. (2002). *Principal component analysis*. 2nd edn. New York: Springer. Springer series in statistics
- Kabeer, N. (1999). Resources, agency, achievements: Reflections on the measurement of women's empowerment. *Development and Change* 30(3): 435–464. doi:10.1111/1467-7660.00125.
- Kabeer, N. (2005). Gender equality and women's empowerment: A critical analysis of the third millennium development goal. *Gender and Development* 13(1): 13–24. doi:10.1080/13552070512331332273.
- Kabeer, N. (2009). Women's economic empowerment: Key issues and policy options. Sida Policy (SIDA51910en). Stockholm: SIDA.
- Kabeer, N. (2011). Contextualizing the economic pathways of women's empowerment: Findings from a multi-country research programme. (Pathways Policy Paper). Brighton: Pathways of Women's Empowerment RPC. <https://core.ac.uk/download/pdf/160483739.pdf>.
- Kabeer, N. (2012). Women's economic empowerment and inclusive growth: Labour market and enterprise development. (SIG working paper 2012/1). <https://www.soas.ac.uk/development/projects/towards-a-research-agenda/file76255.pdf>.
- Kabeer, N. (2017). Economic pathways to women's empowerment and active citizenship: What does the evidence from Bangladesh tell us? *Journal of Development Studies* 53(5): 649–663. doi:10.1080/00220388.2016.1205730.
- Khatri, R. (2016). The role of education towards women empowerment in India. *International Journal of Advanced Research (IJAR)* 4(11): 6. doi:10.21474/IJAR01/2117.
- Klugman, J., Hanmer, L., Twigg, S., Hasan, T., McCleary-Sills, J., and Santamaria, J. (2014). *Voice and agency: Empowering women and girls for shared prosperity*. Washington, DC: World Bank Group. doi:10.1596/978-1-4648-0359-8.

- Kowalewska, H. and Vitali, A. (2021). Breadwinning or on the breadline? Female breadwinners' economic characteristics across 20 welfare states. *Journal of European Social Policy* 31(2): 125–142. doi:10.1177/0958928720971094.
- Langsten, R. and Salen, R. (2008). Two approaches to measuring women's work in developing countries: A comparison of survey data from Egypt. *Population and Development Review* 34(2): 283–305. doi:10.1111/j.1728-4457.2008.00220.x.
- Laszlo, S., Grantham, K., Oskay, E., and Zhang, T. (2017). Grappling with the challenges of measuring women's economic empowerment. (GrOW Working Paper Series GWP-2017-12 – Research Contribution Paper). Montreal: ISID.
- Le Roy, É. (2017). World development report 2017: Hybrid land regulation between the commons and the market land tenure in the Comoros. (World Development Report). Washington, D.C.: World Bank. doi:10.1596/26199.
- Makles, A. (2012). STATA tip 110: How to get the optimal k-means cluster solution. *Stata Journal* 12(2): 347–351. doi:10.1177/1536867X1201200213.
- Martinez-Restrepo, S. and Ramos-Jaimes, L. (2017). *Measuring women's economic empowerment: Critical lessons from South America*. Columbia: La Imprenta Editores S.A.
- Mayoux, L. (1999). Questioning virtuous spirals: Micro-finance and women's empowerment in Africa. *Journal of International Development* 11(7): 957–984. doi:10.1002/(SICD)1099-1328(199911/12)11:7<957::AID-JID623>3.0.CO;2-#.
- Miedema, S.S., Haardörfer, R., Girard, A.W., and Yount, K.M. (2018). Women's empowerment in East Africa: Development of a cross-country comparable measure. *World Development* 110: 453–464. doi:10.1016/j.worlddev.2018.05.031.
- Njuki, J., Kruger, E., and Starr, L. (2013). Increasing the productivity and empowerment of women smallholder farmers: Results of a baseline assessment from six countries in Africa and Asia. [http://www.agritech.tnau.ac.in/women\\_in\\_agri/pdf/articles/pathways-global-baseline-report-2013.pdf](http://www.agritech.tnau.ac.in/women_in_agri/pdf/articles/pathways-global-baseline-report-2013.pdf).
- Oxfam International (2017). Oxfam's conceptual framework on women's economic empowerment. Oxford, UK: Oxfam International. <https://oxfamlibrary.openrepository.com/bitstream/handle/10546/620269/gt-framework-womens-economic-empowerment-180118-en.pdf;jsessionid=E91F4AF9D52CD678CB9D6C0379D85128?sequence=7>.

