MAPPING EMPOWERMENT OF RURAL WOMEN

CASE OF NUH DISTRICT IN HARYANA

DEVELOPMENT RESEARCH AND POLICY INITIATIVES
S M SEHGAL FOUNDATION
(2019)

LIST OF ABBREVIATIONS

NITI: National Institution for Transforming India

SDG: Sustainable Development Goals

MOSPI: Ministry of Statistics and Programme Implementation

SF: Sehgal Foundation

WCD: Ministry of Women and Child Development

RWEI: Rural Women's Empowerment Index

SI: Sub Index

PCA: Principal Component Analysis

OBC: Other "Backward" Class

SC: Scheduled Caste

ST: Scheduled Tribe

APL: Above Poverty Line

BPL: Below Poverty Line

AAY: Antodya

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1.0 Introduction to the Project

In April 2017, NITI Aayog held a consultation event on SDG 5 (Achieve gender equality and empower all women and girls). Participants at the event univocally advocated for empowering women to address multiple issues including poverty alleviation, improving health outcomes, ensuring decent work, and promoting economic growth. In the welcome address at the event, Dr. Ashok Kumar Jain, adviser to NITI Aayog on rural development and SDGs, called women's empowerment a "precondition to achieve the targets of several other SDGs"[i]

1.1 Dearth of gender-disaggregated policy insights

SDG Goal 17 focuses on the need to generate reliable gender disaggregated data (with focus on developing countries). Reliable data is said to be disaggregated by gender, ethnicity, and characteristics relevant in national contexts. In the first baseline report[ii] on SDGs for India, published in 2018, there is a clear commitment of the government toward utilizing disaggregated data to generate policy insights.

Ministry of Statistics and Programme Implementation (MOSPI) is the nodal ministry for collecting gender disaggregated data in India. It acknowledges that[iii]

> "There are some data essential for appropriate planning at various geographical levels for the development of women. Even after serious efforts made by CSO and Department of Women and Child Development to emphasise the provision of male-female break-up by all the agencies, the representative data on a number of indicators are yet not available."

the limitation of providing insights to inform local policy outcomes is also caused by a dearth of demonstrated methodology to utilize empirical data. Attempts to evaluate the status of women's empowerment at the intra-district level in India are limited. Multiple indices have been prepared at global, national, and sub-national levels. MOSPI encourages the development of a standard methodology to make such indices *representative of the Indian situation*.

1.2 Rationale for the Project

Policy outcomes with respect to gender mainstreaming continue to be limited in their success until nationwide *blanket policies* for women empowerment are run. The success of contemporary policy initiatives is contingent on women's access to multiple forms of social and human resources. It is important to highlight that empowerment and positive developmental outcomes are interdependent. One is both a necessary condition and an outcome of the other.

Positive policy outcomes of women's empowerment become difficult given inadequate information on the differential needs of the local populace. In its action plan, NITI Aayog acknowledges this information gap[iv] and suggests developing a composite gender-based index to reflect the status of women. Such an exercise is deemed important to reveal gendered reasons for differing developmental outcomes between males and females and would in turn influence empowerment outcomes.

It is important to focus on generating evidence on women's empowerment for at least two reasons. First, creating insights on their empowerment status is necessary to achieve equality by making focused action possible. Second, it would highlight key areas in policy gaps and implementation that need special attention. Because policy implementation occurs at the local level, assessment of women's empowerment would be most suited when mapped at local levels.

The present study aims to demonstrate that a woman-based methodology to measure empowerment has the ability to utilize locally generated evidence to make accurate generalizations. Such a methodology would enable practitioners like ourselves (Sehgal Foundation) to compare outcomes of empowerment processes based on the intervention design and thereby inform the process itself. A wider uptake of a standardized methodology to measure women's empowerment has the potential to support inter-institutional collaboration, learning promotion, and theory building.

1.3 Introduction to Project Area

Developmental outcomes for women belonging to ethnic minorities in India have shown limited success. A report published in 2007 by National Commission for Religious and Linguistic Minorities[v] identified "backwardness" among minority groups. The recommended State action in this regard includes greater emphasis on allocation of funds and schemes with high concentration of

minority families especially in the field of higher education. The study also found low awareness levels of minority communities on government schemes dedicated for their welfare (48.05%) p.49.

