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Inequality in Institutional Delivery and Sustainable Human Development in Karnataka

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Abstract

Health is one of the components of human development. Good health practices are crucial for sustainable human development. Accordingly, institutional delivery also play important role in sustainable development. In the present papers an attempt has been made to analyse the inequality in institutional delivery among the districts of Karnataka. The secondary cross section data collected from National Family Health Survey-5 (NFHS-5) have been used for analysis. The independent t-test is used to find significant deference in institutional delivery in Karnataka. The study found that there are significant differences in the level of institutional delivery in public, private and in all hospitals of Karnataka. The study also established the relationship among human development process and institutional delivery. It has been found from the study that there is significant inverse relationship between institutional delivery in public hospital and human development index. The institutional delivery in public hospital is not contributing for the human development of Karnataka. Accordingly, the health facilities in public hospitals need to be improved. In other words, the educational and income level are not sufficient to protect the health pregnant women and newly born babies. There is significant positive relationship between institutional delivery in private hospital and human development. The institutional delivery in private hospital is significantly contributing for the human development of Karnataka. There is significant positive relationship between total institutional delivery in Karnataka and human development. Accordingly, the institutional delivery is significantly contributing for the sustainable human development of Karnataka.

Keywords: *Health, Human Development, Sustainable, Intuitional Birth, Inequality.*

Introduction:

Health is one of the components of human development. Good health practices are crucial for sustainable human development. Accordingly, institutional delivery also play important role in sustainable development. Human development is the process of enlarging the choices of people by in-binding skill, education and health. In this background, institutional delivery also becomes important to reduce maternal and infant mortality (Maria Fernanda Escobar, 2024). It is clear that the institutional delivery reduces the probable chances of maternal and infant mortality.(Joao Paulo Souza, December 6, 2023). Therefore, the present study uses NFHS – 5 data to verify the status of institutional delivery in the districts of Karnataka and then the study also try to establish the relationship between institution delivery and sustainable human development(Muluwas Amentie Zelka, 9(2023)).

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Review of Literature:

There are plenty of works done on human development but scanty of works particularly focused on maternal mortality and human development in Karnataka. The some previous works are reviewed in this part. Yapark Engin Ustun provided an analysis of human development and its relationship to maternal mortality (Ustun, 2018). Lynn Clark Callister and Joan E. Edwards have explored the relationship between human development and maternal mortality (Lynn Clark Callister, 2017). David Ndingori found that there is inverse relationship between maternal mortality and sustainable development (David Ndingori, 2024). The most of the previous studies have proved negative relationship between MMR and health (Clark & Joan, 2017)(M.J. Rana & S. Goli, 2019). Elsie G.Karmbor-Ballah and Ayaga A. Bawahahave found that there is inverse relationship between education and maternal mortality (Elsie G.Karmbor-Ballah, 2019)(Ayaga A. Bawaha & Elizabeth F. Jacksonb, 2019). The previous research has proved negative relationship between MMR and health (Duffy, June, 2024). The previous research has proved relationship between MMR and sustainable development (Tadesse Tolossa, 2024). Longxiao Li provided an analysis of sustainable development and its relationship to institutional delivery (Longxiao Li, 2024). The present study is a new attempt to verify the status of institutional delivery in the districts of Karnataka and then the study also try to establish the relationship between institution delivery and sustainable human development.

Methodology:

The present paper has used secondary data collected from NFHS – 5 and human development report of Karnataka. The district level data are used for the analysis. The data are available for institutional delivery in public hospital, private hospital and in Karnataka. The institutional delivery expressed in terms of percentage. The districts have been classified into two groups as high and low institutional delivery. The independent t-test used to make the comparison between high and low. The level of human development also classified as high and low human development districts. At the end the study tried to establish the relationship between institutional delivery and human development. Data have presented in the form of Radar graph.

Results and Discussion:

The districts have been identified as high and low based on the level of institutional delivery. The districts having high institutional delivery compared to state average are treated as high and vice versa. The results of the comparison of institutional delivery in public and private and also in Karnataka are presented below;

Table 1: Comparison of Delivery in Public Hospitals in Karnataka

(In %)

Description	Level	N	Mean	Std. Deviation	F-test	t-test
Public	Low	11	56.318	8.9621	F: 2.080, Sig: 0.160	t: -6.769, df: 28, Sig: 0.000
	High	19	73.568	5.0749		

Source: NFHS – 5

The institutional delivery in public hospital is presented in the above table. The average percentage of delivery in public hospitals is 56.318 percent in the low institutional delivery districts and 73.568 percent in the high institutional delivery districts. The F-test is not significant at five percent level. Therefore, the variation in the percentage of delivery in public hospital in low, high and between the low and high districts is not significant. The t-test is significant at one percent level. Therefore, there is significant difference between low and high districts. Accordingly, delivery in public hospital is significantly high in the districts ofBangalore Rural, Bellary, Bidar, Chamarajanagar, Chikkaballapura, Chikmagalure, Chitradurga, Davanagere, Dharwad, Gadag, Hassan, Haveri, Kodagu, Kolar, Koppal, Ramanagara, Shimoga, Uttara Kannada, Yadgir.

