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- ★ Human Fertility and Population Characteristics: G7 Countries and India's Neighbouring Countries
- ★ Urban Transportation in India: Issues and Remedies
- ★ Barriers from Supply Side for Non-adoption of Family Planning Methods Among Women from Khasi Tribe in India
- ★ Studying the Impact of CSR and Ethics on Changing dynamics of Business and Entrepreneurship

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All India Institute of Local Self-Government (AIILSG), established in 1926 has been actively working in the field of urban development management and is a diligent partner in promoting the cause of local governance in India and overseas.

The Institute has been the steadfast friend, philosopher and guide to Urban Local Bodies (ULBs) across the Country. For more than eight decades it has contributed to the principles and practice of urban governance, education, research and capacity building. It has designed and developed a vast array of training literature and courses and trained more than 1.5 million stakeholders in diverse areas of urban governance and urban services delivery.

These activities of the AIILSG are practiced through 30 regional centres located in different regions of the Country. The Institute anchors the Regional Centre for Urban and Environmental Studies (RCUES) of the Ministry of Urban Development, Government of India for Western India region. This Centre is actively involved in building capabilities of municipal officials, staff and elected members from the States of Goa, Gujarat, Maharashtra, Rajasthan and the Union Territories of Diu, Daman, and Dadra & Nagar Haveli by upgrading their knowledge and skills required for effective administration and implementation of various urban development programmes.

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Editorial

Azadi Ka Amrit Mahotsav

The nation is celebrating 75 years of its independence. The Independence Day was special this year with citizens being urged to display the national flag in their homes under the clarion call 'Har Ghar Tiranga'. The call received immense response with cities, towns, and villages proudly displaying the tricolor atop their homes and from their balconies.

India's progress during the years since independence has gathered momentum in various spheres. On the economic front, the nation has recently emerged as the world's fifth largest economy. With liberalisation having opened up opportunities in the past, the recent step up in public investments including in infrastructure will give a boost to several sectors by creating demand and jobs. On the public health front, India made a mark for herself on the global stage during the COVID pandemic by developing vaccines, producing them in large quantities, getting her large population vaccinated in record time and also by supporting other countries with supplies of the vaccines. Again on the health front, a large health insurance scheme has been rolled out for the underprivileged sections of the population which entails coverage of Rs 500,000 per household per annum towards hospitalization expenses at empaneled hospitals, at no cost. This has the potential to transform the public health landscape while protecting nearly half the country's population from possible crippling out-of-pocket medical expenses. Such expense is known to have pushed many households into severe economic hardship.

Amid these and several other success stories, the country will also have to face and overcome some challenges. India's population is projected to overcome that of China sometime next year and thus become the most populous one on this planet.

The primary challenge posed by this growing population would be of food. While India's agriculture sector has performed admirably to feed its growing population, new challenges are emerging such as improving the nutrition quotient of food and also to make our agriculture more environmentally sustainable. Fears have already emerged on the water intensity of our agriculture which has led to sharp drops in water table amid unpredictable rainfall patterns. This along with the extensive use of chemical fertilizers has raised alarms on soil degradation. A related issue is that of farmers' welfare especially the small and marginal ones. Those cultivating water intensive crops are particularly vulnerable in times of deficient rainfall and other vagaries of nature. These need urgent solutions.

While India's growing population is mostly discussed with concern, some point to the fact that our population is youthful in character (median age of about 28.4 years) with a large number of people in the working age. Referred to as the 'Demographic Dividend', this is considered a blessing while looking at some advanced economies which comprise large numbers of the elderly. Surely this is a blessing though it comes with the challenge of productively engaging such large numbers of young and providing them with jobs/livelihoods. This needs to be seen alongwith some structural shifts in the economy such as shrinking potential for farm related jobs due to increased automation/mechanization. In the manufacturing sphere too, the entire ecosystem has undergone a change with manufacturing processes now less employment intensive. On the other hand jobs are being created in the services industry. Here there is need for a separate set of skills such as language proficiency and communication (oral and written). We will need to prepare our youth and equip them with appropriate skills and capabilities to become employable.

These and other challenges of the future will call for appropriate policy making and effective implementation so that we navigate this landscape successfully and provide a better future for our countrymen while ensuring that the last person is taken care of; that we leave no one behind.

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Human Fertility and Population Characteristics: G7 Countries and India's Neighbouring Countries

M. V. Vaithilingam

Abstract

Human fertility is one of the three components of population dynamics, which has a greater role in population change. It is regarded as a positive force in population change as it is responsible for biological replacement, and the continuation of human society. Its levels determine the age structure of a population and govern the social, economic, and demographic characteristics of the population. With a view to understanding the fertility situations and relevant factors at macro-level, this paper examines the fertility levels in relation to some of the important population characteristics and changes among the G-7 and India's neighbouring countries using the data from the 2021 World Population Data Sheet of the Population Reference Bureau. The results reveal that there has been a significant reduction in the levels of fertility in most parts of the world during the past decade. Though India's neighboring countries like Afghanistan and Pakistan remain with fertility levels more than the replacement level, they have pronounced more than 40% decline in TFR during the past decade 1990-2020. The world population stands at 7837 million in 2021, which has been estimated to rise to 8848 million in 2035 and to 9688 million in 2050, with a percentage increase of 12.9 and 9.4 respectively during 2021-2035 and 2035-2050 respectively. The Indian population is to surpass China by 2035 with a population 1553.3 million and rise to 1638.7 million in 2050. The Infant Mortality Rate (IMR) is highest in Pakistan and lowest in Japan among G-7 and India's neighboring countries. Globally, the life expectancy at birth for persons, males, and females are 73, 71, and 75 years respectively, and Japan and Afghanistan have recorded the highest and lowest levels respectively among the G-7 and India's neighboring countries. Japan and Sri Lanka have recorded the highest and lowest percentages of the urban population

respectively. All the G-7 countries have recorded higher urban populations than that of the world average, and Japan, UK, and the United States of America have recorded above the average. The GNI per Capita ($ current international) is highest in the United States of America and lowest in Afghanistan among the G-7 and India's neighboring countries. It may be stated that the economic backwardness of Afghanistan, Pakistan, Myanmar, and Bangladesh might be a reason for higher fertility. It may be suggested that these need to be improved with the help of innovative policies and effective implementation of existing programs for reducing the birth rates and death rates coupled with improvement in socio-economic, health, and environmental conditions leading to population stabilization and sustainable development.

Keywords: Fertility, population, PRB, etc.

1.0 Introduction

Human fertility is the most influential factor for population growth, and it has attracted tremendous biological, demographic, and social science researchers as compared to the scientific efforts in any other field in the universe of knowledge. Research in human fertility has received paramount importance in the study of demography and population studies in view of its interplay with other components of population and society. There has been a significant change in the levels of fertility and subsequently in the size and growth of the population over a period. Human fertility is directly relevant to public health and more generally to human welfare in many ways. In industrialized countries, fertility declined between 1950 and 2005 from about three births per woman to below the two-birth level that is required to maintain stable population size. Concerns have arisen about population decline and a low ratio of workers to retired people. Over the same time span, fertility in Asia and Latin America dropped from 6 to 0.5 births, but in sub-Saharan Africa, it remains high at 2.5 births. Continued rapid population growth in Africa will make socioeconomic progress more difficult (Cleland, 2008).

In the present human world, mostly characterized by urbanized, industrialized, and globalized modern life driven by the scientific and ICT temper, there has been a tremendous acceleration and changes in the demographic processes in general, and fertility characteristics in particular. Human fertility is influenced by multiple factors, some more strongly than others. While not all factors are under our control, certainly most lifestyle factors are amenable to change to some extent, to minimize their adverse effects on fertility.

Factors, such as the couple's age during conception, body weight, smoking tobacco, alcohol and caffeine consumption, diet and exercise, use of illicit drugs, and sexually transmitted infections, can influence the couple's fertility potential. Adopting a healthier lifestyle contributes toward optimal fertility, which will enhance natural conception, and promote a safer pregnancy leading to the live birth of a healthy baby. Knowledge on how these factors can impair fertility is essential to create awareness among couples who are planning to start a family or those who are already pregnant, to maximize their natural fertility potential and outcome (Ashok and Damayanthi, 2015). Keeping these facts in mind, this paper examines the fertility situation in relation to some of the important population characteristics and changes among the world's geographical and economic regions using the data from the 2021 World Population Data Sheet of the Population Reference Bureau.

2.0 Literature Review

Fertility behavior refers to the childbearing patterns of women or couples, including especially the number of births, the timing of births, and associated reproductive behaviors such as union formation (including marriage and co-habitation) and contraceptive behavior (Swicegood and Bean, 2001). Important determinants of fertility level in a population are the incidence of abortion, the duration of postpartum insusceptibility due to breastfeeding and sexual abstinence, the prevalence of secondary sterility, and the proportion of the population that is married, in a union or sexually active. Countries should continue to promote female education, combat all forms of violence and discrimination against women, eliminate early, forced, and child marriage, and ensure that women have equal access to the labour market, social protection, and the political process (United Nations, 2020). The address to the 1997 IUSSP General Conference urges the need to regard the global fertility transition as a single process explained by a unified fertility transition theory. The argument is that a global fertility transition was inevitable, and that demographic pressure was intertwined with ideas, ideologies, and organized assistance both in nineteenth-century Europe and in the developing countries of the second half of the twentieth century. Once fertility change began, it was certain that it would be explained, championed, and assisted. These actions accelerated the change in both the nineteenth and twentieth centuries (Caldwell, 1991). The demographers and social scientists are engaged in an active debate on the causes of low fertility and the prospects for further change (Chesnais 1996, 1998; Lesthaeghe 2001; Lesthaeghe and

Willems 1999; McDonald 2000). The matter is of considerable importance because further declines in fertility or even a continuation of current low fertility levels will contribute to the rapid aging of populations and will lead to a decline in the size of national populations. These demographic developments in turn are likely to have significant social and economic consequences (Coale 1986; OECD 1998; World Bank 1994). Over the past quarter-century, massive changes in fertility behavior have occurred in most world regions. Many developing countries have experienced large and rapid fertility declines, and a few countries in Asia and Latin America are now approaching the end of their transitions with fertility around or in a few cases (e.g., China) even below 2 births per woman. In the "more developed" world (Europe, North America, Japan, Australia, and New Zealand) average period fertility was already low in the early 1950s and, after temporary baby booms of varying magnitude, has decreased further to 1.6 births per woman in the late 1990s (United Nations 2001). Globally, 49 per cent of all women in the reproductive age range (15-49 years) were using some form of contraception in 2019, compared to 42 per cent in 1990. The proportion of women of reproductive age using a modern method of contraception increased from 36 per cent in 1990 to 44 per cent in 2019 (United Nations, 2020).

There has been decline in the overall global fertility. After decades of rapid demographic change, most countries of the world are now at or close to the end of their demographic transitions with fertility at or below replacement (Bongaarts, 2020). The fertility level of the developed region is constantly low. The social structure, religious beliefs, economic prosperity, and urbanization within each country are likely to affect birth rates as well as abortion rates. Developed countries rend to have a low fertility rate due to lifestyle choices associated with economic affluence where mortality rated are low, birth control is easily accessible and children often can become an economic drain caused by housing, education cost and other costs involved in bringing up children. Higher education and professional careers often mean that women have children late in life. This can result in a demographic economic paradox (Nargund, 2009). The fertility has started declining even in the Africa region due to various factors. A few recent surveys show that fertility has begun to decline in Botswana, Zimbabwe, Kenya, and Southern Nigeria. The onset of fertility decline is likely to be determined by the attainment of relatively low levels of infant and child mortality, substantial extension in female secondary education, an ample supply of contraceptives, and government leadership toward controlling family size (Caldwell, et. al., 1992).

Many women are not having their ideal number of children. Comparing the average ideal number of children women report to a country's total fertility rate suggests women may not be achieving their fertility ideals. To close the gap, policymakers should invest in girls' education; access to voluntary family planning; and addressing the gender, cultural, and economic barriers that may impact fertility preferences and lead women to make tradeoffs between having the number of children they want and pursuing other opportunities (PRB, 2021).

Family planning is the ability of individuals and couples to anticipate and attain their desired number of children and the spacing and timing of their births (Butler, et. al., 2009). Modern methods of family planning include birth control, assisted reproductive technology and family planning programmes. Contraceptives prevent unintended pregnancies, reduce the number of abortions, and lower the incidence of death and disability related to complications of pregnancy and childbirth (UNFPA). Birth rates fell 7% for females ages 15 to 17 years and 4% to females aged 18 to 19 years. Reasons for the declines are due to more teens abstaining from sexual activity, and more teens who are sexually active using birth control than in previous years (CDC, 2021). Population change is governed by the balance between birth rates and death rates. If the birth rate stays the same and the death rate decreases, then population numbers will grow. If the birth rate increases and the death rate stays the same, then also population will grow (Open University, 2016). The younger a population, the faster that population grows because the birth rate is higher, and the death rate is lower. When birth rate is expressed per age group, it is called the standardized birth rate, as opposed to the crude birth rate of the total population (Richard and Kristin, 2006).

It is necessary to keep updating the research facts, especially on the fertility situation and related factors, not only at micro levels but also at macro levels for a clear understanding and approaches for future improvement and development.

3.0 Objectives

This paper has the specific objective of understanding the fertility situation and related population characteristics and changes over a period among the G-7 countries Such as Germany, Canada, UK, Italy, Japan, France; United States of America; and India and its neighbouring countries such as Afghanistan, Bangladesh, China, Myanmar, Maldives, Nepal, Bhutan, Sri Lanka, Pakistan using the Population Reference Bureau's World Population Data Sheet 2021 and other relevant publications for review.

4.0 Data and Method

This study uses the secondary data collected from Population Reference Bureau's World Population Data Sheet 2021 with a special focus on global fertility. The World Population Data Sheet, produced by PRB annually since 1962, is both a reference document and an educational tool. With two dozen critical population, health, and environment indicators carefully researched, developed, and vetted by PRB demographers and analysts for more than 200 countries and territories, it provides a snapshot of the demographic trends reshaping our world today and previews what we can expect in the future.

Fifteen variables including 4 with different periods, have been used which are available in the datasheet. The data have been compiled under the world's regions on different heads such as human fertility and family planning, vital rates and population growth, infant mortality and health, and income and economic development. The Data Sheet lists all geopolitical entities with populations of 150,000 or more and all members of the United Nations, including sovereign states, dependencies, overseas departments, and some territories whose status or boundaries may be undetermined or in dispute. A comprehensive table and suitable graphs have been used to represent the facts and findings of the study.

