Original article

The Gender Gap Index in an upcoming urbanized society: A case study of Sehore Municipal Council, Madhya Pradesh, India

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ABSTRACT

Though urbanization promotes development, the gender gap is being perceived in many socio-economic aspects, in the Indian urban economic scenario. With a 31.16% urban population (in 2011), India has experienced a lopsided development of its urban hierarchy in favour of metropolitan growth which accommodates 42.31% of the total urban population. For various socio-economic reasons it has a declining female economic participation rate. Sehore M.C. (Madhya Pradesh), an upcoming Class I city, located near the metropolitan cities of Bhopal and Indore, is showing perceptible changes in female work participation, indicating a potential for development in Sehore M.C. along with other smaller cities in Madhya Pradesh. Based on the methodology for the Global Gender Gap Index (GGGI, WEF 2018), the ward wise figures for Sehore M.C. for the partly adopted subindices of *Survival*, *Social*, and *Economic Participation* were calculated using local area indicators from standard international and national agencies to bring out the inter-ward variations in gender gap for Sehore M.C.. Spatial mapping of GGI showed that approximately 91% of wards belonged to the high category but 9% of wards were from the medium category. Suggestions for the promotion of gender parity in the city are made for the overall empowerment of females in Sehore M.C. within the constraints of an urban economic scenario.

KEY WORDS: Gender gap; Gender Gap Index; World Economic Forum, subindices; spatial mapping

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1. Introduction

Though gender difference is equated with sex-ratio, giving an estimation of survival of females in relation to males, the deplorable socio-economic conditions in developing countries, impact upon the economic performance and social standing of females in comparison to males even in urban areas. The phenomenon of gender gap casts an adverse impact on economic growth and hampers overall economic development of any region (KLASEN, 2000). Therefore, gender disparities have been addressed at many international platforms including United Nations Development Programme (UNDP, 1995), SOCIAL WATCH (2008) and World Economic Forum (WEF, 2006) which form the basis of the Global Gender Gap Report (GGGR) measures for gender

disparities in the domains of health and economic and political participation across the globe.

Urbanization, as a promoter for closing the gender gap at almost all levels of development of a society, scores low on many parameters of socio-economic equality and gender justice especially in India where education and technical training hampers available economic opportunities due to the lack of safety, security for journeys to work and gender based discrimination in the workplace, even in the metropolitan cities of India (BHAGAT, 2011). However, the multitask responsibilities of females and the availability of work from their home, though mainly in the informal sector in small urban areas lying within the bounds of large metropolitan cities, is encouraging women's work participation rates in order to supplement their family income. Significant

changes in terms of female survival, literacy and workforce participation are perceptible in improving female survival and literacy rates as compared with men but the gender gap across the workforce is the most serious concern.

Sehore Municipal Council (Sehore M.C.) lies in Madhya Pradesh (India) with a 27.63% urban population (national average 31.16%, CENSUS data, 2011) and falls in the lowest category on the female empowerment index as given by the McKinsey Global Institute (WOETZEL ET AL., 2015). Though the gender gap score for Sehore M.C. is 0.656 compared with the national value of 0.665 (GGGI, 2018) the difference is still narrow which shows the potential of Sehore M.C. for reducing the existing gender gap.

However, the most widely accepted approach for assessing the gender gap is given by the World Economic Forum for its Global Gender Gap Index (GGGI, WEF, 2006) but considering the urbanization scenario in India and particularly in small urban centres lying within the sphere of influence of larger urban centres which are recording significant changes in terms of female survival, literacy and workforce participation, it becomes pertinent to incorporate some local level indicators.

Though Sehore M.C. is lowly urbanized, there are pockets of high concentrations of female population in which the female workforce participation is also higher suggesting the dynamics of female population and workforce (PARVEEN & SIDDIQUI, 2019). Therefore, there is a need to study the Gender Gap Index and its spatial pattern so as to identify the specific areas as well as specific sectors which can be promoted with the help of the ongoing government programmes such as *Beti Padhao*, *Beti Bachao* scheme (WCD, 2015) and agencies such as the Centre for Entrepreneurship Development of Madhya Pradesh (CEDMAP, 1988). Based on the methodology of GGGI (WEF, 2018), this article addresses the issue of the gender gap in terms of *Survival*, *Social* and *Economic Participation subindices* with indicators belonging to the international and national agencies including UNDP (2005), WHO (2017) etc. (Table 1), at the ward level for Sehore M.C. The ultimate aim of all the agencies, and of this study, is to close the existing gender gap to attain a sustainable and inclusive urban regional development.

