

INTRODUCING GENDER IN SUB-NATIONAL HDRS: AN EXERCISE FOR BARDHAMAN DISTRICT OF BENGAL

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Human Development Index fails to capture the disparity in development between men and women, or even the level of development achieved by the two gender-groups separately. However, it is generally true that in developing countries a huge gap exists between the two groups and most often the females lag far behind the males in almost all the areas of HDI. With almost half the population lagging behind, this acts as a drag on the overall HDI. Gender dimensions can be discussed both from the standpoint of absolute achievements and that of parity. It is undeniable that women need to reach certain goals as individuals, without reference to what the males have. This is partly followed in the calculation of GDI. We can develop a Gender Parity Index (GPI) which compares the difference in development between males and females across several dimensions. A higher score in the GDI would indicate better situation of females vis-à-vis certain optimal scale and a higher GPI implies that (human) development is relatively more evenly spread across men and women.

INTRODUCTION

While developing the District Human Development Index, one takes into account the average level of economic well being, education level and health care available in a block and makes a comparative assessment between the blocks/ municipalities of a district. However, this index fails to capture the disparity in development between men and women, or even the level of development achieved by the two gender-groups separately. However, it is generally true that in developing countries a huge gap exists between the two groups and most often the females lag far behind the males in almost all the areas of HDI. With almost half the population lagging behind, this acts as a drag on the overall HDI. In addition, the impact of women's status in the society is a long run one as numerous research papers show that children are influenced more by mothers' characteristics compared to that of fathers. To account for this, it was thought prudent to discuss gender issues in this chapter.

Conceptually, Gender dimensions can be discussed both from the standpoint of absolute achievements and that of parity. It is undeniable that women need to reach certain goals as individuals, without reference to what the males have or have not managed to do. This is partly followed in the calculation of GDI by UNDP where gender specific HDIs are calculated (before calculating GDI proper as a ratio of the two). We can pursue along this line and develop certain indicators specific to the females. It is also sometimes argued that the HDI approach, which essentially looks at the capability aspects, is better discussed from the parity angle.¹ For that, we can develop a Gender Parity Index (GPI) which compares the difference in development between males and females across several dimensions. A higher score in the GDI would indicate better situation of females vis-à-vis certain optimal scale and a higher GPI implies that (human) development is relatively more evenly spread across men and women.

METHODOLOGY

The GDI has been developed using the three broad dimensions of human development index – education, health and livelihood. For education we use weighted average of Literacy Rate, Enrolment Rate in the Primary stage and reciprocal of Dropout rate in the elementary stages to provide the Female Education Index (FEI). For health we have used weighted average of three safe motherhood indicators – proportion of institutional delivery, proportion of pregnant women availing all 3 scheduled ANC's and proportion of mothers obtaining PNC facilities within 48 hours of delivery – to construct the Female Health Index (FHI). For livelihood we have used weighted average of proxy variables like proportion of women engaged as main workers, proportion of female-headed households having permanent houses and electricity, and reciprocal of proportion of female-headed households not having any of the specified assets to construct the Female Livelihood Index (FLI). The GDI is then computed as simple average of the three sub-components using the relative gap method.

The Gender Parity Index has four components – education, health and livelihood, and social. The education and livelihood components capture the difference in the educational index and livelihood index between females and males. The health component looks at the difference between female and male immunisation rates. The social component tries to capture the inherent social bias against women by looking at the Sex Ratio. Finally the GPI is computed as simple average of the four sub-components using the relative gap method. Exact details regarding computation of the indices are provided in the technical appendix at the end of the chapter.

CONSTRUCTING THE GENDER DEVELOPMENT INDEX

a) The Female Education Index

The Female Education Index (FEI) is constructed as weighted average of the Literacy, Primary Enrolment and (inverse of) Elementary Drop Out Rates. Our weightage scheme is subjective and pre-determined to give maximum weightage on Literacy (50 per cent), followed by Enrolment (30 per cent) and Drop Out (20 per cent).

$FEI_i = 1/100 [50 \text{ Literacy Rate} + 30 \text{ Primary Enrolment rate} + 20 \text{ Inverse of Elementary Dropout Rate}]$, where i =block/municipality

$$FEI_i \text{ score} = \frac{FEI_i - MinFEI_i}{MaxFEI_i - MinFEI_i}$$

b) The Female Health Index

The Female Health Index (FHI) captures the safe motherhood situation in the region and is constructed as weighted average of proportion of institutional delivery, proportion of mothers availing ANC and PNC facilities, and inverse of maternal mortality rates. Our weightage scheme is subjective and pre-determined to give maximum weightage on Institutional Delivery (50 per cent), followed by availing of ANC (30 per cent) and availing of PNC (20 per cent).