5.0 Results and Discussion

5.1 Human fertility and family planning

The average number of children a woman would have assuming current age-specific birth rates remain constant throughout her childbearing years (usually considered to be ages 15 to 49). There has been a significant reduction in TFR in the countries of both group of countries. The total fertility is high in Afghanistan followed by Pakistan (3.7), Bangladesh (2.3), Myanmar (2.3), India (2.2), Maldives and Nepal (2.0), Bhutan (1.9), France (1.8), Sri Lanka (1.8), UK (1.6), United States of America (1.6), Canada (1.5), Germany (1.5), Japan (1.3), and Italy (1.2) (Table-1, Figure-1.1a). The TFR of India ((2.2, 4) and the average of its neighbouring countries (2.4, 4.7) are higher than the average of G-7 countries (1.5, 1.6) and of the world (2.3, 3.2) except Afghanistan (4.3, 7.5) and Pakistan (3.7, 6.2). It shows that India, Afghanistan, Pakistan, Bangladesh and Myanmar need to be focused to reduce their fertility levels with the help of new policies and programmes (Table-1, Figure-1.1a).

There has been a significant reduction in TFR in both groups of countries except, Germany which shows an increase of 15.4 percent during the past decades from 1990-2020. Maldives has recorded highest

decline in TFR (66.7%) followed by Bhutan (65.5%), Nepal (61.5%), Bangladesh (48.9%), China (43.5%), Afghanistan (42.7%), Pakistan (40.3%), Myanmar (32.4%), Sri Lanka (28%), United States of America (20%), Japan (18.8%), Canada (11.8%), UK (11.1%), and Italy (7.7%). The TFR is constant in France during the decade (Table-1, Figure-1.1b).

The percentage decline of births to mothers ages 15-19 ranges from high of 94.1% in Maldives to a low of 12.5% in Bangladesh, and of old mother, the increase is from 275% in Japan to Myanmar (11.1%) (Table-1, Figure-1.2c).

Canada (85%) has recorded a higher percentage of married women ages 15-49 using all methods of family planning Followed by China (85%), France (78%), UK (76%), United States of America (74%), Germany (67%), Bhutan (66%), Italy and Sri Lanka (65%), and Bangladesh (63%), which are above the world's average. Whereas, Maldives, Afghanistan, Pakistan, Japan, and Nepal recorded a low percentage of the same. This also indicates the linkage between low family planning performance with high fertility (Figure-1.3). Family planning use not only controls the population, but also enhances other benefits like reducing maternal and child mortality. There is evidence that increased use of family planning methods decreases maternal and infant mortality rates, improves quality of life for mothers, and stimulates economic development (Gyuimah, 2003; Alvergne, et. al., 2013; Carr, et. al., 2012; WHO, 2013). In eight sub-Saharan African countries, 30% of married women ages 15-49 who wish to avoid pregnancy use modern methods (PRB, 2021).

5.2 Vital rates and population growth

The percentage of births to young mothers is more among India's neighboring countries ranging from 21% in Bangladesh to 1% in Maldives (Table-1, Figure-1.2a), and the percentage of births to old mothers is more among G7 countries from 35% in Italy to 19% in United States of America, (Table-1, Figure-1.2b). Countries reporting a higher crude death rate in 2020 than in 2019 include Russia (15 v. 12), Italy (13 v. 11), and United States (10 v. 9), likely due to COVID-19. (PRB, 2021).

The world population stands at 7837 million in 2021 which is estimated to rise to 8848 million in 2035 and to 9688 million in 2050, with percentage change of 12.9 and 9.4 respectively during 2021 to 2035 and 2035 to 2050 respectively. The Indian population is to surpass China's by 2035 from 1393.0 million in 2021 to 1553.3 million in 2035 and 1638.7 million in 2050, with a percent change of 11.5 during 2021 to 2035 and 5.4

during 2035 to 2050 respectively. It may be noted that Afghanistan (77.4%) will add more population followed by Pakistan (53.9%), Bangladesh (25.5%), Nepal (31.9%), Canada (27.7%), and Maldives (20%) during 2021-2050. However, Japan (12.4%) will lose more population followed by China (10.3), Sri Lanka (7.7), and Italy (7.3) (Figure-2.2d). By 2050, 39 countries and territories are projected to have fewer people than they do today, including China, Thailand, and Ukraine (PRB, 2021).

The population per sq. km. of arable land ranges from a high of 13934 persons in Maldives to a low of 99 persons in Canada. Others are followed by Japan (6385 persons), Bangladesh (2155 persons), Sri Lanka (1609 persons), Nepal (1437 persons), China (1182 persons), India (893 persons), Italy (854 persons), Bhutan (805 persons), Pakistan (739 persons), Germany (710 persons), Afghanistan (511 persons), Myanmar (505 persons), France (361 persons) and Canada (99 persons) (Figure-2.3).

5.3 Infant mortality and health

The infant mortality rate ranges from high (60 deaths under 1 year per 1000 live births) in Pakistan to a low of 1.8 in Japan. Others include Afghanistan (47), Myanmar (42), Bangladesh (34) India (32), Nepal (25), Bhutan (21), Maldives (10), United States of America (5.4), Canada (4.4), UK (4), France (3.4), Germany (3.1), and Italy (2.8). It may be noted that the IMR is higher than the averages of the world and India's neighbor countries in Pakistan, Afghanistan, Myanmar, Bangladesh, and India, whereas, the figures for Japan, Italy, Germany, and France are lower than the average of G-7 countries (Table-1, Figure-3.1).

As far as the percentage of youth ages 15-24 with HIV/AIDS is concerned, the data are not available for all the specified countries. However, for some countries like Germany, Italy, Japan among G-7 countries, and Afghanistan, Bangladesh, Nepal, Pakistan, and Sri Lanka among India's neighboring countries, the available figures show that the percentage is less than 1 (Table-1).

5.4 Income and economic development

The percentage of urban population ranges from a high of 92 in Japan to a low of 19 in Sri Lanka. Others are as follows: UK, United States of America (82), Canada and France (81), Germany (77), Italy (71), China (64), Maldives (41), Bhutan (38), Bangladesh and Pakistan (37), India (35), Myanmar (30), Afghanistan (24), and Nepal (23) (Table-1, Figure-4.1). It may be noted that all the G-7 countries have higher urban population than the world average. Further, Japan, UK and

United States of America are above the average of G-7 countries. Myanmar, Afghanistan, Nepal, and Sri Lanka are below the average of India's neighboring countries with respect to percentage of the urban population (Table-1, Figure-4.1). This shows an indication of the inverse relationship between human fertility and proportion of urban population.

Gross National Income (GNI) is the total amount of money earned by a nation's people and businesses. It is used to measure and track a nation's wealth from year to year. The number includes the nation's gross domestic product (GDP) plus the income it receives from overseas sources (investopedia.com). Gross National Income (GNI) is also expressed in Purchasing Power Parity (PPP) per capita. Purchasing power parity (PPP) measures how much a currency can buy in terms of an international benchmark (usually dollars), since the cost of goods and services differs between countries (https://www.grida.no). GNI per Capita, PPP ($ current international) is calculated by dividing the gross national income in purchasing power parity (PPP) by mid-year population (PRB, 2021).

The GNI per Capita ($ current international) ranges from a high of 66060 in the United States of America to a low of 2110 in Afghanistan (2110). It may be noted that all the G-7 countries have the GNI per Capita above the world average, and two countries as United States of America and Germany have higher GNI per Capita, even above the G-7 countries' average. It is visualized that the economic backwardness of Afghanistan, Nepal, Myanmar, and Bangladesh tended to have higher levels of fertility (Table-1, Figure-4.2).
Globally, the life expectancy at birth for persons, males and females are 73, 71, and 75 years respectively. The life expectancy at birth ranges among the G-7 and India's neighboring countries from a high of 84 years in Japan to a low of 65 years in Afghanistan in general, and of the males from 81 years in Japan to 61 years in Myanmar, and of the females from 87 years in Japan to 67 years in Afghanistan (Table-1, Figure-3.2). It may be noted that the life expectancy at birth is higher for females than that of the males in both groups of countries.

6.0 Conclusions and suggestions

There has been a significant reduction in the levels of fertility in all the regions during the past decade. Though India's neighboring countries like Afghanistan and Pakistan remain with fertility levels more than the replacement level, they have experienced more than 40% decline in TFR during the past decades 1990-2020. The world population stands at 7837 million in 2021, which has been

estimated to rise to 8848 million in 2035 and to 9688 million in 2050, with a percentage increase of 12.9 and 9.4 respectively during 2021-2035 and 2035-2050 respectively. The Indian population is to surpass China's by 2035 with a population of 1553.3 million and rise to 1638.7 million in 2050. The IMR is highest in Pakistan and lowest in Japan among G-7 and India's neighboring countries. Globally, the life expectancy for persons, males, and females are 73, 71, and 75 years respectively, and Japan and Afghanistan have recorded the highest and lowest levels respectively among the G-7 and India's neighboring countries. Japan and Sri Lanka have recorded the highest and lowest percentages of the urban population respectively. All the G-7 countries have recorded higher urban populations than that of the world average, and Japan, UK, and the United States of America have recorded urbanisation above the average. The GNI per Capita ($ current international) is highest in the United States of America and lowest in Afghanistan among the G-7 and India's neighboring countries. It may be stated that the economic backwardness of Afghanistan, Pakistan, Myanmar, and Bangladesh might be a reason for higher fertility. It may be suggested that these need to be improved with the help of innovative policies and effective implementation of existing programs for reducing the birth rates and death rates coupled with improvement in socio-economic, health, and environmental conditions leading to population stabilization and sustainable development.

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TABLE

Table-1: Population characteristics by high and low fertility countries, India, World, 2021

Countries	TFR		%BM15-19		%BM35+		%MWU		CBR	CDR	Population (millions)		
	1990	2020	1990	2020	1990	2020	AM	MM			2021	2035	2050
	1	2	3	4	5	6	7	8	9	10	11	12	13
WOR	3.2	2.3	12	9	11	14	61	54	18	8	7837	8848	9688
G7C	1.6	1.5	5.1	2.0	9.6	26.6	69.3	59.0	9.3	11	770.8	799.7	803.0
CAN	1.7	1.5	6	2	9	23	85	-	10	8	38.2	43.8	48.8
FRA	1.8	1.8	2	1	12	26	78	73	11	10	65.3	67.9	69.1
DEU	1.3	1.5	3	1	8	29	67	-	9	12	83.1	83.9	83.2
ITA	1.3	1.2	3	2	12	35	65	52	7	13	59	57.8	54.7
JPN	1.6	1.3	1	1	8	30	40	33	7	11	125.4	123.6	109.9
GBR	1.8	1.6	8	3	9	24	76	71	10	10	67.5	70.9	73.9
USA	2	1.6	13	4	9	19	74	66	11	10	332.3	351.8	363.4
INC	4.7	2.4	13.5	8.0	12.8	11.2	50	46	19	6	3352	3596	3663
IND	4	2.2	15	3	9	7	54	48	20	6	1393	1553.3	1638.7
AFG	7.5	4.3	17	11	19	14	19	18	32	6	39.8	54.6	70.6
BGD	4.5	2.3	24	21	9	6	63	59	19	6	171.7	196.9	215.5
BTN	5.5	1.9	14	5	14	12	66	65	16	6	0.8	0.8	0.9
CHN	2.3	1.3	5	2	4	12	85	81	8	7	1412	1383.8	1266.5
MDV	6	2	17	1	12	14	19	15	12	2	0.5	0.5	0.6
MMR	3.4	2.3	9	7	18	20	52	51	20	9	55.5	60.8	63.1
NPL	5.2	2	17	18	12	4	47	44	19	7	30.4	36.6	40.1
PAK	6.2	3.7	10	7	17	10	34	23	28	6	225.4	286.8	346.9
LKA	2.5	1.8	7	5	14	13	65	54	14	6	22.1	21.9	20.4
		Population per Sq. km arable land	Youth Ages 15-24 with HIV/AIDS (%)		IMR	NMR	%U	GNI	Life expectancy at birth			Population (%)	
	RNI		Males	Females					Persons	Males	Females	<15	65+
	14	15	16	17	18	19	20	21	22	23	24	25	26
WOR	1	565	-	-	31	-	56	17535	73	71	75	26	10
G7C	0.1	912	-	-	3.6	1	81	50404	81	79	84	16	21
CAN	0.2	99	-	-	4.4	2	81	47500	82	80	84	16	18
FRA	0.1	361	-	-	3.4	2	81	50400	82	79	85	18	21
DEU	0.3	710	<0.1	<0.1	3.1	3	77	55220	81	79	83	14	22
ITA	-0.6	854	<0.1	<0.1	2.8	-1	71	42270	82	80	84	13	24
JPN	0.4	3040	<0.1	<0.1	1.8	0	92	43760	84	81	87	12	29
GBR	0	1110	-	-	4.0	3	84	47620	81	79	83	18	19
USA	0.1	211	-	-	5.4	1	82	66060	77	75	80	18	17
INC	1	2377	0.0	0.0	28.9	-1	35	8068	72	70	74	28	6
IND	1.4	893	0	0	32.0	0	35	6390	69	68	71	26	7
AFG	2.6	511	<0.1	<0.1	47.0	-2	24	2110	65	64	67	47	3
BGD	1.4	2155	-	-	34.0	-2	37	5310	73	71	75	27	5
BTN	1	805	<0.1	<0.1	21.0	0	38	10480	72	72	73	25	6
CHN	0.1	1182	-	-	9.0	0	64	17200	77	75	79	18	14

MDV	1	13,934	-	-	10.0	-1	41	12,840	79	78	81	20	4
MMR	1.1	505	-	-	42.0	0	30	4,650	66	61	71	27	6
NPL	1.2	1437	<0.1	<0.1	25.0	-1	23	4060	69	68	71	28	6
PAK	2.2	739	<0.1	<0.1	60.0	-1	37	4770	69	67	71	36	5
LKA	0.8	1609	<0.1	<0.1	9.0	-2	19	12870	77	74	80	25	8

Note: *%BM15-19 & % BM35+= Percentage of births to mothers ages 15-19 and 35+.* ***Source:*** *World Population Data Sheet 2021 (PRB). AFG= Afghanistan; DEU= Germany; BGD= Bangladesh; CAN= Canada; CHN= China; GBR= UK; G7C= G-7 countries; INC= India's neighbouring countries; IND= India; ITA= Italy; JPN= Japan; MMR= Myanmar; MDV= Maldives; NPL= Nepal; BTN= Bhutan; FRA= France; LKA= Sri Lanka; PAK= Pakistan; USA= United States of America; WOR= World.*

