Affecting of Demographic Factors on Socio-economic Development in Bangladesh: Bivariate Analysis

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Abstract: The population and economy are two important factors of a country. The impact of demographic factors on socio-economic development means the relationship between population change and economic growth. Economic growth contributes to higher employment and higher employment leads to the reduction of poverty. In order to fulfill the vision the Government has planned to economic development and poverty eradication within 2021. This study employed a statistical technique namely, bivariate technique. Bivariate technique has been used to find out the effects of the selected demographic factor on socio-economic development. We have seen that 61.7% rural peoples have monthly low expenditure and 20.4% urban peoples have monthly high expenditure. It is also seen that 52.9% illiterate peoples have monthly low expenditure and 34.5% highly educated peoples have monthly high expenditure. From the bivariate technique the variables education, type of place of residence, husband or partner's occupation, respondent's occupation, husband or partner's age and monthly total income have significant effect on monthly total expenditure.

Keywords: Affecting factors, Socio-economic development, Bivariate analysis and Bangladesh.

Introduction

The economy of Bangladesh is a rapidly developing market-based economy. Its per capita in 2010 was US$ 760 (World Bank). According to the International Monetary Fund, Bangladesh ranked as the 47th largest economy in the world. The economy has grown at the rate of 6-7% over the past few years. More than half of the GDP belongs to the service sector, a major number of nearly half of Bangladeshis are employed in the agriculture sector, with RMG, textiles,

leather, jute, fish, vegetables, leather and leather goods, ceramics, fruits as other important produce.

The market-based economy of Bangladesh is the 32nd largest in the world by purchasing power parity and is classified among the Next Eleven emerging market economies. It is the largest economy in the Bengal region and the third-largest in South Asia. According to the IMF, Bangladesh's economy is the second fastest growing major economy of 2016, with a rate of 7.1%. Dhaka and Chittagong are the principal financial centers of the country, being home to the Dhaka Stock Exchange and the Chittagong Stock Exchange. The financial sector of Bangladeshis the second largest in the subcontinent.

This is about the Bangladesh economic situation and its problem. Here information shows the obstacles that hampering the growth of Bangladesh economy. In this report, there are also some prediction that at 2050 where we want see Bangladesh economically and other sector of development. GDP of current year, previous years and also a prediction of 2050 are also including here. So there are opportunities to know about Bangladesh economic condition and vision for 2050.

Bangladesh has achieved remarkable progress in the areas of primary schooling, girls' education, immunization, micro-credit, female economic participation, birth control, physical mobility and safety nets. The most remarkable achievement is in the field of primary education with the country well on its way to meet the development goal of universal primary education by 2015. The challenge here is ensuring adequate finances to keep up the momentum and ensuring quality education for all.

Although all relevant indicators of development goals have moved towards Bangladesh 2015 targets, its performances have been uneven. To understand this variation, it is important to analyze the reasons of the slowing down of the child mortality rate, the apparent plateauing of total fertility rate, the rise in youth unemployment rate, and most important of all what factors work in accelerating the pace of poverty reduction.

Source of data

In the estimation of factors for socio-economic Development in Bangladesh, we have mainly used the data extracted from the response of Household Questionnaire and the Women's Questionnaire of 2014 Bangladesh Demographic and Health Survey (BDHS).The survey was conducted under the authority of the National Institute for Population Research and Training (NIPORT) of the Ministry of Health and Family Welfare. The survey was implemented by Mitra and Associates, a Bangladeshi Research firm located in Dhaka. Macro International Inc., a private research firm located in Calverton Maryland, USA, provided technical assistance to the survey as part of its international Demographic and Health Surveys Program. The U.S Agency for International Development (USAID)/Bangladesh provided financial assistance.

Method

Bivariate analysis is a useful step in studying relationship between associated variables. It tells us how important an individual variable is by itself. Moreover it helps us to identify those independent variables, which have significant effect on the socio-Economic Development in Bangladesh.