$FHI_i = 1/100 [50 \text{ Institutional Delivery Rate} + 30 \text{ Proportion of pregnant women availing all 3 ANC's} + 20 \text{ Proportion of mothers availing PNC within 48 hrs}]$, where i =block/municipality

$$FHI_i \text{ Score} = \frac{FHI_i - MinFHI_i}{MaxFHI_i - MinFHI_i}$$

c) The Female Livelihood Index

The Female Livelihood Index (FLI_i) is captured by weighted average of proportion of women engaged as main workers, proportion of female-headed households having permanent houses and electricity, and inverse of proportion of women living below poverty line. Our weightage scheme is subjective and pre-determined to give maximum weightage on Main Worker Ratio (50 per cent), followed by female-headed households having pucca house and electricity (30 per cent) and proportion of poor (20 per cent).

FLI_i = 1/10 [50 Main Worker proportion + 30 Pucca/Electrified Housing Proportion + 20 Inverse of BPL females], where i =block/municipality

$$FLI_i \text{ score} = \frac{FLI_i - MinFLI_i}{MaxFLI_i - MinFLI_i}$$

d) Gender Development Index

Finally the GDI is calculated as simple average of the three component scores, i.e.

$$GDI_i = 1/3 \times [FEI_i \text{ score} + FHI_i \text{ score} + FLI_i \text{ score}]$$

CONSTRUCTING THE GENDER PARITY INDEX

a) The Education Parity Component

The Education Parity Component (E_i) is captured by the ratio between Female Education Index and the Male Education Index.

$$E_i = \frac{\text{Female Education Index}}{\text{Male Education Index}} \times 100, \text{ where } i=\text{block/municipality}$$

$$E_i \text{ score} = \frac{E_i - MinE_i}{MaxE_i - MinE_i}$$

e) The Health Parity component

The Health Parity Component (H_i) captures the difference in immunisation between girls and boys.

$$H_i = \frac{\text{Proportion of female child (age 0 - 6) fully immunised}}{\text{Proportion of male child (age 0 - 6) fully immunised}} \times 100, \text{ where } i=\text{block/municipality}$$

$$L_i = \frac{\text{Female Livelihood Index}}{\text{Male Livelihood Index}} \times 100$$

f) The Livelihood Parity Component

The Livelihood Parity Component (L_i) is captured by the ratio between Female Livelihood Index and the Male Livelihood Index.

$$L_i = \frac{\text{Female Livelihood Index}}{\text{Male Livelihood Index}} \times 100, \text{ where } i = \text{block/municipality}$$

$$L_i \text{ score} = \frac{L_i - \text{Min}L_i}{\text{Max}L_i - \text{Min}L_i}$$

g) The Social Parity Component

The Social Parity Component (S_i) captures the difference in social status between men and women as captured through the Child Sex Ratio (CSR).

$$S_i = \frac{\text{Total female child population (age 0 - 6)}}{\text{Total male child population (age 0 - 6)}} \times 1000, \text{ where } i = \text{block/municipality}$$

$$S_i \text{ Score} = \frac{S_i - \text{Min}S_i}{\text{Max}S_i - \text{Min}S_i}$$

Finally the GPI is calculated as simple average of the four component scores, i.e.

$$\text{GPI}_i = 1/4 \times [\text{E}_i \text{ score} + \text{H}_i \text{ score} + \text{L}_i \text{ score} + \text{S}_i \text{ score}]$$

GENDER DEVELOPMENT IN BARDHAMAN DISTRICT

We have discussed the broad concept of GDI and how it has been modified to make it applicable at the sub-district level. Let us discuss the application by taking the case of Bardhaman district of Bengal.

i) Female Education Index

FEI reflects the situation of women in terms of knowledge acquirements – what proportion of them are literate, what percentage of girls are enrolled in schools and what proportion of them do not drop out from the schooling system during elementary stages. It is observed that Female Literacy in the district is 62.1 per cent as per the 2011 Census. About 82 per cent of girls in the age group 5-9 years do enrol in schools while close to 88 per cent do complete at least 5 years of formal schooling. The FEI score obtained by averaging the three components is highest in Bardhaman (M), followed by Durgapur (M), Dainhat (M), Raniganj (M), Kultu (M), Gushkara (M), Raina-I, and Kalna-II. FEI is lowest in Memari-I, followed by Ketugram-II, Ausgram-I, Ketugram-I, and Barabani.