This article is organized as follows: A brief *Introduction* highlighting the importance of studying the gender gap in the context of urban areas, especially new upcoming urban regions. This is followed by a *Literature review* concerning the aspects of gender difference, their calculation and the standard gender indices given by various international agencies, justifying the choice of applying GGGI of WEF for the present study along

with highlighting the studies related to gender disparities at the national level. Against this background, the *Aims and objectives* have been framed to investigate the gender gap score for Sehore M.C. at the ward level. This is followed by a *Database and methodology* section providing the source of data and step by step calculations for the subindices scores and thereby the composite scores for the gender gap index. The *Identification of the problem in Sehore M.C.* of the gender gap index is related to the overall and ward level spatial variation of the gender gap index. Despite low socio-economic subindices recorded for the gender gap index, some areas especially in the core and periphery show narrow gender gap scores. Therefore, the closeness to the two metropolitan areas of Bhopal and Indore is also noticed. The *Results and discussion* section focuses on the gender gap score of selected subindices of Survival, Social and Economic Participation, separately in spatial perspectives and overall the gender gap score was calculated and mapped before arriving at a conclusion. The *Conclusion and suggestions* section highlights the causes and factors leading to the spatial variation in overall gender gap scores and addresses problems to give area and sector specific suggestions for narrowing the gender gap situation, which can also form a basis for the assessment of gender gap in small urban areas lying close to the metropolises of India. The limitations to the study are highlighted in the last section, *Limitations and scope of the study*, of which the major constraint is data availability for the three selected subindices as suggested by WEF for GGGI. Therefore, the study has included other parameters pertinent to the GGGI for the study conducted in the Indian urbanization scenario for a fast urbanizing society such as Sehore M.C.

2. Literature review

A gender lens is vital for pro-poor results in terms of gender development (JONES ET AL., 2008). A gender equal society is one in which women and men have equal opportunities to realise their individual potential, to contribute to economic and social development, and benefit society from their participation (UNDP, 2015). A considerable amount of work has highlighted the significance of gender equality across the gendered aspects of the overall developmental process of any region (KING & MASON, 2001; DUFLO, 2005; KABEER, 2005; MOSER, 2007, RAZAVI, 2012).

The gender gap in a workforce works against gender gaps in social security, thus, aggravating the gender gap situation in post-retirement ages or in older ages, when more financial needs are to

be met especially for health. Thus the root cause of all misery can be termed a gender gap in an economic sphere which casts aspersions on the larger sphere including the social and health care dimension (KOTHARI, 2014; ILO, 2017).

The New Urban Agenda adopted by the UN in 2016 for balanced and sustainable urban development, has its central focus on gender equality. Similarly the 2030 Agenda for Sustainable Development (adopted by UN, 2015) also links the vision of attaining sustainable and gender inclusive development and gender equality through its United Nations Sustainable Development Goals (UNSDGs Goal 11 and 5 respectively). Thus various agendas of international agencies including the Convention for Elimination of Discrimination against Women (CEDAW, 1979), BEIJING DECLARATION (1995) and Urban 20 (U20, 2017) have highlighted the negative consequences of rapid urbanization such as the lack of safety and mobility, within cities, gender based violence in public spaces and disproportionate domestic responsibilities. In this context, it is important to highlight that Urban 20 has pointed to the fact that national and local governments also share the responsibility of reducing the gender gap locally. Thus in this light, it becomes imperative to study the local conditions with regards to gender gap in order to address and monitor the gender gap situation within a region.

To measure and monitor the existing gender inequality in society, gender related indices have been developed using gender specific quantitative indicators provided by the World Bank based on sex-disaggregated statistical data and measure gender-related changes over time (CHANT, 2006, DEMETRIADES, 2007). The United Nations Development Project (UNDP, 1995) has developed gender inequality measures covering a Gender Development Index and a Gender Empowerment Measure as part of their Human Development Report (HDR, 1995) which gradually evolved into a Gender Inequality Report (HDR, 2010). The most widely applied measure for gender gap was given by the World Economic Forum (WEF, 2006) through the Global Gender Gap Index (GGGI). The GGGI stands out prominently amongst the various gender indices as it keeps the inequality and equality benchmark constant and each indicator has the same relative impact on the respective sub-indices (LOPEZ-CLAROS & ZAHIDI, 2005). The current gender gap score at the world level is reported to be 0.68 (32% gap to achieving gender parity) while India has recorded a gender gap score of 0.665 (33.5% gap to achieving gender parity), and ranking 108th out of 145 countries on the GGGR (WEF, 2018) while slipping to a rank 112th amongst 153 countries in GGGR (WEF, 2020).

Thus India performs the lowest on the subindex for Health and Survival (rank 150th) and for Economic Participation and Empowerment (rank 149th).