Nuh District is located in one of the prosperous states in the country and is inhabited by Meo Muslims, an ethnic minority in terms of both religion and language. It is one example of a place where women's developmental needs have been largely ignored. Women in Nuh perform poorly in a number of development markers. Per the Census of 2011, the female literacy rate of Nuh was 36.6% compared to the male literacy rate of 69.9%. Women are bound by gender roles that restrict their access to education. In addition, these patriarchal attitudes, lack of proper infrastructure in school (such as toilets), and the dearth of female teachers lead to high dropout rates and absenteeism in school, further aggravating the problem of low female literacy.[vi]

Women's conditions in other spheres are equally dire. Access to healthcare is severely bound by the distance of the health centers and social constraints that affect women's mobility. Thus, women are dependent on men for seeking healthcare because their health concerns run the risk of being ignored.[vi] Further, the lack of access to clean water and sanitation facilities results in a number of health issues such as anaemia and malnutrition, which lower the life expectancy of women.[vii]

1.4 Research Objectives

The objective of the study is twofold. First is to develop a composite index to denote empowerment of rural women, and second is to demonstrate the utility of such an index to inform local policy-making in Nuh District. Table 1 is an outline of the research objectives and the corresponding research questions.

Table 1 Outline of the Research Objectives and Methodology adopted

RESEARCH OBJECTIVES	RESEARCH QUESTIONS	METHODOLOGY ADOPTED
OBJ 1: DEVELOP A COMPOSITE INDEX TO REFLECT EMPOWERMENT OF RURAL WOMEN	Q1 What dimensions and indicators are significant to assess the developmental status of women with regard to government policy? Q2 How do the identified indicators differ in their weight on the basis of their contribution to composite index?	1. Review of National Policy for the Empowerment of Women (2001) by WCD, GoI, to obtain dimensions relevant to the developmental status of women. 2. Review of existing indicators related to women and data selection using dual approach. 3. Assess relevance and suitability of identified indicators through field testing. 4. Develop a composite index to reflect empowerment of women with regard to government policy in the demonstration area. 5. Generate empirical evidence in support of the developed composite index through primary data collected from rural women in Nuh District.
OBJ 2: DEMONSTRATE THE UTILITY OF THE DEVELOPED COMPOSITE INDEX IN NUH DISTRICT OF HARYANA	Q1 What are the index values for each block in Nuh District? Q2 How can the generated index values for each block be used to inform policy?	1. Highlight intra-district variation by statistically testing the obtained index values. 2. Make recommendations for policy based on learnings from the study.

2.0 Methodology Development

2.1 Variable Selection

Identification of gender-specific variables and their consolidation under relevant dimensions was carried out through a review of indices (Annexure 1). The common thread among all indices was the multidimensional approach employed. However, the rationale for employing such an approach differed across indices.

For us, the choice of gender specific variables was to be based on a) relevance to the local context, and b) its utility for policymakers.

To overcome the challenge of employing an appropriate method of choosing variables, a dual approach was pursued. The variables were chosen based on

widely recognised relevant dimensions from the literature, which were cross verified with testimonies of women from Nuh to ensure local relevance. The consolidated list thus prepared was then cross-checked with objectives of National Policy for the Empowerment of Women (2001) by WCD, GoI, to ensure that performance against relevant policy objectives were evaluated.

Variables were thus categorised under the following broad themes (Annexure 2):

a) Enabling environment
b) Mother and child health
c) Women's security and mobility
d) Social participation and joint decision-making
e) Economic, political, and technological participation

Primary data was collected on the identified variables from women respondents with an average of thirty-one years spread across forty-one villages in five blocks of Nuh District.