Table 1, Female Educational Index

Blocks/ ULB	Female Literacy	Enr Rate	Comp Rate	FEI Score	Blocks/ ULB	Female Literacy	Enr Rate	Comp Rate	FEI Score
Andal	60.9	67.5	94.2	0.31	Mongalkote	60.4	80.5	96.3	0.48
Ausgram-I	55.2	71.2	75.5	0.09	Monteswar	72.8	67.3	85.3	0.49
Ausgram-II	53.4	78.0	91.3	0.27	Pandabeswar	55.4	68.7	98.6	0.25
Barabani	51.3	78.4	81.2	0.14	Purbasthali-I	64.0	70.3	88.7	0.37
Bhatar	58.0	80.3	83.7	0.33	Purbasthali-II	57.5	75.4	82.1	0.24
Burdwan-I	62.1	72.5	80.2	0.29	Raina-I	66.7	88.4	95.9	0.71
Burdwan-II	60.1	89.3	88.8	0.53	Raina-II	67.4	75.6	96.4	0.57
Durgapur	57.9	82.8	77.2	0.30	Raniganj	56.1	86.8	94.1	0.46
Galsi-I	58.5	84.1	91.0	0.45	Salanpur	63.6	79.6	90.5	0.49
Galsi-II	56.0	80.3	78.5	0.24	Asansol (M)	69.6	99.7	60.2	0.62
Jamalpur	60.4	85.5	69.2	0.32	Burdwan (M)	78.2	99.7	84.8	1.00
Jamuria	51.2	88.0	84.9	0.29	Dainhat (M)	70.3	100.0	79.1	0.79
Kalna-I	63.0	73.4	72.0	0.25	Durgapur (M)	72.8	99.7	94.2	0.97
Kalna-II	76.1	81.3	82.8	0.71	Gushkara (M)	66.5	99.8	80.1	0.72
Kanksa	60.8	67.5	80.3	0.20	Jamuria (M)	54.2	98.2	89.0	0.52
Katwa-I	56.5	77.1	96.3	0.36	Kalna (M)	62.1	99.9	74.2	0.58
Katwa-II	77.1	84.7	57.6	0.56	Katwa (M)	57.4	99.9	83.5	0.56
Ketugram-I	54.9	60.2	92.9	0.09	Kulti (M)	59.7	99.9	97.2	0.72
Ketugram-II	52.9	63.1	91.8	0.07	Memari (M)	54.5	100.0	84.9	0.51
Khandog-hosh	62.3	87.1	97.7	0.62	Raniganj (M)	62.4	99.8	94.2	0.75
Memari-I	60.2	75.5	46.2	0.00					
Memari-II	60.3	92.9	86.2	0.55	District Avg	62.1	81.9	87.7	0.48

Source: Authors' calculation based on data obtained from Office of the Sarva Shiksha Mission, Bardhaman; Census of India, 2011; and District Information on School Education – 2013-14

Note: FEI Score is prepared according to UNDP method of Relative Gap. It is indicative of hierarchy and ranges from 0 for the worst performer to 1 for the best.

Table 2, Female Health Index

Blocks/ ULB	Inst Dlvry	3 ANC	PNC 48Hr	FHI Score	Blocks/ ULB	Inst Dlvry	3 ANC	PNC 48Hr	FHI Score
Andal	79.0	76.1	67.3	0.68	Memari-I	50.1	83.3	86.8	0.51
Ausgram-I	69.8	76.8	85.6	0.67	Memari-II	35.8	82.1	85.5	0.36
Ausgram-II	66.2	89.2	93.7	0.74	Pandabeswar	45.0	85.2	98.9	0.52
Barabani	72.8	87.4	95.1	0.80	Purbasthali-I	68.6	82.5	99.3	0.74
Bhatar	61.5	92.2	63.9	0.59	Purbasthali-II	75.2	90.6	73.3	0.75
Burdwan-I	42.1	81.5	88.1	0.43	Raina-I	83.2	83.1	91.5	0.86
Burdwan-II	62.2	87.9	90.2	0.68	Raina-II	52.2	79.5	97.3	0.55
Durgapur	68.2	78.3	58.7	0.55	Raniganj	50.1	83.3	86.8	0.51
Galsi-I	91.4	95.2	60.2	0.89	Salanpur	35.8	82.1	85.5	0.36
Galsi-II	60.7	84.8	81.7	0.61	Asansol (M)	The municipal areas have almost universal coverage and hence their score has been put at 1.00			1.00
Jamalpur	69.6	83.1	69.8	0.64	Burdwan (M)				1.00
Jamuria	72.6	67.4	99.9	0.70	Dainhat (M)				1.00
Kalna-I	73.2	83.0	82.5	0.73	Durgapur (M)				1.00
Kalna-II	71.6	79.8	84.3	0.70	Gushkara (M)				1.00
Kanksa	64.0	76.8	72.3	0.56	Jamuria (M)				1.00
Katwa-I	34.6	92.2	83.3	0.40	Kalna (M)				1.00
Katwa-II	67.7	85.8	66.5	0.62	Katwa (M)				1.00
Ketugram-I	34.5	77.6	82.0	0.31	Kulti (M)				1.00
Ketugram-II	53.0	77.8	85.0	0.50	Memari (M)				1.00
Khandoghosh	23.0	84.5	23.7	0.00	Raniganj (M)				1.00
Mongalkote	44.8	82.9	81.4	0.44					
Monteswar	74.1	87.9	84.7	0.77	District Avg	92.7	73.9	90.1	0.62

Source: Authors' calculation based on data obtained from Office of the CMOH, Bardhaman; Census of India, 2011; and Health management Information System – 2013-14

Note: FHI Score is prepared according to UNDP method of Relative Gap. It is indicative of hierarchy and ranges from 0 for the worst performer to 1 for the best.

ii) Female Health Index

A major area of concern is the health situation of women in the region. While it is not possible to get data on nutritional status and deficiency diseases at the sub-district level, we have tried to proxy the situation by looking at the maternal health care aspects in the blocks. FHI therefore reflects the situation of women in terms of reproductive and safe motherhood practices - what proportion of child birth takes place in Institutions and what percentage of pregnant and new mothers have availed the services of ANC/PNC.