- Peters, P.E. (2010). 'Our daughters inherit our land, but our sons use their wives' fields': Matrilineal-matrilocal land tenure and the New Land Policy in Malawi. *Journal of Eastern African Studies* 4(1): 179–199. doi:10.1080/17531050903556717.
- Phan, L. (2016). Measuring women's empowerment at household level using DHS Data of four southeast Asian countries. *Social Indicators Research* 126(1): 359–378. doi:10.1007/s11205-015-0876-y.
- Quisumbing, A., Rubin, D., and Sproule, K. (2016). Subjective measures of women's economic empowerment. [http://www.womeneconroadmap.org/sites/default/files/Wms%20Entrepreneurship\\_rev\\_clean.pdf](http://www.womeneconroadmap.org/sites/default/files/Wms%20Entrepreneurship_rev_clean.pdf).
- Richardson, R.A. (2018). Measuring women's empowerment: A need for context and caution. *Lancet Global Health* 6(1): e30. doi:10.1016/S2214-109X(17)30460-6.
- Roxin, H., Berk Müller, H., Koller, P.J., Lawonn, J., Pooya, N., and Schappert, J. (2011). Economic empowerment of women through microcredit: The case of the 'Microfinance Investment and Technical Assistance Facility' (MITAF). (SLE Publication Series- S240, Albrecht Daniel Thaer-Institut für Agrar- und Gartenbauwissenschaften).
- Salem, R., Cheong, Y.F., and Yount, K.M. (2018). Is women's work a pathway to their agency in rural Minya, Egypt? *Social Indicators Research* 136(2): 807–831. doi:10.1007/s11205-017-1573-9.
- Scott, L., Custers, A., Dolan, C., Johnstone-Louis, M., Luchinskaya, D., Marston, A., Northridge, K., Rothman, L., and Steinfield, L. (2016). Advisory note on measures: Women's economic empowerment. (Said Business School Research Papers, Oxford University).
- Tornqvist, A.a.C.S. (2009). Women's economic empowerment: Scope for Sida's engagement. (SIDA working paper December). Stockholm: SIDA. [https://www.enterprise-development.org/wp-content/uploads/SidaEngagement\\_WomensEconomicEmpowerment.pdf](https://www.enterprise-development.org/wp-content/uploads/SidaEngagement_WomensEconomicEmpowerment.pdf).
- UNESCO (2019). Global education monitoring report – Gender report: Building bridges for gender equality. Paris: UNESCO. <https://unesdoc.unesco.org/ark:/48223/pf0000368753/PDF/368753eng.pdf.multi.page=22>.
- United Nations (2015). Transforming our world: The 2030 agenda for sustainable development. New York: UN. <https://sustainabledevelopment.un.org/content/documents/21252030%20Agenda%20for%20Sustainable%20Development%20web.pdf>.