2.2 Sampling

The sampling strategy utilizes sex ratio as a key basis for selecting villages across the district. It is a reflection of the inherent bias in favor of a particular sex and has been widely understood as a determinant of gender discrimination. The stratification using sex ratio has been done in the following manner (Annexure 3):

- Sex ratio (female) as given by the formulae: 1,000* female population/male population was calculated for each village in Nuh District as listed in the census directory (2011) available from Directorate of Census, India.
- Villages in each block of Nuh District (five) were then classified to fall into a) low sex ratio villages, b) medium sex ratio villages, or c) high sex ratio villages.
- The sample unit of the study was a rural household. The target was to achieve at least 1% of the total number of households in each block (as per census 2011).
- The distribution of the sample was in proportion to the number of villages under each category (low, medium, and high sex ratio) in the five blocks (Annexure 4).

2.3 Index Construction

We used primary data obtained from 1,516 respondents and recoded the answers to selected questions in a form such that *a higher value* indicates *greater empowerment*. We utilize Naila Kabeer's[ii] "processual understanding of

empowerment" where it is defined as a change in the ability of an individual to make decisions about his/her life, which was otherwise refused to him/her. We used this understanding to divide the variables into three dimensions crucial to enhance an individual's ability to exercise his/her right of choice and are as follows: (Annexure 5)

- **Resources**: It measures the potential of an individual to exercise choice, which includes the material resources as well as the political and social norms governing its allocation.
- **Agency**: It is a more subjective aspect as it is defined by the capacity of an individual to pursue his/her goal. It is measured by the role an individual plays in the decision-making process.
- **Achievement**: It measures the well-being of an individual.

Data treatment was conducted in which binary variables were converted into percentages to aggregate performance at the village level. This helped to overcome the problem of missing values and outliers in the data.

After treating the data in this manner, a principal component analysis (PCA) was conducted on variables under three dimensions: resource, agency and achievement. The sample observations on which PCA was run (using SPSS) to obtain each subindex score was ensured to be five times the variables under each dimension (as a rule of thumb). The codebook of variables employed in the PCA is available in Annexure 6. The detailed procedure of application of PCA is available in Annexure 7, and results obtained in Annexure 8.

We analyzed the number of components to be retained (through assessing scree plots) and computed subindex values for each dimension using eigenvalues as weights for the components extracted. Next, we applied orthogonal varimax rotation to the retained components to enable interpretation of its constituents.

To derive a single indicator of empowerment across forty-one villages, the sum of the three subindex scores was computed and termed as Rural Women's Empowerment Index (RWEI). After creating the index, the internal validity was tested through correlation of subindex scores with the variables from which they were derived.

3. Key Results & Findings

3.1 Composition of respondents of primary survey

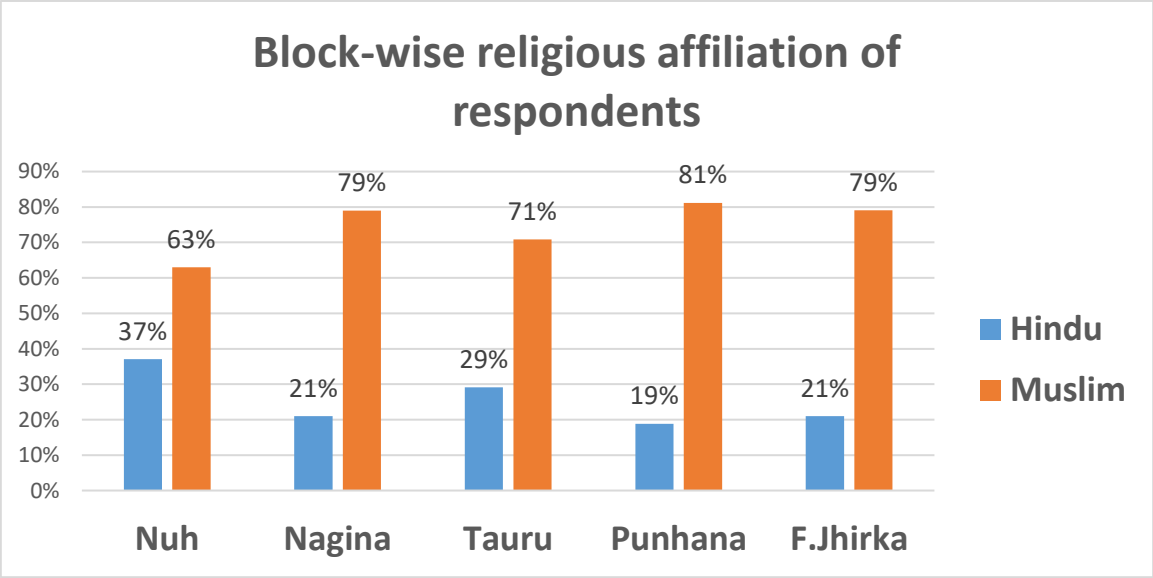
Our sample for primary survey consists of a total of 1,516 women respondents across five blocks of Nuh District. The average age of respondents in Nuh, Nagina and Ferorzpur Jhirka blocks is thirty years, for Punhana is thirty-two years, and for Tauru block is thirty-five years.

