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Who are the “vanguard” women? Strategies for identifying women going against economic participation norms across 49 low- and middle-income countries

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Abstract

Women’s empowerment and poverty alleviation are two key factors for successful and equitable international development. Norms surrounding women’s economic participation and economic agency change over time, with some individuals achieving economic empowerment earlier than others. These “vanguard” women represent the leading edge of change. The objective of this study is to discuss and compare methodological strategies for creating a measure that captures the extent to which a woman’s actions exceed community norms regarding economic participation and agency. We refer to this measure as the “Vanguard Women’s Economic Empowerment (WEE) Index.” The Demographic and Health Surveys for 49 countries were used to capture community-level WEE norms using 8 WEE measures. To identify whether a community is non-normative for a WEE item, we explore four strategies, inclusive of two thresholds and two approaches for middle-prevalence communities. Using the community assignment, we construct

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the individual-level Vanguard WEE Index that captures the number of WEE items a woman has that are non-normative, i.e. vanguard, in her community. We validate this index through associating it with a validated index on women's financial discrimination. Subsequently, the characteristics of "vanguard" women were assessed through mixed effects modeling. Women who register higher on the Vanguard WEE Index are likely to be older, poorer, and live in rural communities. This study is the first to offer a valid method for measuring the extent that a woman goes against the community norm on economic participation and agency in low- and middle-income settings. The results outline a strategy for contextualizing women's economic empowerment within that setting's normative context. Practitioners and policy-makers can use this index when implementing economic empowerment programs to identify those who are pushing the needle in their community, as these women may be critical changemakers for gender equity broadly.

Keywords

social norms; economic empowerment; gender

Background

Gender and poverty are two of the most influential social determinants of health.^{1,2} The two are interlinked: social systems often confer differential economic access and power based on gender. Globally, women earn less, are less educated, have a higher disease burden, and experience less political, economic, and social authority than men.³ In light of this, the United Nations characterizes women's economic empowerment (WEE) as a cornerstone of the Sustainable Development Goals.^{4,5} WEE is understood to improve the health and wellbeing of women by both alleviating poverty and improving gender equality.⁶ As such, many governments and organizations have invested in women's empowerment agendas, and efforts to economically empower women in low- and middle-income countries have boomed in the past few decades.^{7,8}

Empowerment is a broad term used to capture the process by which people gain the ability to make decisions about their life.⁹ Kabeer (2016) described empowerment as "*the processes by which those who have been denied the capacity for choice gain this capacity.*"⁸ Empowerment, therefore, is a process of social change and a tool for global social justice. Economic empowerment is a specific form related to having power over financial resources and productivity. WEE is the process by which women gain access to economic opportunity, whereby they have the decision-making power to dictate their participation in economic systems.^{9,10} Some women in communities represent the cutting edge of change for women's empowerment, and such women are the drivers for changing norms that prohibit or even facilitate backlash to women's economic empowerment. Currently, we do not have a strong method or understanding on how to characterize these "vanguard" women.

Characterizing women who are pushing the needle on women's empowerment in their community requires an understanding of the prevailing norm. Social norms theory defines a social norm as an implicit or explicit rule of the appropriateness of a behavior.¹¹ Whereas

injunctive norms represent the level of approval afforded a given behavior, descriptive norms refer to the perceived prevalence of a given behavior.^{12,13} Ideally, to determine whether a specific behavior is normative, one would have both the injunctive norm (such as a high level of agreement with the statement: “most people in my community think it’s ok for a woman to start her own business”) and the descriptive norm (such as the belief that ‘many women my community own businesses’). There is variability across disciplines in discussing social norms as individual constructs (beliefs about others’ expectations¹⁴, interpretations of rules¹⁵) versus collective constructs (a social phenomenon within a group,¹⁶ a pattern of behavior observed at a population-level¹⁷). The concept of a reference group is fundamental to studying social norms as a collective construct.^{18,19} Mackie et al. (2015) outline that social norms are sustained by the “*reciprocal expectations of the people within a reference group*,” and this interdependence perpetuates a norm.²⁰ Despite the widespread understanding of norms reference groups, there is a lack of consistency in how studies identify reference groups to ensure they capture normative influence.¹⁹ In this study, we explore the descriptive norm as a collective construct with geographic community as the reference group, and assume that the prevalence of the behavior within the community approximates the descriptive norm, as done in other studies.²¹

Gender norms are a type of social norms dictating what is appropriate for different genders. They frequently affect whether women are denied or provided with the power of choice over economic resources. As a result, local gender norms can affect the magnitude and directionality of the relationship between a woman’s economic participation and her wellbeing and health.²² Yet, few studies on the relationship between women’s wellbeing and WEE have explored whether this relationship varies among women based on whether they are among the first to gain greater economic autonomy and decision-making power in their geographic area.^{23,24} The gap in our understanding of non-normative economic participation is partly due to the challenges in conceptualizing and labeling settings as “normative.” While social norms are widely recognized as important, few studies directly measure them.¹⁹ In a review by Mackie et al. (2015), out of 173 studies using social norms theory, only 14% explicitly measured norms.²⁰ Thus, understanding not only rates of WEE, but also areas of the globe where WEE is counter to local gender norms, and the proportion of women going against the norm on economic participation therein, is a persistent gap in the literature. Strategies for identifying these sub-populations of women are needed for effective gender equity policy enforcement and development.

Chung and Rimal (2016) highlight the importance of standardizing the operationalization of norms across research to understand their effect on behavior.²⁵ Practitioners have grappled with quantitatively labeling settings as “normative” versus “non-normative” for specific behaviors. Most existing studies on social norms use qualitative methods, such as in-depth interviews and vignette discussions, resulting in a lack of quantitative social norms studies with strong external validity. Other studies have tested the power and salience of social norms in field experiments.^{26–28} A small number have sought to quantify and label settings as normative on certain factors in population-level survey datasets.²⁹ Metheny and Stephenson (2020) labeled a setting as non-normative for a characteristic if the proportion of women in the community who have that characteristic is less than or equal to the national proportion. Other work has labeled communities as non-normative if the

community prevalence falls in the bottom two-thirds of the distribution of community-level prevalence.^{19,30} Other studies avoid a binary measure and separate communities as least normative, normative, more normative, etc., based on the prevalence distribution.³¹ Others have applied a more straightforward approach and labeled communities as non-normative on an item if less than 50% of people have the item, establishing a threshold.³² None of these strategies combine thresholds with approaches that use the community-level prevalence distribution. We seek to test four strategies for labeling a community as non-normative or normative, inclusive of combinations of two community thresholds and two approaches to applying the community-level prevalence distribution. We do this because of our acknowledgement that multi-country datasets have a diversity of community-level prevalence distributions across countries. While we can confidently label communities with very low or very high prevalence rates as non-normative and normative respectively, we require distribution analysis for communities with middle-prevalence rates, as their classification is less straightforward.