Table 3, Female Livelihood Index

Blocks/ ULB	Main Wrkr	HH elec	HH asset	FLI Score	Blocks/ ULB	Main Wrkr	HH elec	HH asset	FLI Score
Andal	5.2	75.9	74.1	0.67	Memari-I	50.1	83.3	86.8	0.51
Ausgram-I	8.0	29.7	46.5	0.06	Memari-II	35.8	82.1	85.5	0.36
Ausgram-II	10.3	37.2	51.8	0.21	Pandabeswar	45.0	85.2	98.9	0.52
Barabani	5.5	52.9	70.0	0.42	Purbasthali-I	68.6	82.5	99.3	0.74
Bhatar	12.5	39.5	62.3	0.35	Purbasthali-II	75.2	90.6	73.3	0.75
Burdwan-I	10.5	50.0	61.1	0.41	Raina-I	83.2	83.1	91.5	0.86
Burdwan-II	11.9	54.5	63.2	0.49	Raina-II	52.2	79.5	97.3	0.55
Durgapur	5.2	62.2	69.6	0.50	Raniganj	50.1	83.3	86.8	0.51
Galsi-I	7.4	43.1	53.5	0.24	Salanpur	35.8	82.1	85.5	0.36
Galsi-II	10.6	36.5	49.5	0.20	Asansol (M)	5.3	77.8	69.1	0.66
Jamalpur	14.7	37.6	63.1	0.37	Burdwan (M)	11.7	42.5	55.8	0.32
Jamuria	5.3	66.3	70.4	0.55	Dainhat (M)	10.2	30.4	55.7	0.17
Kalna-I	11.1	36.7	53.8	0.24	Durgapur (M)	6.9	44.5	64.9	0.32
Kalna-II	15.3	49.0	67.1	0.52	Gushkara (M)	7.6	52.1	59.6	0.37
Kanksa	9.9	56.2	70.6	0.53	Jamuria (M)	5.4	79.4	72.3	0.70
Katwa-I	5.5	38.4	51.8	0.14	Kalna (M)	6.1	69.8	82.7	0.69
Katwa-II	5.3	37.5	48.8	0.11	Katwa (M)	6.5	85.4	88.1	0.89
Ketugram-I	4.1	30.8	45.2	0.00	Kulti (M)	12.2	86.7	88.6	1.00
Ketugram-II	4.8	37.8	50.1	0.12	Memari (M)	9.9	59.7	69.2	0.56
Khandoghosh	9.5	38.5	56.8	0.25	Raniganj (M)	8.1	79.5	88.2	0.85
Mongalkote	6.8	26.9	45.4	0.01					
Monteswar	7.3	49.8	50.3	0.28	District Avg	9.2	57.3	67.8	0.49

Source: Authors' calculation based on data obtained from Census of India, 2011

Note: FLI Score is prepared according to UNDP method of Relative Gap. It is indicative of hierarchy and ranges from 0 for the worst performer to 1 for the best.

It is observed that the percentage of non-institutional deliveries recorded is still significant in many areas. Another area of concern is the ante natal care delivered to women. We have observed that even those who were registered for ANC, did not receive the stipulated three checkups required. In aggregate 73.9% pregnant women in the district received the three checkups. Similarly, percentage of women given Post Natal Care within 48 hours of delivery was dismally low in many places. In the urban areas however, the coverage of both institutional delivery and ANC/PNC has been almost universal. As a result the FHI of the district stands at a modest 0.62.

iii) Female Livelihood Index

Livelihood pattern of women can be discussed from various angles – that of labour market participation, wages and remunerations, sustainability of livelihood options, and time use pattern. Sadly, data constraints at the sub-district level do not allow us to explore the issues in detail. As a result we have used only three proxy variables to understand the livelihood situation. First is the

proportion of workers to population. This is a measure of labour market participation. In this regard, it has to be acknowledged that greater labour market participation can be as much an outcome of acute poverty as that of economic dynamism, as *the poor can ill afford to remain unemployed*. To correct for such dichotomy, we have used only the Main workers proportion to population as the main workers are mostly an index of long run employment opportunities whereas marginal workers are mostly an outcome of short-run necessity driven labour market participation. Second is the proportion of households having permanent structure and electricity. This captures the dwelling conditions as the first thing that people do when their livelihood options are stabilised is build a permanent home and arrange for basic amenities like electricity. The third is the proportion of households having any of the specified assets (as specified in the Census of India housing schedule – Radio/ Transistor, Television, Computer/Laptop, Telephone/Mobile Phone, Bicycle, Scooter/ Motorcycle/Moped, Car/ Jeep/Van). This is a measure of the outcome of the livelihood strategy of the people as only a remunerative/ profitable engagement can allow people to purchase consumer durables. Combining these three components we constructed the FLI and computed the FLI Score. It appears that the female livelihood situation in the district is sub-optimal as the FLI score is just 0.49.