The sampling procedure utilized in the study stratified villages on the basis of sex ratio. As a result, 71% of the respondents belong to villages with medium sex ratio, followed by 17% of respondents living in high sex ratio villages, and the remaining of the 12% respondents residing in low sex ratio villages.

According to the 2011 census: of 309,213 females in Nuh District age nine and above, 37.8% of girls reported their age of marriage to be seventeen or less. By age twenty-five, 99.1% of females in the district reported to have been married. As a result, all respondents reported as married in the survey conducted.

Figure 1 shows the distribution of religion of the respondents in each block: 73% of the respondents are reportedly Muslims, and the remaining 27% are Hindus. Punhana has the highest population of Muslim respondents (81%), and Nuh has the highest population of Hindu respondents (37%).

Figure 1 Block-wise religious affiliation of respondents



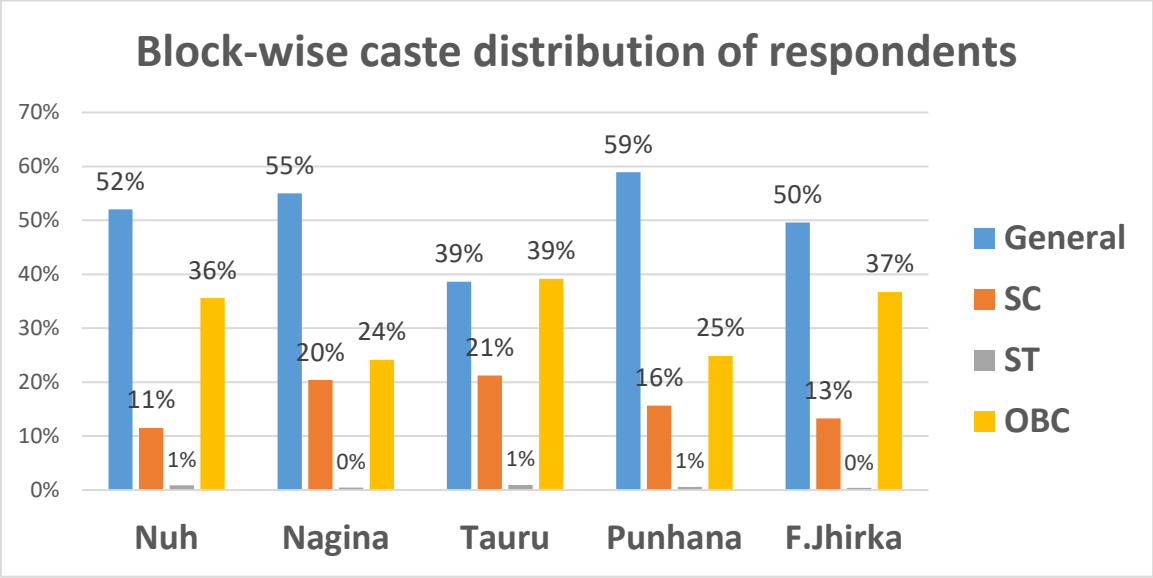


Figure 2 Block-wise caste distribution of respondents

A narrow majority of the respondents belong to general caste (51.6%), followed by OBC (32.2), SC (15.4%) and ST (.68%). Figure 2 shows caste distribution of respondents across the five blocks.