The goal of the study is to provide a methodological approach for identifying the extent to which women go against their setting's local WEE norms through labeling communities as normative or non-normative for each of eight specific WEE proxies. We use eight commonly used individual-level WEE proxies across 49 low-and middle-income countries and explore whether these items are clustered at the community-level, which would suggest they are under normative influence. We construct a WEE index that counts the number of WEE items for each woman, regardless of whether those items are normative or not in her community. We consider and compare four different strategies to determine whether an item is normative or non-normative in a community, to help move towards consensus on how to label normative economic empowerment environments. We then construct a Vanguard WEE index that counts the number of non-normative WEE items for each woman. Our study responds directly to challenges in the international development and public health fields, as outlined by Cislighi and Heise (2016), by establishing a method to both identify behaviors under normative influence, along with their appropriate reference group.²⁹ The validated Vanguard WEE Index is suitable for use in impact evaluations, policy development, and economic programming for women.

Methods

Data

Sample—The data came from the Demographic and Health Surveys (DHS) for 49 countries. Country surveys were included if: 1) they were conducted after 2012, and 2) they included all eight WEE variables. Country surveys were restricted to post-2012 due to the general availability of WEE variables, consistency across DHS program versions, and to avoid outdated data. The data from the most recent survey were used if a country had multiple surveys since 2013.

The DHS sample is representative at the national and regional levels, and across urban and rural areas.³³ The DHS stratification method divides the sampling frame into strata, which are typically homogenous on administrative area one-level below nation, often referred to as “region”, and urban/rural, with the aim of reducing sampling errors. The household

survey employs a two-stage cluster sampling procedure. Primary-sampling units (PSU) are selected within each stratum based on probability proportional to population size. Across countries, DHS sampling uses a similar strategy for identifying PSUs in which recent census data from each country is used to create geographic demarcations that fall within a unique stratum.³³ About 20–30 households are interviewed within a PSU. A complete household listing is acquired for each community and a set number of households is selected by equal probability systematic sampling within each cluster. All women aged 15–49 (in a select few country cases, up to 64) within selected households complete the women’s questionnaire. Since the DHS does not identify community-level data, we employed methods used by previous studies to proxy the community using the PSU.^{34–36} The community functions as our reference group for women’s economic participation norms.

The sample for constructing the country and administrative area one-level below nation averages for each WEE variable was individual women with at least one, non-missing WEE item (n=1,506,068). The sample for constructing community averages for each WEE variable was restricted to communities with at least nine women surveyed for that WEE item. In a review of 26 studies that created community proxy measures for norms, only six discussed community sample size and excluded groups based on the number of observations per group.³⁷ There is no established guideline for the cutoff. We initially explored a minimum of ten per community, which was the median of the six studies reviewed. However, we found similar findings for main results when using a cutoff of nine per community and restricting to ten compared to nine led to 23,208 observations and 1,559 communities dropped. Therefore, the analytic sample for index development was restricted to women who had no missing WEE items or missing covariate values missing, who lived in communities where at least nine women were surveyed for each WEE item (n=439,956).

Weighting and clustering—All descriptive and inferential analyses used the DHS weight for individual women. The DHS individual woman weight requires re-normalizing when pooling countries into one dataset due to the different survey sizes across countries. Country surveys vary considerably by size; for instance, the India survey sample is 48,499 women with no missing WEE items or covariates who live in a community where, for each WEE item, at least eight other women were surveyed, whereas the South Africa survey sample is only 377. Without weight normalizing, one country could drive effects within the pooled analysis. Weights were normalized so that each country survey is given equal weight by multiplying each original weight by ((the total pooled sample/ number of surveys) / the sample size in the country survey).

The data are hierarchical, with individuals nested within communities, which are nested within strata, which are nested within countries. Given the data’s clustering, random intercepts were applied for all statistical models for both community and strata. Random effects adjust for unobserved latent variables that account for the correlation among women within both strata and communities. All analyses include country fixed effects, such that women are compared to women within their own country.

Measures

WEE proxies and WEE Index—Standard measures of WEE include financial decision-making power, access to money, financial independence, financial literacy, and indicators of economic positioning, such as employment.^{38,39} The Women's Empowerment in Agriculture Index (WEAI), for example, consists of two sub-indices, the first focused on gender parity within the household and second focused on individual-level empowerment in agriculture, including measures of decision-making over resources, control over use of income, leadership in the community, and time allocation.⁴⁰ In a data-driven approach, this study uses eight commonly used WEE proxies outlined in Table 1, which broadly capture access to resources, work, and decision-making power in line with previously used indices on women's empowerment. These items also allow for cross-country comparability.¹

The eight items are as follows. Work was indicated by the DHS variable “respondent worked in last 12 months” response was “in the past year,” “currently working,” or “has a job, but on leave last 7 days.” Further characteristics of work were not available across the full set of countries. Earns more or the same income as husband was indicated by the DHS variable “respondent earns more than husband/partner” response was “more than him” or “about the same,” or if the husband does not work and the respondent does. Control over respondent's earnings was indicated by the DHS variable “person who usually decides how to spend respondent's earnings” response was “respondent alone.” Women who did not work were coded as (0). Decision making participation in husband's earnings was indicated by the DHS variable “person who usually decides what to do with money husband earns” response was “respondent alone” or “respondent and husband/partner.” Professional occupation was indicated by the respondent worked and the DHS variable “respondent's occupation (grouped)” response was “professional/technical/managerial.” Decision making participation in household purchases was indicated by the DHS variable “person who usually decides on large household purchases” response was “respondent alone” or “respondent and husband/partner” or “respondent and other person.” Control over accessing own healthcare was indicated by the DHS variable “person who usually decides on respondent's healthcare” response was “respondent alone.” Respondent education was indicated by the DHS variable “highest educational level” response was “secondary” or “higher.” As evidence of validity, the WEE Index (sum of number of WEE items) was significantly and positively associated with indicators of empowerment, namely seeking help among those who experienced domestic violence, used professional prenatal care, and used professional assistance during birth (Annex Table A.2).

The prevalence of WEE items among women spanned from as low as 6.3% for managerial occupations to 67.1% for participating in household purchase decisions (Table 1). Theorists have asserted that the WEE process requires the combination of both resources and individual agency to result in wellbeing.⁹ Based on these conceptual distinctions, we categorized the items “work”, “earns more than husband”, “education”, and “managerial

¹As a sensitivity check to ensure content validity of the WEE index, a version of the vanguard WEE index using 10 WEE proxies inclusive of mobile phone and bank account among a sub-set of countries for which these were available was constructed. The association of the 10-item index with individual-level empowerment proxies was similar to that of the 8-item index, and thus the 8-item was used to allow a greater number of countries included.

occupation” as resources, as they reflect assets related to financial and human capital. We categorized “joint decision-making on the husband’s earnings and household purchases” and “main decision-making on own earnings and own healthcare” as agency, as these items reflect the extent that women have discretion over household and personal decisions. We further distinguish between women’s decisions based on her own earnings and healthcare, compared to decisions that relate to her husband’s earnings and general household purchases. In the former, dummy variables identify main decision-making, rather than just participation, to indicate when women have complete control over economic resources. This is the case when, for example, she has full access to use her earnings, or to determine on her own whether she needs healthcare and has discretion over funds to pay for care. Given that a husband’s earnings and household purchases intuitively involve spousal discussion, these items were coded as participation rather than main decision-making. Descriptions and prevalence of 8 WEE items are provided in Table 1. Across the full sample, women had on average 2.9 WEE items, with variations across nations (Annex Table A.1).