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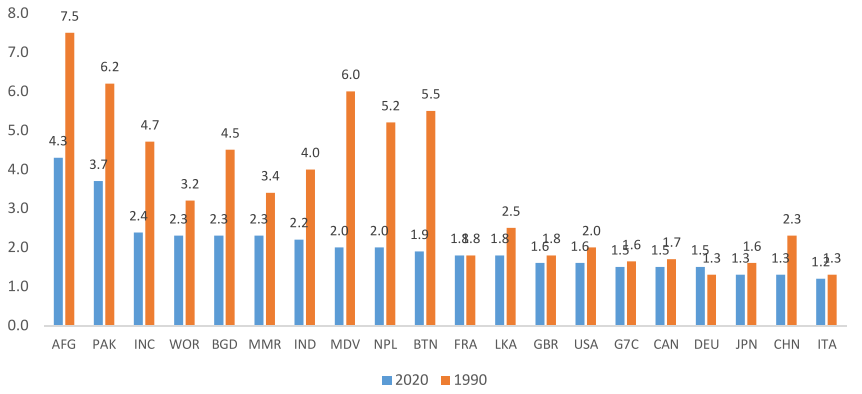
Figure-1.1a
TFR by G-7 and India's neighbouring countries, 1990-2020



Note: *AFG= Afghanistan; DEU= Germany; BGD= Bangladesh; CAN= Canada; CHN= China; GBR=UK; G7C= G-7 countries; INC= India's neighbouring countries; IND= India; ITA= Italy; JPN= Japan; MMR= Myanmar; MDV= Maldives; NPL= Nepal; BTN= Bhutan; FRA= France; LKA= Sri Lanka; PAK= Pakistan; USA= United States of America; WOR= World.*

Figure-1.1b
% Change of TFR by G-7 and India's neighbouring countries, 2021

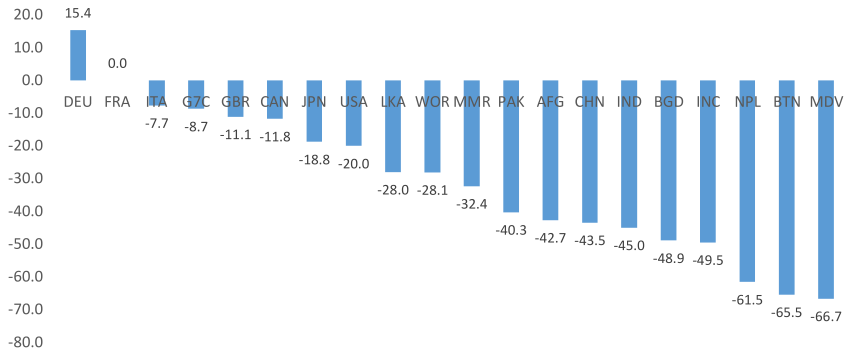


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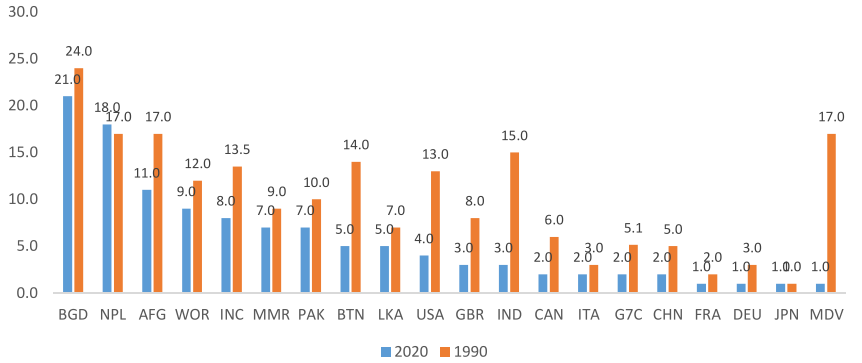
Figure-1.2a
% of births to mother ages 15-19 by G-7 and India's neighbouring countries, World, 1990 and 2020



Note: *AFG= Afghanistan; DEU= Germany; BGD= Bangladesh; CAN= Canada; CHN= China; GBR=UK; G7C= G-7 countries; INC= India's neighbouring countries; IND= India; ITA= Italy; JPN= Japan; MMR= Myanmar; MDV= Maldives; NPL= Nepal; BTN= Bhutan; FRA= France; LKA= Sri Lanka; PAK= Pakistan; USA= United States of America; WOR= World.*

Figure-1.2b
% of births to mother ages 35+ by G-7 countries and India's neighbouring countries, World, 1990 and 2020

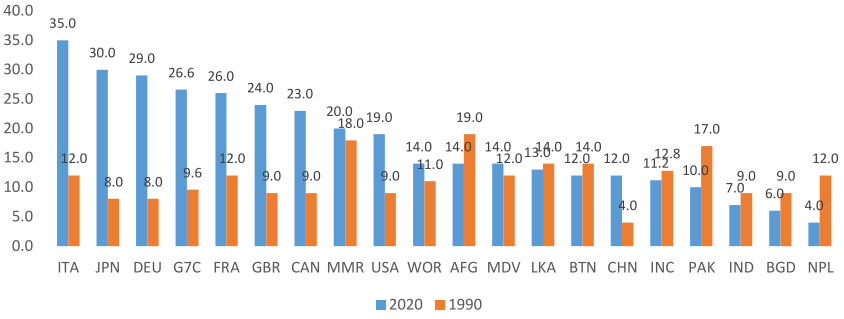


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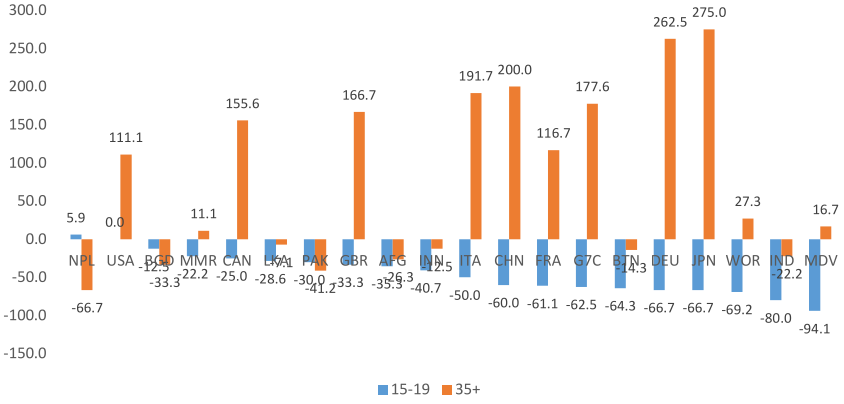
Figure-1.2c
Percent change of births to mother ages 15-19 and 35+ by G-7 and India's neighbouring countries, World, 1990-2020



Note: *AFG= Afghanistan; DEU= Germany; BGD= Bangladesh; CAN= Canada; CHN= China; GBR= UK; G7C= G-7 countries; INC= India's neighbouring countries; IND= India; ITA= Italy; JPN= Japan; MMR= Myanmar; MDV= Maldives; NPL= Nepal; BTN= Bhutan; FRA= France; LKA= Sri Lanka; PAK= Pakistan; USA= United States of America; WOR= World.*

Figure-1.3
Percentage of married women ages 15-49 using all methods of family planning by G-7 and India's neighbouring countries, 2021

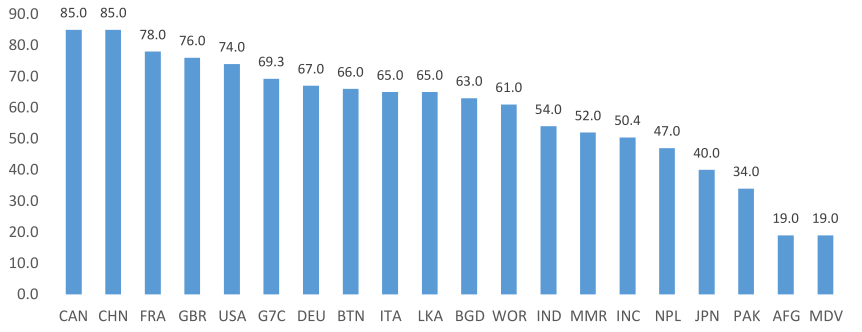


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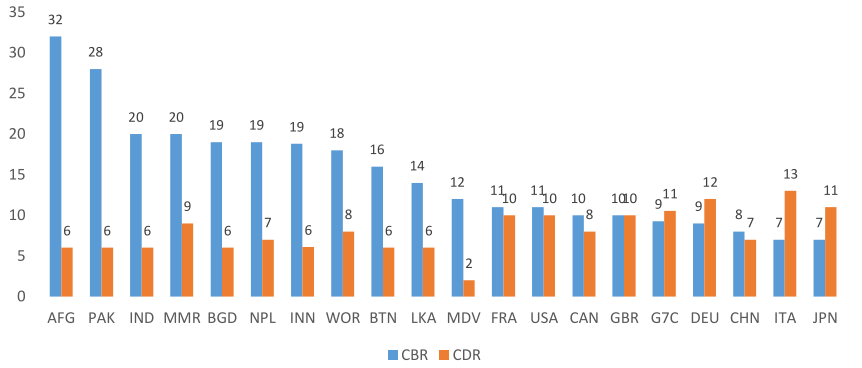
Figure-2.1
CBR and CDR by G-7 and India's neighbouring countries, World, 2021



Note: *AFG= Afghanistan; DEU= Germany; BGD= Bangladesh; CAN= Canada; CHN= China; GBR=UK; G7C= G-7 countries; INC= India's neighbouring countries; IND= India; ITA= Italy; JPN= Japan; MMR= Myanmar; MDV= Maldives; NPL= Nepal; BTN= Bhutan; FRA= France; LKA= Sri Lanka; PAK= Pakistan; USA= United States of America; WOR= World.*

Figure-2.2a
Population (millions) by G-7 and India's neighbouring countries, World, mid-2021

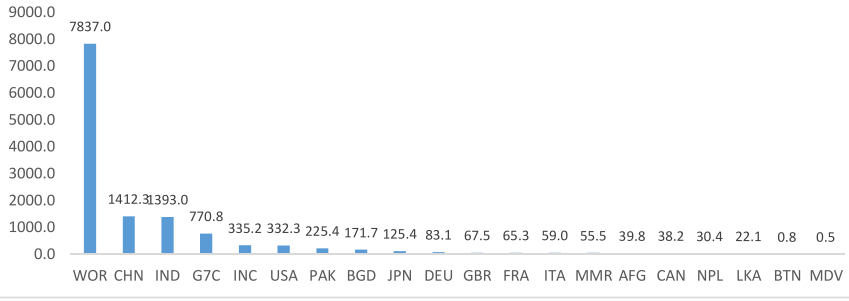


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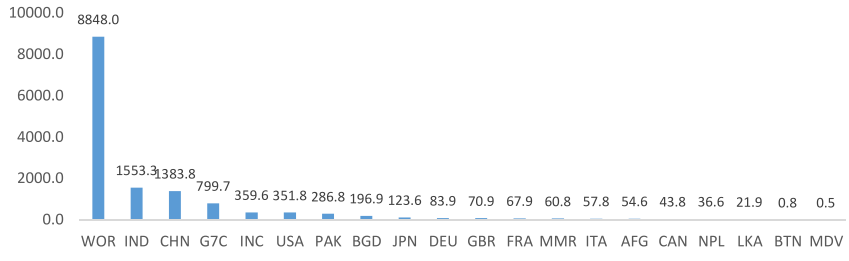
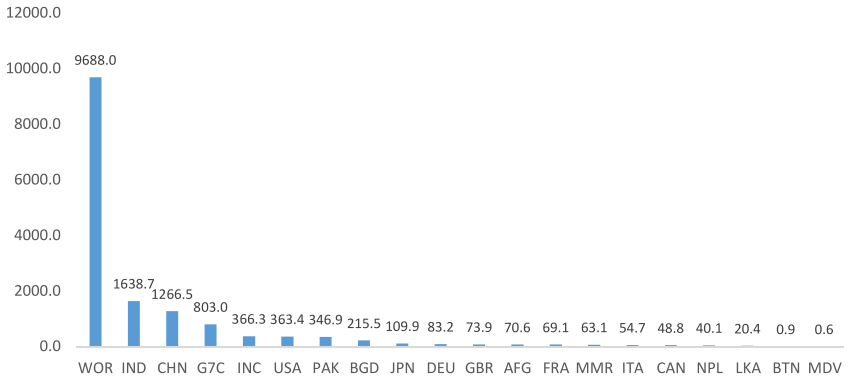
Figure-2.2b
Population (millions) by G-7 and India's neighbouring countries, World, mid-2035



Note: *AFG= Afghanistan; DEU= Germany; BGD= Bangladesh; CAN= Canada; CHN= China; GBR=UK; G7C= G-7 countries; INC= India's neighbouring countries; IND= India; ITA= Italy; JPN= Japan; MMR= Myanmar; MDV= Maldives; NPL= Nepal; BTN= Bhutan; FRA= France; LKA= Sri Lanka; PAK= Pakistan; USA= United States of America; WOR= World.*

Figure-2.2c
Population (millions) by G-7 and India's neighbouring countries, World, mid-2050



Note: *AFG= Afghanistan; DEU= Germany; BGD= Bangladesh; CAN= Canada; CHN= China; GBR=UK; G7C= G-7 countries; INC= India's neighbouring countries; IND= India; ITA= Italy; JPN= Japan; MMR= Myanmar; MDV= Maldives; NPL= Nepal; BTN= Bhutan; FRA= France; LKA= Sri Lanka; PAK= Pakistan; USA= United States of America; WOR= World.*

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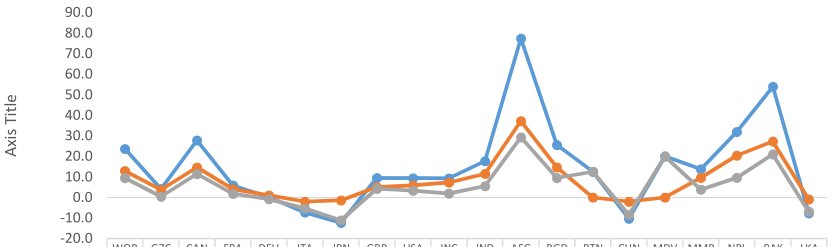
Figure-2.2d
Percentage change of population by G7 and India's neighbouring countries, World 2021-2035, 2035-2050 and 2021-2050



	WOR	G7C	CAN	FRA	DEU	ITA	JPN	GBR	USA	INC	IND	AFG	BGD	BTN	CHN	MDV	MMR	NPL	PAK	LKA
2021-2050	23.6	4.2	27.7	5.8	0.1	-7.3	-12.4	9.5	9.4	9.3	17.6	77.4	25.5	12.5	-10.3	20.0	13.7	31.9	53.9	-7.7
2021-2035	12.9	3.7	14.7	4.0	1.0	-2.0	-1.4	5.0	5.9	7.3	11.5	37.2	14.7	0.0	-2.0	0.0	9.5	20.4	27.2	-0.9
2035-2050	9.5	0.4	11.4	1.8	-0.8	-5.4	-11.1	4.2	3.3	1.9	5.5	29.3	9.4	12.5	-8.5	20.0	3.8	9.6	21.0	-6.8

Figure-2.3
Population per Sq. km of arable land by G-7 and India's neighbouring countries, World, 2021