Table 2: Comparison of Delivery in Private Hospitals in Karnataka

(In %)

Description	G2	N	Mean	Std. Deviation	F-test	t-test
Private	Low	19	24.000	4.8691	F: 6.410, Sig: 0.017	t: -6.017, df: 28, Sig: 0.000
	High	11	40.845	10.4983		

Source: NFHS – 5

The institutional delivery in private hospital is presented in the above table. The average percentage of delivery in private hospitals is 24.000 percent in the low institutional delivery districts and 40.845 percent in the high institutional delivery districts. The F-test is significant at one percent level. Therefore, the variation in the percentage of delivery in private hospital in low, high and between the low and high districts is significant. The t-test is significant at one percent level. Therefore, there is significant difference between low and high districts. Accordingly, delivery in private hospital is significantly high in the districts of Bagalkot, Bangalore, Belgaum, Bijapur, Dakshina Kannada, Dharwad, Mandya, Mysuru, Ramanagara, Tumkur and Udupi.

Table 3: Comparison of Institutional Delivery in Karnataka

(In %)

Description	Level	N	Mean	Std. Deviation	F-test	t-test
Karnataka	Low	9	93.078	3.2030	F: 41.016,	t: -8.536,

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	High	21	99.281	.7441	Sig: 0.000	df: 28, Sig: 0.000

Source: NFHS – 5

The institutional delivery in Karnataka is presented in the above table. The average percentage of delivery is 93.078 percent in the low institutional delivery districts and 99.281 percent in the high institutional delivery districts. The F-test is significant at one percent level. Therefore, the variation in the percentage of delivery in Karnataka in low, high and between the low and high districts is significant. The t-test is significant at one percent level. Therefore, there is significant difference in institutional delivery between low and high districts.The overall institutional delivery in Karnataka is significantly high in Bangalore, Bangalore Rural, Belgaum, Bidar, Chamarajanagar, Chikkaballapura, Chitradurga, Dakshina Kannada, Davangere, Dharwad, Hassan, Kodagu, Kolar, Mandya, Mysore, Ramanagara, Shimoga, Tumkur, Udupi and Uttara Kannada.

The following table and graph show the level of institutional delivery in districts of Karnataka.

District	Public	Private	Total
Bagalkot	57	38.2	95.2
Bangalore	54.7	44.6	99.3
Bangalore Rural	72	28	100
Belgaum	60.6	36.9	97.5
Bellary	76.8	18.9	95.7
Bidar	73.4	25.6	99
Bijapur	59.6	32.2	91.8
Chamaraja Nagar	82.7	17.3	100
Chikkaballapura	83	16	99
Chikmagalur	77.8	20.5	98.4
Chitradurga	68.8	29.5	98.3
Dakshina Kannada	41.8	58.2	100
Davanagere	68.9	29.4	98.3
Dharwad	69.2	30.5	99.7
Gadag	67.5	28.7	96.2
Gulbarga	60.5	28.1	88.7
Hassan	71.7	28.3	100
Haveri	82.6	14.6	97.2
Kodagu	73.3	25.1	98.4
Kolar	76.1	23.5	99.6