Vanguard WEE Index—The Vanguard WEE Index is an individual-level count measure of the number of WEE items (out of 8) for which a woman is vanguard on. Being vanguard on an item was operationalized as having an item in a community where it is non-normative for women to have that item. Meaning, being vanguard on an item was a binary measure of having the item and living in a non-normative community compared to either: 1) having the item and living in a community that is normative on that item; or 2) not having the item.

To illustrate this further, Figure 1 provides examples of four hypothetical women who have eight non-missing WEE items and live in the same community. In this community, higher than secondary education, earning the same or more than your husband, and having control of your own healthcare are non-normative for women, where the remaining WEE items are considered normative. In Figure 1, Woman A and Woman B have the same number of WEE items, five, however the items themselves are different. Woman A has a college education, paid employment, has a professional occupation, earns more money than her husband, and has control over her own healthcare. In comparison, Woman B has paid employment, participates in decisions on her husband’s earnings and household purchases, has control over her own earnings, and has control over her own healthcare. Given the three non-normative items in this community (secondary education, earnings the same or greater than husbands, and control over healthcare), three of Woman A’s five WEE items are non-normative resulting in a Vanguard WEE score of 3, whereas one of Woman B’s five items non-normative, resulting in a Vanguard WEE score of 1. Thus, even though the WEE count is the same for both women, their Vanguard WEE index is different. It is also possible for two women to have the same Vanguard WEE score, but differ in their number of overall WEE items, as is the case of Woman C and Woman D. Woman C has higher than secondary education, earning the same or more than your husband, and having control of your own healthcare, whereas Woman D has all eight WEE items. They both, however, have the same Vanguard WEE score of three. Thus, the value of this approach is being able to incorporate a given community’s unique relationship with each of the eight WEE items, to identify vanguard economic participation. .

We ruled out several alternative approaches to identifying vanguard women. One of which was identifying women as vanguard if their total WEE score was greater than the community average or greater than 1 SD above the community average. We decided against this approach for several reasons. First, in this large diverse survey dataset, many women had missing values for some WEE items, and we would have only been able to compare cases with full data. In the presented method, we use WEE item data for community averages from all women in a community even if they have some WEE items missing, provided at least nine women in the community have data on that item. Second, there is more validity in assigning a whole community as “non-normative” for an item as to avoid misclassifying women when comparing them to each other in communities with very low or very high WEE. For instance, it would not make sense to separate women out as vanguard or not vanguard in a community where on average women have seven WEE items, as overall WEE is quite normative (non-vanguard) for all women living there. Further, our study provides more nuance in using a count variable of the number of “transgressions” against the community norm, which provides more information than a binary individual-level variable of vanguard versus not vanguard. Overall, we are interested in normative violations, which are behavioral. Being able to directly compare specific individual activities with their community prevalence is a critical conceptual component of this measure. Simply collapsing across these behaviors, without identifying whether the behavior itself is normative or not, muddies its precision.

Measures for criterion validity analysis of the Vanguard WEE index—The national-level Social Institutions and Gender Index (SIGI) on restricted access to productive and financial resources was used as a proxy for settings with low women’s financial participation. The measure is scaled from 0 (no discrimination) to 10 (absolute discrimination) and assesses nation-level rights between men and women on access to assets, bank accounts, credit, workplace opportunities, maternity leave, and freedom to choose a profession or register a business.⁴¹ Index estimates from 2014 were used for countries with DHS surveys from 2013–2016 and index estimates from 2019 were used for countries with DHS surveys from 2017–2021. An individual-level non-economic empowerment proxy was also used to test the criterion validity of the Vanguard WEE index: agency to visit family. Agency to visit family was captured by being the main decision-maker on whether to visit family versus being a joint decision-maker or not a decision-maker.

Covariates—All models are adjusted for age (categorical at 5-year intervals), age at marriage (categorical at 5-year intervals), parity (categorical with 0=no children, 1=one to two children, 2=two to five children, and 3=more than five children), rurality (binary, rural versus urban), and the household wealth index (categorical). The household wealth index was a DHS-developed measure comparing wealth strata within a country coded as poorest, poorer, middle, richer, and richest. The index was calculated using data on household assets, household construction materials, and water and sanitation factors.³³

Statistical analysis

Vanguard WEE Index construction using four strategies—To identify whether a woman’s WEE item is vanguard, we must first label a community as non-normative

or normative for that WEE item based on the community's prevalence for that WEE item. First, community-level prevalence distributions for each WEE item were explored separately. Given the high variability in WEE measures across a diverse population of 49 countries, prevalence thresholds were assigned as cutoffs. Two dyads of thresholds were explored: (25%, 75%) and (35% and 65%), in which all communities where the item prevalence was below the smaller percent were labeled non-normative communities and all communities where the item prevalence was above the larger prevalence were considered normative communities. For each dyad of thresholds, the percent of communities that fell as non-normative, normative, and middle-range prevalence communities were presented (Table 2).

Next, two approaches were used to label middle-range prevalence communities (i.e., communities with prevalence falling between the threshold dyads) as normative or non-normative. The first approach labeled a community as non-normative if the community's prevalence was in the bottom two-thirds of the community-level distribution within the administrative area one-level below nation, as was similarly used in a study on gender norms in the Lancet Gender Equality, Norms and Health Series.³⁰ The second approach labeled a community as non-normative if the community's prevalence was less than the prevalence of the administrative area one-level below nation, as was done similarly by Metheny and Stephenson (2020) using national prevalence.³⁴

For each WEE item separately, the percentage of women who were vanguard on the item among the sample who had the item was explored to understand what portion of item prevalence was non-normative. For each WEE item, the difference in percent vanguard among those who had the item was assessed: 1) between measures that used different threshold dyads but the same approach for mid-prevalence communities and 2) between measures that used different approaches for mid-prevalence communities but the same threshold dyad. The number of items a woman was vanguard on was summed up to create the potential indices. The indices were count variables ranging from 0 (no vanguard items) to 8 (has all items and all items are vanguard). Four indices were generated using combinations of the two threshold dyads and the two approaches for handling mid-prevalence communities.

Vanguard WEE Index validation—The distributions of the four indices were plotted together on a line graph. The magnitude and significance of the weighted correlation between each index and a set of demographics (age, age of marriage, parity, wealth, and rurality) was assessed. The intraclass correlation coefficient (ICC) was explored for the four indices and eight WEE items.² The ICC provides information on how clustered a measure is, as in: it compares how much units within a group resemble each other and how much units across groups resemble each other.¹⁹ A very low ICC would mean that all communities have about the same proportion of WEE. A high ICC would mean that items are very clustered, and community proportions are variable. For something to be under normative influence, an ICC at or above 0.05 would suggest clustering and variability

²Weber et al. (2019) suggest that researchers assess the intraclass correlation coefficients (ICCs) across proposed reference groups to understand level of clustering, with high clustering implying normative influence.²⁷

across groups.¹⁹ For vanguard indices, an ICC at or below 0.25 would indicate sufficient within-community variability for analysis. On average, in communities where agency is more normative, women are significantly older when they marry, compared to communities where agency is less normative. For instance, age of marriage is 19.9 (95% CI: 19.8,20.0) in communities where participation in decisions on how to spend one's husband's earnings is normative and is a more than year younger in communities where this form of agency is not normative (18.6 (95% CI: 18.6,18.7)). These supportive findings suggest that community norms influence women's marriage practices and indicates the importance of capturing local gender norms (Annex Table A.3).