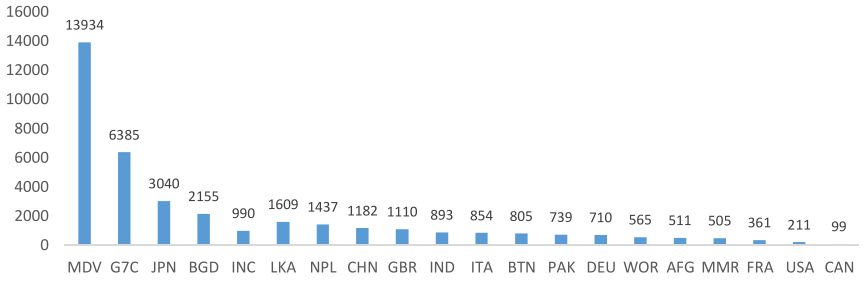


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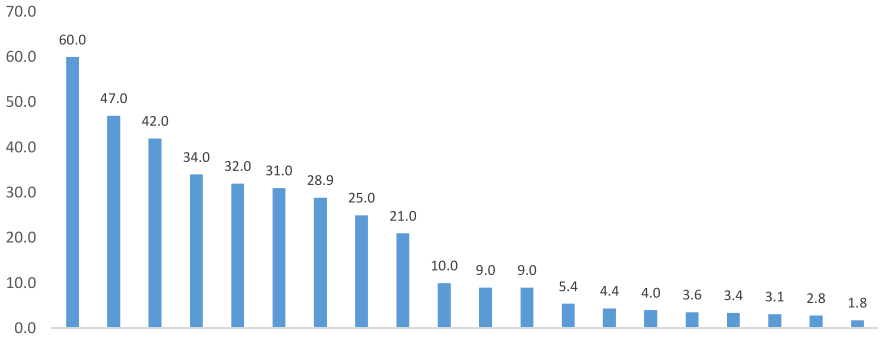
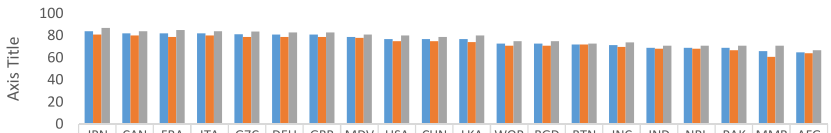
Figure-3.1
IMR by G7 and India's neighbouring countries, World, 2021



Note: *AFG= Afghanistan; DEU= Germany; BGD= Bangladesh; CAN= Canada; CHN= China; GBR=UK; G7C= G-7 countries; INC= India's neighbouring countries; IND= India; ITA= Italy; JPN= Japan; MMR= Myanmar; MDV= Maldives; NPL= Nepal; BTN= Bhutan; FRA= France; LKA= Sri Lanka; PAK= Pakistan; USA= United States of America; WOR= World.*

Figure-3.2
Life expectancy at birth by G-7 and India's neighbouring countries, world, 2021



	JPN	CAN	FRA	ITA	G7C	DEU	GBR	MDV	USA	CHN	LKA	WOR	BGD	BTN	INC	IND	NPL	PAK	MMR	AFG
Total	84	82	82	82	81	81	81	79	77	77	77	73	73	72	72	69	69	69	66	65
Males	81	80	79	80	79	79	79	78	75	75	74	71	71	72	70	68	68	67	61	64
Females	87	84	85	84	84	83	83	81	80	79	80	75	75	73	74	71	71	71	71	67

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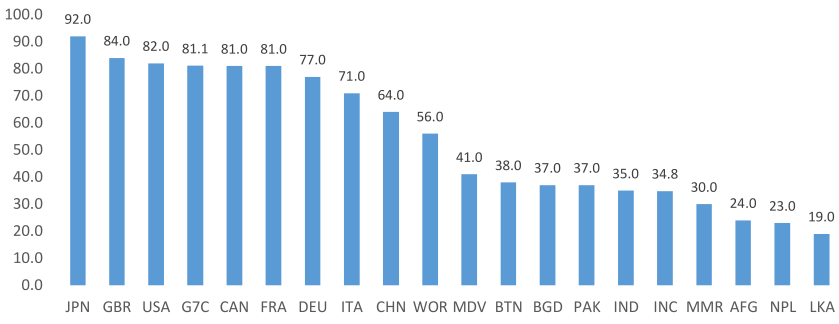
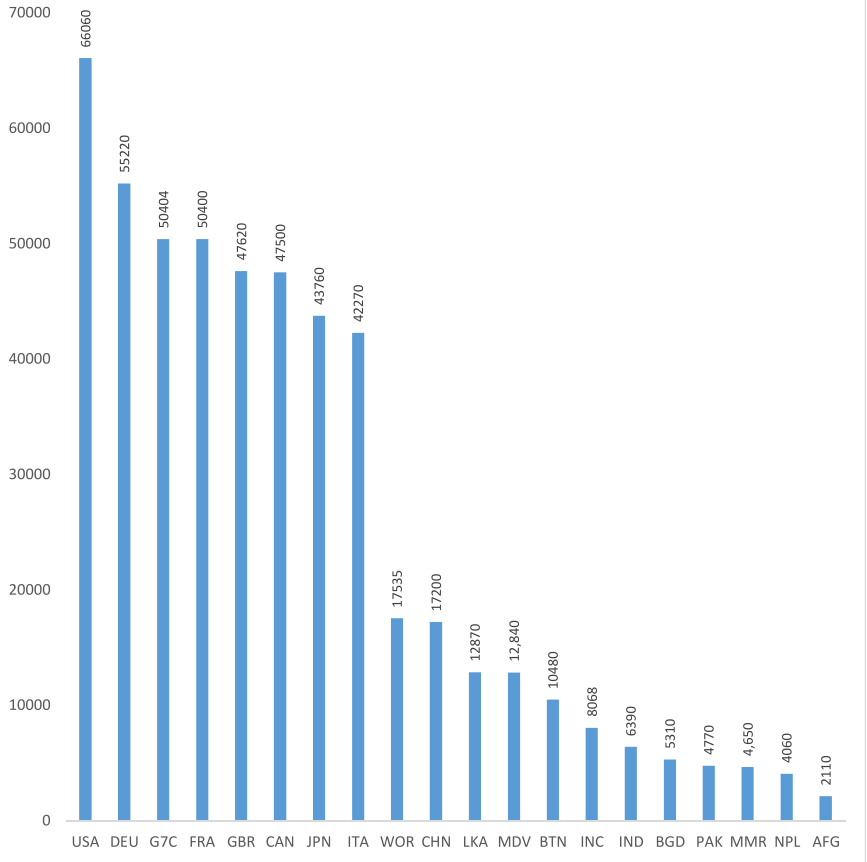
Figure-4.1
Percentage of urban population by G-7 and India's neighbouring countries, World, 2021



Note: *AFG= Afghanistan; DEU= Germany; BGD= Bangladesh; CAN= Canada; CHN= China; GBR=UK; G7C= G-7 countries; INC= India's neighbouring countries; IND= India; ITA= Italy; JPN= Japan; MMR= Myanmar; MDV= Maldives; NPL= Nepal; BTN= Bhutan; FRA= France; LKA= Sri Lanka; PAK= Pakistan; USA= United States of America; WOR= World.*

Figure-4.2
GNI per Capita, PPP ($ current international) by G-7 and India's neighbouring countries, World, 2020



Note: *AFG= Afghanistan; DEU= Germany; BGD= Bangladesh; CAN= Canada; CHN= China; GBR= UK; G7C= G-7 countries; INC= India's neighbouring countries; IND= India; ITA= Italy; JPN= Japan; MMR= Myanmar; MDV= Maldives; NPL= Nepal; BTN= Bhutan; FRA= France; LKA= Sri Lanka; PAK= Pakistan; USA= United States of America; WOR= World.*

Urban Transportation in India: Issues and Remedies

S.K. Kataria, Varsha Sharma

"You can't understand a city without using its public transportation system."

— Erol Ozan

Transportation is non - separable part or facility of modern human societies and entire civilization. Transportation is the movement of goods and persons from one place to another and the various means by which such movement is accomplished. From good old days of bullock cart, horse carriage, and hand-pulled rickshaws to modern railways, bus transits, metros, and aircraft, the transport system in India has come a long way. Public transport or mass transit is the unique feature of modern cities which is characterized by a mechanism of transportation for passengers by group travel systems available for use by the general public and typically managed on a schedule, operated on earmarked routes, that charge pre-defined rates for each trip and this system is mainly directed, managed or controlled by the government or public authorities concerned. Indian cities are constantly reshaping themselves to face the modern-day transportation challenges due to rapid urbanization and growing population.

As per Census-2011, around 31 % population in India resides in 7933 cities and towns and about 400 cities have more than one lac population each. In such a complex situation, the Second Administrative Reforms Commission (Sixth Report, point no.5.4.5.2) observes that – "with motorisation growing at over 15 per cent in larger cities, there are significant adverse effects on the urban quality of life due to congestion, pollution and road accidents. In almost all our urban centres, bus transport is the only means of public transport. Rail based systems in varying forms have been set up in Kolkata, Delhi, Mumbai and Chennai. Except Delhi, all others are run by the Ministry of Railways. The Delhi Metro

and the Mumbai suburban rail system have significant passenger traffic. The Delhi Metro is the only example among these of a modern mass transit system. A large number of tier II cities do not have an organised, properly planned public transport system, and the transport services are provided by a heterogeneous mix of private and State-owned operators. Services like taxies, auto-rickshaws, cycle rickshaws also play an important role in the public transport system to fill the gap left by the formal public transport system." The 'Tonga' has been a popular transportation mode since Moghul period in India. Motorised and auto vehicles were being operated in India during British rule. The first motor bus route started on July 15, 1926, and ran between Afghan Church and Crawford Market, Bombay, while cycle rickshaw was first run on the roads of Calcutta in 1930. Modern auto- rickshaw came in existence in 1959. Motor buses have been most popular, widely-used and flexible public transport mode in India since a century. Considering the growing population in cities and resulting traffic congestion, the concept of 'Bus Rapid Transport System' (BRTS) was first introduced in Pune in 2006 and thereafter several large cities in the country experimented with it with mixed results.

Railways in India was first introduced as suburban transportation from Bori Bunder (present day Chhatrapati Shivaji terminus) to Thane on April 16, 1853 and Horse-drawn tram was introduced in Calcutta in 1873 while electric tram started operating first in 1895 in Madras. So far as modern metro rail system is concerned, it was inaugurated first in Calcutta on October 24, 1984. These days metro rail has emerged as a popular and favourite mode of public transport which is operational in Delhi, Kolkata, Mumbai, Chennai, Jaipur, Ahmedabad, Hyderabad, Kanpur, Kochi, Lucknow, Nagpur, Bengaluru, Noida, Pune, Gurugram and it is under construction in Bhopal, Indore, Surat, Thane, Patna, Agra, Allahabad, Varanasi, Visakhapatnam, Meerut, Guwahati, Gwalior, Dehradun, Srinagar, Coimbatore and Bareilly. Kolkata is the only city in India which provides almost all modes of public transportation including metro rail, motor buses, taxis (yellow), auto-rickshaws, tonga, cycle rickshaws, hand–pulled rickshaws (being replaced by Totos i.e., electric rickshaws), ferries and trams.

Indian cities' public transportation system cannot be ranked as satisfactory due to overcrowding, traffic congestion, peak hours rush, environmental impacts, lack of adequate safety measures and issues related with parking, etc. Especially the outskirts of many expanding cities are marked by informal, minimally regulated public transport options.

Violation of traffic rules is a common trend across the country especially in small cities and towns and that lead to severe accidents.

As per the Road Transport Year Book 2017-18 and 2018-19,- "The number of registered vehicles has recorded annual growth at the rate of 9.9 percent during the last ten years (2009-2019) with 296 million registered vehicles in India as on 31st March, 2019. Personalised modes of transport (Cars and two-wheelers) constitute about 88 percent of total vehicular population".

The waves of LPG (Liberalization, Privatization and Globalization) and trends of consumerism have increased number of private vehicles very fast. India is now the sixth largest producer of cars and one of the fastest growing automobile markets in the world. It is considered as the home to almost all the major global automobile brands. The vehicle to population ratio which was 1: 1203 in 1951 grew to 1: 4.6 in 2019. While it indicates the country's growing economy, it has resulted in increase in air and noise pollution, traffic and street congestion, increase in road accidents and spread of life style diseases, etc. National Urban Transport Policy-2006 document says that – "travel in the city has become riskier with accident rates having gone up from 1.6 lakh in 1981 to over 3.9 lakh in 2001. The number of persons killed in road accidents has also gone up from 28,400 to over 80,000 during the same period. This has tended to impact the poor more severely as many of those killed or injured tend to be cyclists, pedestrians or pavement dwellers."

Private vehicles especially bikes and cars hardly solve the problems related with public transportation, rather these vehicles adversely impact the environment and social structure. Number of private vehicles is very different in big cities mainly due to availability of public transport facilities. There are 1 crore vehicles in

Population and Registered Vehicles in India

S.N.	Year	Population	Registered vehicles	Vehicle: Population ratio
1.	1951	36.10 crore	3lac	1 : 1203
2.	1961	43.92 crore	7lac	1 : 627
3.	1971	54.81 crore	11.9lac	1 : 460
4.	1981	68.33 crore	50.4lac	1 : 135
5.	1991	84.69 crore	2crore 14lac	1 : 39.5
6.	2001	102 crore	5.5crore	1 : 18.5
7.	2011	121 crore	12.7crore	1 : 9.5
8.	2019	136 crore	29.6crore	1 : 4.6

Number of Vehicles in Major Cities

S.N.	City	Registered vehicles in 2009	Registered vehicles in 2019
1.	Delhi	58.99 lac	1 crore 14 lac
2.	Ahmedabad	17.80 lac	40.30lac
3.	Bengaluru	26.40 lac	80.10 lac
4.	Bhopal	5.7 lac	10.30lac
5.	Chennai	27.01 lac	60.0 lac
6.	Coimbatore	9.09 lac	20.30 lac
7.	Hyderabad	24.46 lac	20.70 lac
8.	Indore	9.28 lac	10.90lac
9.	Jaipur	12.88 lac	30.0 lac
10.	Kanpur	5.97 lac	10.90 lac
11.	Kochi	2.56 lac	9.0 lac
12.	Kolkata	5.72lac	8.0 lac
13.	Lucknow	9.61 lac	20.30 lac
14.	Ludhiana	6.84 lac	13.36 lac
15.	Madurai	4.40 lac	10.20 lac
16.	Mumbai	11.99 lac	30.10 lac
17.	Nagpur	9.46 lac	15.0 lac
18.	Patna	4.71 lac	16.0 lac
19.	Pune	11.40 lac	27.0 lac

Source- Road Transport Year Book (2017-18 and 2018-19) page-30

Delhi while the figure in Kolkata is just 8 lac. The rapid growth in income levels especially in middle class families and the absence of an appropriate public transportation system boosts vehicular growth in India.