iv) Gender Development Index

Combining the three sub-indices of FEI, FHI ad FLI, we constructed the GDI. It appears that the gender development situation in the district stands at a moderate 0.57. The situation is good in the urban centres of Bardhaman (M), Durgapur (MC), Asansol (MC), Raniganj (M), and in Kalna-II, Memari-II, Bardhaman-II, Rain-I & II. Relatively poor situation is observed in Ketugram-I & II, Khandaghosh, and Ausgram-I.

Table 4, Gender Development Index

Blocks/ ULB	GDI Score	Rank	Blocks/ ULB	GDI Score	Rank	Blocks/ ULB	GDI Score	Rank
Andal	0.56		Katwa-I	0.30		Salanpur	0.58	
Ausgram-I	0.27		Katwa-II	0.43				
Ausgram-II	0.41		Ketugram-I	0.13		Asansol (M)	0.83	
Barabani	0.45		Ketugram-II	0.23		Burdwan (M)	1.00	
Bhatar	0.42		Khandaghosh	0.29		Dainhat (M)	0.78	
Burdwan-I	0.38		Mongalkote	0.31		Durgapur (M)	0.94	
Burdwan-II	0.57		Monteswar	0.51		Gushkara (M)	0.73	
Durgapur	0.45		Memari-I	0.49		Jamuria (M)	0.72	
Galsi-I	0.53		Memari-II	0.68		Kalna (M)	0.85	
Galsi-II	0.35		Pandabeswar	0.48		Katwa (M)	0.80	
Jamalpur	0.44		Purbasthali-I	0.35		Kulti (M)	0.81	
Jamuria	0.51		Purbasthali-II	0.31		Memari (M)	0.73	
Kalna-I	0.40		Raina-I	0.59		Raniganj (M)	0.82	
Kalna-II	0.64		Raina-II	0.57				
Kanksa	0.43		Raniganj	0.67				
						District Avg	0.57	

Source: Authors' calculation based on Tables 0.1 – 0.3.

Note: FLI Score is prepared according to UNDP method of Relative Gap. It is indicative of hierarchy and ranges from 0 for the worst performer to 1 for the best.

5. Gender Parity in Bardhaman

As mentioned earlier, the Gender Parity Index captures the relative situation of the females vis-à-vis the males in the district. Four aspects of equality or parity have been considered. They are Educational Parity, Health Parity, Livelihood Parity and Social Parity. Before considering the final parity situation, we discuss the individual components first.

Table 5, Educational Parity Index

Blocks/ ULB	FEI	MEI	EPI Score	Blocks/ ULB	FEI	MEI	EPI Score
Andal	69.5	83.2	0.63	Memari-I	62.0	85.4	0.00
Ausgram-I	64.1	80.4	0.41	Memari-II	75.3	86.1	0.85
Ausgram-II	68.4	81.3	0.66	Pandabeswar	68.0	81.5	0.63
Barabani	65.4	83.3	0.34	Purbasthali-I	70.8	82.8	0.75
Bhatar	69.8	83.4	0.64	Purbasthali-II	67.8	80.4	0.68
Burdwan-I	68.8	83.5	0.57	Raina-I	79.1	89.6	0.90
Burdwan-II	74.6	87.8	0.71	Raina-II	75.7	87.0	0.83
Durgapur	69.2	86.2	0.44	Raniganj	72.9	86.9	0.65
Galsi-I	72.7	85.8	0.70	Salanpur	73.8	87.7	0.66
Galsi-II	67.8	82.9	0.53	Asansol (M)	76.8	94.5	0.50
Jamalpur	69.7	85.9	0.49	Burdwan (M)	86.0	97.8	0.88
Jamuria	69.0	85.8	0.45	Dainhat (M)	81.0	95.2	0.72
Kalna-I	67.9	84.5	0.45	Durgapur (M)	85.2	96.3	0.91
Kalna-II	79.0	91.6	0.79	Gushkara (M)	79.2	93.8	0.68
Kanksa	66.7	82.0	0.51	Jamuria (M)	74.4	89.1	0.63
Katwa-I	70.6	81.3	0.82	Kalna (M)	75.9	91.7	0.58
Katwa-II	75.5	92.7	0.51	Katwa (M)	75.4	87.6	0.78
Ketugram-I	64.1	73.8	0.82	Kulti (M)	79.3	91.5	0.81
Ketugram-II	63.7	75.8	0.66	Memari (M)	74.2	86.6	0.76
Khandoghosh	76.8	88.1	0.84	Raniganj (M)	80.0	91.4	0.86
Mongalkote	73.6	81.8	1.00				
Monteswar	73.7	89.0	0.59	District Avg	73.2	86.2	0.71