A total of 68.1% of respondents belong to Above Poverty Line category (based on the type of ration card), and the remaining 31.8% possess either BPL (Below Poverty Line) or AAY(Antodya) ration cards. Jhirka(74.0%) has the highest population of APL card holders followed by Tauru(71.4%). Punhana has the highest percentage of BPL card holders (41.9%) followed by Nagina (33.3%).

3.2 Rural Women's Empowerment Index

The RWEI consists of three dimensions: Resources, Agency, and Achievement (Figure 3). The index was obtained after grouping thirty-six variables into these dimensions and congregating them into seven components (with a total of twenty-three variables).

Each component is a reflection of the constituting variables (the choice of constituting variables is based on factor loadings for that component) and is statistically significant in explaining the variation in the relevant variables for each dimension in the whole dataset. Using PCA, a factor score was generated for each of the seven components and was arithmetically summed up to form a subindex value at block level. In other words, these subindex values (Resource subindex, Agency subindex and Achievement subindex) are indicative of the performance of villages/blocks on the three dimensions. The relative performance of each block of Nuh District on the three indices is in Table 2.

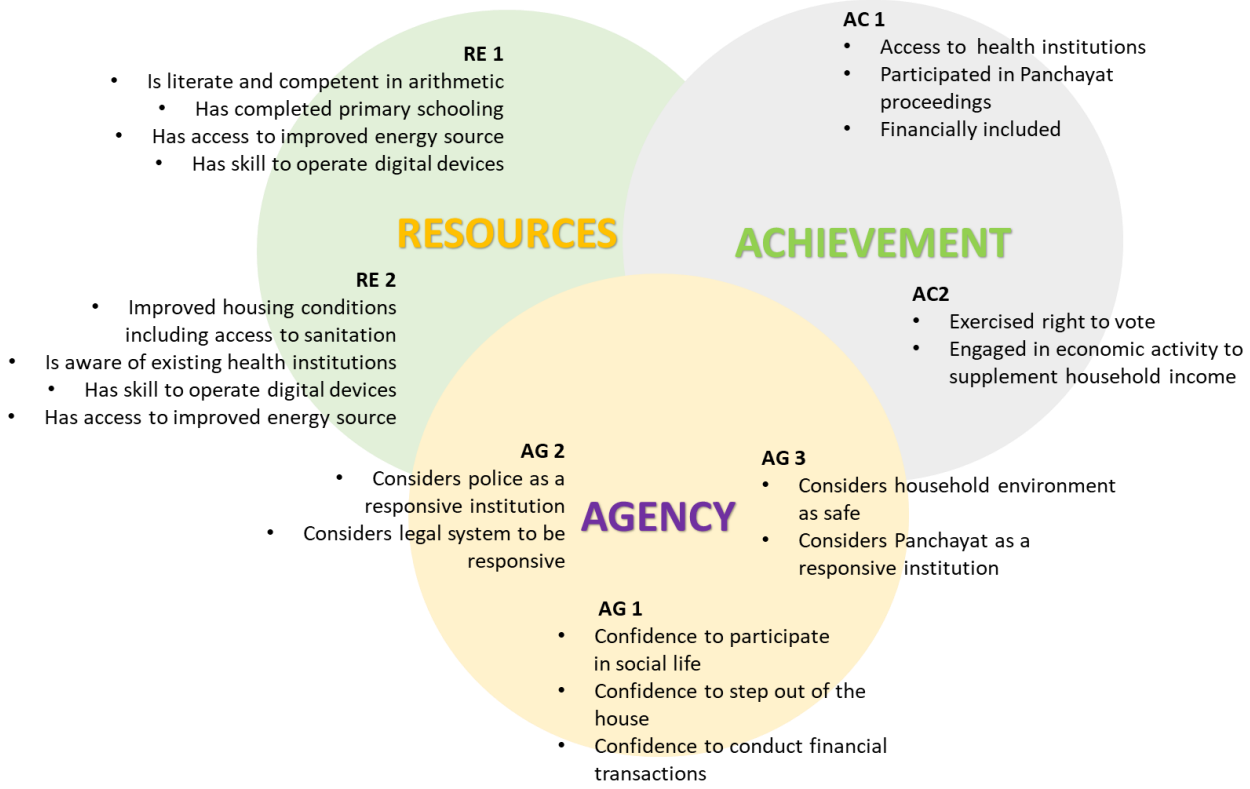


Figure 3 RWEI and its components