The women empowerment index calculated by GUPTA & YESUDIAN (2006) measures different dimensions of women's empowerment including women's household autonomy, mobility and their attitude towards domestic violence, while another index developed by BANSAL (2017) uses NFHS-4 (2015-16) data to measure women's empowerment through gender indicators and assessing the states of India on gender parity levels. However, for this study the gender gap index calculation was based on both standard parameters and local area specific indicators to show the unexplained dimensions of spatial disparities in the pattern of gender gap index in the upcoming township of Sehore M.C. in Madhya Pradesh.

3. Aims and objectives

Sehore M.C. is an upcoming urbanized society in which the characteristics of the gender gap index are reflected in the urban sphere of influence of two metropolitan cities, Bhopal and Indore, and thus, call for an in-depth analysis of the process of urban transformation impacting on gender gap from spatial perspectives. The above aim is addressed through the following objectives:

1. To select the subindices, for measuring gender gap partly adopted from GGGR (WEF, 2018), of the *Survival, Social and Economic Participation* subindices for Sehore M.C.
2. To select the parameters related to the above three subindices of gender gap index as used in GGGR (WEF, 2018) and also other international agencies working in this area.
3. To apply the methodology of GGGI for calculating the gender gap index of Sehore M.C..
4. To analyze the spatial variability of the gender gap index of Sehore M.C. as a whole and its spatial variability at ward level in terms of three subindices to interpret the spatial variation in terms of the above three subindices.
5. To calculate the composite scores of the gender gap index and explain spatial variability of the gender gap index of Sehore M.C.
6. To identify the potential for reducing the gender gap index within a spatial perspective with suggestions for local level problems.

4. Database and methodology

Database: The database used in this study was secondary data for 6 selected indicators belonging to the three subindices of *Survival, Social and Economic*

Participation, for Sehore M.C. (District Census Handbook, [CENSUS OF INDIA](#), 2011). This study was based on the ward level analysis of 35 wards of Sehore M.C. formed in 2005 under the provisions of the Municipality Act, 1961. The spatial data for delimitation of ward boundaries was digitized from the Master Plan of Sehore 2031 ([DIRECTORATE OF TOWN AND COUNTRY PLANNING M.P.](#), 2014).

Methodology: The methodology was based on the calculation of Global Gender Gap Index (GGGI) as proposed by the World Economic Forum ([WEF](#), 2006) for quantifying the magnitude of gender based disparities using the four subindices of Economic Participation and Opportunity, Education Attainment, Health and Survival and Political

Empowerment. However, keeping in mind the unavailability of census data for the standard subindices, this study used the partly adopted subindices for the overall gender gap index as *Survival* subindex, *Social* subindex and *Economic Participation* subindex.

Selection of indicators: The three subindices for the present study were partly adopted from the standard subindices proposed by the WEF ([GGGI](#), 2006). Therefore, the basis for the study was GGGI ([WEF](#), 2018) but some indicators pertinent to gender studies specific to an Indian urbanization scenario for an upcoming small city were also included like [WHO](#) (2017), [UNFPA](#) (2009), [UNDP](#) (2005), etc. (Table 1).

Table 1. Subindices and variables of the Gender Gap Index, for Sehore M.C.

Subindex	Variable	Rationale
1. Survival subindex	1.1. Female to Male Child Sex Ratio (0-6 years population)*	– The UN Convention on the Rights of the Child requires the protection and nurturing of children. India being a signatory to the convention is obliged to reverse the declining child sex-ratio
	(UNFPA, 2009)	– The child sex-ratio (0-6 year population) also highlights the status of child and maternal health care (both ante- and post-partum) and child mortality
	1.2. Female to Male Total Sex-Ratio* (WHO, 2017)	– The Total sex-ratio is an important demographic variable which depicts the survival status of women in the society, especially in the urban areas the sex-ratio is found to be lower than the rural counterparts
		– It is indicative of adverse societal and behavioural characteristics such as prevalence of pre-natal sex determination in the want of the male child and is also reflective of economic poverty and lack of education
2. Social subindex	2.1. Female to Male Ratio of Scheduled Caste (SC) Population* (NCSC, 1992)	– Scheduled Caste (SC) population is an indicator of social development as per report of National Commission for Scheduled Caste – Scheduled Caste (SC) population forms one of the most marginalized and vulnerable groups in India and signifies the social status of the society
	2.2. Female to Male Ratio of Literacy Rate**	– The literacy rates influence health outcomes of the women and child, the economic participation of the females within the family
	(WEF, 2006)	– The literacy rates have a far reaching impact on women's social life as well as health aspects
3. Economic participation subindex	3.1. Female to Male Total Work Force Participation*	– The total work force participation is an important indicator that highlights the access to employment opportunities as well as the social behaviour of the people towards working female
	(UNDP, 2005)	– Given the low work participation of females it is imperative to study the gender gap in total workforce which is also reflective of the socio-economic status of females in the society
	3.2. Female to Male Main Workforce Participation*	– Main workforce participation in economic activities indicates employment all throughout the year which indicates availability and absorption of workers in jobs/work under various sectors of economy
	(Census, 2011)	– Female to male main work participation is an important variable as it highlights the involvement of females in various sectors of economy both informal and formal sectors