Source: Same as Table 1

Note: EPI Score is prepared according to UNDP method of Relative Gap. It is indicative of hierarchy and ranges from 0 for the worst performer to 1 for the best.

i) Educational Parity

The difference in education between men and women are also a very important indicator of the difference in development. In Bardhaman, aggregate literacy rate is quite good and stands above national average. But there exists a gap in the rates between men and women. As estimated by the Census of India 2011, while the average literacy rate for men is 85.7 per cent, that for women is 72.3 per cent, creating a gender gap of 13.4 percentage points. Gender gap is quite high in western parts of the district and low in and around the sadar town. While in many areas, enrolment rates among girls are higher than boys, there are few areas where girls are behind boys in completion for school stages. This is opposite to the trend thrown up by the census literacy rates and indicates that in recent times households do make serious effort in enrolling their daughters in school and allowing them to study at least up to middle school level. The role of several government programs in this regard is significant (see Box).

However, the gender gap in literacy dominates and the Education Parity Index for the district stands at 84.9 and yields an EPI Score of 0.67, indicating presence of gender bias in the knowledge component of human development.

Table 6, Health Parity Index

Blocks/ ULB	HPI	HPI Score	Blocks/ ULB	HPI	HPI Score	Blocks/ ULB	HPI	HPI Score
Andal	86.1	0.35	Katwa-I	113.5	1.00	Salanpur	95.3	0.57
Ausgram-I	95.0	0.56	Katwa-II	94.7	0.55			
Ausgram-II	91.8	0.48	Ketugram-I	92.9	0.51	Asansol (M)	The urban centres have almost universal coverage for both boys and girls. Their HPI is computed as 100 and HPI score as 1.00.	
Barabani	105.0	0.80	Ketugram-II	100.7	0.70	Burdwan (M)		
Bhatar	103.9	0.77	Khandoghosh	102.4	0.74	Dainhat (M)		
Burdwan-I	110.9	0.94	Mongalkote	93.8	0.53	Durgapur (M)		
Burdwan-II	97.6	0.62	Monteswar	97.9	0.63	Gushkara (M)		
Durgapur	97.5	0.62	Memari-I	84.1	0.30	Jamuria (M)		
Galsi-I	96.0	0.58	Memari-II	71.4	0.00	Kalna (M)		
Galsi-II	72.2	0.02	Pandabeswar	99.2	0.66	Katwa (M)		
Jamalpur	96.0	0.58	Purbasthali-I	95.7	0.58	Kulti (M)		
Jamuria	104.7	0.79	Purbasthali-II	101.9	0.72	Memari (M)		
Kalna-I	87.0	0.37	Raina-I	93.8	0.53	Raniganj (M)		
Kalna-II	81.7	0.24	Raina-II	82.8	0.27			
Kanksa	93.5	0.53	Raniganj	98.7	0.65			
						District Avg	94.4	0.54

Source: Same as Table 2

Note: HPI Score is prepared according to UNDP method of Relative Gap. It is indicative of hierarchy and ranges from 0 for the worst performer to 1 for the best.

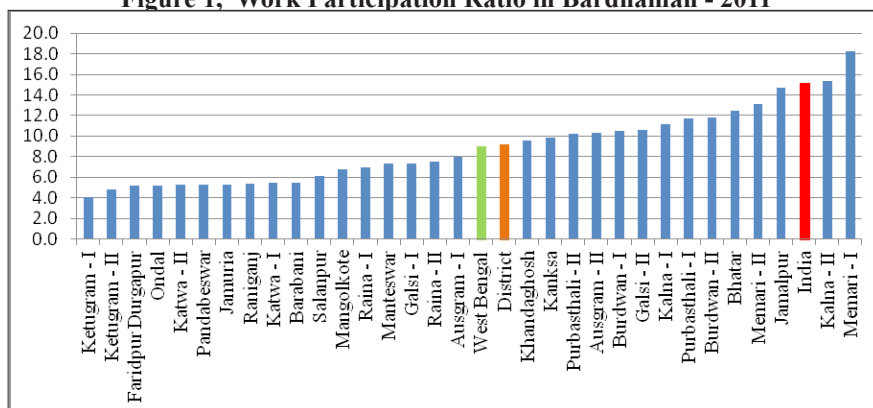
v) Health Parity

One of the significant issues having long run implications on health status of individuals is the coverage of immunisation. It is also sometimes observed in developing countries that there exists gender bias in immunisation with higher proportion of boys being fully immunised. Various social taboos and knowledge obsolescence leads to many girls not being adequately immunised in such societies. Thus the proportion of girls fully immunised as a ratio of that of boys can serve as a measure of Health parity. We acknowledge that better measures would have been comparative situation in terms of nutrition, morbidity and pattern of medical treatments availed. But absence of sub-district data on these does not allow us to do so and we use only a proxy variable to capture gender parity in health. It is observed that the HPI ranges from 71 to 114, indicating that in some regions of the district females enjoy better health facilities than boys. The HPI score for the district is 0.55 with high scores observed in the urban locations where we have almost universal coverage of immunisation for both boys and girls.