- United Nations (2016). Leave no one behind: A call to action for gender equality and women's economic empowerment: Report of the UN Secretary-Generals high-level panel on women economic empowerment. New York: UN. <http://www2.unwomen.org/-/media/hlp%20wee/attachments/reports-toolkits/hlp-wee-report-2016-09-call-to-action-en.pdf?la=en&vs=1028>.
- United Nations Development Programme (2020). *Human development report 2020. The next frontier: Human development and the Anthropocene*. New York: UNDP: United Nations Development Programme. doi:10.18356/9789210055161.
- van Rooyen, C., Stewart, R., and de Wet, T. (2012). The impact of microfinance in sub-Saharan Africa: A systematic review of the evidence. *World Development* 40(11): 2249–2262. doi:10.1016/j.worlddev.2012.03.012.
- Wodon, Q., Montenegro, C., Nguyen, H., and Onagoruwa, A. (2018). Missed opportunities: The high cost of not educating girls. (The Cost of Not Educating Girls Notes Series). Washington, DC: World Bank. doi:10.1596/29956.
- World Bank (2018). Poverty and shared prosperity 2018: Piecing together the poverty puzzle. Washington, DC: World Bank.
- World Bank (2019). Towards a more united and prosperous union of Comoros: Systematic country diagnostic. Washington, DC: World Bank. doi:10.1596/31787.
- World Bank (2020). *Poverty and shared prosperity 2020: Reversals of fortune*. Washington, DC: World Bank. doi:10.1596/978-1-4648-1602-4.
- World Bank (2022) 2022 world development indicators. Washington, D.C.: World Bank. <https://data.worldbank.org/indicator/SL.AGR.EMPL.FE.ZS?locations=ZG>.
- World Economic Forum (2021). *The global gender gap report 2021*. (Insight Report). Geneva: World Economic Forum.
- Yount, K.M., Crandall, A., and Cheong, Y.F. (2018). Women's age at first marriage and long-term economic empowerment in Egypt. *World Development* 102: 124–134. doi:10.1016/j.worlddev.2017.09.013.
- Yount, K.M., Khan, Z., Miedema, S., Cheong, Y.F., and Naved, R.T. (2020). The Women's Agency Scale 61 (Was-61): A comprehensive measure of women's intrinsic, instrumental, and collective agency. SSRN pre-print. doi:10.2139/ssrn.3670180.

Yount, K.M., VanderEnde, K.E., Dodell, S., and Cheong, Y.F. (2016). Measurement of women's agency in Egypt: A national validation study. *Social Indicators Research* 128(3): 1171–1192. [doi:10.1007/s11205-015-1074-7](https://doi.org/10.1007/s11205-015-1074-7).

## Appendix

Table A-1: Background characteristics of women included in and excluded from the sample

Country	Study sample	Marital status	Age (Single years)	No. of living children	Education (single years)	Employment (%)	Owns land (%)	Earnings in cash (%)
Angola	8,033	Partnered women	30.4	3.5	4.2	72	-	44.7
		Un-partnered women	24.1	1.4	5.6	52	-	30.8
Benin	11,170	Partnered women	31.3	3.3	2.2	84	8.5	71.0
		Un-partnered women	22.0	0.7	5.4	63	2.9	35.4
Burkina Faso	13,392	Partnered women	31.0	3.3	1.2	83	14.3	39.2
		Un-partnered women	20.9	0.6	4.3	72	5.7	30.8
Burundi	9,559	Partnered women	32.4	3.7	3.4	93	24.5	44.3
		Un-partnered women	22.8	0.7	5.9	74	9.6	29.4
Cameroun	9,805	Partnered women	30.6	3.2	5.4	75	-	63.4
		Un-partnered women	23.5	1.0	7.8	56	-	40.0
Chad	13,439	Partnered women	29.8	4.0	1.5	47	19.6	32.0
		Un-partnered women	23.2	1.3	3.5	42	16.5	28.6
Comoros	3,291	Partnered women	31.3	3.0	6.0	48	48.7	33.7
		Un-partnered women	22.0	0.5	8.7	29	23.5	17.7
Congo Brazzaville	6,750	Partnered women	31.8	3.4	6.4	85	13.6	77.3
		Un-partnered women	25.0	1.4	7.4	57	10.7	48.1
Cote d'Ivoire	6,453	Partnered women	31.4	3.3	2.0	77	11.5	61.5
		Un-partnered women	23.4	0.9	5.1	61	5.7	42.5
Democratic Republic of Congo	12,448	Partnered women	30.8	3.6	5.1	82	16.0	69.8
		Un-partnered women	23.4	1.1	7.0	57	10.7	47.1
Ethiopia	9,824	Partnered women	30.6	3.3	2.9	46	17.0	22.5
		Un-partnered women	23.4	0.7	6.0	54	7.8	35.2
Gabon	4,947	Partnered women	32.4	3.4	6.7	55	16.6	43.0
		Un-partnered women	24.7	1.4	7.8	37	9.8	28.7
Gambia	6,905	Partnered women	30.3	3.3	2.9	60	6.2	54.3
		Un-partnered women	21.3	0.5	7.2	34	3.7	28.4
Ghana	5,456	Partnered women	33.6	3.2	5.3	87	13.8	67.0
		Un-partnered women	24.3	0.8	8.0	58	6.8	40.1
Guinea	6,779	Partnered women	31.2	3.2	1.5	82	13.8	50.4
		Un-partnered women	21.3	0.6	5.6	53	4.0	30.0
Kenya	19,036	Partnered women	31.8	3.4	7.2	69	12.6	51.3
		Un-partnered women	24.5	1.1	8.2	50	13.0	40.0
Lesotho	3,609	Partnered women	31.0	2.2	7.9	45	5.2	36.5
		Un-partnered women	24.9	0.9	8.2	38	9.7	32.9
Liberia	5,875	Partnered women	32.2	3.5	2.9	65	-	38.0
		Un-partnered women	23.8	1.4	4.7	45	-	25.9