(*)-Applied by the authors/organizations other than WEF

(**)-Indicator borrowed from GGGI, 2018, WEF

Calculation of Gender Gap Index: The following steps as per GGI (WEF, 2018) were applied:

- Conversion of variables to ratios: The sex-disaggregated data were converted into a female to male ratio for the following indicators:
- Truncation of data at equality benchmark: For this study, the sex-ratio of the total population, 0–6 year population and Scheduled Caste population were translated to an equality benchmark set at 1 thereby meaning an equal number of females and males.
- Calculation of subindices scores: The weighted average of each indicator within the subindex were calculated to work out the subindex scores. For this the standard deviation for each of the indicators within the subindices was calculated assuming the larger the variability, the smaller

is the weight and vice versa. Then 0.01 is divided by the standard deviation, to determine a 1% point change in terms of standard deviations for each indicator. These values were then used to calculate the scores of each subindex (Table 2).

- Calculation of final *Gender Gap Scores*: The un-weighted average of each sub index score was calculated to give the final scores on the gender gap index for Sehore M.C. The overall scores were calculated and the wards were then ranked according to the score. As per the original scheme of the GGI (WEF, 2018), the categories range in 20% intervals from 0.0–0.2 (worst); 0.2–0.4 (bad); 0.4–0.6 (fair); 0.6–0.8 (good) to 0.8–1.0 (best) (Table 3).

Table 2. Weights for indicators and Subindices, Gender Gap Index, Sehore M.C.

	Standard deviation	Standard deviation per 1% point change	Weight
Survival subindex			
Ratio: Female 0-6 years population over Male value	0.099	0.101	0.369
Ratio: Female population over Male value	0.058	0.173	0.631
TOTAL		0.274	1.000
Social subindex			
Ratio: Female SC Population over Male value	0.471	0.021	0.158
Ratio: Female Literacy Rate over Male value	0.088	0.113	0.842
TOTAL		0.134	1.000
Economic participation subindex			
Ratio: Female Total Work Force Participation over Male value	0.064	0.156	0.467
Ratio: Female Main Workforce Participation over Male value	0.056	0.179	0.533
TOTAL		0.335	1.000

Table 3. Categories on Global Gender Gap Index of the World Economic Forum and Gender Gap Index for Sehore M.C.

Category on Global Gender Gap Index (WEF)	Range	Ward number	Number of wards	Percent of total wards
Worst	0.0-0.2	N.A.		
Bad	0.2-0.4	N.A.		
Fair	0.4-0.6	Ward no. 28, 22 and 25	3	8.6
Good	0.6-0.8	Ward no. 26, 10, 30, 3, 21, 15, 7, 32, 33, 34, 14, 2, 13, 18, 12, 19, 4, 35, 1, 8, 5, 17, 31, 29, 11, 27, 6, 23, 16, 24, 20, 9	32	91.4
Best	0.8-1.0	N.A.		

5. Identification of the problem in Sehore Municipal Council

The selected area of Sehore M.C., lies in the Malwa Plateau region which is well-suited for the cultivation of soyabean and wheat, with River Seewan (a tributary of River Parbati) serving as the lifeline of the city (Fig. 1). Though it has a small urban centre, Sehore M.C. has been reclassified as a Class I city with a

population of 1,08,909 people in 2011 (CENSUS OF INDIA, 2011). Lying within the urban economic sphere of influence of the two metropolitan cities of Bhopal and Indore, Sehore M.C. shows signs of an upcoming urbanizing society despite a tradition bound population, lack of economic opportunities especially for women and a paucity of gender sensitive infrastructure.

Fig. 1. Administrative Map of Sehore Municipal Council, Madhya Pradesh, India (2019)

The urban economy of Sehore M.C. is largely dependent upon agriculture and trade of agri-products. A number of agro-based industries such as a flour mill, Dalda factory and paper mill are located in Sehore M.C. However, many of these traditional raw materials based industries are suffering due to the lack of access and availability of basic services for manufacturing and marketing units while a few, such as the sugar mill and the soyabean solvent plant have been permanently shut down for more than two decades.