Based on a lower ICC, higher variability, and smaller differences in percent vanguard from other indices/strategies, we chose one index to move forward with. To test the criterion validity of the selected Vanguard WEE Index, the index was associated with proxies for agency over mobility and national-level financial gender discrimination. It was hypothesized that more discriminatory settings would be more likely to have a higher Vanguard WEE Index, adjusting for the number of WEE items, given these places are less normative in women's economic participation. It was hypothesized that empowered women, as measured by access to information, would be more likely to have a higher Vanguard WEE Index, adjusting for the number of WEE items a woman has. Associations were measured by mixed effects linear regression adjusting for survey weighting, age, wealth, rurality, country fixed effects, random effects for strata and community, and the number of WEE items the respondent has. We adjust for the number of WEE items so that the associations with vanguard WEE are compared between women with the same level of general WEE.

Characteristics of Vanguard WEE women—The chosen Vanguard WEE Index was associated with age, age of marriage, parity, wealth, and rurality using mixed effects linear regression, adjusting for survey weighting, strata and community random effects, and the respondent's number of WEE items. For a select set of WEE items, the design-based F-statistic adjusting for weighting and survey sampling was used to compare the proportion of women vanguard by marital status, wealth, and rurality.

Results

Using a threshold dyad of 25%, 75%, the percentage of communities that fell in the middle-range prevalence group ranged from 3.7% (manager occupation) to 53.6% (work) (Table 2). For the threshold dyad of 35%, 65%, the percent of communities that fell in the middle-range prevalence group ranged from 1% (manager occupation) to 32.6% (primary education, work) (Table 2). Setting a prevalence threshold of 25% as compared to 35% for non-normative communities provided a larger percentage of women who have the item being vanguard for highly prevalent items, and in general, a smaller percentage of women who have the item being vanguard for less prevalent items (Table 3, columns A-B, C-D). Comparing approaches among the same threshold, labeling the bottom two-thirds of the community distribution as vanguard as compared to labeling communities that were less than the prevalence of the administrative area one-level below nation as vanguard led to a higher proportion of item-positive women labeled as vanguard and more so for higher prevalence items; the difference was less so for a threshold of 35% (Table 3, columns

B-D, A-C). For low-prevalence items, threshold matters more than approach. When using a low threshold, the approach for mid-prevalence settings was influential. Indices A, B, C, and D had a mean (standard deviation) of 1.25 (1.25); 1.09 (1.19); 0.97 (1.12); and 0.93 (1.11), respectively (Figure 2). Distributions of the four count indices were similar, though A (threshold 25%, approach of bottom two-thirds of community distribution) differed more from the other three measures (Figure 2). Measures A and B had higher variability, which allows more power for analysis and interpretation. The correlation between age, age of marriage, wealth, and rurality and all four count indices when not adjusting for any other variables was comparable in direction, magnitude, and level of significance, suggesting similarities across indices (Annex Table A.4).

All WEE items and WEE overall displayed ICCs across communities higher than or equal to 0.05, suggesting enough clustering to assert that the items were under normative influence (Table 4). Indices displayed ICCs equal to or less than 0.25, suggesting at least 75% of the variability in vanguard is within communities (Table 4). Due to lower ICCs in indices B and D, higher mean and variability in indices A and B, and smaller differences in percent vanguard between approaches at the 35% thresholds (B and D), index B was chosen for further analysis: using a 35%, 65% threshold and bottom two-thirds of the community-level distribution for mid-prevalence communities.

In line with our hypotheses, the Vanguard WEE Index (using index strategy B) was significantly associated with the national-level gender financial discrimination index (B 0.40, 95% CI (0.33, 0.46)), meaning, higher average number of vanguard WEE items was associated with higher national-level gender financial discrimination (Table 5). Further, women who were the main decision-maker for whether to visit family were significantly more likely to have, on average, about one more vanguard item than women who were not the main decision-maker about visiting family (B 0.09, 95% CI (0.07, 0.10)). Averages of the vanguard WEE index by country are presented in Annex Table A.1, showcasing variability and justifying our strategy of using local comparisons for defining communities as normative or not normative.

Vanguard WEE overall was associated with increased age (B 0.02, 95% CI (0.01, 0.02)), decreased age of marriage (B -0.01, 95% CI (-0.01, 0.00)), decreased wealth (B -0.01, 95% CI (-0.01, -0.01)), and rurality (B 0.24, 95% CI (0.21, 0.27)) (Table 6). Vanguard WEE was not associated with parity. Married women had a significantly higher likelihood of being vanguard on work than unmarried women (21.1% vs. 17.4%; $p < 0.001$; results available on request). Similarly, married women were more likely to be vanguard on manager occupation (5.7% vs. 5.0%; $p < 0.001$). However, married women were significantly less likely to be vanguard on primary education (12.2% vs. 17.4%; $p < 0.001$). Wealthier women were more likely to be vanguard on employment (22.1% wealthiest vs. 16.6% among the poorest; $p < 0.001$), income higher than spouse (11.1% wealthiest vs. 7.0% among the poorest; $p < 0.001$), and control over own earnings (13.6% wealthiest vs. 9.9% among the poorest; $p < 0.001$). Urban women were more likely to be vanguard on employment (22.6% vs. 16.7%; $p < 0.001$), but rural women were more likely to be vanguard on decision-making participation on husband earnings (17.2% vs. 14.9%; $p < 0.001$) and higher education (17.6% vs. 10.4%; $p < 0.001$).

Discussion

This study explores strategies to identify non-normative and normative communities with respect to women's economic empowerment, and women going against the norm therein, i.e., "vanguard", across diverse settings and demographic groups. The proposed Vanguard WEE Index demonstrates a valid way to identify women going against the community gender norm on economic participation. For low-prevalence items, the choice of prevalence threshold for labeling communities as non-normative can greatly impact the percentage of women defined as vanguards. Indices using different thresholds, however, associated similarly with most demographic items. Different approaches to labeling mid-prevalence communities as non-normative led to minimal differences in the percentage of women defined as going against the norm, though greater differences when combined with a lower prevalence threshold. Replicating this method, which relies on descriptive norms, using injunctive norms measurement, as in, community approval or attitudes towards WEE, is a fruitful area for future work.

Findings suggest that older, poorer, rural women are more likely to be vanguard on women's economic participation in their communities. This may be due to less rigid norms at older ages and out of economic necessity among poorer women. However, it is questionable as to whether these differences are of substantive importance, as the effect sizes are very small for all of these except for rurality. The finding also reflects the contextual *opportunity* to be vanguard – not just the individual drive to be vanguard. For instance, significant associations between rurality and vanguard WEE is expected as economic participation is less normative in rural areas and thus there lies more opportunity for non-normative economic behavior. Further research on characteristics of vanguard women would offer critical information for supporting groups of women in their self-driven efforts to drive normative shifts in women's economic participation globally, and the extent to which their behavior is motivated by norms change versus economic necessities. Notably, vanguard women may be more likely to leave their community in search of places where women's economic participation is more normative. We are unable to track mobility in this cross-sectional study, but this serves as an important area for future research.