vi) Livelihood Parity

Women in Burdwan, lag behind the men in terms of labour market participation and associated economic independence. While 46% of the men are engaged as main workers, only 9% of the women are main workers. Thus, most of the working women are marginal workers, generally enjoying very low wage rates and are mostly casual or marginal workers.

Though there does exist a difference between the percentage of women and men who are working, this does not necessarily imply economic deprivation of women, as women are often unemployed by choice rather than social compulsions. In fact, women often prefer to be homemakers when the family income is sufficient and this is reflected through the low work participation rates of women in some advanced municipalities where some other components of Gender parity are high. What is more relevant is the fact that when women work, they are forced to work for low wages and that the percentage of marginal workers among women is far higher than the percentage among men.

Figure 1, Work Participation Ratio in Bardhaman - 2011

The Livelihood Parity Index derived from the three components discussed above is 0.57 for the district. It is relatively high in the urban centres, especially in Durgapur (MC), Bardhaman (M), Asansol (MC), indicating absence of any significant gender bias in livelihood opportunities and outcome in the towns. In addition, LPI is high in Andal, Jamuria, Kanksa, and Salanpur. LPI is low, signalling substantial gender bias, in Katwa-I & II, Ketugram-I & II, and Mangalkote.

Table 9, Livelihood Parity Index

Blocks/ ULB	FLI	MLI	LPI Score	Blocks/ ULB	FLI	MLI	LPI Score
Andal	40.2	47.7	0.75	Memari-I	34.5	44.2	0.62
Ausgram-I	22.2	36.3	0.25	Memari-II	36.7	47.2	0.61
Ausgram-II	26.7	38.2	0.44	Pandabeswar	39.8	47.5	0.74
Barabani	32.6	40.9	0.66	Purbasthali-I	29.8	47.3	0.29
Bhatar	30.6	43.6	0.44	Purbasthali-II	25.4	41.6	0.24
Burdwan-I	32.5	45.8	0.46	Raina-I	29.8	42.6	0.44
Burdwan-II	34.9	46.4	0.56	Raina-II	31.3	47.8	0.34
Durgapur	35.2	42.9	0.70	Raniganj	41.0	48.2	0.77
Galsi-I	27.3	40.7	0.38	Salanpur	40.5	45.5	0.86
Galsi-II	26.2	41.2	0.30	Asansol (M)	46.5	50.3	0.93
Jamalur	31.2	43.7	0.47	Burdwan (M)	49.8	53.7	0.94
Jamuria	36.6	44.4	0.72	Dainhat (M)	36.7	47.7	0.59
Kalna-I	27.3	43.6	0.28	Durgapur (M)	45.5	47.6	1.00
Kalna-II	35.8	45.1	0.64	Gushkara (M)	33.9	48.7	0.43
Kanksa	35.9	42.9	0.74	Jamuria (M)	39.3	44.5	0.84
Katwa-I	24.6	45.7	0.09	Kalna (M)	48.9	54.6	0.87
Katwa-II	23.6	46.7	0.02	Katwa (M)	45.1	54.2	0.73
Ketugram-I	20.3	40.8	0.00	Kulti (M)	41.0	46.8	0.83
Ketugram-II	23.8	44.8	0.07	Memari (M)	39.9	49.7	0.67
Khandagosh	27.7	43.4	0.31	Raniganj (M)	41.2	50.5	0.70
Mongalkote	20.5	40.6	0.02				
Monteswar	28.7	48.0	0.21	District Avg	35.4	45.9	0.60

Source: Same as Table 3

Note: LPI Score is prepared according to UNDP method of Relative Gap. It is indicative of hierarchy and ranges from 0 for the worst performer to 1 for the best.

vii) Social Parity

The child sex ratio is a powerful indicator of the inherent social bias against female child and the fact that even in the twenty-first century there still exists female foeticide and female infanticide. While people in the past have used adult sex ratio, we concentrate on child ratio to reflect current trends. In Burdwan, the average sex ratio is quite low at 945. It is important to note that the dispersion is high across the blocks. The sex ratio is high, at 980 in Burdwan-II, Kalna-II and Memari-I, while it is low in Ondal, Jamuria, Raniganj and Pandabeswar. That is, the sex ratio is worse in the western part of the district. One explanation may be that these areas witness substantial in-migration from neighbouring districts and state to work in the mines and few factories that dot the region. The other may lie in the socio-cultural profile of the region.