So far as regulatory functions and processes regarding city transportation are concerned they are controlled and directed through many laws of Union government and State governments. Railways, roads, road rules, inland waterways and ferries are the subjects of all three lists .i.e.- Union, State and Concurrent lists under Schedule Seven of the Constitution of India. The urban public transportation in India is governed by various legislations including- The Indian Tolls Act, 1851, The Indian Bills of Lading Act, 1856, The Stage Carriages Act, 1861, The Indian Tolls Act, 1864, The Carriers Act, 1865, The Northern Indian Ferries Act,1878, The Indian Tramways Act,1886, The Land Acquisition Act, 1894, The Road Transport Corporation Act, 1950, The National Highways Act, 1956, The Travancore- Cochin

Vehicles Taxation (Amendment and Validation) Act, 1959, The Delhi Motor Vehicles Taxation Act, 1962, The Specific Relief Act, 1963, The Limitation Act, 1963, The Motor Vehicles Act, 1988, The Carriage by Road Act, 2007, The Central Road and Infrastructure Fund Act, 2010, The National Green Tribunal Act, 2010, etc.

Psycho- Social Impact of Heavy Road Traffic in Urban Areas

Traffic congestion is a common scenario in our urban areas but it is important to understand that its physical and psychosocial impacts are not normal. Continued exposure to congested traffic conditions can lead to development of several adverse behavioural problems such as irritation, frustration, anxiety, aggression, depression, helplessness, and poor sleep quality. The negative effects of traffic congestion can affect the other aspects of one's life including giving rise to conflicts at home, and at the workplace, ineffective communication, inability to manage emotional turmoil, and many more.

Some major consequences of constant exposure to congested traffic in urban areas are as follows-

1. **Adverse consequences for health:** Traffic jams can cause increase in heart related issues, sleepiness, irritation in eyes, backache, body pain, reduced brain functioning, etc. Negative health impacts can increase the risk of road accidents. Rash driving behaviour can exaggerate the existing problems. Hotz (2011) reported that many researches indicate a negative effect of road traffic on public health including heart disease, cancer, respiratory ailments and also damage to brain cells and also learning and memory skills.

2. **Causes Frustration:** The very realization that this traffic jam cannot be controlled in any way can create frustration in the driver. When even after some time the individual comes out of the jam then it is natural to get frustrated. Frustration always leads to aggression. Lajunen (1999) studied relation between traffic congestion and aggression among drivers.

3. **Triggers Anxiety &Stress:** Traffic jams can also trigger anxiety and stress responses due to the delay caused due to the jam. The fear of being late can make the driver anxious and can lead to a stressful experience. Kumar & Verma (2020) conducted a study on mushrooming traffic congestion and its psychological implication for drivers. The study revealed the fact that traffic jams negatively affect the mental health of drivers by increasing in their depression, frustration and levels of stress.

4. **Reduces Tolerance threshold:** Tolerance is the ability to be patient and calm even in adverse situations. The tendency to become easily irritated can be the indication of reduction in the tolerance threshold. Leon (2007) stated that exposure to road traffic is related to hypertension, headaches and heart related issues especially among elders.

5. **Road traffic congestion may create conflicts at home:** Stress on roads may be carried to homes. Due to the irritation caused by traffic jams one can have conflicts or heated discussions with family members. Nadrian et. al (2019) conducted research to understand the family mental health impacts of road traffic and stated that experience of traffic jams can negatively affect the family mental health and can diminish the quality of life.

6. **Road traffic congestion may create conflicts at workplace:** One can face difficulties at the workplace due to irritated mood states due to traffic jams. This state can bring about a feeling of helplessness andfrustration when one gets late due to the uncontrollable traffic scenario. Chidi & Ideh (2018) studied the relation between the traffic jams and quality of work life. They stated that constant exposure to road traffic jams can negatively affect their life expectancy and quality of work life.

Some Effective Suggestive Strategies

Some of the strategies to address the above negative fallouts are as follows-

1. **Attitude change in favour of sustainable/public transport:** Over time, the dependence on personal modes of transport has increased. This has exacerbated the problem of traffic congestion. There is a need to come out of the so called 'car culture'. Whenever possible use of cycles, pooling, public transport options should be encouraged.

2. **Strict implementation of traffic rules and fines:** Strict implementation of the traffic rules and also the imposition of fines should be done fairly. It has been noticed that non-implementation of traffic rules may discourage the one who is actually following the rules. Once the punishment and fines are strictly enforced, traffic is likely to become more orderly.

3. **Maximum limit on number of vehicles per family:** Upper limit of number of vehicles per family should be implemented. This may reduce the unnecessary purchase of more and more vehicles. Easy availability of vehicle loans is also

one of the reasons for greater traffic on roads. It should be ensured that only those should be allowed to purchase vehicles that have sufficient parking space at their residence.

4. **Behavioural patterns need to be improved:** There is a need to make improvements in one's behaviour pattern. This could include aspects such as time management, practising relaxation techniques, overcoming procrastination, etc. All these could help an individual cope better with the stress of traffic congestion in our cities.

5. **Inculcating traffic sense:** among the most important, it is necessary to run awareness campaigns which could improve citizens' traffic sense and the adherence to road/traffic rules. Unnecessary blowing of horns, wrong overtaking, rash driving and improper parking all add to the traffic congestion problem and add to stress of road users. These must be avoided. Alongside citizens must respect the rights of other road users and act responsibly.

As per the press release of the Press Information Bureau (24 April, 2015) – "The National Transport Development Policy Committee (NTDPC), constituted under the chairmanship of Shri Rakesh Mohan, submitted its report in 2015 and suggested reforms for development of various modes of transport. These reforms are categorized as immediate reforms and long-run goals. Immediate reforms have been suggested at national, state and metropolitan levels. However, long term goals are for national and metropolitan levels. At the national level, the Committee has suggested the formation of a high-level and independent Office of Transport Strategy (OTS) and to move towards investment and strategy for transport as an integrated system. It has also suggested National Transport Infrastructure Finance to be neutral with respect to means of delivering mobility, sustainability and inclusion goals. At the State level, the Committee has suggested to establish urban transport as a subject to State level and to develop formal mechanisms for State participation in decisions about initiation, siting, size and other aspects of airports and rail-based transport. It has also suggested formation of State-level counterparts of OTS, with particular focus on urban transport. At metropolitan level, the Committee has suggested for creation of Unified Metropolitan Transport Authority (UMTAs) as statutory authority. It further suggested independent budgets expert personnel in all urban agglomerations with population greater than three million and formation of metropolitan planning committees as per Constitutional mandate. The Committee's recommendations include creation of

public-private centres of excellence in urban transport in all cities larger than one million and investment in unified metropolitan databases."

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Barriers from supply side for non-adoption of family planning methods among women from Khasi tribe in India

Bhawana Sharma, Vivek K Mishra, Nishtha Singh

Abstract

The family size adopted by government for whole country as 2.1 does not go hand in hand with number of births given by Khasi women despite various awareness programmes. Factors such as fertility preferences that the youngest daughter is responsible to take care of parents are highly associated with non-adoption of any type of family planning methods. Also, a firm belief that the side effects caused by modern methods are punishment of God for going against law of nature adds up to non adoption. Further, even if women want to adopt family planning methods, various barriers of implementation restrict them from adopting. For instance: the unmet need for spacing has increased by 23 percent despite women having awareness about family planning methods and accessibility to health care facilities. The reason for non-utilization of government hospitals for spacing and limiting method as reported by ASHA "government health facilities are accessible and affordable, but women due to fear of known health personnel who would inform their husband, in-laws or other village members about adoption of various method restrains visiting; and prefer private hospitals whose cost of methods are too high for women to afford". **(ASHA, age: 38 years; education: XII standard; work experience: 10 years)**. Consequently, women do not opt for any kind of services which affects women's life as well as the life of their newborns.

Data: Quantitative variables from two rounds of DLHS and qualitative thematic understandings generated from open ended responses were taken into consideration. Further, to establish the association between adoption of family planning methods and unmet need binary logistic regression has also been used.

Conclusion: Meghalaya has proved to be a state which lacks the acceptance of theory of diffusion and

cultural lag because of its urban rural division, where the trickledown theory does not suffice to reach the rural population. In this background, there is a need to redesign the healthcare system and reposition the family planning programmes, keeping in mind the lacuna of existing programmes.

Introduction

The maternal and child health programmes along with various other programmes related to family planning have a significant impact in various states of India. However, in many instances these programmes have to bear the cost of not being implemented according to the need of the population resulting into unmet need. This chapter deals with the unmet need and its determinants in family planning programme.

The concept of unmet need for contraception was first observed in Knowledge Attitude and Practice (KAP) surveys. The discrepancy found between the data related to reproductive preferences and birth control in this survey was termed as "KAP gap" or "unmet need" (Bonagaarts, 1991). Women with unmet needs are defined by WHO as those who are fecund and sexually active but are not using any method of contraception, and report not wanting any more children or wanting to delay the next child (WHO, 2011). This draws attention to the dissimilarity in their reproductive intentions and contraceptive behavior. Major evaluation categorizes these women into two sections namely (i) women with unmet need for limiting: they do not desire for additional children and do not use any contraceptive method; and (ii) women with unmet need for spacing: they desire to postpone the birth of their next child by a specific length of time and do not currently use a contraceptive method.

Demographic and Health Surveys (DHS) have set up a standard computation method to express the unmet need in numbers. In this method, the unmet need for family planning is the ratio of "Women (married or in union) who are not using contraception, are fecund, and desire to either stop childbearing or postpone their next birth for at least two years + pregnant women whose current pregnancy was unwanted or mistimed + women in post-partum amenorrhea who are not using contraception and, at the time they became pregnant, had wanted to delay or prevent the pregnancy" to "Total number of women of reproductive age (15-49) who are married or in union" (UN, 2009). In India, the percentage of unmet need of family planning is 21.3%. According to National family health survey's 2005 report, more than 21% of pregnancies in

India were unwanted or mistimed. The prevalence of unmet need for family planning was found to be 39% in Tamil Nadu state (Malini et al, 2014). The unmet need for family planning percentages of a few districts of Tamil Nadu was alarmingly high: Madurai-50%, Nagapattinam-63%, Kamarajar & Thanjavur- 56% and Pudukottai-61% (DLHS-07 & 08). Another study carried out among rural settlement women in Aurangabad showed 20% unmet need with low perceived risk of pregnancy-32.5%, lactation-31% and ignorance-12% (Andurkar et al, 2006). Similar studies conducted by DLHS and NFHS show 44% in tribal area of Maharashtra (Patil, 2010), 25.4% in resettlement colonies of New Delhi and 19.8% in Pondicherry (Saini et al, 2007)

The causes for the unmet need are the obstacles that a woman faces in practicing her choice in childbearing. In India, the main obstacles are fear of side effects of using contraceptives, husband's disapproval, religious beliefs, lacking knowledge about the contraception methods etc. (Ashform, 2003). A study conducted by Vohra et al, reported that in Rajasthan close to 35% of population had an unmet need with main determinants as follows: religion, type of family, husband's education and occupation, women's age, exposure to mass media and access to health care facility (Vohra, 2014).

Unmet need

Table 1 presents the percentage of currently married women by unmet need for family planning according to some selected background characteristics. Overall the unmet need has increased by 23.3 percent points in spacing and by 18.1 percent points in limiting from 2007-08 to 2012-13. If considered age wise, then among all the age groups the unmet need for spacing has almost doubled since 2007-08. The unmet need for limiting has declined in the older age groups as compared to younger age groups that have slightly increased. As far as level of women's education is concerned the unmet need for spacing among women who are illiterates has increased for four times whereas the unmet need for limiting has decreased by 5 percent point among the same women. Similarly, the unmet need for spacing among women with primary, secondary and higher level of education has also increased tremendously whereas the unmet need for limiting among higher educated women have been declining. It is surprising to see that women belonging to urban areas have 42.9 percent of unmet need for spacing whereas only 9.3 percent women that stay in the same area reported unmet need for limiting. Women whose age at marriage is higher are more in number to report unmet need for spacing as compared to women whose age at marriage was less than 18 years of age. Similarly nearly

38 percent of women whose age at first child was 25 years and above and only 20.9 percent women whose age at first child was less than 19 years of age reported unmet need for spacing. In contrast, 38.6 percent women whose age at first child was less than 18 and only 29.5 percent women whose age at first child was 25 years and above reported unmet need for limiting. Around 47.6 percent of women who had only 1 living child were the highest to report unmet need for spacing. Only around 9.4 percent of women who had 4 or more living children reported unmet need for spacing. A little more than 20 percent of women with 3 and 4 or more number of living children reported unmet need for limiting. More than 70 percent of women who did not have any awareness about family planning method reported unmet need for spacing whereas 38.5 percent of women, who had awareness about family planning method, still have reported unmet need for limiting. Despite having accessibility to health facility, more than 35 percent of women reported unmet need for spacing as well as limiting. A very shocking fact is that as the distance to health facility is increasing, the unmet need for spacing is found declining. According to wealth quantile, women belonging to poorest category reported highest unmet need for spacing whereas women belonging to rich category reported highest unmet need for limiting.