BLOCK NAME	RESOURCES SUBINDEX	AGENCY SUBINDEX	ACHIEVEMENT SUBINDEX	RWEI INDEX
Jhirka	-1.43	-2.57	-3.74	-7.740
Nagina	0.10	-3.1	-0.51	-3.505
Nuh	3.63	2.56	-5.02	1.174
Tauru	1.30	4.69	3.29	9.284
Punhana	-3.61	-1.57	5.96	0.778

Table 2 Blockwise performance on three subindices

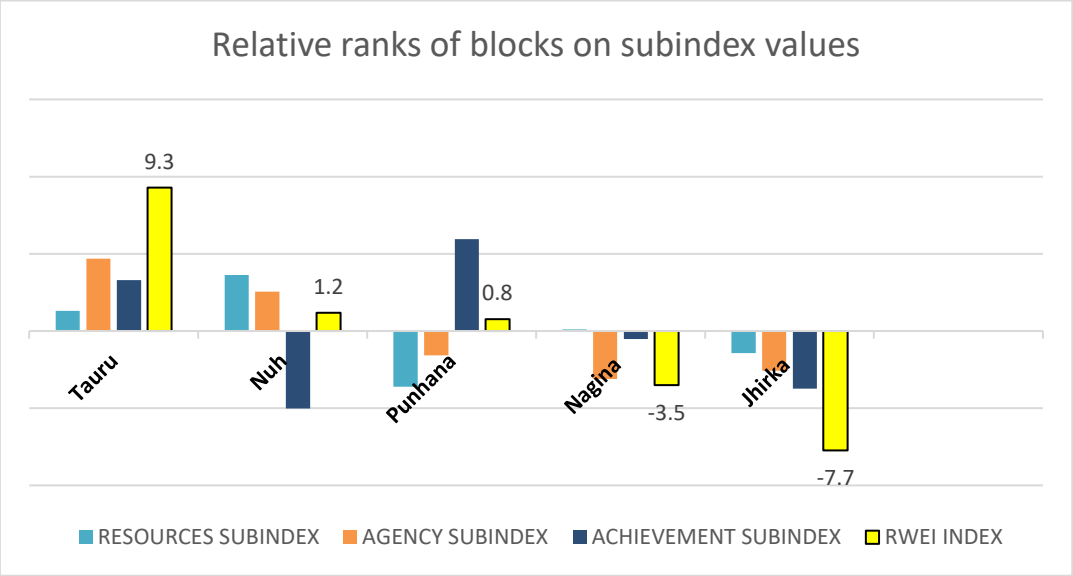


Figure 4 Relative ranks of blocks on subindex values

Figure 4 is a visual representation of the subindex values (including RWEI). As seen in the figure, overall Tauru block is the best performer on the RWEI index with a cumulative score of 9.3. It performs well on all the three subindex values and has high score on agency subindex.

Tauru is followed by Nuh in the overall RWEI index value (1.2). Despite scoring highest in the resources index, Nuh performs negatively on achievement subindex.

Punhana ranks third in the overall empowerment index with a score of 0.8. The performance of this block is low on resources (-3.61) and agency index (-1.57). Jhirka ranks the lowest in the RWEI index (-7.7) below Nagina (-3.5). Both these blocks have low values of resources and agency index.

To illustrate the contextual understanding of these values, it would be useful to compare the values of variables that constitute the subindices across the best and worst-performing blocks. In other words, we now look at the dominant variables under each extracted component of the factors that make up the subindex; and compare percentage point differences of particular blocks.