There are two reasons why the Vanguard WEE Index is useful and why it is practically important to consider and identify women who are demonstrating non-normative economic behavior. First, women who are on the vanguard of economic participation are a grassroots force behind gender equality. Practitioners can use the approaches described in this study to identify women who are defying economic norms in their community and are uniquely positioned to support changes in gender equity. It is important to highlight that many of these "vanguard" women are not participating in non-normative economic activity due to an individual enlightened empowerment agenda; many operate in this way out of economic necessity. Having a methodological tool to identify progressive women is a first step to understanding policy and programmatic strategy to leverage vanguard women's activity to shift full communities towards more women's economic participation, while recognizing that the drivers underlying non-normative economic participation may be diverse.

Second, it is important to be aware of potential backlash and harm towards vanguard women⁴² and identifying vanguard women allows policy leaders and practitioners to monitor potential risks. WEE program participants who are pushed into activities that are non-normative may experience risk of violence. Zafar et al. (2020), using data from 19 countries, found that working for pay is associated with increased violence against women.⁴³ Stockl et al. (2021) found increased intimate partner violence (IPV) among working women, particularly if the husband did not work, across a diverse set of 15 countries.⁴⁴ A randomized controlled trial in Vietnam providing gender and entrepreneurship training to women found increased IPV among participants; the authors attributed this finding to trainees having strong shifts in expressing agency in household decision-making, and with local stigma on divorce, this put trainees at increased risk.⁴⁵ Schuler et al. (2018) suggest that the mixed findings on the relationship between women's general empowerment and IPV may be due to women's empowerment being transgressive versus normal, or at a different point between transgressive and normal, across settings and groups of women.⁴⁶ Supporting this theory in a different context, a study in Uganda used vignettes to assess justification of IPV and found that in vignettes where the hypothetical woman violated gendered standards of behavior, male and female participants were significantly more likely to endorse IPV as acceptable, as compared to situations where the woman did not violate standards of behavior.⁴⁷ Freedom from violence is a key component of the substantiable development goals on gender equity progress.⁴⁸ Having a measurement strategy for identifying communities as non-normative, and subsequently women going against the norms therein, can guide practitioners in ensuring effective safeguarding systems where needed to support freedom from violence.

There is no validated measure of WEE, and the individual measures provided through the DHS are proxies for WEE.^{10,49} Unavailable WEE proxies that would be useful to our overall measure are measures of personal assets (such as mobile phone, bank accounts, and savings), further descriptors of the type of work women participate in (such as outside of the home, payment type, gendered labor), and measures of financial autonomy, such as access to financial information and having financial goals. Therefore, we are limited in our ability to fully cover the theorized areas of WEE: agency and resources that lead to desired wellbeing outcomes. Second, we acknowledge the limitations of using an index or count of the number of WEE items, as it moves away from specificity and not looking at specific items assumes interchangeability that may not exist; our interest in using an index is to better comment on broader women's economic empowerment, a construct increasingly measured and explored in the field. Third, we cannot factor in women's definitions of empowerment and use a blanket measure across diverse populations. We are limited in our ability to assume women *want* to have the WEE proxies we use, and these proxies may lack local or cultural relevance. We acknowledge this limitation while recognizing the value of this measure to conceptualize WEE across a diverse population.

Two main limitations relate to vanguard WEE measurement. First, our measure of vanguard is limited to a descriptive norm referent without a measure of injunctive norms. Measures of the perceived appropriateness of a woman working, participating in certain decisions, etc., by community members would greatly improve our measure of "going against the norm." We recommend future qualitative and quantitative work explore injunctive norms

on WEE. Further, we assume that the prevalence of the behavior accurately approximates the descriptive norm or perceived prevalence of the behavior. We note the current approach to capturing vanguard remains useful because descriptive norms data (prevalence data) is commonly available, and it can be easily applied to other datasets and contexts. Second, there is no gold standard for “going against the norm,” and few variables exist to compare the Vanguard WEE Index for assessing criterion validity. Several psychological constructs of agency, such as measures of self-efficacy and locus of control, are not available in the DHS.¹⁰ Ideally, we would have psychological measures of personal agency to validate the Vanguard WEE Index, as we suspect women going against the norm are unique in their level of personal agency. Despite these drawbacks, current evidence of index validity using available comparative measures is promising and represents an advance.

To our knowledge, this is the first study to develop and validate a measure of the extent to which a woman is on the vanguard of economic participation in her community. This seminal work on quantitatively labeling settings as non-normative informs future studies focused on social norms measurement. Few studies have used a pooled cross-country sample, and the widescale reach of this study’s sample renders it generalizable and externally valid. For future application, we highlight the importance of understanding regional, country, and other geographical nuances, particularly for defining WEE proxies and defining “normative.” The findings contribute valuable data on the patterns and trends of going against the norm in economic participation for a set of commonly used proxies for WEE across low- and middle-income settings. In applying a term not previously used, *vanguard*, we avoid assigning value to the deviation from the norm, recognizing that such deviation may lead to positive change in some areas of women’s lives and negative outcomes in others. We intend for future work to explore how vanguard economic participation associates with diverse measures of wellbeing. The provided strategy and index deliver critical guidance for implementing a nuanced understanding of norms and their influence on women’s economic empowerment policy and programming globally.

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Data use

Merged datasets and do files are available upon request.

Appendix A

Annex Table A.1:

Women’s economic empowerment proxy prevalence by country, weighted

	Average WEE score	Average vanguard WEE Score
Afghanistan	1.0	0.6

	Average WEE score	Average vanguard WEE Score
Albania	3.1	0.9
Angola	3.2	1.3
Armenia	3.6	0.9
Benin	2.6	1.1
Burundi	3.0	1.1
Cambodia	4.5	1.0
Cameroon	2.7	1.1
Chad	1.5	0.8
Colombia	4.9	1.6
DR	3.8	1.4
DRC	2.9	1.2
Egypt	2.5	0.9
Ethiopia	2.3	0.8
Gambia	2.4	1.5
Ghana	3.6	1.2
Guatemala	2.9	1.0
Guinea	2.2	1.1
Haiti	3.6	1.6
India	2.5	0.9
Indonesia	4.0	1.3
Jordan	3.1	0.6
Kenya	3.0	1.6
Liberia	3.2	1.2
Madagascar	4.0	1.0
Malawi	2.3	1.4
Maldives	3.6	1.1
Mali	1.6	0.9
Mauritania	1.8	0.9
Mozambique	2.3	0.8
Myanmar	3.8	1.1
Namibia	3.5	1.2
Nepal	2.7	1.3
Nigeria	2.5	1.0
Pakistan	1.7	1.0
PNG	4.2	1.1
Philippines	2.1	0.9
Rwanda	3.3	0.9
Senegal	1.6	1.1
Sierra Leone	2.5	1.2

	Average WEE score	Average vanguard WEE Score
South Africa	3.7	1.0
Tanzania	2.8	1.3
Tajikistan	2.2	0.8
Timor-Leste	3.2	0.9
Togo	2.7	1.3
Uganda	3.2	1.5
Yemen	1.5	0.8
Zambia	3.1	1.4
Zimbabwe	3.6	1.1
Total	2.9	1.1

Annex Table A.2:

Association between WEE Index and Help-seeking, among women who experienced violence