With an urban growth rate of 17.94% (compared with: state, 20.3% and national 31.80%), Sehore M.C. has recorded an increase in total urban workers of 44.7% (state average, 43.5%) during 2001–2011. However, nearly 6% of the workforce is employed as agricultural labourers and cultivators, 2% as household industry workers whereas nearly 92% are employed as ‘other workers’, which highlights the importance of the tertiary sector of the economy in Sehore M.C. The population of Sehore M.C. is

composed of 48.38% females and 51.62% males (in 2011), which translates into a sex ratio of 937 females per 1000 males (against the state sex ratio of 930 females per 1000 males), whereas the urban female work participation rate in Sehore M.C. is recorded to be 12.8% (state average: 15.1%; national average: 15.4%) while male work participation was 50.8%, this clearly shows the lack of female participation in the economic activities of the city. Considering the small urban size of this city (more than 100,000 population) with an almost equal sex-ratio, Sehore M.C. is recording perceptible changes in the gender gap from a spatial perspective. This can be ascribed partly to the wide spatial variations in the distribution of both the female work participation rates as well as the female population where around 23% of all wards located either in the core of the city or along the Bhopal-Indore State Highway in the east are showing a narrow gender gap for the economic parameter. Therefore, an insight into the dynamics of economic opportunities, social set-up of

the society and general survival rates on the standard indices and parameters selected has to be identified from a spatial perspective. This can help in narrowing the existing gender gap for the upcoming urbanized society of Sehore M.C. to identify the role of a small urban centre lying within the region of metropolitan cities in Madhya Pradesh, India.

6. Results and discussion

On the basis of the methodology of WEF and criteria selected for the evaluation of the gender gap index in the study area, the results are summarized as follows:

Identification of closure values for the Gender Gap Index in Sehore M.C. Based on six parameters and three subindices of the *Survival* subindex, the *Social* subindex and the *Economic Participation* subindex, the overall gender gap index for Sehore M.C. score was 0.66, with a closure value of 0.34 or 34% (Fig. 2).

Fig. 2. Score on the subindices and overall Gender Gap Index, Sehore M.C., 2011

For the *Survival* subindex, the gender gap score was 0.92 with a closure value of 0.08 or 8%. The parameters used for the *Survival* subindex i.e. female to male sex-ratio of the total population (WHO, 2017) and the female to male child sex-ratio (0–6 years

population) (UNFPA, 2009) performed satisfactorily over almost all the wards with 20 wards (57%) lying above the average value.

On the *Social* subindex, Sehore M.C. recorded a gender gap score of 0.84 with a closure value of 0.16 or 16%. The indicators under the *Social* subindex include the female to male ratio of literacy rates (WEF, 2006) and the female to male ratio within the Scheduled Caste (SC) population (NCSC, 1992) in Sehore M.C. (Table 2) which performed satisfactorily over almost all the wards in which 19 wards were above the average for the subindex (0.84).

The *Economic Participation* subindex for Sehore M.C. recorded the lowest subindex score of only 0.21 and a high closure value on the subindex of 0.79 (79%). With only 18 wards (51%) lying above the average (0.21), the lack of economic opportunities, participation and absorption of female workers in various sectors of the economy is visible in Sehore M.C.

Spatial pattern of the Gender Gap Index for Sehore Municipal Council. The spatial mapping of the gender gap index was conducted to identify the inter-ward variation of gender gaps within Sehore M.C. The three subindices scores (Table 4) gave an insight into a parameter wise identification of the problem to fully close the gender gap as shown by the fourth, or overall, score for the gender gap index for Sehore M.C. of 0.66 (66%) requiring a closure value of 0.34 (34%). Therefore, spatial mapping of the gender gap indices and overall index provided an insight into the inter-ward level analysis of the problem of concern in Sehore M.C.

Survival subindex for Sehore Municipal Council. The *Survival* subindex is reflective of the economic poverty and lack of education along with the status of child and maternal health. For the two parameters of sex-ratio of the total population and the child sex-ratio the situation of which in Sehore M.C. is satisfactory mainly owing to a better health care system. Especially laudable is the role of *Anganwadi* centres which are equally active across the wards in promoting health care amongst children as well as adolescent girls. This was supported by the result that 34 wards (97%) out of 35 wards belonged to the very high category (0.8–1.0) (Fig. 3). Thus, a homogenous pattern for the *Survival* subindex emerged within the category of very high value (0.8–1.0), with the exception of only ward (no. 22) which lies in the high category (0.6–0.8) with a score of 0.795 (almost approaching 0.8) mainly due to the industrial area within the ward.