In comparison, Child Sex Ratio is marginally higher at 953, which is marginally lower than the state average but higher than the national average. This indicates that in recent times the situation is not as hostile to females as it is for older women. CSR and the subsequent S_i score is relatively high in Burdwan-I, Burdwan-II, Jamalpur, Mangolkote, and Ausgram-II, and relatively poor in Jamuria, Raniganj (block and municipality), Guskara (M), Ondal, Asansol (MC), Faridpur-Durgapur and Katwa-II. That the CSR is also low in the western parts of the district points to gender bias against females in these areas.

Table 10, Sex Ratio and Social Parity Score - 2011

Name of Block	Adult Sex Ratio	Child Sex Ratio	S_i Score	Name of Block	Adult Sex Ratio	Child Sex Ratio	S_i Score
Andal	904	923	0.10	Memari-II	964	965	0.68
Ausgram – I	972	976	0.83	Pandabeswar	912	953	0.51
Ausgram – II	955	988	1.00	Purbasthali - I	934	961	0.63
Barabani	935	938	0.31	Purbasthali - II	940	969	0.74
Bhatar	962	953	0.51	Raina – I	959	949	0.46
Burdwan – I	966	980	0.89	Raina – II	953	942	0.36
Burdwan - II	979	980	0.89	Raniganj	906	923	0.10
F- Durgapur	917	927	0.15	Salanpur	946	927	0.15
Galsi – I	939	957	0.57	Asansol (MC)	929	923	0.10
Galsi – II	969	953	0.51	Barddhaman (M)	965	946	0.42
Jamalpur	980	984	0.94	Dainhat (M)	954	976	0.83
Jamuria	907	916	0.00	Durgapur (MC)	925	934	0.25
Kalna – I	958	976	0.83	Guskara (M)	958	919	0.04
Kalna – II	976	957	0.57	Jamuria (M)	926	938	0.31
Kanksa	950	961	0.63	Kalna (M)	970	957	0.57
Katwa – I	943	969	0.74	Katwa (M)	974	942	0.36
Katwa – II	937	927	0.15	Kulti (M)	923	927	0.15
Ketugram - I	947	957	0.57	Memari (M)	978	976	0.83
Ketugram - II	931	953	0.51	Raniganj (M)	915	916	0.00
Khandaghosh	950	961	0.63				
Mangolkote	954	984	0.94	District Average	945	953	0.51
Manteswar	963	969	0.74	State Average		957	
Memari-I	973	972	0.78	National Average		919	

Source: Authors' calculation based on Census of India 2011, Office of the Registrar General, Government of India

Table 11, Gender Parity Index

Blocks/ ULB	GPI Score	Rank	Blocks/ ULB	GPI Score	Rank	Blocks/ ULB	GPI Score	Rank
Andal	0.46		Katwa-I	0.66		Salanpur	0.56	
Ausgram-I	0.51		Katwa-II	0.31				
Ausgram-II	0.65		Ketugram-I	0.47		Asansol (M)	0.38	
Barabani	0.52		Ketugram-II	0.49		Burdwan (M)	0.56	
Bhatar	0.59		Khandoghosh	0.63		Dainhat (M)	0.54	
Burdwan-I	0.71		Mongalkote	0.62		Durgapur (M)	0.54	
Burdwan-II	0.69		Monteswar	0.54		Gushkara (M)	0.29	
Durgapur	0.48		Memari-I	0.42		Jamuria (M)	0.44	
Galsi-I	0.56		Memari-II	0.54		Kalna (M)	0.51	
Galsi-II	0.34		Pandabeswar	0.64		Katwa (M)	0.47	
Jamalpur	0.62		Purbasthali-I	0.56		Kulti (M)	0.45	
Jamuria	0.49		Purbasthali-II	0.60		Memari (M)	0.57	
Kalna-I	0.48		Raina-I	0.58		Raniganj (M)	0.39	
Kalna-II	0.56		Raina-II	0.45				
Kanksa	0.60		Raniganj	0.54				
						District Avg	0.60	

Source: Authors' calculation based on Tables 5, 5, 5 and 10.

Note: GPI Score is prepared according to UNDP method of Relative Gap. It is indicative of hierarchy and ranges from 0 for the worst performer to 1 for the best.

viii) The Gender Parity Index

Taking into account the educational, health, livelihood and social disparities, the Gender Parity Index has been developed. It is observed that the GPI for the district is 0.53, indicating substantial gender bias in the district. This calls for substantial change in the focus of the planning process and delivery of governmental schemes.

References

Sakiko Fukuda-Parr, 2003. "The Human Development Paradigm: Operationalizing Sen's Ideas On Capabilities," *Feminist Economics*, Taylor & Francis Journals, vol. 9(2-3), pages 301-317