	Sought help for violence, among women who experienced violence Coeff (95% CI)	Used professional prenatal care during at least one pregnancy, among women who were pregnant Coeff (95% CI)	Used professional assistance during at least one birth, among women who gave birth Coeff (95% CI)
WEE Index	0.07 *** (0.04,0.10)	0.15 *** (0.13,0.18)	0.11 *** (0.09,0.13)
Observations	65,274	254,603	253,124

Mixed effects logistic regression adjusting for age, age at marriage, parity, wealth, rurality, survey weighting, strata and community random effects, and country fixed effects

* p<0.05;
 ** p<0.01;
 *** p<0.001

Annex Table A.3:

Average age of marriage (95% CI) by community norms status, among communities

	Agency on healthcare decisions	Agency on husband earnings decisions	Agency on household purchases decisions
Normative communities	20.4 (20.2,20.6)	19.9 (19.8,20.0)	19.8 (19.8,19.9)
Not normative communities	19.2 (19.1,19.2)	18.6 (18.6,18.7)	18.7 (18.6,18.7)

Annex Table A.4:

Bivariate correlations of proposed indices with demographic groups, weighted (n=434,956)*

Approach:	Bottom two-thirds regional community-level distribution				Community < region			
Threshold:	25%		35%		25%		35%	
	Index A		Index B		Index C		Index D	
	Mean	Corr. ⁺	Mean	Corr. ⁺	Mean	Corr. ⁺	Mean	Corr. ⁺
Age group		0.10 ***		0.10 ***		0.09 ***		0.09 ***
<=18 years	0.83		0.73		0.63		0.61	
19–25 years	1.09		0.94		0.83		0.79	
26–35 years	1.28		1.12		1.00		0.95	
36–45 years	1.37		1.21		1.07		1.03	
> 45 years	1.36		1.21		1.06		1.03	
Age of first marriage		0.10 ***		0.08 ***		0.09 ***		0.08 ***
11–15 years	1.09		0.98		0.84		0.82	
16–20 years	1.21		1.05		0.93		0.89	
21–25 years	1.37		1.19		1.07		1.01	
> 26 years	1.50		1.32		1.18		1.14	
Parity		−0.01 ***		0.01 ***		−0.00 *		0.01 ***
No children	1.17		1.03		0.91		0.87	
1–2 children	1.27		1.10		0.98		0.93	
2–5 children	1.27		1.11		0.98		0.94	
>5 children	1.19		1.08		0.92		0.92	
Wealth		0.10 ***		0.10 ***		0.08 ***		0.09 ***
Poorest	1.06		0.92		0.84		0.79	
Poorer	1.16		1.00		0.90		0.85	
Middle	1.23		1.07		0.95		0.91	
Richer	1.32		1.15		1.00		0.96	
Richest	1.44		1.28		1.11		1.09	
Rurality		−0.09 ***		−0.07 ***		−0.07 ***		−0.06 ***
Urban	1.38		1.20		1.06		1.01	
Rural	1.16		1.02		0.90		0.87	

* Women who have no missing values for all 8 WEE items, living in communities with at least 9 women surveyed for each WEE item, with no missing covariate values

⁺ Correlation coefficient adjusting for standardized survey weights; p-value of correlation *<0.05 ** <0.01 ***<0.001

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Highlights:

- We propose and evaluate a method for constructing an individual-level count Vanguard WEE Index, measuring the extent to which a woman transgresses the norm on economic participation and agency.
- Index validity across diverse low- and middle-income settings was supported.
- Vanguard women, women who participate economically in settings where it is non-normative, are more likely to be older, poorer, and reside in rural areas, compared to their peers.
- The resulting Vanguard WEE Index fills a policy relevant knowledge gap by providing a measure of non-normative women's economic participation, specifically focusing on women who represent the first wave of economic change in their communities.

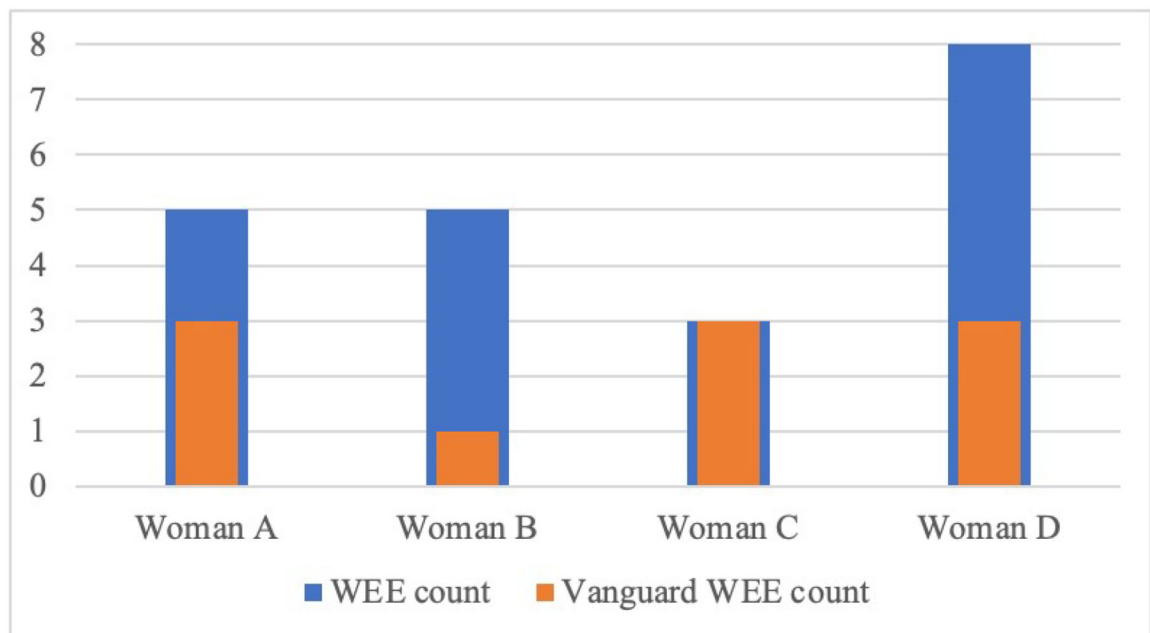


Figure 1:

Count measure of vanguard WEE, among women with 8 WEE items non-missing: examples

