**Men and Women Empowerment in Agriculture Index**

**Focus: Five Domains of Empowerment in Agriculture**

## 

**General Overview**

Constructing an index capable of measuring unbiased empowerment in agriculture is a strategy that furnishes policymakers with means to prioritizing and making well-informed decisions. For nearly a decade, the Women's Empowerment in Agriculture Index (WEAI) has been used as a quantitative measure of women’s control over agricultural indicators (Alkire et al., 2012, 2013). Different models construct numerous indicators nested within weighted dimensions. For instance, the original WEAI is constructed with five domains of empowerment (5DE) that are used to measure the degree over which men and women are empowered in (i) decisions about agricultural **production**, (ii) access to and decision-making power about productive **resources**, (iii) control of the use of **income**, (iv) **leadership** in the community and (v) **time** allocation.

**Computing Subindexes of 5DE**

The two significant components considered in calculating the 5DE subindex are (i) the incidence of empowerment, which is calculated as the percentage of empowered respondents and (ii) the adequacy among the disempowered. The latter is calculated as the percentage of indicators in which the disempowered respondents experience adequate achievements.

**The sub-indexes of the 5DE**

1. Inadequacy scores (*ci*)

Where,

ci = Inadequacy scores of a respondent.

wj = Weight of an indicator.

gij = Inadequacy binary status assigned based on empowerment cutoff (k).

1. Disempowered Headcount ratio (*Hn*)

Where, *𝑞* is the number of respondents identified as disempowered and

*N* is the total number of respondents.

1. Empowered Headcount ratio (*He*)
2. Average Inadequacy Score (*An*) measures the intensity of disempowerment.

Where *ci(k)* is the censored inadequacy score

*q* is the number identified as disempowered.

1. Average Adequacy Score (Aa) of the disempowered.
2. Disempowerment Index (M0).

Also, can be expressed as:

1. 5DE Index (1-M0), assesses the degree to which women are empowered in the five domains of empowerment in agriculture.

Same as:

Where,

He = Empowered headcount ratio (*1 – Hn*)

Hn = Disempowered headcount ratio (*q ÷ N*)

Aa = The average adequacy score of disempowered (*1 – An*)

### **Contribution of each indicator to disempowerment**

The contribution of each indicator to the disempowerment is determined by decomposing the *M0* into its censored components. The headcount ratio *hj*(*k*) is computed to represented a proportion of the respondents who are disempowered and have inadequacy status (*gij(k*) in the specified indicator. Algebraically, we can express *hj*(*k*) as follows:

We can apply pre-determined indicator weights (*wj*) and compute the absolute contribution of an indicator as:

Reference Model

A rise in the index indicates an expansion of economic activity and a decline in the index indicates a contraction in economic activity

**Tables**

**Phase 1: 2018**

| **Indicator** | **UncensoredP1** | **CensoredP1** |
| --- | --- | --- |
| Poultry Production | 0.068 | 0.041 |
| Livestock Production | 0.042 | 0.030 |
| Land Ownership | 0.023 | 0.021 |
| Assets on Land | 0.007 | 0.006 |
| Earn Income | 0.014 | 0.014 |
| Allowed to Sell or Buy Items | 0.027 | 0.018 |
| Belong to Social Group | 0.030 | 0.028 |
| Held Leadership Position | 0.018 | 0.015 |
| Working Time | 0.010 | 0.010 |
| Leisure Time | 0.044 | 0.025 |
| Disempowered (M0) | 0.283 | 0.208 |
| Empowered (5DE) | 0.717 | 0.792 |

Graphical user interface, application, table, Excel

Description automatically generated

Reference By

Ashley Crossman

Updated June 21, 2019

An [index](https://www.thoughtco.com/indexes-and-scales-3026544) is a composite measure of variables, or a way of measuring a construct--like [religiosity](https://www.thoughtco.com/sociology-of-religion-3026286) or racism--using more than one data item. An index is an accumulation of scores from a variety of individual items. To create one, you must select possible items, examine their empirical relationships, score the index, and validate it.

## **Item Selection**

The first step in creating an index is selecting the items you wish to include in the index to measure the variable of interest. There are several things to consider when selecting the items. First, you should select items that have face validity. That is, the item should measure what it is intended to measure. If you are constructing an index of religiosity, items such as church attendance and frequency of prayer would have face validity because they appear to offer some indication of religiosity.

A second criterion for choosing which items to include in your index is unidimensionality. That is, each item should represent only one dimension of the concept you are measuring. For example, items reflecting depression should not be included in items measuring anxiety, even though the two might be related to one another.

Third, you need to decide how general or specific your [variable](https://www.thoughtco.com/what-is-a-variable-958334) will be. For example, if you only wish to measure a specific aspect of religiosity, such as ritual participation, then you would only want to include items that measure ritual participation, such as church attendance, confession, communion, etc. If you are measuring religiosity in a more general way, however, you would want to also include a more balanced set of items that touch on other areas of religion (such as beliefs, knowledge, etc.).

Lastly, when choosing which items to include in your index, you should pay attention to the amount of [variance](https://www.thoughtco.com/variance-and-standard-deviation-p2-3126243) that each item provides. For example, if an item is intended to measure religious conservatism, you need to pay attention to what proportion of respondents would be identified as religiously conservative by that measure. If the item identifies nobody as religiously conservative or everyone as a religiously conservative, then the item has no variance and it is not a useful item for your index.

## **Examining Empirical Relationships**

The second step in index construction is to examine the empirical relationships among the items you wish to include in the index. An empirical relationship is when respondents’ answers to one question help us predict how they will answer other questions. If two items are empirically related to each other, we can argue that both items reflect the same concept and we can, therefore, include them in the same index. To determine if your items are empirically related, crosstabulations, [correlation coefficients](https://www.thoughtco.com/what-is-correlation-analysis-3026696), or both may be used.

## **Index Scoring**

The third step in index construction is scoring the index. After you have finalized the items you are including in your index, you then assign scores for particular responses, thereby making a composite variable out of your several items. For example, let’s say you are measuring religious ritual participation among Catholics and the items included in your index are church attendance, confession, communion, and daily prayer, each with a response choice of "yes, I regularly participate" or "no, I do not regularly participate." You might assign a 0 for "does not participate" and a 1 for "participates." Therefore, a respondent could receive a final composite score of 0, 1, 2, 3, or 4 with 0 being the least engaged in Catholic rituals and 4 being the most engaged.

## **Index Validation**

The final step in constructing an index is validating it. Just like you need to validate each item that goes into the index, you also need to validate the index itself to make sure that it measures what it is intended to measure. There are several methods for doing this. One is called item analysis in which you examine the extent to which the index is related to the individual items that are included in it. Another important indicator of an index’s validity is how well it accurately predicts related measures. For example, if you are measuring political conservatism, those who score the most conservative in your index should also score conservative in other questions included in the survey.