Table A-1: (Continued)

Country	Study sample	Marital status	Age (Single years)	No. of living children	Education (single years)	Employment (%)	Owns land (%)	Earnings in cash (%)
Malawi	15,952	Partnered women	30.4	3.1	5.8	71	42.0	26.3
		Un-partnered women	24.0	1.3	6.9	56	26.7	23.3
Mali	8,737	Partnered women	30.1	3.3	1.4	50	14.3	39.8
		Un-partnered women	20.2	0.5	5.2	39	2.4	28.9
Mozambique	8,956	Partnered women	30.2	2.9	3.6	49	10.9	21.1
		Un-partnered women	25.4	1.4	5.8	42	19.9	26.4
Namibia	3,803	Partnered women	36.4	2.9	8.1	50	21.8	46.2
		Un-partnered women	28.3	1.3	8.7	41	12.5	37.1
Niger	9,509	Partnered women	29.8	3.7	1.3	31	20.2	28.4
		Un-partnered women	22.7	0.8	5.3	34	10.6	27.2
Nigeria	27,274	Partnered women	31.6	3.4	5.1	72	9.0	66.0
		Un-partnered women	22.6	0.6	9.2	43	4.5	34.4
Rwanda	6,890	Partnered women	33.0	3.1	4.8	94	6.3	64.4
		Un-partnered women	24.3	0.8	6.0	76	13.6	48.3
Senegal	11,394	Partnered women	31.0	3.2	2.4	62	4.6	45.8
		Un-partnered women	21.8	0.4	6.4	46	1.3	30.1
Sierra Leone	10,754	Partnered women	31.7	3.1	2.2	83	10.8	36.7
		Un-partnered women	22.1	0.8	6.7	52	6.3	21.1
South Africa	2,841	Partnered women	35.3	2.3	10.2	45	-	43.5
		Un-partnered women	27.6	1.2	10.2	32	-	30.9
Tanzania	8,189	Partnered women	31.5	3.4	5.9	83	7.8	47.5
		Un-partnered women	24.1	1.1	7.3	64	9.8	44.1
Togo	6,360	Partnered women	32.4	3.3	3.3	86	6.5	65.7
		Un-partnered women	23.4	0.8	6.4	51	3.0	36.3
Uganda	11,379	Partnered women	30.5	3.7	5.8	84	9.8	62.2
		Un-partnered women	23.9	1.3	6.9	68	10.5	48.7
Zambia	9,649	Partnered women	31.3	3.7	6.2	62	12.3	38.0
		Un-partnered women	23.9	1.2	8.0	43	12.8	26.6
Zimbabwe	6,015	Partnered women	31.2	2.6	9.4	54	5.1	50.2
		Un-partnered women	24.4	0.9	9.7	46	5.3	43.7

Note: Partnered includes married and living together; un-partnered includes unmarried, widowed, separated.  
Source: Author's calculations using DHS data.