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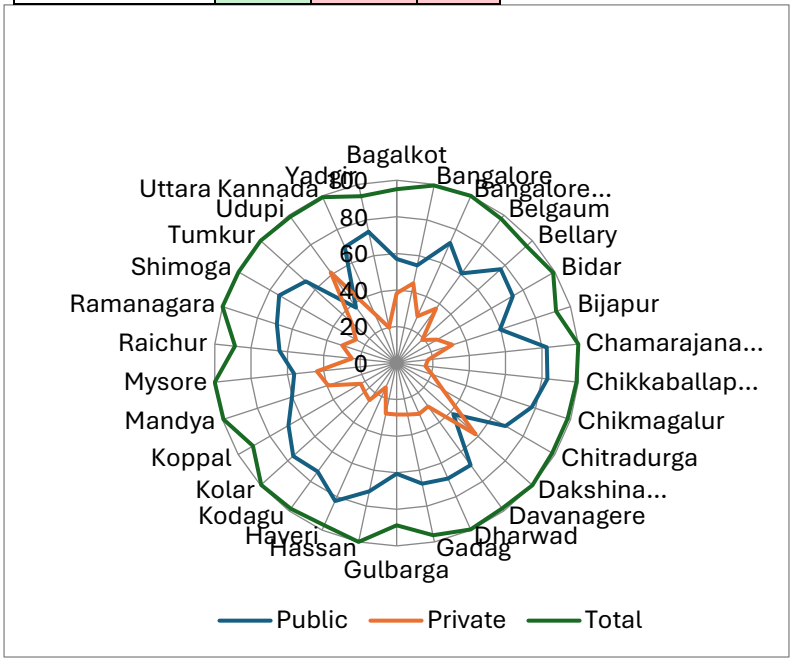
Koppal	68.2	22.6	90.7
Mandya	60.2	39.3	99.5
Mysore	56.2	43.8	100
Raichur	64.4	24.5	88.9
Ramanagara	68.8	31.2	100
Shimoga	74.1	25.6	99.7
Tumkur	66.9	33.1	100
Udupi	37.6	61.3	98.9
Uttara Kannada	69.5	29.8	99.3
Yadgir	73.4	20	93.3



The table beside shows the percentage of institutional deliveries in public, private hospitals and total institutional deliveries in the state of Karnataka. The red represents low level of institutional delivery and green represents high level of institutional delivery.

The above radar diagram also shows the level of institutional delivery in Karnataka.

Table 4: Comparison of Health Index in Karnataka

Description	Level	N	Mean	Std. Deviation	F-test	t-test

Health Index	Low	11	.74482	.016720	F: 17.726, Sig: .000	t: -5.672, df: 28, Sig: .000
	High	19	.76784	.004822		

Source: Karnataka Human Development Report-2022

The health index of Karnataka is presented in the above table. The average health index value is 0.745 in the low health index districts and 0.768 in the high health index districts. The F-test is significant at one percent level. Therefore, the variation in the health index in Karnataka in low, high and between the low and high districts is significant. The t-test is significant at one percent level. Therefore, there is significant difference in health index between low and high districts.The overall health index in Karnataka is significantly high in Bagalkot, Bangalore, Bangalore Rural, Bidar, Bijapur, Chamarajanagar, Chikkaballapura, Chikmagalur, Gadag, Hassan, Haveri, Kodagu, Kolar, Koppal, Mandya, Ramanagara, Udupi, Uttara Kannada, Yadgir.

Table 5: Comparison of Human Development Index in Karnataka

Description	Level	N	Mean	Std. Deviation	F-test	t-test
HDI	Low	14	.58729	.025650	F: .047, Sig: .830	t: -6.023, df: 28, Sig: .000
	High	16	.64925	.030081		

Source: Karnataka Human Development Report-2022

The human development index of Karnataka is presented in the above table. The average value of HDI is 0.587 in the low HDI districts and 0.64925 in the high HDI districts. The F-test is not significant at five percent level. Therefore, the variation in the HDI in Karnataka in low, high and between the low and high districts is not significant. The t-test is significant at one percent level. Therefore, there is significant difference between low and high HDI districts. The overall HDI in Karnataka is significantly high in Bagalkot, Bangalore, Bangalore Rural, Chikkaballapura, Chikmagalur, Dakshina Kannada, Gadag, Hassan, Kodagu, Kolar, Mandya, Mysore, Ramanagara, Shimoga, Udupi, and Uttara Kannada.

The following table and graph show the level of health index and human development index in districts of Karnataka.

District	HI	HDI
Bagalkot	0.774	0.629
Bangalore	0.77	0.738
Bangalore Rural	0.762	0.643
Belgaum	0.751	0.601
Bellary	0.73	0.612

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Bidar	0.772	0.6
Bijapur	0.771	0.599
Chamarajanagar	0.776	0.601
Chikkaballapura	0.768	0.628
Chikmagalur	0.77	0.668
Chitradurga	0.757	0.597
Dakshina Kannada	0.757	0.687
Davanagere	0.749	0.589
Dharwad	0.708	0.61
Gadag	0.767	0.623
Gulbarga	0.726	0.539
Hassan	0.769	0.624
Haveri	0.762	0.566
Kodagu	0.768	0.664
Kolar	0.771	0.64
Koppal	0.765	0.593
Mandya	0.764	0.644
Mysore	0.759	0.625
Raichur	0.742	0.562
Ramanagara	0.761	0.642
Shimoga	0.755	0.636
Tumkur	0.759	0.615
Udupi	0.76	0.665
Uttara Kannada	0.775	0.632
Yadgir	0.764	0.538

