

Socio-Economic Impacts of Mobile Penetration in SAARC Countries with Special Emphasis on Bangladesh

Muktasha Deena Chowdhury

Lecturer, Statistics, Asian University of Bangladesh, **BANGLADESH**

ABSTRACT

Throughout the last decade, the world has observed a surprising growth of mobile subscribers over the South Asian region. This has brought significant changes in the socio-economic environment of the SAARC (South Asian Association for Regional Cooperation) countries as well as in Bangladesh. The growth of mobile telecom industry has not only helped in developing a vital infrastructure of the country but also has played an important role in shaping social behavior. At present, a mobile phone is not just a tool for basic conversation; it is also a service device for all types of services like health, education, agriculture, mobile money for unbanked banking, commerce and businesses, citizen services, disaster responses or even an FM radio that we found in this study. It is changing the socio-economic condition and overall lifestyle of millions by creating employment opportunities and uplifting the living standard. This study aims to study the socio-economic changes in SAARC countries as well as in Bangladesh caused due to mobile penetration with a view to utilizing the outcomes, for our advancement. This study is quantitative in nature. Data collected from both primary and secondary data sources. Primary data collected from 100 individuals, 50 from urban and 50 from rural, using convenience sampling technique with a set of questionnaires designed for this study. Secondary data is obtained from secondary data sources, ITU (International Telecommunication Union), BTRC (Bangladesh Telecommunication Regulatory Commission), BBS (Bangladesh Bureau of Statistics), UNDP (United Nations Development Program), etc will be used for the research. After collecting the data, they were transcribed, tabulated and analyzed in terms of the research objectives.

Keywords: Socio-Economic Impact, Mobile Penetration, GNI, GDP, Education Index

INTRODUCTION

Throughout the last decade, the world has observed a surprising growth of mobile subscribers over the South Asian region. This has brought significant changes in the socio-economic environment of the SAARC (South Asian Association for Regional Cooperation) countries as well as in Bangladesh. Bangladesh has seen mobile penetration growth that has exceeded all expectations. It is one bright example of how a technology can change the total lifestyle of a human society. The MNOs have been relentlessly busy in line with the government's vision to connect the unconnected at grassroots level and thereby provide valuable support to not only economic development but also human development of the country. Recently, mobile telecommunication has emerged as the most preferred method of connectivity. Back in 1998, there were only 400,000 telecom subscribers in Bangladesh and tele-penetration was below 4 per cent. At the end of 2013, the number of mobile subscribers stood at over 113.78 million and tele-penetration reached around 67 per cent. This growth has been propelled by enthusiastic efforts made by the MNOs to spread the networks to every nook and corner of the country, especially in rural areas with an objective to connect the unconnected grassroots people. Telecommunications has demonstrable positive impacts on economic growth in developing countries, with

independent studies, estimating the effect to be almost twice as large as that in developed countries. Mobile communication opens up information sharing long dominated by traditional barriers and gives a voice to the traditionally unheard. It is a tool to enhance economic, health, educational and other social activities. So It is imperative to study these socio economic changes, caused due to mobile penetration, with a view to utilizing the outcomes, for our advancement.

OBJECTIVES OF THE STUDY

The main purpose of this study is to evaluate the impact of mobile services on Bangladesh's economy and society, assess the impact of government policy on the performance of the sector and to present conclusions and recommendations on areas in which policy can be improved. The other objectives are:

- To find out the relationship between mobile penetration and major socio-economic indicators in Bangladesh and the SAARC countries.
- To study growth rate of mobile subscribers in SAARC countries.
- To conduct comparative statistical analysis of mobile penetration and other socio-economic indicators among the SAARC countries.



RESEARCH METHODOLOGY

Both primary and secondary data were used in this study. Primary data were collected from 100 individuals, 50 from urban and 50 from rural, using convenience sampling technique with a set of questionnaires designed for this study. Secondary data were collected from secondary data sources, published by ITU (International Telecommunication Union), BTRC (Bangladesh Telecommunication Regulatory Commission), BBS (Bangladesh Bureau of Statistics), HDRI, etc will be used for the research.

Following statistical analysis will be conducted with the help of statistical applications, such as, SPSS and MS Excel:

- Frequency Curve
- Bar Diagram
- Correlation analysis.
- Regression analysis

In regression analysis we considered mobile penetration as our dependent variable and Education index and GNI as our independent variables.