*color not necessary; shading necessary

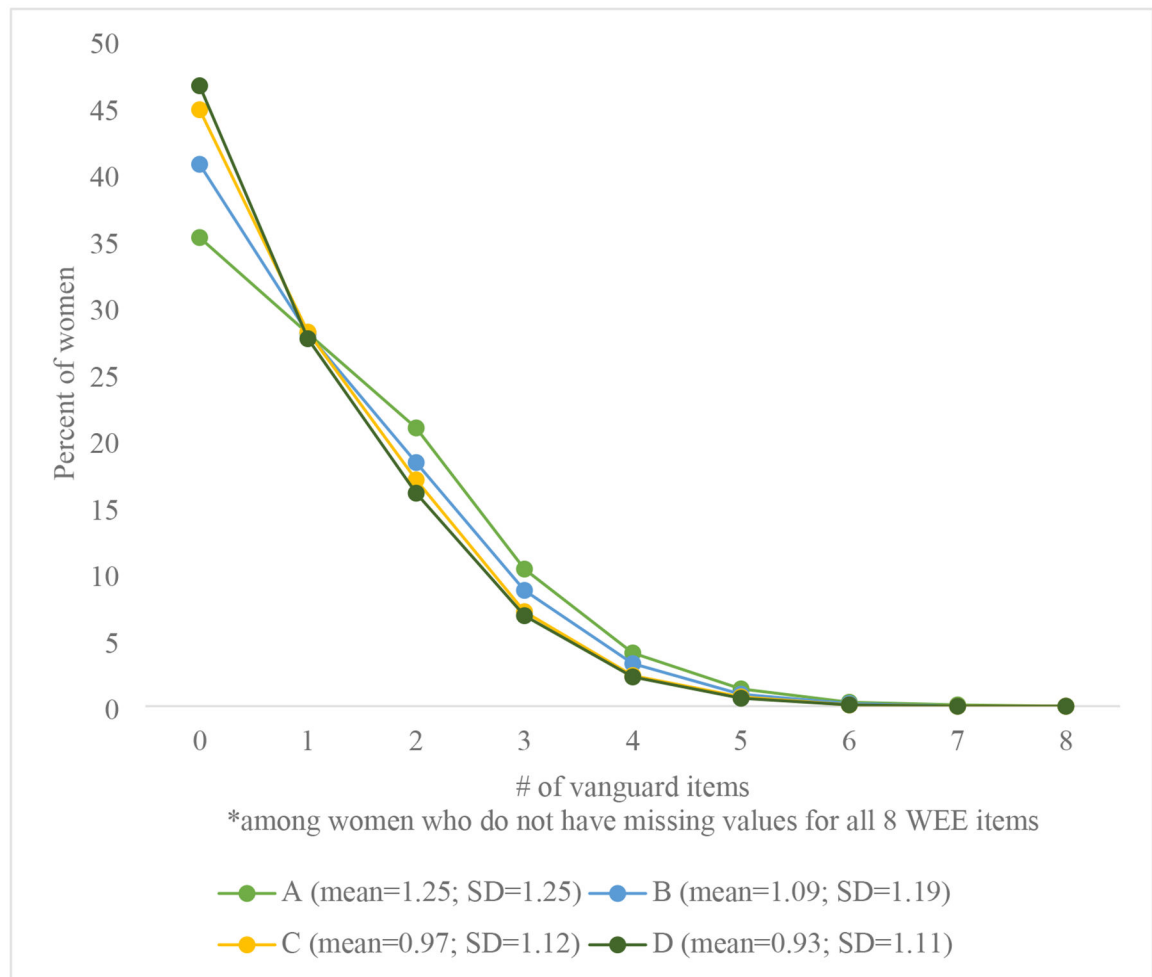


Figure 2:
 Distributions of proposed vanguard WEE indices (n= 434,956)*
 *color not necessary; patterns or shading necessary

Table 1:

Women's economic empowerment proxy prevalence by country, weighted

	Worked past year ¹	Earned same or more than husband ²	Above primary education ³	Manager role ⁴	DM husband earnings ⁵	DM household purchases ⁶	DM healthcare ⁷	DM own earnings ⁸
Afghanistan	13.2	2.0	8.6	6.6	32.0	42.3	3.6	4.9
Albania	41.1	19.7	57.0	10.0	84.0	87.6	2.6	15.3
Angola	65.1	12.0	43.1	4.9	58.9	80.9	17.9	21.6
Armenia	40.5	9.0	93.4	17.0	79.8	80.3	7.4	28.0
Benin	77.9	11.6	25.1	3.3	26.0	47.2	50.9	11.5
Burundi	85.2	15.8	24.5	2.2	63.8	69.3	13.2	12.3
Cambodia	78.8	36.9	40.1	4.5	96.0	93.5	52.4	46.4
Cameroon	67.5	9.2	50.6	0.2	42.0	57.9	27.7	10.1
Chad	51.0	4.2	14.9	0.8	17.1	40.0	26.4	8.9
Colombia	66.5	21.2	82.2	10.6	68.0	59.0	43.3	67.2
DR	57.8	14.7	67.4	12.3	76.7	85.7	21.8	42.3
DRC	72.3	16.2	47.7	2.8	56.3	60.0	17.6	10.8
Egypt	16.1	4.4	65.5	7.3	74.6	67.4	3.8	14.6
Ethiopia	50.1	8.4	17.2	2.4	75.9	78.2	6.2	15.4
Gambia	59.9	6.7	49.7	4.8	20.8	40.0	39.5	17.3
Ghana	76.6	12.0	63.1	5.6	44.2	74.0	39.9	27.3
Guatemala	49.6	9.4	39.6	6.3	78.9	82.0	16.1	19.8
Guinea	71.1	8.6	19.6	2.0	28.4	48.2	37.0	12.0
Haiti	56.3	15.3	53.4	5.2	63.8	82.5	21.4	29.2
India	30.3	9.4	60.1	2.9	69.7	73.4	4.2	12.0
Indonesia	59.2	17.2	71.0	6.5	88.9	76.4	33.4	44.6
Jordan	14.5	7.3	90.8	9.2	78.0	82.3	1.8	24.9
Kenya	66.4	13.0	42.7	9.5	57.0	72.7	24.9	38.8
Liberia	64.3	12.4	45.6	3.2	72.8	79.7	11.0	20.0
Madagascar	80.3	32.2	41.6	3.1	88.1	87.6	20.6	32.2
Malawi	67.1	9.8	25.8	5.0	54.8	55.4	9.9	18.6
Maldives	47.9	12.3	73.6	21.9	82.8	86.8	12.4	23.4
Mali	58.2	4.7	21.3	2.2	12.8	20.3	37.6	7.7
Mauritania	22.3	2.4	28.7	0.3	52.1	62.0	8.1	16.4
Mozambique	46.4	4.8	20.9	2.1	66.0	76.0	9.1	16.5
Myanmar	72.7	24.2	46.4	5.6	87.2	74.3	30.3	40.1
Namibia	45.5	6.8	76.0	8.8	68.5	83.0	9.3	46.8
Nepal	66.9	10.5	50.0	3.8	57.6	53.0	21.4	23.3
Nigeria	68.4	8.3	50.6	6.2	26.7	40.4	41.9	11.2
Pakistan	18.3	3.4	36.0	2.8	46.8	44.5	7.2	10.1

	Worked past year ¹	Earned same or more than husband ²	Above primary education ³	Manager role ⁴	DM husband earnings ⁵	DM household purchases ⁶	DM healthcare ⁷	DM own earnings ⁸
PNG	53.9	18.6	86.3	14.8	89.8	89.1	15.8	47.0
Philippines	32.7	7.4	26.8	4.2	47.8	71.5	6.3	29.8
Rwanda	85.5	24.4	23.4	2.5	74.9	73.6	13.7	23.4
Senegal	53.8	4.9	31.6	1.3	18.3	18.4	31.2	5.5
Sierra Leone	71.6	10.1	41.1	2.4	37.1	47.0	16.7	9.9
South Africa	36.3	8.3	88.4	6.5	80.6	91.6	6.4	41.1
Tanzania	77.1	17.2	23.5	3.2	58.9	45.9	20.3	15.7
Tajikistan	25.5	4.4	94.2	7.7	37.9	37.5	4.9	12.2
Timor-Leste	36.9	11.4	63.1	4.0	78.8	93.7	7.2	31.1
Togo	73.0	9.2	34.7	0.7	16.5	47.2	56.4	11.6
Uganda	77.2	15.1	32.9	7.6	48.8	63.7	33.0	30.4
Yemen	9.8	1.4	48.4	1.1	42.6	49.1	2.2	9.3
Zambia	52.2	10.6	48.0	4.0	65.1	67.5	11.1	40.6
Zimbabwe	51.1	12.1	72.9	5.8	80.7	86.8	12.7	34.2
Total	56.9	12.0	53.2	6.3	60.1	67.1	31.5	19.7
Obsvs of total surveyed	889,979	656,134	1,492,386	889,145	594,291	614,908	614,960	661,976

