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Creating a role expectation and performance index for evaluating tribal involvement in agriculture and related fields

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Abstract

Creating both a role performance index and a role expectation index is crucial for thoroughly assessing the contributions and challenges encountered by individuals, especially women, in agriculture and home management. These indices quantify their contributions, highlighting areas where support and resources are needed to enhance productivity and well-being. Meanwhile, the role expectation index measures the anticipated roles and responsibilities, providing insights into the gaps between expected and actual performance. Together, these indices can guide targeted interventions, promote equitable resource distribution, and empower individuals to achieve better outcomes in both agricultural and domestic settings. With the objectives in view, an effort has been undertaken to measure the role performance of tribal women by considering all relevant indicators. These indicators were identified through a review of the literature and references by various authors. By developing a role expectation-role performance index, researchers can evaluate the role performance of tribal women in agriculture and related sectors. The detailed procedure adopted is elaborated in the paper.

Keywords: Role expectation, role performance, index

Introduction

An index is a technique that combines or summarizes a single composite series of data from multiple distinct but related variables, each expressed in different units of measurement. (Ramanathan, 2007) [3]. A role performance index acts as a quantitative tool to assess the contributions and challenges experienced by tribal women in both agricultural and domestic management. This index helps highlight areas needing support and resources, ultimately fostering empowerment and equitable development. (Kalyani *et al.* 2011) [4]. It is a tool that enables the comparison of the magnitude of related variables across two or more situations. These situations may involve changes over time, differences between various locations, or variations among similar categories of objects or subjects, such as individuals, groups, or organizations. (Vanetha, 2008) [5]. The development of a role performance index for farm and home management is crucial for systematically evaluating the contributions and challenges faced by individuals, particularly women, in these domains.

This index aims to provide a comprehensive assessment of their roles, encompassing various aspects such as agricultural productivity, resource management, and domestic responsibilities. By quantifying their performance, the index can identify areas where support and resources are needed to enhance productivity and well-being. (Awais *et al.* 2009) [1].

Additionally, it can highlight the unique challenges faced by women, such as limited access to modern farming technologies and resources, and address issues related to gender discrimination. The role performance index can guide targeted interventions, promote equitable resource distribution, and empower individuals to achieve better outcomes in both agricultural and domestic settings. Ultimately, this tool aims to foster sustainable development, improve the quality of life for those involved in farm and home management, and contribute to the overall socio-economic growth of rural communities.

In this study, role performance is defined as the extent to which respondents perceive the presence of selected indicators at a given point in time. With the objectives in mind, efforts have been made to measure the role performance of tribal women by considering all identified indicators. These indicators were determined through a review of the literature and citations from various authors. The detailed procedure followed is presented below.

Methodology

The construction of the Role Expectation and Role Performance Index for the assessment of the tribal women's roles in agriculture and the allied sectors along with the tribal men's role expectation on tribal women was made by identification and scrutinising the set of indicators followed by relevancy rating of the indicators. Once after the allotment of the relevancy weightage of each indicator, sub-indicators for each main indicator were allotted and finally the index was framed by using the following steps.

Results and Discussion

Indicators for identification and analysis

The identification of role performance indicators involved a thorough literature review. Additional scrutiny was conducted through discussions with extension experts from the Department of Agricultural Extension and Rural Sociology at TNAU and the Department of Extension Education at Gandhigram Rural University. From these initial discussions, thirteen role performance indicators were selected.

Evaluation of the relevance of the indicators

The final list of indicators was reviewed by experts from the teaching faculty in the Extension discipline at Tamil Nadu Agricultural University and Gandhigram Rural University. The experts were asked to determine the relevance and suitability of each identified indicator for including in the index.

Their responses were recorded using a three-point scale: 'Most Relevant', 'Relevant', 'Less Relevant', with corresponding scores of 2, 1, 0 respectively.

The responses obtained from the judges were analyzed, and the Relevancy Weightage (RW) of the ith indicator (RWi) was calculated using the following formula.

$$\text{Relevancy weightage for each indicator (RW)} = \frac{(\text{Most Relevant X 2}) + (\text{Relevant X 1}) + (\text{Not Relevant X 0})}{\text{Maximum Possible Score}}$$

The indicators were evaluated based on their relevancy weightage. Indicators with a relevancy weightage greater than 0.5 were considered for inclusion in the role expectation-role performance index. This procedure resulted in the selection of thirteen components for the index.

Table 1: Compilation of chosen role performance indicators with their associated relevancy weightage

S. No.	Role Performance Indicators and Sub-indicators	Relative Weightage Score
	Farm Management	
1.	Agriculture	0.46
2.	Animal Husbandry	0.55
3.	Farm forestry	0.58
4.	Horticulture	0.59
5.	Farm management	0.41
6.	Agro biodiversity conservation	0.56
	Home Management	
7.	Purchasing	0.54
8.	Money management	0.55
9.	Food management	0.56
10.	Household management	0.56
11.	Child management	0.58
12.	Community management	0.54
13.	Managerial roles	0.49

Among the selected indicators, four were related to farm management: Animal Husbandry, Farm Forestry, Horticulture, and Agro-biodiversity Conservation. The other six were associated with home management: Purchasing, Money Management, Food Management, Household Management, Child Management, and Community Management. Following the identification of major indicators for the Role Expectation-Role Performance Index, sub-indicators were identified for each major indicator.

Selection of sub-indicators

Sub-indicators were identified under each major indicator through a review of literature and discussions with experts. Subsequent discussions were conducted with the Advisory Committee members and other experts to finalize the sub-indicators. As a result, various sub-indicators were established for the ten major role performance indicators.