Table 1: Percent distribution of currently married women by unmet need for family planning according to some background characteristics in Meghalaya, DLHS-3 and DLHS-4

Background Characteristics		DLHS-3		DLHS-4	
		Spacing	Limiting	Spacing	Limiting
Age	Less than 18	27.4	3.3	54.4	3.2
	18 to 24	27.2	5.8	52.6	7.0
	25 to 29	17.9	13.0	45.1	10.7
	30 to 34	12.8	20.2	41.2	14.3
	More than 35	12.7	24.0	39.0	20.0
Years of women's education	Illiterate	10.1	25.0	42.0	20.5
	Primary	16.6	19.5	34.9	20.3
	Secondary	14.3	15.0	39.4	10.6
	Higher	13.8	9.1	42.7	6.1
Place of residence	Rural	13.8	19.3	38.7	17.8
	Urban	11.1	17.4	42.9	9.3
Age at marriage	Below 18 years	12.3	19.7	26.7	15.9
	18 to 24 years	12.4	15.8	31.5	10.5

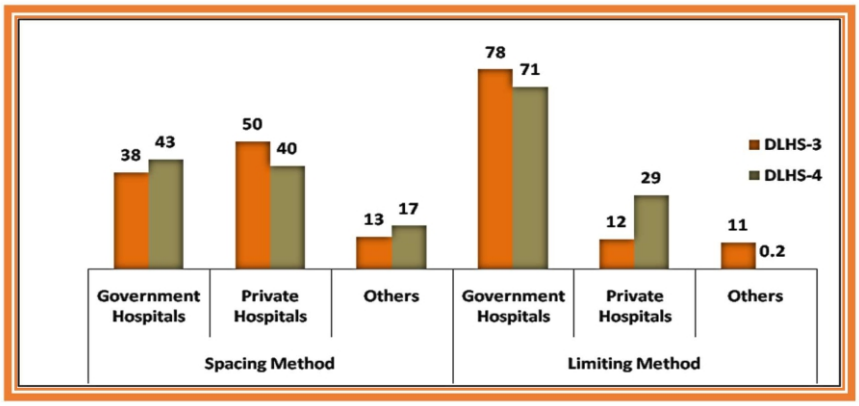
	25 and above	8.2	14.4	53.1	18.1
Age at first child	**Less than 18 years**	12.1	19.9	20.9	18.6
	19 to 25	13.7	17.8	23.0	14.6
	25 and above	10.5	15.3	37.9	11.5
Number of living children	**0**	2.1	1.9	44.3	5.6
	1	25.9	5.2	47.6	10.6
	2	17.8	13.9	42.3	15.4
	3	15.3	20.7	21.1	21.4
	4+	8.7	29.7	9.4	20.4
Awareness of family planning method	**Yes**	10.9	16.6	33.4	13.5
	No	18.0	17.6	71.4	18.5
Accessibility to health care facility	**Yes**	12.0	16.2	36.3	17.3
	No	13.3	17.8	-	-
Distance to health facility	**Within Village**	14.0	17.7	40.4	10.8
	Within 3km	9.7	14.9	47.5	13.6
	Within 5km	12.1	17.7	39.6	14.4
	Within 10km	13.5	16.7	37.8	15.2
	Beyond 10km	12.7	17.1	33.7	14.2
Wealth Index	**Poorest**	20.5	17.4	33.5	24.0
	Poor	16.9	20.8	27.0	22.4
	Middle	11.8	19.6	30.9	13.8
	Rich	11.0	18.2	25.6	12.2
	Richest	7.3	15.1	27.0	14.5
Total		**13.4**	**19.0**	**36.7**	**17.1**

2 Determinants of unmet need of family planning methods

Sources of availing contraceptives are important for understanding the non-utilization of family planning methods in rural dominated areas. Overall there has been an increase in the utilization of government hospitals and a decline in utilization of private hospitals for the purpose of family planning (Figure 1).

According to age, 51.5 percent of women more than 35 years of age use spacing methods from Government hospitals whereas only 30.6 percent of women of the same age group use spacing method from private hospitals. It is found that 75 percent of women who are illiterate use spacing method from Government hospitals whereas only around 30 percent women who are higher educated use services from Government hospitals. On the other hand higher educated women, around 63.5 percent use spacing method from private hospitals. Women who are secondary educated use other services

Figure 1: Sources for Availing Spacing and Limiting Contraceptives



for spacing method. Women who belong to urban areas have reported more to use spacing method from private hospitals whereas women from rural areas highly use spacing method from government hospitals. In 2007-08, 51.9 percent of women who had 2 children used spacing method from private hospitals; where as in 2012-13 52.6 percent women who have 1 living child are using spacing method from private hospitals. Further, nearly 51 percent of women who had more than 4 living children use spacing method from government hospitals. Around 23.7 percent women who have 3 living children use spacing method from other sources too.

Regarding limiting, the use of other hospitals or facilities have totally declined in 2012-13 from 2007-08. According to age different groups almost 77 percent of women aged 30 to 34 used limiting method from government hospitals which has declined from 84.2 percent in 2007-08. There has been a drastic increase in the

"*the amounts of products received are of good quality, but the issue is the lack of an estimation of products that is being supplied. We manage with less man-power, but coping up with lack of funds and products makes it difficult. If funds are appropriate we can atleast ~~we can~~ purchase more products and recruit more educated and well trained staff as some kind of incentives for ASHA would be beneficial to motivate her for work*". (**Jt. Director; age: 55; education: MD; work experience: 24 years**)

"*government health facilities are accessible and affordable, but women due to fear of known health personnel who would inform their husband, in-laws or other village members about adoption of limiting method restrains visiting; and prefer private hospitals whose cost of methods are too high for women to afford*". (**ASHA, age: 38 years; education: XII standard; work experience: 10 years**)

utilization of private hospitals by women age 25 to 29 for limiting method. More than half of the women who had higher education use private hospitals for limiting method, whereas 81 percent of women who are primary educated use government hospitals for limiting method. More than three-fourths of women who stay in rural areas use Government hospitals for limiting method whereas nearly 44 percent of women belonging to urban areas use private hospitals for limiting method. More than 70 percent of the women having 2 or more number of living children visit Government hospitals for limiting method, whereas more than 70 percent of women who has 1 living child visits private hospitals for limiting method.

Table 2 shows **contraceptive prevalence rate** by districts in Meghalaya. Contraceptive prevalence rate for any method is 22.7 and for any modern method is 17.0 followed by female sterilization which is 8.6. If seen method wise then rate of 18.7 is for any method, 14.3 for any modern method, 7.7 for female sterilization, 5.9 for modern spacing method, 3.7 for withdrawal method and least (0.5) for rhythm method. Contraceptive prevalence rate of any method is

Table 2: Contraceptive prevalence rate by district in Meghalaya (DLHS-4)

District	Any Method	Any Modern Method	Female Sterilization	Modern spacing method*	Rhythm Method	Withdrawal method
West Garo Hills	9.2	5.3	0.6	4.6	0.0	3.9
East Garo Hills	17.0	12.3	2.2	8.8	0.3	3.9
South Garo Hills	11.8	10.3	9.4	0.8	0.0	1.5
West Khasi Hills	17.4	14.7	10.5	4.0	1.1	1.6
Ri Bhoi	19.5	16.2	10.0	6.2	0.5	2.6
East Khasi Hills	27.6	22.8	12.5	10.0	1.3	3.2
Jaintia Hills	21.2	13.5	7.9	5.3	0.1	7.4
Total (DLHS-4)	**18.7**	**14.3**	**7.7**	**5.9**	**0.5**	**3.7**
DLHS-3	**22.7**	**17.0**	**8.6**	**7.0**	**4.7**	**1.0**

"*we try to convince people not to marry their daughters early by explaining them the implications of early marriage; but women in rural areas express that girls are supposed to marry early or else they will not be able to produce more children and then the society will talk about it". (**ASHA Training Coordinator; age: 48 years; education: MD; work experience: 25 years**)*

highest 27.6 for East Khasi hills, followed by 2.12 in Jaintia hills. Contraceptive prevalence rate for any modern method is also highest 22.8 in East Khasi hills followed by 16.2 in Ri-Bhoi and then 14.7 in West Khasi hills. Contraceptive prevalence rate for modern spacing method is 10 in East Khasi hills followed by 8.8 in East Garo hills. Contraceptive prevalence rate is lowest in West Garo hills for any method, any modern method and female sterilization. Contraceptive prevalence rate is lowest in South Garo hills for modern spacing method and withdrawal method.

Age at marriage is one of the main factors which determine the negotiation power of women in her married life (Table 3). The mean age at marriage in Meghalaya is 23.4 for girls and 27.2 for boys. Further, if seen district wise then mean age at marriage is above 23 for girls in all the districts except West Garo Hills and East Garo hills where it's nearing 23 years. On the other hand, the mean age at marriage for boys is 31 years in Jaintia hills, followed by 30.8 years in East Khasi hills. In South Garo hills and West Khasi hills the mean age at marriage for boys is almost 28 years followed by West Garo hills, East Garo hills and Ri Bhoi where the mean age at marriage for boys is little more than 23 Nearly one-fourth of women aged 20 to 24 years reported that they married before

Table 3: Percent distribution of women aged 15-49 years by age at the consummation of marriage, according to selected background characteristics, Meghalaya, DLHS-3 and DLHS-4.

Districts	Mean age at marriage Girls		Mean age at marriage Boys		Women age 20-24 years married before age 18 years (%)	
	DLHS-3	DLHS-4	DLHS-3	DLHS-4	DLHS-3	DLHS-4
West Garo Hills	22.6	22.9	27.9	23.4	37.3	15.2
East Garo Hills	21.2	22.6	25.3	23.8	34.1	27.9
South Garo Hills	23.2	23.0	27.6	28.0	32.9	22.0
West Khasi Hills	20.4	23.4	23.2	28.7	36.1	23.3
Ri Bhoi	20.4	23.1	24.0	23.7	35.6	33.0
East Khasi Hills	21.8	25.8	24.7	30.8	24.0	27.1
Jaintia Hills	20.3	24.5	21.5	31.1	33.1	27.3
Meghalaya	**21.1**	**23.4**	**24.1**	**27.2**	**34.3**	**25.4**

"*people in rural areas have more number of children and the youngest daughter has the responsibility to look after the elderly parents. If the youngest one is son then they marry the elder daughters as soon as possible and then procreate more to get a daughter at the end*". (**Jt. Director; age: 55; education: MD; work experience: 24 years**)

18 years of age, though the percentage has declined from 34.3 percent in 2007-08 to 25.4 percent in 2012-13. If seen district wise then still 33 percent of women in Ri Bhoi report that they married before 18 years of age followed by more than 27 percent of women aged 20 to 24 in East Garo hills, East Khasi hills and Jaintia hills who reported that they married before 18 years of age. A little less than one-fourth of women aged 20 to 24 in South Garo hills and West Khasi hills reported that they married before 18 years of age. Only 15 percent women aged 20 to 24 in West Garo hills reported that they married before 18 years of age.

The **fertility preferences** of ever married women aged 15 to 49 according to their number of surviving children reveals around 95 percent of women who did not have any daughter but had 2 sons reported that they want another child within 2 years (Table 4). Further, almost 88.5 percent women who had 2 sons & 1 daughter expressed that they want another child within 2 years. A little more than 21 percent of women who had 2 daughters & no son followed by 20.8 percent of women who had 1 son & 1 daughter and 20 percent of women who had 1 son & 2 daughters expressed that they want another child but later than 2 years. More than 40 percent of women despite of the number and composition of children reported that it is undecided whether they want a child in future or not. Nearly 35 percent of women who had 1 son & 2 daughters and 1 daughter

Table 4: Fertility Preferences of ever married women aged 15-49 according to their number of surviving children, DLHS-4.

Fertility Preferences of ever married women aged 15-49				
		Desire for next child		
No of surviving children	Want another child within 2 years	Want another but later than 2 years	Undecided	Want no more
1 son and 1 daughter	79.2	20.8	39.6	28.4
2 sons and 1 daughter	88.5	11.5	41.8	35.1
1 son and 2 daughters	80.0	20.0	45.6	34.2
No son and 2 daughters	78.7	21.3	43.6	26.3
2 sons and no daughter	95.0	5.0	42.5	25.0
Total (N=1392)	**239**	**88**	**623**	**442**

Table 5: Number and composition of living children of ever married women aged 15 to 49 according to some background characteristics (DLHS-4)

Background characteristics		Number and composition of surviving children				
		1 son & 1 daughter	2 sons & 1 daughter	1 son & 2 daughters	No son & 2 daughters	2 sons & no daughter
Age	Less than 18	57.1	0.0	14.3	28.6	0.0
	18 to 24	40.2	12.9	9.2	18.1	19.7
	25 to 29	33.3	17.6	16.1	16.6	16.4
	30 to 34	32.7	18.3	24.6	10.9	13.5
	35 and above	31.3	22.6	19.1	17.1	9.9
Years of women's education	Illiterate	30.9	21.5	19.9	16.0	11.7
	Primary	31.8	16.2	20.8	15.6	15.6
	Secondary	35.5	19.3	17.0	15.3	12.9
	Higher	35.7	17.4	12.6	18.8	15.5
Place of residence	Rural	32.6	19.9	18.8	15.5	13.1
	Urban	35.8	16.5	15.8	17.4	14.5
Working in last 12 months and are paid in cash	Yes	31.5	19.2	20.6	16.1	12.6
	No	33.9	18.9	17.4	15.9	13.8
Wealth Index	Poorest	27.3	18.1	19.1	20.1	15.5
	Poor	30.9	22.4	18.2	13.7	14.8
	Middle	34.5	19.8	16.4	15.8	13.6
	Rich	38.2	14.9	19.2	14.0	13.7
	Richest	34.8	19.9	17.6	16.5	11.2
Total		**33.4**	**18.9**	**18.3**	**16.0**	**13.5**

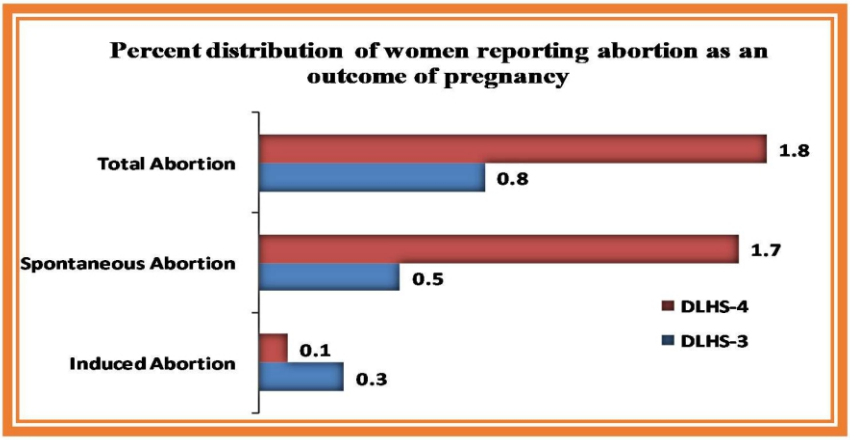
& 2 sons expressed that they do not want any more children.

Table 5 gives **number and composition of living children** of ever married women aged 15-49 according to some background characteristics. More than half of the ever married women who were less than 19 years of age had 1 son and 1 daughter followed by 28.6 percent of same age group women who had no son and 2 daughters. Among women aged 20 to 24, 40 percent reported 1 son and 1 daughter, 19.7 percent had 2 sons and no daughter and 18 percent reported no son and 2 daughters. A little more than 32 percent of women aged 30 to 34 reported 1 son and 1 daughter, followed by 24.6 percent of women from same age group who reported 1 son and 2 daughters. Almost 23 percent of ever married women aged 35 and above reported 2 sons and 1 daughter.

3 Abortion

The outcome of unmet need in terms of increased utilization of traditional methods rather than modern

Figure 2



methods will also have adverse effects on women's reproductive health. Since substantial proportion of women who are using contraceptives are continuing with traditional methods may have high chance of contraceptive failure resulting into induced abortion. Supporting this, the data shows that the rate of abortion is 1.8, which has increased from DLHS-3 to DLHS-4.

4 Future intention to use

Table 6: reveals that in 2012-13 around 19 percent of women have future intention to use contraception within 12 months whereas 49.4 percent of women want to use contraceptives after 12 months. On the other hand 31.3 percent of women said it is undecided if they have future intention to use contraceptive or not. Women who had future intention to use contraceptives within 12 months has declined by 23 percentage points, but women with the intention to use contraception after 12 months have increased by 28 percentage points. The women who reported that it is undecided to use contraceptives have largely remained

"*In context of Meghalaya, unmet need is responsive to changing cultural norms, high unmet need does not necessarily mean lack of efforts of family planning programmes; it may be due to fear of infertility or health related problems attached with IUD and pills. Regarding condoms, medical shops are not frequently visible in rural areas and asking from government health facility makes people feel uncomfortable because of known health personnels*". (**Medical Officer; age: 42, education: MBBS; work experience: 21 years**)

Table 6: Percent of currently married women who are not using contraceptive at present but have future intention to use contraception in Meghalaya, DLHS-3 and DLHS-4.