SOCIO ECONOMIC IMPACT OF MOBILE PHONE PENETRATION IN SAARC COUNTRIES

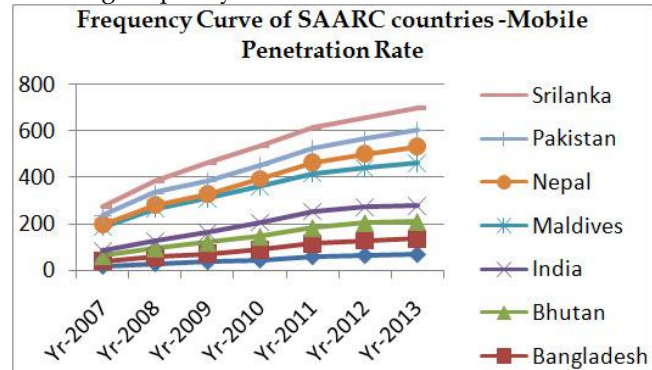
Comparison among SAARC countries on mobile penetration, education and GDP:

Mobile penetration per 100 inhabitants in SAARC countries from 2007-2013:

Year	2007	2008	2009	2010	2011	2012	2013
Afghanistan	17.72	29.22	37.89	45.78	60.33	65.45	70.00
Bangladesh	23.47	30.17	34.35	44.95	55.19	62.82	67.08
Bhutan	22.00	36.61	48.11	55.00	66.38	75.61	72.20
India	20.16	29.53	44.12	62.39	73.20	69.92	70.78
Maldives	101.72	138.80	143.21	151.78	159.79	165.63	181.19
Nepal	12.60	16.00	21.09	34.25	49.18	60.45	71.46
Pakistan	38.34	52.70	55.46	57.28	61.81	67.06	70.13
Srilanka	39.32	54.19	79.15	83.62	87.55	91.63	95.50

Source: United Nations Development Program

The above data can be graphically shown by the following frequency curve:

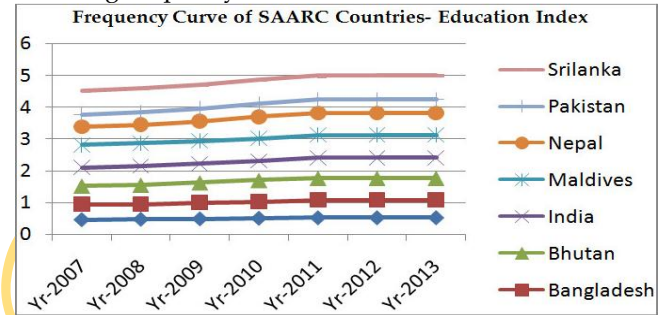


Education index of the SAARC countries from the year 2007-2013:

	2007	2008	2009	2010	2011	2012	2013
Afghanistan	.457	.470	.483	.500	.517	.517	.517
Bangladesh	.478	.472	.500	.528	.556	.556	.556
Bhutan	.583	.606	.639	.667	.689	.689	.689
India	.583	.600	.600	.617	.650	.650	.650
Maldives	.706	.706	.706	.706	.706	.706	.706
Nepal	.578	.594	.628	.672	.689	.689	.689
Pakistan	.383	.389	.406	.411	.417	.428	.428
Srilanka	.737	.743	.743	.756	.756	.756	.756

Source: United Nations Development Program

The above data can be graphically shown by the following frequency curve:

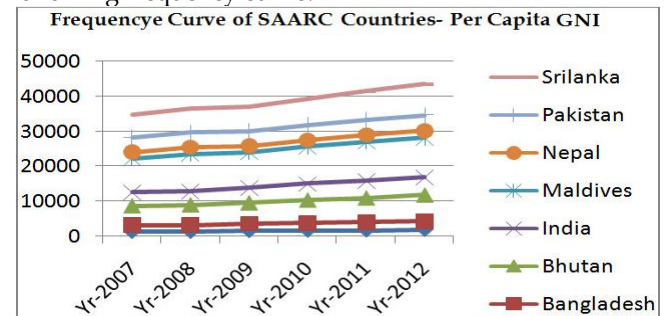


Per capita GNI of the SAARC countries from year 2007-2012:

Year	2007	2008	2009	2010	2011	2012
Afghanistan	1298	1311	1548	1637	1695	1892
Bangladesh	1849	1944	2034	2135	2252	2364
Bhutan	5521	5672	5947	6526	6962	7490
India	3882	3980	4261	4638	4883	5050
Maldives	9656	10640	10067	10578	11110	11270
Nepal	1789	1877	1940	2011	2056	2131
Pakistan	4195	4187	4228	4220	4263	4360
Srilanka	6587	6917	7080	7573	8112	8862

Source: United Nations Development Program

The above data can be graphically shown by the following frequency curve:



There exist positive relationship between mobile penetration and education index and also between mobile penetration and GNI per capita. This is very obvious that if per capita income increases then capability of purchasing a mobile phone will also increase which results increasing rate of mobile penetration. In the same way mobile penetration and education also have a positive relationship.