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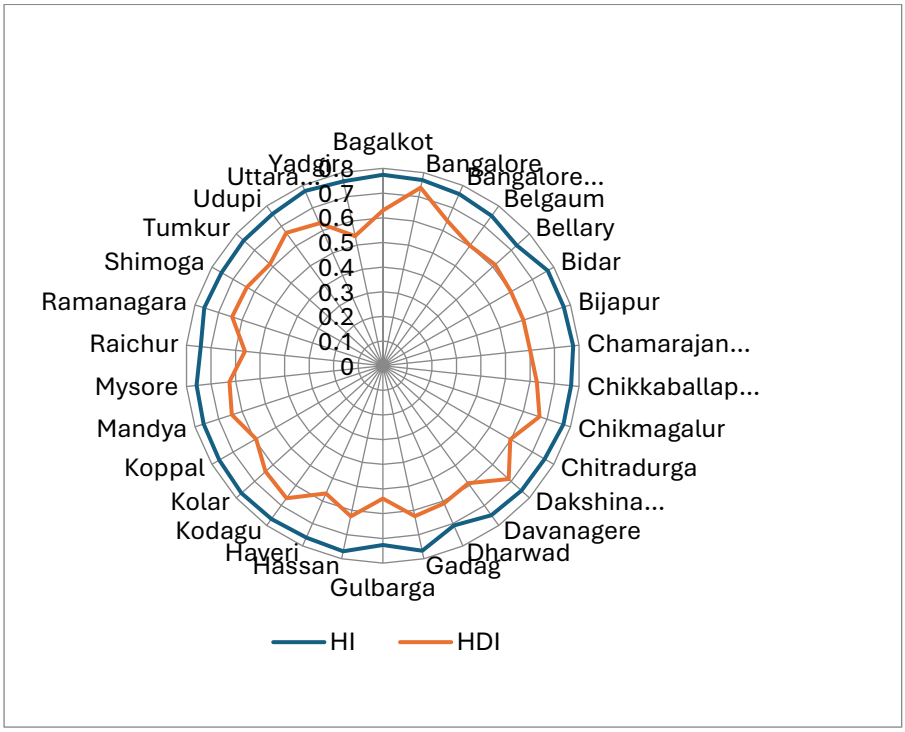

The table beside shows the level of health index and human development index in the state of Karnataka. The red represents low level of health and human development status and green represents the high level of health and human development status.

The above radar diagram also shows the level of health and human development status in Karnataka.

Table 6: Correlation Matrix for Human Development and Institutional Delivery

Correlations					
		HDI	**Public**	**Private**	**Total**
HDI	Pearson Correlation	1			
	Sig. (2-tailed)				
Public	Pearson Correlation	-.339	1		
	Sig. (2-tailed)	.067*			
Private	Pearson Correlation	.520***	-.951***	1	
	Sig. (2-tailed)	.003	.000		
Total	Pearson Correlation	.613***	.080	.231	1

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	Sig. (2-tailed)	.000	.676	.218	
**. Correlation is significant at the 0.01 level (2-tailed).					

Source: Karnataka Human Development Report-2022

The above table presents the correlation among human development index, institutional delivery in public and private hospitals and total delivery in Karnataka. It is found that there is significant inverse relationship between institutional delivery in public hospital and human development index at ten percent level. The institutional delivery in public hospital is not contributing for the human development of Karnataka. Accordingly, the health facilities in public hospitals need to be improved. There is significant positive relationship between institutional delivery in private hospital and human development index at one percent level. The institutional delivery in private hospital is significantly contributing for the human development of Karnataka. There is significant positive relationship between total institutional delivery in Karnataka and human development index at one percent level. Accordingly, the institutional delivery is significantly contributing for the human development of Karnataka.

Conclusion:

The present paper analyzed inequality in institutional delivery and sustainable human development in Karnataka. The study found that there are significant differences in the level of institutional delivery in public, private and in all hospitals of Karnataka. The study also established the relationship among human development process and institutional delivery. It has been found from the study that there is significant inverse relationship between institutional delivery in public hospital and human development index. The institutional delivery in public hospital is not contributing for the human development of Karnataka. Accordingly, the health facilities in public hospitals need to be improved. In other words, the educational and income level are not sufficient to protect the health pregnant women and newly born babies. There is significant positive relationship between institutional delivery in private hospital and human development. The institutional delivery in private hospital is significantly contributing for the human development of Karnataka. There is significant positive relationship between total institutional delivery in Karnataka and human development. Accordingly, the institutional delivery is significantly contributing for the sustainable human development of Karnataka.

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