Resources subindex is made up of two components that contribute to the subindex in the ratio of 5:1. General literacy is a key variable in the first component (called RE1) and improved sanitation facility is a key variable for the second component (called RE2). Nuh and Punhana are the best and worst-performing blocks on Resources subindex respectively (Table 2). The

percentage point difference between the two blocks is 18% and 24% for the two key variables respectively. In other words, 18% more respondents from Nuh reported being literate in one language, and 24% more respondents from Nuh reported having access to a sanitation facility.

In the agency subindex, AG1, AG2 and AG3 are the three components that contribute to the subindex in the ratio of 3:2:1. Tauru is the best performer on this subindex and Nagina is the worst performer (Table 2). The percentage point difference between the two blocks on key variables is 3% in confidence to step out of the house, 20% in considering police as a responsive institution, and 4% in considering household environment as safe.

Likewise, the achievement subindex consists of AC1 and AC2 components that contribute to the subindex in the ratio of 2:1. Punhana and Nuh are the best and worst performers on this subindex, and the percentage point difference between the two on key variables is 12% in access to health institutions and 7% in the variable of exercising vote.

3.3 Relationships between subindices

A correlation matrix between the values of subindices shows that Agency subindex and Resource subindex are highly and significantly correlated with each other (.699) and in a positive direction (Figure 5). Likewise, Achievement and Agency subindex values are correlated in a positive direction (statistically insignificant).

Figure 5 Intercorrelations between subindices

		RE_SI	AG_SI	AC_SI
RE_SI	Pearson Correlation	1	.699**	-.226
	Sig. (2-tailed)		.000	.155
	N	41	41	41
AG_SI	Pearson Correlation	.699**	1	.071
	Sig. (2-tailed)	.000		.659
	N	41	41	41
AC_SI	Pearson Correlation	-.226	.071	1
	Sig. (2-tailed)	.155	.659	
	N	41	41	41

** Correlation is significant at the 0.01 level (2-tailed).

Among the components of the subindices, RE1 and AG1 are found to be significantly and positively correlated at .774; and RE2 and AG3 are found to be positively and significantly correlated at .431.

However, RE2-AG2 and RE2-AC1 are found to be negatively significantly correlated with values of -.553 and -.586 respectively.

3.4 Validity of RWEI

A validity test for the index scores obtained using RWEI for five blocks of Nuh District was conducted using relevant data from other indices. For this exercise, a reference study with data available at block level for Nuh District was identified. This study, titled "Identifying Backwardness of Mewat Region in Haryana: A Block-Level Analysis," is available on the NITI Aayog website.

This reference study utilizes the methodology of Principal Component Analysis (PCA) to develop subindices for each block of Mewat District (presently renamed as Nuh). While aimed at identifying relevant aspects of "backwardness" and comparing it across blocks in the district, it also considered gender-related variables and prepared what is termed as gender index using primary data.

The ranking of blocks obtained from RWEI and Gender Index generated in the reference study match with each other. The analysis shows significant corelations of AG subindex value with Health Index and Standard of Living index values of the reference study.

4.0 Discussion & Conclusion

4.1 Discussion on Key Results

The results from running PCA on a set of twenty-three variables yielded seven components or factors. These seven components were then utilized to constitute three subindices: Resource Subindex, Agency Subindex and Achievement Subindex.

Our defense of the three subindices to a) form RWEI, and b) reflect empowerment of women in Nuh District, and c) generate policy insights is the following: First, the choice of variables included in the study is based on a dynamic understanding of a woman's well-being. These variables have been found relevant to depict these multiple dimensions and subsume the various

measures of woman's well-being. Given the comprehensive nature of this concept, we have restricted the choice of variables to include those that are relevant at an individual level. For example, an indicator of police responsiveness in terms of efficiency could depict the level of empowerment of a woman and could be argued to be as a significant measure. However, an efficient police or any other institution would be deemed meaningless for a woman who does not perceive this institution to be responsive and can, or rather does, act as a significant barrier or enabler of this woman approaching the institution.