Background characteristics		Within 12 months		12 months and more		Undecided	
		DLHS-3	DLHS-4	DLHS-3	DLHS-4	DLHS-3	DLHS-4
Age	Less than 18	16.8	0.0	83.2	90.7	0.0	9.3
	18 to 24	30.1	16.6	21.3	62.5	48.6	20.9
	25 to 29	47.8	12.9	25.2	48.5	27.0	38.6
	30 to 34	37.1	21.4	18.3	55.5	44.6	23.1
	35 and above	42.0	20.4	16.4	47.3	36.4	32.4
Years of women's education	Illiterate	53.1	13.4	20.1	60.5	26.8	26.2
	Primary	37.3	12.8	21.1	55.0	41.6	32.2
	Secondary	42.8	17.4	15.0	58.3	42.1	24.3
	Higher	29.4	20.6	47.1	45.7	23.5	33.6
Place of residence	Rural	39.4	18.3	21.1	53.1	39.5	28.7
	Urban	54.1	7.7	22.9	61.3	23.0	31.1
Religion	Christian	42.3	14.6	20.3	56.7	37.4	28.8
	Non-Christian	37.5	15.4	37.5	53.6	25.0	30.9
Number of living children	0	-	17.8	-	62.5	-	19.7
	1	34.4	5.0	26.7	58.6	38.9	36.4
	2	36.4	14.6	25.8	60.4	37.8	25.0
	3	41.4	13.9	17.4	57.4	41.2	28.7
	4+	52.5	31.9	18.3	36.9	29.2	31.2
Working status in last 12 months	Yes	57.1	13.0	14.4	40.7	28.6	46.3
	No	47.3	21.5	21.0	51.7	30.0	26.8
Wealth Index	Poorest	53.0	21.0	15.0	50.0	25.0	28.9
	Poor	37.7	23.0	19.7	43.9	42.5	33.3
	Middle	36.6	11.0	21.3	71.4	42.1	17.5
	Richer	51.0	28.0	20.6	30.8	28.4	41.0
	Richest	33.3	17.0	41.7	43.4	25.0	39.6
Meghalaya		**42.5**	**19.0**	**21.5**	**49.4**	**36.0**	**31.3**

unchanged. According to age, more than 20 percent of women of 30 and above age group followed by nearly 17 percent of women aged 20 to 24 have showed intention of using contraceptives within 12 months. In contrast more than 90 percent of women aged less than 19 followed by 62.5 percent of women aged 20 to 24 and 55.5 percent of women aged 30 to 34 reported their intention to use contraception after 12 months. More than 60 percent of women who are illiterate, followed by more than 50 percent of women who are primary and secondary educated reported their intention to use contraceptives after 12 months. It is surprising to see that very

small number (20.6%) of women who are higher educated have intention to use contraceptives within 12 months. Further, more than 32 percent women who are either primary or higher educated reported that they are undecided about using contraceptives in future. It is surprising to see that only around 8 percent women residing in urban area expressed intention to use contraceptives within 12 months.

On the other hand, 61 percent of women from same area reported intention to use contraceptives after 12 months. The percentage of women who intend to use contraception within 12 months is found increasing with the increasing number of children. Those women who are working in last 12 months showed less interest in using contraceptives in future as compared to those women who were not working in last 12 months. Additionally, 46 percent of working women also reported that it is undecided if they have future intention to use contraceptives. More than 20 percent women belonging to poorest, poor and richer wealth quintile intend to use contraception within 12 months. On the other hand 71.4 percent women belonging to middle wealth quintile reported intention to use contraceptives after 12 months. Almost 40 percent of women belonging to richest wealth quintile reported that it is undecided if they have future intention to use contraceptives.

Conclusion

It is evident that Meghalaya is one of the 7 states in India which is yet to reach its replacement level of fertility. The fact that the fertility has declined from 3.8 to 3.0, does not signify the effective use of family planning method, as goal of 2.1 has not yet been achieved. First of all, the fertility rate in urban areas (20 percent) of Meghalaya is 1.7 and the total fertility rate for rural areas (79.9 percent) of Meghalaya is 3.5 which denote procreation of large number of children by almost 80 percent of the population. The assumption that matriarchal society provides women to have a choice for their health and life can be nullified as we see that usually the husband is the decision maker when it comes to choice of number and composition of children in a household as well as planned parenthood.

Literature suggests that barriers in use of family planning methods can be different depending on the geographical area, culture, perception, quality of care etc. which results into unmet need. Study reveals that unmet need for spacing as well as unmet need for limiting has substantially increased in Meghalaya especially among poor women. Findings show that even older age groups women who had more than 4 children prefer traditional withdrawal method rather than limiting method. Additionally, even

working women opt for traditional withdrawal method rather modern methods. Substantial proportions of contraceptive users are continuing with traditional method of contraception, which might lead to high contraceptive failure resulting into induced abortion. This can have adverse implications on reproductive health. Some of the main reasons for unmet need could be low age at marriage as even now 25 percent of women of aged 20-24 reported their age at marriage was lower than18 years, making women lack negotiation power in front of their husband and in-laws; consequently being a major factor for teenage pregnancy in Meghalaya as more than half of women less than 19 years of age had 1 surviving son and 1 surviving daughter. Additionally, low prevalence of contraceptive rate and fertility preference on the basis of number and composition of surviving children adds up to the unmet need. Inaccessibility and unavailability of health facility and health personnel at the time of need also has been a determinant for unmet need which compels women to use traditional method.

Meghalaya has proved to be a state which lacks the acceptance of theory of diffusion and cultural lag because of its urban rural division, where the trickledown theory does not suffice to reach the rural population. On this background, there is a need to redesign the healthcare system and reposition the family planning programmes, keeping in mind the lacuna of existing programmes.

Programmes should be targeted on the poorest quintile population belonging to rural areas, as they are under greater risk of adverse effects. It should also focus on involving both the genders as focusing on one puts a burden to pass on the information to their counterparts for negotiating use of family planning methods. Conventional methodology should be adopted for identifying shortfalls in targeted transfer program and sufficient trained personnel and health care providers should be recruited at base level. These should train and educate adolescents as well as adults to prepare healthy living without misconceptions and myths about family planning services. Further, government should realize the per capita human growth and accordingly provide adequate fund for health care system. In addition to it, continuous assessment and evaluation should be done along with inter-departmental convergence for effective implementation of the programmes.

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Studying the impact of CSR and Ethics on changing dynamics of business and entrepreneurship

Anish Devale

Abstract

In this paper, researcher has presented the current scenarios of CSR functionality as per changing business dynamics. In today's day and age new types of businesses with new psychologies and mindset are evolving. The CSR activities need to evolve as well as per changing dynamics of businesses. The new age entrepreneurship should adapt to their CSR Activities as the time evolves. Sometimes it is observed that the purpose of CSR activities conducted by the firms have business motives rather than bringing about an improvement in the social space. Hence, it is important for all to appreciate the important role that CSR can play and to build a policy framework around these CSR elements.

Index Terms– CSR, Entrepreneurship, Productivity, Policy Framework

1. Introduction

This paper attempts to understand the implementation of Corporate Social Responsibility (CSR) activities as per the changing dynamics of the businesses. In today's world the dynamics of business are changing at a very fast pace. Entrepreneurs are more inclined towards risk taking and hence, it is very important to establish guiding principles of socially responsible companies. Business organizations have more ethical responsibility related to business functioning and stakeholder commitment. To have a check and balance mechanism in place it is necessary to establish policy framework to measure the Corporate Social Responsibility metrics.

II. Research Areas

In this process, the researcher will discuss the outcomes of the various research activities done across the world in regards to the CSR activities

conducted and practiced by various entities and stakeholders

A. Corporate Activities and Social Responsibility.

Zhifeng Chen (University of Beth) has studied the effects of corporate activities and social responsibility. He establishes the firms having strong prior CSR experience are having a higher reputation than firms having weak prior CSR experience. Hence, experience in CSR is key to building a good reputation of the company. However, the characteristics of the firms have not been established by Zhifeng.

B. Financial Performance and Corporate Social Responsibility.

Elaine Conway (University of Derby) studied the effects of Corporate Social Responsibility on financial performance of the firms. She found that there is a positive correlation between firms' CSR activities and financials to the extent that it indicates where the companies are investing, in which business vertical, etc.

C. Compliance for CSR Activities.

Aaron K. Chatterjee (Harvard Law College) et.al establishes the compliance issues arising due to the CSR activities. He proposes to understand the behavior of the economic entity before laying out the compliance framework to regulate the CSR activities. Aaron K. Chatterjee has failed to layout the framework using a particular behavior as an analogy that would practically help the policy makers in devising compliance related to the CSR activities of the corporate.

D. Effects of Marketing in CSR Activities.

Sharyn. R. Rundle (University of Southern Queensland) proposes that Corporate Social Responsibility is not the only metric to judge the socially responsible behavior of the companies. The corporate social performance should also be established by the state. It is necessary, that companies take socially responsible marketing initiatives along with their CSR activities.

III. Research Methodology

Researcher used secondary research data from corporate balance sheets, stock exchange reports, sustainability and social responsibility reports, and magazines.

IV. Hypothesis

Hypothesis:

Hypothesis 1: If the CSR activities are

less productive then the fund allocated to that activity would decrease.

Ho: There is no significance correlation between less productive CSR activity and decrease in the fund allocated to that activity

Ha: There is significance correlation between less productive CSR activity and decrease in the fund allocated to that activity

Hypothesis 2: Primitive CSR activities receive less fund growth compared to modern CSR activities.

Ho: Primitive CSR activities fund growth is equal to modern CSR activities fund growth.

Ha: Primitive CSR activities receive less fund growth compared to modern CSR activities.

Table 1: Company Productivity Analysis

Company	CSR Activity	Characteristics of Activities	Funds allocated (% of NP)	Productivity	Fund Growth (YoY)	Productivity Growth (YoY)
1	Food Security	Primitive	2%	61%	2%	5%
2	Water & Sanitation	Primitive	3%	68%	3%	3%
3	Skill Enhancement	Modern	3%	75%	6%	8%
4	Scholarships	Modern	2%	90%	10%	15%
5	Day Care Center	Modern	4%	78%	7%	8%
6	Startup Incubation	Modern	5%	78%	8%	16%
7	Woman Empowerment	Primitive	3%	63%	4%	3%
8	Affordable Housing	Primitive	4%	64%	2%	4%
9	Child Security	Primitive	2%	78%	3%	4%
10	Free Health Check	Primitive	3%	79%	2%	-5%
11	Sustainable Farming Training	Modern	3%	81%	6%	14%
12	Fellowships	Modern	4%	89%	9%	11%
13	Donations	Modern	2%	90%	9%	9%
14	Disaster Management	Primitive	4%	62%	2%	3%
15	Rehabilitation Programs	Primitive	2%	64%	2%	2%
16	Orphanages	Primitive	2%	59%	3%	4%
17	Social Business Projects	Modern	4%	77%	6%	9%
18	Rural Development	Modern	4%	92%	10%	8%
19	Animal Protection	Primitive	2%	54%	-4%	-2%
20	Tertiary Care Center	Primitive	2%	63%	1%	-1%

Source: https://www.screener.in/?gclid=EAIaIQobChMIv4nbyMXT-QIVUMEWBR1ziwNWEAAYASAAEgIzRfD_BwE, https://www.mca.gov.in/content/mca/global/en/data-and-reports/reports/annual-reports/companies-2013.html,
https://ficci.in/Sedocument/20361/csr_survey_ficci.pdf
https://csr.gov.in/content/csr/global/master/home/ExploreCsrData/mis-reports/state-wise-report.html

The data is mentioned in Table 1 where productivity for each company is measured. The researcher has also discussed the results of the study in this paper.

The researcher has studied the data of 20 companies by observing their major CSR activities. The researcher has used the following metrics to measure the activity impact.

1. Funds Allocated

   Funds allocated are taken as per percentage of net profit. As per Companies Act 2013, minimum 2% of the funds should be dedicated to CSR activity.

2. Productivity

   Firstly, the capital infusion for that year is calculated. Secondly, the quantity of the CSR activity is measured with the basis of activity conducted on ground. The activity is compared with utility of funds allocated. Thirdly, the percentage outcome is calculated by taking the ratio of quantity and funds utility. For example, if the CSR Activity is distribution of 1kg grains (100 Rs/kg). Let's say 10 Cr were allocated to for this activity. Ideally, the grains should be distributed to 1 lakh people. However, in reality only 80 thousand people were served. Thus, the productivity of this CSR Activity would be 80 percent.

3. Productivity Growth

   Productivity Growth is also observed year over year for five years. This gives us a picture as how effectively the CSR funds are being utilized.

4. Fund Growth

   Fund growth is observed year over year for five years to study the impact of the CSR Activity.

V. Hypothesis Testing

To observe and analyze the pattern of the first hypothesis the researcher used the t-test for sample correlation coefficient. Based on the data, the observation was found that the sample correlation between productivity (previous year) and fund growth was ~0.87.

The null and the alternative hypothesis was taken as follows:

H_o: r = 0

H_a: r ! = 0

Where r is the sample correlation coefficient.

The p-value for the t-test was determined as 0.0001. Thus, from this test we can prove that the previous year productivity and the year-on-year fund growth are correlated to each other. The sample correlation is found statistically significant.

Similarly, to analyze the second hypothesis the researcher segregated

the data-based year on year productivity growth into modern CSR and primitive CSR. If the year-on-year productivity growth is less than 5 percent then CSR activity is classified as primitive activity. On the other hand, if the productivity growth was greater than 5 percent then the CSR activity was classified as modern CSR activity. T-test (unequal variances) was used on the average fund growth of these two activities viz., the modern and primitive activities. The average fund growth of modern was determined to be 8 percent and the average fund growth for primitive was determined to be 3 percent.

The null and alternative hypothesis was taken as follows:

H_o: *mean primitive = mean modern*

H_a: *mean primitive # mean modern*

P-value and statistically significant:

The two-tailed p-value is 0.0001. By conventional criteria, this difference is considered to be extremely statically significant.

Confidence interval:

The mean of Primitive minus Modern equals -5.00. 95% confidence interval of this difference is -6.66 to -3.34.