Procedure for Role Expectation-Role Performance Index development

The finalized schedule, which included ten major indicators and their respective sub-indicators, was administered to the respondents. Scores for the sub-indicators were assigned based on the measurement and scoring procedure previously developed for the study. For qualitative indicators, respondents were asked to provide their responses using a three-point continuum scale: Agree (A), Undecided (UD), and Disagree (D), with corresponding scores of 3, 2, and 1 respectively. Sub-indicators were sequenced according to their weightage under major indicators.

Assigning Quantitative Values to Indicators

In order to develop a comprehensive Role Expectation-Role Performance Index and draw meaningful conclusions, a separate index was created for each indicator. This procedure, adapted from Awias (2009) with necessary modifications to suit the study, is detailed below in the quantification of each indicator.

Animal Husbandry Index

Animal Husbandry has been operationalised as 'management and care of farm animals by humans for profit'. This index was derived using the formula provided below.

$$AHI = SSAH\ xi / TSAH\ yi$$

Where,
AHI = Animal Husbandry index
SSAH xi = An individual's score in the field of Animal Husbandry
TSAH yi = Maximum possible score for an individual in the field of Animal Husbandry
The AHI score calculated was subsequently used for further analysis

Farm Forestry Index

Farm Forestry has been operationalised as 'cultivation of high-value specialty crops under a forest canopy that is intentionally modified or maintained to provide shade levels and habitat that favor growth and enhance production levels'.

The following formula was used to calculate this index

$$FFI = SSFF\ xi / TSFF\ yi$$

Where,
FFI = Farm Forestry Index
SSFF xi = An individual's score in the field of Farm

Forestry
TSFF yi = Maximum possible score for an individual in the field of Farm Forestry.
Thus calculated FFI score was used for further analysis.

Horticulture Index
Horticulture has been defined as the branch of agriculture that encompasses the art, science, technology, and business of plant cultivation. This index was calculated using the following formula.

HI=SSH xi / TSH yi

Where,
HI = Occupational Mobility index
SSH xi = An individual's score in the field of Horticulture
TSH yi = Maximum possible score for an individual in the field of Horticulture.
The calculated HI score was subsequently utilized for further analysis.

Agro Bio-diversity Conservation Index
Agro Bio-diversity Conservation is defined as 'the variety of crops in a particular location with the three entities such as genes, species and ecosystems and also the human dependency on agro biodiversity'. The following formula was used to calculate this index.

ABCI=SSABCI xi / TSABC yi

Where,
ABCI = Agro Bio-diversity Conservation Index
SSABCI xi = The score attained by an individual in the Agro Bio-diversity Conservation domain.
TSABCI yi = The maximum attainable score for an individual in the Agro Bio-diversity Conservation domain.
Thus calculated ABCI score was used for further analysis.

Purchasing Index
Purchasing has been operationalised as 'the activity of acquiring goods or services to accomplish the goals'. The index was calculated using the following formula.

PI=SSP xi / TSP yi

Where,
PI= Purchasing Index
SSP xi = The score obtained by an individual in the Purchasing Index domain.
TSP yi = The highest attainable score for an individual in the Purchasing Index domain.
Thus calculated PI score was used for further analysis.

Money Management Index
Money Management is defined as the 'a strategic technique employed at making money yield the highest of interest-yielding value for any amount of it spent'. The index was calculated using the following formula.

MMI=SSMMxi / TSMM yi

Where,
MMI = Money Management Index
SSMM xi = The score achieved by an individual in the Money Management Index domain.
TSMM yi = The highest attainable score for an individual in the Money Management Index domain.
The calculated MMI score was then used for further analysis.

Food Management Index
Food Management was defined as 'a comprehensive process that encompasses the proper oversight of food selection, preparation, presentation, and preservation'. The index was calculated using the following formula.

FMI=SSFM xi / TSFMyi

Where,
FMI = Food Management Index
SSFM xi = The score achieved by an individual in the Food Management domain.
TSFM yi = Maximum achievable score for an individual in the Food Management domain.
The calculated FMI score was subsequently utilized for further analysis.

Household Management Index
Household Management has been operationalised as 'the management of duties and chores involved in the running of a household, such as cleaning, cooking, home maintenance, shopping and bill pay'. The index was calculated using the following formula.

HMI=SSHM xi / TSHM yi

Where,
HMI = Household Management Index
SSHM xi = Score obtained by an individual in the Household Management domain
TSHM yi =Maximum achievable score for an individual in the Household Management domain
The calculated HMI score was subsequently utilized for further analysis.

Child Management Index
Child Management has been operationalised as 'Caring for and supervising children, an action or skill involved in looking after them'. The index was calculated using the following formula.

CDMI=SSCDM xi / TSCDM yi

Where,
CDMI = Child Management Index
SSCDM xi = Individual's score in the Child Management domain
TSCDM yi = Maximum achievable score for an individual in the Child Management domain
The determined CDMI score was then employed for additional analysis

Community Management Index
Community Management has been operationalised as 'the management of a common resource or issue by a

community through the collective action of volunteers and stakeholders'. The formula below was used to work out the index

CMI=SSCM xi / TSCM yi

Where,
CMI = Community Management Index
SSCM xi = Individual's score in the Community Management domain.
TSCM yi = Highest potential score for an individual on the Community Management domain
The determined CMI score was then employed for additional analysis.

Conclusion

Developing a role performance index to assess the roles of tribal women in managing farms and households is essential for recognizing their significant yet often overlooked efforts. This index would provide a quantitative measure of their roles, helping to highlight both their contributions and the challenges they face, such as limited access to resources and modern farming technologies. By doing so, it could guide targeted interventions aimed at empowering tribal women, ultimately enhancing their well-being and productivity, and fostering a more inclusive and equitable development in agricultural and domestic spheres.

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