Second, in our efforts to create an index that reproduces the subjective measure of a woman to make strategic life choices (empowerment), we were faced with a challenge to maintain its relevance for policy action. RWEI constitutes what has been termed as an Achievement subindex. The significance of this subindex can be understood as a measure of policy success on the ground (in line with the government's efforts to empower women. Therefore, RWEI provides policy actors with valuable information on the relative ranking of villages/blocks in their jurisdiction, in terms of achievements and the subjective aspects of RWEI (resources and agency).

Third, RWEI takes its strength from the nature of Principal Component Analysis. Principal Components as extracted through this method are based on the correlation matrix of all the variables that are fed in its each run. Through reiterations, the selected set of variables used to draw a factor explains a substantial variation in the data (between 63.6% and 74.4%).

This is not to say that RWEI is devoid of limitations. The data utilized for development of RWEI has been collected firsthand from respondents and suffers from quality issues. Unlike data in the natural sciences, there are limitations in the nature of primary data collected in social sciences. To overcome data quality issues, the data had to be retransformed into higher order variables for it to become suitable for advanced statistics.

As a result, some counterintuitive observations have been reported in terms of correlations between the subindices (section 3.3). For example, a negative correlation has been found between resources vs. agency and resources vs. achievement subindices. This is understood to be because of the independent nature of underlying variables. For example, RE2 subcomponent is heavily

loaded with *availability of improved sanitation* as a dominant weighted variable; and RE2 as a component is negatively correlated with AG2, which constitutes *perceived responsiveness of institutions* as a dominant-weighted variable.

A further investigation of the negative correlation between RE2 and AC2 confirms this explanation. When individual variables that should intuitively be correlated with each other in these two subcomponents, namely *awareness of the existence of health institutions* and *access to health institutions*, were verified, they showed a positive and a significant correlation of .506 at a .001 confidence interval.

This narrative of RWEI's composition and process of development points to an important learning for investigating critical resources for empowering women. RWEI or any of its counterpart index would suffer from the limitation of universal generalizability and would always contain the scope of measurement resources deemed essential/pre-required for empowerment. However, we are content with the results from RWEI because the choice of resources included in our analysis has been found to be correlated with diverse aspects of women's well-being.

4.2 Conclusion

The introductory sections of the report present the significance of mapping women's empowerment and the issues related to gender-disaggregated data. The gap of data availability and methodology development has been acknowledged in policy circles. Given the significance of women's empowerment in the social development paradigm, we conceptualized this project as an attempt to address this knowledge gap.

An exercise of index construction for Nuh would serve as a benchmark for Sehgal Foundation's work in the area along with generating evidence for the differential policy needs in the area.

We therefore attempted to create a comprehensive index termed Rural Women's Empowerment Index (RWEI). RWEI scores show that Tauru block in Nuh District is the best performer in terms of women's empowerment and is followed by Nuh block. Jhirka was found to be performing worst in terms of providing opportunities for women to feel empowered. The discussion around examples of the constituting components of the index and their interrelationships presents an

explanation of the observed index scores and offers rich contextual understanding of the same.

Any index of a social phenomenon would have to argue for its relevance in terms of answering two questions: whether the choice of measures of the social phenomenon is adequate, and whether the process of measurement is justified in that context.

We have offered our justifications on the two questions, while maintaining the purpose of index construction, which was policy relevance. The list of priority villages (Annexure 13) under each block would prove useful for policymakers to focus their attention on and improve policy outcomes for women's empowerment in specific RWEI dimensions. The applied understanding of women's empowerment has been ensured to be in line with the policy agenda of providing women with equal opportunities in a safe environment.

The shortcomings in the development of the index have been extensively discussed and refer to general limitations of measuring a multidimensional concept such as women's empowerment. Further work on the topic could benefit from the methodology adopted in the construction of RWEI. Researchers would also benefit from village and block-level observations and trends in RWEI and its subindices. This would give rise to interesting hypotheses with regard to how the empowerment of women occurs in rural contexts.

Follow-up discussions in the next phase of this project would thereby provide an opportunity for mutual reflection and learning on the subject of women's empowerment.

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