$Df_1 = N - 1$

Table 2 : Input Data

Primitive	Modern
2%	6%
3%	10%
4%	7%
2%	8%
3%	6%
2%	9%

$M_1 = 2.67$

$SS_1 = 3.33$

$S^2_1 = SS_1 / (N - 1) = 13.33 / (6 - 1) = 2.67$

T-value Calculation:

$S^2_p = ((df_1 / df_1 + df_2)) * s^2_1) + (df_2 / (df_1 + df2)) * s^2_2) = ((5/10) * 0.67) + ((5/10) * 2.67) = 1.67$

$S^2_{M1} = s^2_p / N_1 = 1.67/6 = 0.28$

$S^2_{M2} = s^2_p / N_2 = 1.67/6 = 0.28$

$t = (M_1 - M_2) / (S^2M_1 + S^2_{M2})^{1/2} = -5/(0.56)^{1/2} = 6.71$

Intermediate values used in calculations:

$t = 6.71$

$df = 10$

Standard error of difference = 0.745.

Test Output Data:

Table 3 : Output Data

Group	Primitive	Modern
Mean	2.67	7.67
SD	0.82	1.63
Sem	0.33	0.67
N	6	6

From the output table, we can see that the difference in means for our sample data is -5.00 (2.67 – 7.67), and the confidence interval shows that the true difference in means is between -6.99 and -3.01. So, 95% of the time two differences in mean will be different from 0. Our p-value is 0.000027. The result is significant less at $p < 0.05$ is much smaller than 0.05, so we can reject the null hypothesis of no difference and say with a high degree of confidence that the true difference in means is not equal to zero.

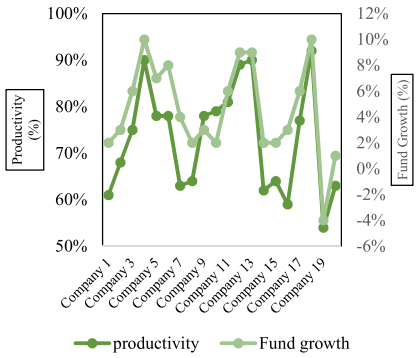
The p-value of the test is0.00027, the result is significant at $p < 0.5$. Thus, the alternative hypothesis is accepted. Hence, we are able to prove our hypothesis that the fund growth of primitive CSR Activity is less than the fund growth of modern CSR Activity.

VI. Results

From the study done of the 20 Companies the researcher has deduced the following results:

As per the statistical analysis of the first test, the researcher found that

Fig. 1: Productivity vs. Fund Growth



funds allocated are apportioned as per productivity shown by the CSR activity. Profitability of the company was taken into consideration for fund allocation. The CSR activity needs to be more efficient and effective so that the allocated funds are used in a productive manner.

The researcher did statistical analysis for the second test. Inherently, the researcher was finding out how the productivity growth and funds growth of the CSR activity are related. Thus, as per tests conducted, the researcher found that more productive the CSR activity, more funds will be allocated to that activity to enhance the efficiency and effectiveness of that CSR activity in scale.

VII. Conclusion

The fund growth of the CSR Activity is directly correlated to its productivity output. Thus, by looking at

CSR Activity the researcher can infer that the more primitive the CSR activity the less productive its output. Therefore, CSR activities need to evolve as the dynamics of the businesses change. Thus, it is important for the companies to understand that the changing environment and dynamics are enforcing the companies to change the dynamics of its CSR activities. With evolving costs to carry out the CSR activities, the funding psychology needs to evolve and comprehend the changing dynamics of societies.

Suggestions:

Productivity should be quantified and it should be categorized for future fund allocation. Motive of the CSR activity should be considered before allocating funds. The companies should not consider the CSR activities as mere regulation. Instead, they need to calculate the productivity of the CSR activities. The CSR, should be more accountable towards the society. Firms can set up committees to carry out their CSR activities. The productivity report of every CSR activity should be presented in Annual General Meetings (AGMs). Depending on the effectiveness, the board should decide whether they need to continue specific CSR activity in future.

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The Local Government Quarterly has been instituted and is being published with a view to promote the knowledge and sharing of ideas on subjects related to local governance - urban and rural, in India and overseas. It seeks to address related subjects including, but not limited to, education, public health, livelihoods, urban and rural poverty, gender equality.

The publication aims to contribute to the development effort in these and related areas by taking a positive approach so that achievement of favourable outcomes is made possible. The aim is to enable positive impacts in all sections of society including the poor, vulnerable and disadvantaged. The publication aims to add value to the efforts of all stakeholders particularly those working in these and related fields from all sectors - government, non-government organisations, academia, research and industry.

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- All persons who have contributed to the work are credited as authors or co-authors or otherwise appropriately. Further that persons credited as above have actually contributed to the work
- All other ethical guidelines that are applicable for such work

We commit ourselves to the standard ethical norms.

Publication and Peer-review Policy

Local Government Quarterly is being published by All India Institute of Local Self-Government by incorporating research papers and articles contributed by diverse stakeholders including academicians, urban planners, practitioners and others with, among others, the following objectives:

- To bring to the fore and highlight issues regarding governance and development especially in India. The issues could include urban, rural or tribal ones covering an array of topics including education, public health, poverty, livelihood and gender.
- The aim is to generate debate and deliberation with the objective of seeking solutions to challenges in the above areas.
- To contribute to capacity building of institutions and personnel working in the related fields thereby improving their response to the issues being confronted in these sectors.
- Contributions are invited from authors in accordance with the 'Guidelines for Authors' published separately.
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Report Review

World Happiness Report 2022

Read the full report here: https://worldhappiness.report/ed/2022/

The World Happiness Report 2022, a publication of the Sustainable Development Solutions Network, a global initiative for the United Nations, was released earlier this year.

The latest is the tenth Anniversary of the World Happiness Report. The First Report was released on 2, April, 2012.

The Foreword to the Report acknowledges the role of Bhutan in bringing to the forefront of international debate the subject of Happiness. It notes that Bhutan sponsored Resolution 65/309, "Happiness: Towards a holistic approach to development," adopted by the General Assembly of the United Nations on 19 July 2011. This urged national governments to "give more importance to happiness and well-being in determining how to achieve and measure social and economic development."

The Foreword goes on to add that the UN General Assembly adopted Resolution 66/281 on 28 June 2012, proclaiming 20 March International Day of Happiness to be observed annually. The World Happiness Report is now released every year around this date. Here the role of various organisations in producing the first report is acknowledged. This report was based at the Earth Institute at Columbia University, with the Centre for Economic Performance's research support at LSE (the London School of Economics), and CIFAR (the Canadian Institute for Advanced Research), through their grants supporting research at the Vancouver School of Economics at UBC (the University of British Columbia). Since 2013, the central base for the reports has been SDSN (Sustainable Development Solutions Network) and CSD (the Center for Sustainable Development) at Columbia University. The most important source for the reports has been the Gallup World Poll. The report has enjoyed wide readership reaching 9 million for the 2021 issue.

The main Report is segregated in six chapters.

Chapter 1 is titled Overview on Our Tenth Anniversary.

Here the Report notes that this initiative has triggered interest all over the world and has made governments in many countries see happiness as 'an an important and overarching objective

of public policy'. While tracking trends of the past, the authors note that there has been a remarkable global surge in benevolence during COVID-19. Looking forward, the prospects for happiness are likely to be decided by various factors including course of the Pandemic and military conflict, and more importantly from improvements in the science of happiness. In an important observation the Report notes the recent trends which indicate sharp increase of interest in happiness and well-being based on how often these terms occur in print, the contrasting decreasing interest in income and GDP, the 'exploded' interest in academic research on happiness, and the strong public appetite for the subject.

Chapter 2 is titled Happiness, Benevolence, and Trust During COVID-19 and Beyond.

In various sections of this chapter, are presented the usual ranking and modelling of national happiness based on data covering the period 2019 through 2021. Thereafter, are given the evolution of life evaluations and a number of emotions since the Gallup World Poll data of 2005-2006. Later, individual-level data from 2017 through 2021 are used to examine how life under COVID-19 has changed for people in different circumstances. Through all this, one central finding continues to be the extent to which people trust their governments and have trust in the benevolence of others, supports their happiness before, during, and likely after the pandemic.

Figure 2.1 in this chapter depicts the 2019-2021 average scores of 146 countries. This is presented in a pictorial colour bar graph. The chapter contains several technical boxes, graphs, and tables to enable closer study and analyses of the data. Summarising the chapter, it says well-being inequality has generally grown since 2011, especially in Sub Saharan Africa, MENA, Latin America, and South and Southeast Asia. Positive emotions have generally been twice as prevalent as negative ones. That gap has however been narrowing. Enjoyment and laughter are on a negative trend in most regions, while worry and sadness are on rising trends. There have been trend increases in national average stress levels in all ten global regions. The pandemic has exposed, but not increased, pre-existing differences between males and females and between those with low and high incomes. Global benevolence, as measured by the average of the three measures of prosocial behaviour (donations, volunteering and helping strangers), has increased remarkably in 2021, up by almost 25% of its pre-pandemic level.

Chapter 3 is titled Trends in Conceptions of Progress and Well-being.

This chapter explores the subject: to what extent is the public and popular narrative about well-being and progress shifting towards a modern, happiness-oriented view of human experience? It is an attempt to review evidence for broader trends towards associating happiness with progress. This chapter points to the increasing trend in the use of the word "happiness" and the declining trend in the occurrence of "Gross domestic Product" in print in recent years. Similarly, the words "life satisfaction" and "subjective well-being" also show a rising trend though their use is not as frequent as "happiness". These are depicted in several graphs. One section discusses the role and efforts of government to construct national debate on what is 'national well-being' and how to measure it.

The title of Chapter 4 is Using Social Media Data to Capture Emotions Before and During COVID-19.

This chapter attempts to focus on what can be learned about people's emotional experiences and well-being from analysing text data on social media. This has become relevant especially in the COVID-19 context due to restrictions of face-to-face meetings. Social media has become an important mode of transmitting emotions including happiness, sadness, anxiety, and anger. Here one method of assessing emotional expression in the use of positive words in contrast with use of negative emotion words. This is the dictionary approach.

This chapter narrates a case example conducted during the first five weeks of the pandemic. It studied 8.3 billion public tweets in 6 languages from 18 countries. It covered emotions anxiety, sadness, anger, and positive emotions. The results are described in detail and also depicted in very elaborate graphs and charts. These make for interesting reading particularly given the good presentation. A further section goes on to describe the strengths and limitations of the use of social media data as indicators of emotion. For example, one benefit is quoted as the lower effort and cost in collecting data as compared to formal surveys. As a limitation it says "Unlike surveys and experiments, which can be tightly controlled and usually include control groups, it is much harder to draw causal conclusions from observational social media studies (low internal validity)". More information on this aspect is tabulated.

Chapter 5 is titled Exploring the Biological Basis for Happiness.

This chapter attempts to understand and address the question of why some people are more happy than others though they live in similar circumstances. Here the authors refer to a study of several pairs of twins to

understand differences and similarities. They studied the characteristics of twins brought up in the same environment and those brought up in different environments. Interestingly they found that genetic differences between people are a source of differences in happiness. This and several other studies, predominantly on twins revealed that approximately 40 percent of the differences in happiness levels are accounted for by genetic differences between people while the remaining difference is on account of environmental influences that are unique to an individual. Therefore, 'The key to explain individual differences in happiness and well-being will most likely be the complex interplay of an individual's genetic predisposition and his or her environment.', note the authors. The report then goes deeper into various aspects of genetic makeup of individuals, and the influences of the environment to understand their levels of happiness, optimism, and so on. The findings regarding the influence of brain structure (size, etc.) on well-being is also described in detail in this section.

There is then a description of the effect of human physiology on well-being/happiness. 'For example, differences in neurotransmitter levels, hormone levels, and immune parameter activity, have all been linked to well-being.', the authors observe. They go on to state the implications for intervention and public health.

The final Chapter 6 is titled Insights from the First Global Survey of Balance and Harmony.

The chapter sets out to examine and define the concepts Balance and Harmony noting that they are linked but not synonymous. These concepts are much associated with Eastern cultures though not entirely absent in the rest of the world. For example, 'work-life balance' and 'balanced diet' are common concepts all over the world now. Further, a survey of perceptions about happiness in seven Western countries found participants primarily define happiness as a state of "Psychological balance and harmony". A more extensive follow-up survey found that the most prominent definition was "inner harmony". Later the chapter deals with important dimensions of the subject of balance and harmony including cross-cultural perspectives on these. Here the section notes that cross-cultural research on balance and harmony is just about starting and much work is yet to be done in order to get a better understanding of these concepts. The conclusion section of this chapter wraps up the thoughts and questions on this subject of balance/harmony in a very lucid manner and makes for interesting reading.

In all, the World Happiness Report 2022, the tenth in the series is a seminal piece of work which places this newly emerging subject in public domain and

throws light on its various dimensions. The subject of happiness and well-being has so far, not been much discussed in academic circles and therefore remains relatively under researched and unstudied. But based on the wide attention received by the treatment of this subject by Bhutan, it is now gradually emerging that happiness and emotional well-being of the population is an important dimension of progress and development of a nation or society. While hitherto, GDP, economic growth and similar measures have been preferred metrics for progress, there is now realization that other softer metrics are important too. Therefore, attempts are being made by scientists, researchers and academicians to develop measurement tools for happiness and emotional well-being. Here the World Happiness Report is an important document in pursuance of this endeavour. Overall in many nations of the world, there is a rapidly growing realization that such emotional well-being of its citizens is an important objective to pursue and there is need to create appropriate of policy frameworks and governance models at the national and provincial governments in order to achieve this objective.

V Vijaykumar

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OBJECTIVES

The main emphasis of the Institute's work is to see that the local bodies can contribute more effectively to the development process and provide the citizens with better living conditions by meeting their aspirations in terms of required amenities, infrastructure and better environmental conditions, thus contributing to social and economic development of the society as a whole by better management of the human settlements. While these are the long-term objectives, the immediate ones are:

- To advance knowledge of the principles and practices of Local Government by conducting research and by organising training courses and programmes at various centres in India for officials and elected representatives in the local bodies.
- To strengthen and improve Local Government Institutions by improving their performance through education, orientation and bringing them together for common endeavor by organising specialised conferences, conventions and seminars.
- To make available a platform for members of local bodies and officials for exchange of views and ideas related to urban development and administration.
- To represent the views of local authorities supported by research work to the concerned higher authorities from time to time.
- To publish bibliographies, articles, books and other literature on matters of interest to local bodies.
- To publish journals, bulletins and other literature on different aspects of Local Government and on the working of Local bodies in different states.
- To undertake research studies in public administration, problems of local bodies and also in related topics of urban and environmental factors and arrange for their publication etc.
- To establish and maintain an information-cum-documentation service for local bodies.
- To undertake consultancy assignments in various areas of urban development and problems of local bodies with a view to improve and develop organisational, managerial and operational efficiency.

In view of the above, the Institute has been collaborating with the relevant government departments, Central and State, Universities, Organisations and Research Institutions. The work of the Institute covers several aspects involving a multi-disciplinary teamwork.

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