Table 4. Overall scores of Gender Gap Index, Sehore M.C., M.P., 2011

Ward No.	Ward name	Survival subindex		Social subindex		Economic Participation subindex		Overall Gender Gap Score	
		Rank	Score	Rank	Score	Rank	Score	Rank	Score
1	Patel Jeevan Lal	28	0.883	5	0.947	26	0.178	13	0.669
2	Rani Durgawati	32	0.857	22	0.822	5	0.286	22	0.655
3	Kunwar Chain Singh	15	0.935	32	0.742	10	0.249	28	0.642
4	Guru Gobind Singh	26	0.893	17	0.862	16	0.231	18	0.662
5	Dr Rajendra Prasad	16	0.934	19	0.850	22	0.186	20	0.657
6	Indira Gandhi	9	0.958	9	0.896	20	0.207	7	0.687
7	Sardar Patel	33	0.831	16	0.863	15	0.232	27	0.642
8	Maharani Laxmi Bai	11	0.949	4	0.947	12	0.244	4	0.713
9	Maharana Pratap	20	0.925	3	1.000	6	0.275	2	0.733
10	Jawaharlal Nehru	24	0.905	27	0.778	21	0.196	30	0.626
11	Sant Ravi Das	1	0.991	13	0.876	23	0.184	9	0.684
12	Motilal Nehru	14	0.938	29	0.773	18	0.225	26	0.645
13	Chandra Shekhar	13	0.943	11	0.893	30	0.171	14	0.669
14	Dr Shyama Prasad Mukherji	17	0.931	33	0.738	9	0.250	29	0.640
15	Subhash Chandra Bose	25	0.905	23	0.821	13	0.233	23	0.653
16	Chhatrapati Shivaji	23	0.911	6	0.938	2	0.307	3	0.719
17	Umrao Singh	27	0.885	20	0.829	4	0.290	16	0.668
18	Lal Bahadur Shastri	22	0.913	10	0.896	27	0.176	19	0.661
19	Rajeev Gandhi	12	0.948	18	0.855	14	0.233	10	0.678
20	Dr Ambedkar	3	0.985	26	0.809	3	0.298	6	0.698
21	Pt Deen Dayal Upadhyaya	29	0.873	28	0.773	28	0.173	32	0.606
22	Valmiki	35	0.795	35	0.702	24	0.181	35	0.559
23	Veer Savarkar	18	0.928	21	0.825	8	0.259	12	0.671
24	Swami Vivekananda	31	0.857	2	1.000	7	0.261	5	0.706
25	Chitragupta	30	0.860	31	0.752	25	0.179	33	0.597
26	Captain Abdul Hameed	10	0.949	25	0.811	34	0.106	31	0.622
27	Tatya Tope	6	0.960	1	1.000	11	0.249	1	0.736
28	Mahatma Gandhi	34	0.823	30	0.755	32	0.153	34	0.577
29	Mahaveer	7	0.960	14	0.871	17	0.226	8	0.686
30	Ravindra Nath	4	0.974	8	0.900	35	0.076	24	0.650
31	J.P. Peters	21	0.915	7	0.913	33	0.119	25	0.649
32	Moulana Abul Kalam Azad	2	0.988	12	0.890	31	0.154	11	0.677
33	Rafi Ahmed Kidwai	8	0.959	34	0.730	1	0.318	15	0.669
34	Sardar Bhagat Singh	5	0.971	24	0.818	19	0.213	17	0.667
35	Tilak	19	0.927	15	0.870	29	0.172	21	0.657
Population-weighted average score of Sehore M.C.			0.92		0.84		0.21		0.66

For the *Survival* subindex ward no. 11 scored the highest (0.991) while ward no. 22 scored the lowest (0.795). The range of scores was 0.196, the lowest was amongst all the subindices, indicating a better and even distribution of the sex-ratio across all the wards in Sehore M.C. On the subindex, 25 wards had closed at least 90% of the gender gap while the remaining wards had closed at least 80% of the gender gap.

Social subindex for Sehore Municipal Council. The *Social* subindex covered the gender gap for the literate population, which has a far reaching impact on women's health and social life. Considering the

plateau landscape and the socio-economic status of the study area, the gender gap in the Scheduled Caste (SC) population was considered which forms one of the most marginalized and vulnerable groups in India. On the *Social* subindex the wards have a satisfactory performance as 26 wards (74% of the total wards) showed a concentration in the very high category (0.8–1.0) as compared to the average score of 0.84 for the subindex (Fig. 4). However, 9 wards (26% wards) were in the high category (0.6–0.8) mainly lying on or near the periphery of Sehore M.C. with low female literacy due to the rural characteristics of these wards.

Fig. 3. Scores for the Survival subindex, Gender Gap Index, for Sehare M.C., 2011

Fig. 4. Scores on the Social Subindex, of the Gender Gap Index, Sehare M.C., 2011

On the *Social* subindex ward no. 27 scored the highest (1.000) while ward no. 22 scored the lowest (0.702). The range of scores was the highest (0.298) when compared to the other two subindices. Six wards, mainly lying near the core of Sehare M.C. have closed at least 90% of the gender gap. Within the subindex, the range is high mainly due to the wide variation in gender gap amongst the Scheduled Castes population.