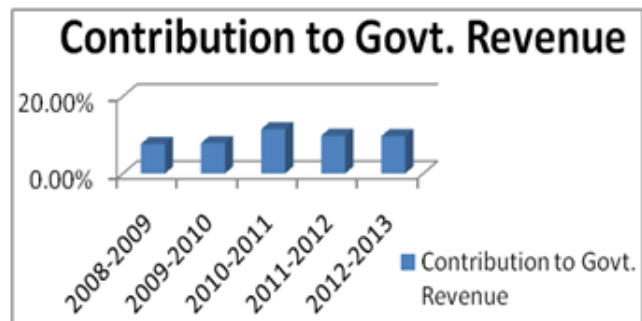
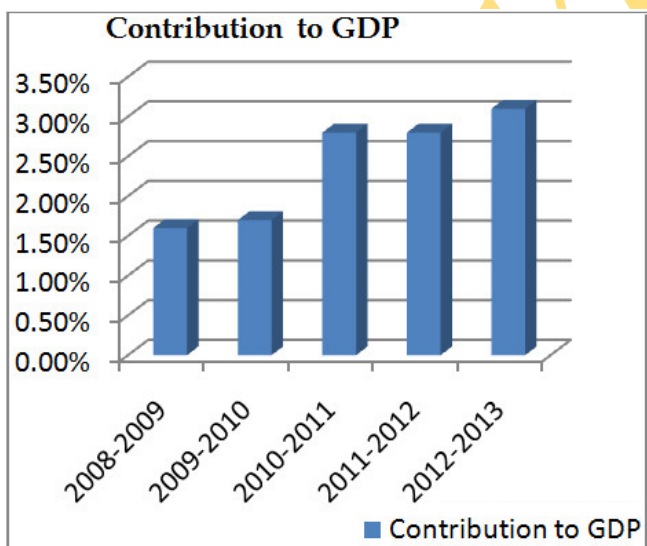
SOCIO ECONOMIC IMPACT OF MOBILE PENETRATION IN BANGLADESH

In Bangladesh, the growth rate of using mobile phone is very high and it has significant effect on the socio-economic sector of the country. The aggregation of the supply-side, demand side and intangible benefits provide an indication of the total economic impact of mobile communications in Bangladesh. The total impact of mobile communications on Gross Domestic Product (GDP) has been, and continues to be, substantial. In terms of percentage of total GDP the MNOs contribution accounted for 1.6%% of GDP in 2008-2009 increasing to 3.1% in 2012-2013. MNOs contribution to Govt. Revenue was 7.7% in 2008-2009 which increased to 9.7% in 2012-2013.

MNOs CONTRIBUTION TO GDP AND NATIONAL REVENUE IN BANGLADESH

Year	2008-2009	2009-2010	2010-2011	2011-2012	2012-2013
Contribution to GDP	1.6%	1.7%	2.8%	2.8%	3.1%
Contribution to Govt. Revenue	7.7%	7.9%	11.5%	9.8%	9.7%

Source: AMTOB (Association of Mobile Telecom Operators of Bangladesh)



Relationship between mobile phone penetration and education index can be shown by the following table:

Correlations			
		Mobile Penetration Rate	Education
Mobile Penetration Rate	Pearson Correlation	1	.964**
	Sig. (2-tailed)		.008
	N	5	5
Education	Pearson Correlation	.964**	1
	Sig. (2-tailed)	.008	
	N	5	5

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

Here we found that the coefficient of correlation between mobile penetration rate and education index in Bangladesh is 0.964 which shows that there exists a strong positive correlation between these two variables mobile penetration rate and education index.

Relationship between mobile penetration rate and per capita GNI can be shown by the following table:

Correlation			
		Mobile Penetration Rate	GNI
Mobile Penetration Rate	Pearson Correlation	1	.948*
	Sig. (2-tailed)		.014
	N	5	5
GNI	Pearson Correlation	.948*	1
	Sig. (2-tailed)	.014	
	N	5	5

* Correlation is significant at the 0.05 level (2-tailed)

Here we found that the coefficient of correlation between mobile penetration and per capita GNI is 0.948 which shows that there exists a strong positive correlation between these two variables.

LINEAR REGRESSION MODEL

As in this study we used quantitative data, we can use linear regression model to estimate the effects of independent variables on dependent variable. Here to establish a linear regression model we can consider mobile penetration rate as our dependent variable which depends on the education. Hence our model is:

$$Y - \bar{Y} = b(X - \bar{X})$$

Here b is our regression coefficient.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.943a	.890	.863	5.64160	.890	32.377	1	4	.005

a. Predictors: (Constant), Education



Here $R^2 = .89$ for this model which represents the amount of variance in the criterion variable that is explained by the model. To express this value as a percentage, we multiply this value by 100 (which will tell us the percentage of variation in the criterion variable that can be explained by the model that is 89% variation of Y can be explained by X.