⁺ Percent responded in the affirmative

^{1.} Women who worked in past year vs women who did not work in past year

^{2.} Women who earned the same or more than husband vs. women who earned less than husband or have no earnings

^{3.} Women who had above primary education vs. women who did not have above primary education

^{4.} Women who worked in a professional/technical/managerial position vs. women who did not work in this type of position or did not work

^{5.} Women who participated in decision on how to spend husband's earnings vs. women who did not participate

^{6.} Women who participated in decision on household purchases vs. women who did not participate

^{7.} Women who decided alone about whether to seek healthcare for herself vs. women who did not decide alone

^{8.} Women who decided alone about how to spend her earnings vs. women who did not decide alone or had no earnings

Table 2:

Threshold assignment of communities, by women's economic empowerment item

	Non-normative communities %	Middle range communities %	Normative communities %	Observations ⁺ (communities)
Threshold Dyad #1				
	Prevalence <25%	25% <= Prevalence <=75%	Prevalence >75%	
Worked past year	25.1	53.6	21.4	39,313
Earns more than or same as husband	85.8	14.1	0.2	33,687
Above primary education	18.9	53.3	27.9	59,747
Manager occupation	96.3	3.7	0.0	39,298
Joint DM husband's earnings	13.1	47.0	40.0	30,941
Joint DM household purchases	7.1	49.1	43.8	33,233
Main DM healthcare	61.0	35.7	3.4	33,232
Main DM own earnings	73.1	25.6	1.3	33,826
Threshold Dyad #2				
	Prevalence <35%	35% <= Prevalence <=65%	Prevalence >65%	
Worked past year	34.1	32.6	33.3	39,313
Earns more than or same as husband	94.3	5.3	0.4	33,826
Above primary education	27.5	32.5	40.0	59,747
Manager occupation	98.9	1.0	0.0	39,298
Joint DM husband's earnings	19.6	27.0	53.4	30,941
Joint DM household purchases	12.3	29.0	58.8	33,233
Main DM healthcare	73.5	19.5	7.0	33,232
Main DM own earnings	83.1	13.9	3.0	33,826

⁺ Limited to communities with at least 9 women with no missing values for the item

Table 3:

Percent vanguard among women who have WEE item and differences between thresholds, between approaches, weighted

Rates of vanguard among women who have item					
	Overall%	Approach 1 (bottom two-thirds regional community-level distribution)		Approach 2 (community < region)	
		Threshold 25%	Threshold 35%	Threshold 25%	Threshold 35%
		A row%	B row%	C row%	D row%
Worked past year (n=889,979)	56.9	45.5	34.6	33.0	27.6
Earns more/same as husband (n=656,134)	12.0	66.7	82.9	62.9	81.4
Above primary education (n=1,492,386)	53.2	32.7	26.9	25.2	22.2
Manager occupation (n=889,145)	6.3	70.9	86.7	70.4	86.7
Joint DM husband's earnings (n=594,291)	60.1	39.2	28.3	29.1	23.1
Joint DM household purchases (n=614,908)	67.1	38.4	29.0	29.1	23.0
Main DM own healthcare (n=614,960)	31.5	54.8	50.6	39.9	45.0
Main DM own earnings (n=661,976)	19.7	58.4	65.8	46.5	57.7
Differences in percent vanguard					
	Overall %	Between thresholds, same approach		Between approaches, same threshold	
	A-B	C-D	B-D	A-C	
Joint DM household purchases	67.1	9.4	6.1	6.1	9.3
Joint DM husband's earnings	60.1	10.9	6.1	5.3	10.1
Worked past year	56.9	10.9	5.3	7.0	12.5
Above primary education	53.2	5.9	3.0	4.7	7.6
Main DM own healthcare	31.5	4.2	-5.1	5.6	14.9
Main DM own earnings	19.7	-7.5	-11.2	8.2	11.9
Earns more/same as husband	12.0	-16.2	-18.5	1.5	3.8
Manager occupation	6.3	-15.7	-16.3	0.0	0.5

A: Vanguard item if has the item and lives in a community where the item prevalence is <25% or with prevalence =>25% and <=75% and community's prevalence is in the bottom two-thirds of the community-level distribution within the region

B: Vanguard item if has the item and lives in a community where the item prevalence is <35% or with prevalence =>35% and <=65% and community's prevalence is in the bottom two-thirds of the community-level distribution within the region

C: Vanguard item if has the item and lives in a community where the item prevalence is <25% or with prevalence =>25% and <=75% and community's prevalence is less than the regional prevalence

D: Vanguard item if has the item and lives in a community where the item prevalence is <35% or with prevalence =>35% and <=65% and community's prevalence is less than the regional prevalence

Table 4:

Intra-community correlation coefficients

Proposed indices	
Measure A	0.25
Measure B	0.18
Measure C	0.24
Measure D	0.17
Count of WEE items	0.41
WEE Economic resources	
Worked past year	0.29
Earns more/same husband	0.11
Above primary education	0.29
Manager occupation	0.08
WEE Economic Agency	
Joint DM husband's earnings	0.31
Joint DM household purchases	0.25
Main DM own healthcare	0.22
Main DM own earnings	0.22

Table 5:

Vanguard WEE association with national-level discrimination and empowerment measures

	Vanguard Index⁺⁺ Coefficient (95% CI)
Increased national-level gender financial discrimination~	0.40 *** (0.33, 0.46)
Observations	411,797
Main decision-maker on whether to visit family	0.09 *** (0.07, 0.10)
Observations	424,511

Mixed effects linear regression adjusting for survey weighting, number of WEE items, age, wealth, rurality, country fixed effects, and strata and community random effects

*
p<0.05;

**
p<0.01 ;

p<0.001

⁺⁺ Number of items vanguard; vanguard on item if has the item and lives in a community where the item prevalence is <35% or lives in a community with prevalence =>35% and <=65% and community's prevalence is in the bottom two-thirds of the community-level distribution within the region

~ Measured by the SIGI Financial Index

Table 6:

Demographic characteristics associated with vanguard WEE, weighted

	Vanguard WEE Index⁺⁺ Coeff (95% CI)
Age	0.02 *** (0.01, 0.02)
Age of marriage	-0.01 *** (-0.01, 0.00)
Parity	-0.00 (-0.01, 0.00)
Wealth	-0.01 *** (-0.01, 0.00)
Rurality	0.24 *** (0.21, 0.27)
Observations	434,956

Mixed effects linear regression adjusting for number of WEE items, survey weighting, strata and community random effects, and country fixed effects

*
p<0.05;

**
p<0.01;

p<0.001

⁺⁺ Number of items vanguard; vanguard on item if has the item and lives in a community where the item prevalence is <35% or lives in a community with prevalence =>35% and <=65% and community's