Economic participation subindex for Sehare Municipal Council. The *Economic participation* subindex is reflective of the socio-economic status of females in society and their involvement in the urban job market. The performance of the wards for the *Economic Participation* subindex which covers the gender gap in total and the main work participation was the worst of all the subindices which is supported by the results that 20 wards (57.1%) were in the low category (0.0–0.2) while 15 wards (42.9% wards) were in the very low category (0.0–0.2) of the subindex (Fig. 5). This shows the lack of economic opportunities for females who are mainly employed in low-paid work in the nearby agricultural fields as well as in home based work such as weaving and stitching mainly in the older areas of Sehare M.C.

On the *Economic Participation* subindex ward no. 33 scored the highest (0.318) and no. 30 scored the lowest (0.076). The range of scores was found to be 0.242, which indicates the differential employment situation of females in Sehare M.C.

Fig. 5. Scores on the Economic Participation subindex, of the Gender Gap Index, Sehare M.C., 2011

Overall Gender Gap Index for Sehare Municipal Council. Based on the three subindices, the overall gender gap score of 0.66 highlights a satisfactory condition for gender gap over the cityscape of Sehare M.C. (Fig. 6). Out of 35 wards, 19 wards (54.3%) were above (>0.66) while 16 wards (45.7%) were placed below the overall gender gap score which was due to the low performance on the *Economic Participation* subindex which places the city in a vulnerable position regarding the overall gender gap index. However, two clear-cut categories of

high (0.8–0.6) and medium (0.6–0.4) score can be identified for the wards on the basis of the GGI (WEF, 2018) categorization scheme of 20% intervals from worst (0.0–0.2) to best (0.8–1.0) as follows:

The High Category within the overall gender gap score (0.8–0.6) formed the dominant group and covered 32 wards (91.4%). These could account for closing down at least 60–80% of the overall gender gap in Sehore M.C. Of these 19 wards, or 54.3%, were above the average value of 0.66 (0.8–0.66), while 37.14%, or 13, were below the average (0.66–0.6) with a distinct spatial concentration in four groups of wards in the *Core*, *Periphery*, *Ganj* and *Qasba* areas of Sehore M.C.

- The first group of *Core wards* (nos. 27, 16 and 24) where the parameters of total sex-ratio and female literacy were recorded as high which placed these wards with a better performance on the *Survival* as well as the *Social* subindices. *Tatya Tope* ward (ward no. 27) was ranked 1st on the overall gender gap index (0.736) as well as on the *Social* subindex. This ward has a well-developed market area which provides work opportunities for females in tailoring and other supportive low paid jobs. The ward has better accessibility to the educational and health care institutes which places it in the best position in terms of both *Survival* and *Social* subindices. *Chhatrapati Shivaji* ward (no. 16), due to its high female to male sex-ratio as well as the number of females working in home run mini-flour mills, was ranked 3rd on the overall gender gap index and the *Economic Participation* subindex and 6th on the *Social* subindex as it is dominated by a mainly business class traditional society. *Swami Vivekananda* ward (no. 24) was ranked 5th on the overall gender gap index for Sehore M.C. due to its better performance in female literacy.

Three wards (nos. 5, 7 and 26) scored below the average overall score of 0.66 (0.66–0.6), but performed better on the *Survival* and the *Social* subindices but they lacked female work participation due to them having a male dominated market area.

- The second group in the high category covered *Peripheral wards* (nos. 1, 4, 9, 20 and 23) which scored above the average score of 0.66. Amongst these was *Maharana Pratap* ward (no. 9) which lies along the Bhopal-Indore road and this recorded the second highest score (0.73), as female work participation of both illiterate and literate females was available in the concrete and cattle feed plants and in private educational institutes. There were avenues for females as agricultural labourers in nearby agricultural fields in four wards (nos. 1, 4, 20 and 23). Therefore, both *Economic Participation* and *Survival* subindices gave gender scores above

the average in the rapidly developing peripheral areas of Sehore M.C. with the exception of two southern periphery wards (nos. 2 and 3) and a northern periphery ward (no. 21) where there were limited economic opportunities mainly as agricultural labourers in farms and workers in *Rafi Ahmed Kidwai* College of Agriculture, thus lowering down their gender gap score to below average of overall gender gap score (0.66–0.6).

- The third group of wards (nos. 11, 13, 16 and 17) which scored higher than the average of 0.66, covered the *Ganj* area, lying to the east of the core of Sehore M.C., and comprised wards with high economic participation of illiterate females on the basis of their participation mainly in household work and as basket weavers with bamboo and *siradi* (a local grass type). While wards (nos. 10, 12, 14 and 15) have high gender gap in terms of literacy rates thus scoring below the average overall gender gap score of less than 0.66.

- Lying to the west of the core area, the wards in *Qasba* (nos. 32, 33 and 34) scored above the average of 0.66. With a better child sex ratio (0–6 years) these wards scored higher on the *Survival* subindex but some wards (nos. 30, 31 and 35) scored below the average of 0.66, due to the lower economic participation of women owing to the stricter social norms practiced by a particular backward community in this area.