Again we can consider mobile penetration as our dependent variable and Per capita GNI as our independent variable and thus we can establish another linear regression model as follows:

$$Y - \bar{Y} = b(X - \bar{X})$$

Here b is our regression coefficient.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.997a	.993	.991	1.41687	.993	572.733	1	4	.000

a. Predictors: (Constant), GNI

Here $R^2 = .993$ for this model which represents the amount of variance in the criterion variable that is explained by the model. To express this value as a percentage, we multiply this value by 100 (which will tell us the percentage of variation in the criterion variable that can be explained by the model that is 99% variation of Y can be explained by X.

CONTRIBUTION TO SOCIETY

From our primary data we found that mobile phone has great impact on our society. It has immense contribution to our society some of which are stated below:

Promoting social cohesion: there are a number of ways that mobile services can promote cohesion in families and society. For example, a cheap mobile service allows families and communities to remain as a coherent unit when family members are away for long periods.

Health: Taking medical facilities to deprived segment through "Tele-Health".

Agriculture: Increasing productivity through "Krishi Jigyasha".

Employment: Mobile services contribute to employment via several avenues:

- Direct employment of the industry and related industries.
- Support employment created by outsourced work and taxes that the government subsequently spends on employment generating activities and
- Induced employment resulting from the above employees and beneficiaries spending their earnings, and creating more employment opportunities.

Banking: Bank for unbanked rural communities through "Mobile Banking"

Education: Quality Education even in rural through "Education Hotline".

Cell/SMS Broadcasting: Alerts on Natural Disasters. During natural disaster mobile phones are used in the following situations:

- Early warnings
- Disaster management
- Recovery and re-building

M-Commerce: Buy/Sell from Home, No middle man, Cellbazar, Robi Haat-Bazar

Internet and Information Service: Reduce Digital Device through CIC, MMS

Improper use of mobile phones: Sometimes improper use of mobile phones affects family relation. Our primary data shows that a significant amount of users of age group 18-30 or below 18 are using mobile in more unethical way which is very alarming for the society.

LIMITATION OF THE STUDY

- The primary data has been collected by convenience sampling for convenience. So we might not get the necessary information.
- Due to the shortage of time the study could not cover wide side areas for collecting necessary information.
- Respondents had no written document. Therefore, the researcher had to depend solely on the memory of the respondents.

CONCLUSION

Mobile services began to emerge in developing markets in 1990. At the time, the industry held a fundamental belief that this would soon become the predominant mode of communication. However, even to the optimist the scale and speed of its adoption- as well as its impact on social and economic development- has exceeded expectations. Mobile phones also called cellular phones are an integral part of modern telecommunications. Since their introduction in a few countries in the 1980s, mobile phones have gone from being expensive items that were mainly used by the business elite, to being communication tools used by the general population. In SAARC countries we have seen that mobile penetration has a great impact on Education and GNI. As GNI per capita is increasing mobile penetration rate is also increasing. Again as education index in increasing penetration rate is also increasing. The present Government of Bangladesh has set "Vision 2021" to move Bangladesh to a middle income country by 2021. Certainly emphasis should be put on Telecommunication sector to move Bangladesh to a middle income country. Over 67% of the population currently has a mobile phone. The Government of Bangladesh's commitment to a digital Bangladesh is likely to present major opportunities for the sector. Bangladesh will have 92 million mobile subscriber connections in 2015. In September 2010 total subscriber was 65.14 million

whereas it was only 2004 it was only 4 million. Current growth rate is impressive. Mobile phones, now increasingly affordable and widespread in all clusters of people have significant impact to extend social relations. On the other hand, incense usages of this technology are now creating some social problems and also have mobile phone. Mobile teasing especially for the teen-ager and also negative impact on family relation in the rural area are remarkable negative impact of mobile phone uses. There is a direct correlation of mobile penetration with education and GNI. Mobile phones, like other ICTs, are merely tools used to help connect individuals. However in the process of doing so, these individuals can get empowered to strengthen their respective social networks and leverage them to create economic opportunities, strengthen social and cultural ties, and become more aware. Cell phone usage include: help people feel safe, financial benefits, manage time efficiently, and keep in touch with friends and family members. People have various feeling and attitudes towards cell phone usage. The past 15 years have brought an unprecedented increase in access to telephone services in developing countries. This growth has been driven primarily by wireless technologies. Mobile phones have made a bigger difference to the lives of more people, more quickly, than any previous technology. They have spread the fastest and have become the single most transformative tool for development. A recent World Bank study of 120 countries shows that for every 10 percentage point increase in the penetration of mobile phones, there is an increase in economic growth of 0.8 percentage points in developing countries. The growth impact of mobile telephony is substantially higher in developing countries than in developed ones. This study shows the socio-economic changes that are caused due to mobile penetration in SAARC countries and found that the changes are in positive direction. So we can say that the increasing rate of mobile penetration will definitely bring socio-economic development in any country. So importance should be given to enrich this sector by the Government of Bangladesh.

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