Fig. 6. Sehore M.C. Scores on the Overall Gender Gap Index, 2011

Thus the prevalence of the high category of the overall gender gap score with over 91% of wards of Sehore M.C. presents a picture of satisfactory conditions in terms of gender gap wherein most

of the gap has been generated from the disparities on *Economic Participation* subindex as female work participation was significantly lower compared with men across all of the wards.

The Medium Category with an overall gender gap index of between 0.6–0.4 formed the smaller group with only 3 wards (nos. 25, 28 and 22) which accounted for nearly 8.6% of the wards. *Tatya Tope* ward (ward no. 25), located in the north-western periphery, scored very low on both the *Survival* and *Social* subindices due to the skewed sex-ratio of the total population and poor female literacy and it predominantly employed males, hence the ward recorded a low score on overall gender parity. Similarly, *Mahatma Gandhi* ward (no. 28), located in the commercial area of the core of Sehore M.C., where females are mostly limited to household activities, ranked second lowest on the gender gap index (0.577). *Valmiki* ward (no. 22) in the northern periphery is containing the Class II *Krishi Upaj Mandi* and *Mandi* Industrial area of Sehore M.C. with the Flour and *Ara* Mill, (a male dominated economic sector), the performance on *Survival* and *Social* subindex is thus the poorest of all the wards mainly due to a lack of services and thus scored the lowest on overall gender parity (0.559).

Thus, the medium category score (0.6-0.4) is covered mainly by *peripheral* wards (nos. 25 and 22) mainly containing the industrial and *Mandi* compounds, which are male dominant works, whereas one ward in the *core* (no. 28) is also covering the commercial market area.

7. Conclusion and suggestions

The overall gender gap index of 0.66 was based on the parameters selected under the three subindices – *Survival*, *Social* and *Economic Participation*, with indicators reflecting the ground reality for an upcoming urban society of Sehore M.C.

It was on the *Survival* subindex that Sehore M.C. recorded the highest score (0.92) mainly due to the better access of females to *Anganwadi* rural child care and health-care services as well as the effect of the ongoing '*Beti Bachao*' Scheme (2008) of the state government and also due to the prevalent socio-cultural norms which discourage female foeticide and infanticide.

The scores on the *Social* subindex was the second highest (0.84) which mainly highlighted the achievement in terms of female literacy which can be seen as an outcome for the ongoing schemes for improving female literacy and educational status in the city such as '*Sarva Shiksha*' (SSA, 2000) and '*Beti Padhao, Beti Bachao*' Schemes (WCD, 2015).

Performance was the lowest (0.21) on the *Economic Participation* subindex which highlighted the lack of female participation in economic activities. On the economic front females are generally absent from the workforce, except in agricultural fields in the peripheral region where females are employed as marginal workers and in some areas near the core such as *Qasba* and *Ganj* where females work out of their homes mainly in basket weaving and HDPE bag stitching works respectively. While in the educational institutes and various government offices and banks, more skilled and qualified women commute from nearby located Bhopal city (40 km) to Sehore M.C.

It is thus evident that while most of the wards (91%) performed high on the gender gap index, the gender gap was generated mostly from the *Economic Participation* subindex. Thus in order to alleviate the gender gap in Sehore M.C., economic opportunities need to be provided for the participation of females in all sectors of the economy through provision of improved vocational and technical skills. There also needs to be a change in the mind-set of the tradition bound society, especially in *peripheral* wards of the town where the female work participation needs to be increased by replacing the low-paid work with skilled work which promises better remuneration such as handicrafts and preserved foods manufacturing, such as soy-sauce, snacks, tofu, etc., which have a higher potential of sell in an urban market like Sehore M.C. While for the *core* areas, where the female work participation was satisfactory, the low gender gap score was mainly due to the poor performance on the *Survival* and *Social* subindices. Thus the child sex-ratio should be improved through the *Anganwadis* centres for the effective implementation of governmental policies regarding women and child health care and literacy rates should be increased by focusing on early childhood care and education especially for females.

8. Limitations and scope of the study

Although the study has addressed the issue of gender gap based on the methodology of the Global Gender Gap Index (WEF, 2018), due to the non-availability of secondary data, all the indicators of the original index could not be applied in this study. The Political Empowerment subindex had to be completely excluded from the study as it had no relevance to the study area. The index suffers from the non-availability of sex-disaggregated secondary data for life expectancy, time spent on unpaid work, income levels, work participation in the organized sector, all of which are crucial for

assessing the overall situation of gender inequality. However, this study can be used to assess the spatial variation in gender gaps in the context of new and upcoming urban areas lying in the proximity of, and benefitting from, larger urban areas.

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