Contingency tables and Chi-squared Tests

Frequency tables of two variables presented simultaneously are called contingency tables are constructed by listing all the levels of one variable as rows in a table and the levels of the other variables as columns, then finding the joint or cell frequency for each cell. The cell frequencies are then summed across both rows and columns. The sums are placed in the margins, the values of which are called marginal frequencies. The lower right hand corner value contains the sum of either the row or column marginal frequencies.

Contingency Analysis: We represent contingency analysis, which is designed to test any association between different phenomenon .In contingency analysis O is denoted observed frequency and E denote expected frequency of a contingency table, then the expected frequency under any hypothesis is

$$E_{ij} = \frac{R_i \times C_j}{N}$$

Where,

E_{ij}= Expected frequency of i^{th} row and j^{th} columns.

R_i=Number of observation at the i^{th} row the respective contingency table.

C_j= Number of observation at the j^{th} columns of respective contingency table.

And N=Total number of observation.

From each contingency table examination of association between the components and the different segment of the component are made by computing chi-square and the using the formula is given by:

$$\chi^2 = \sum_i \sum_j \frac{O_{ij}^2}{E_{ij}} - N \sim \chi^2_{(r-1)(c-1)}$$

Where O_{ij}^2=the observed number of data in $(i,j)^{th}$ cell

E_{ij} =The expected number of data in $(i,j)^{th}$ cell

Finally comparing the calculate value of χ^2 and tabulated value of χ^2, We carry out a formal hypothesis test at 5% significance. The following are the procedure of the test:

1) State Null Hypothesis, H_0 (that of no association) and Alternative Hypothesis, H_1.
2) Record observed frequencies, O, in each cell of the contingency table.
3) Calculate row, column and grand totals.
4) Calculate expected frequency, E, for each cell: (row total x column total)/ Grand total.
5) Find critical value from chi-square table, as appended, with (r-1) * (c-1) degrees of freedom where r and c are the number of row and columns respectively.
6) Calculate test statistic: $\sum \frac{(O-E)^2}{E}$

Table: Bivariate distribution of monthly total expenditure by other variables

Background Characteristic's	Categories	Monthly Total Expenditure		Total
		Low Expenditure	High Expenditure	
Respondent's current age	≤20	151 (69.9%)	65(30.1%)	216
	21-29	757 (68.6%)	347 (31.4%)	1104
	30-39	593 (61.1%)	378 (38.9%)	971
	40 and above	43 (47.8%)	47 (52.2%)	90
Type of place of residence	Rural	1209 (61.7%)	751 (38.3%)	1960
	Urban	335 (79.6%)	86 (20.4%)	421
Education	No education	333 (52.9%)	297 (47.1%)	630
	Incomplete primary	309 (65.7%)	161 (34.3%)	470
	Complete primary	195 (61.5%)	122 (38.5%)	317
	Incomplete secondary	525 (73.4%)	190 (26.6%)	715
	Complete secondary	87 (83.7%)	17 (16.3%)	104
	Higher	95 (65.5%)	50(34.5%)	145
Husband/partner's education level	No education	492 (57.3%)	366 (42.7%)	858
	Primary	543 (69.8%)	235 (30.2%)	778
	Secondary	378 (70.9%)	155 (29.1%)	533
	Higher	131 (61.8%)	81 (38.2%)	212

Monthly Total Income	≤ 5000	384 (63.3%)	223 (36.7%)	607
	5000-15000	637 (67.4%)	308 (32.6%)	945
	15000-25000	285 (62.2%)	173 (37.8%)	458
	25000-35000	94 (57.7%)	69 (42.3%)	163
	35000+	144 (69.2%)	64 (30.8%)	208
Husband/Partner's Occupation	Farmer	265 (62.5%)	159 (37.5%)	424
	Agricultural Worker	252 (75.9%)	80 (24.1%)	332
	Rickshaw Driver	235 (69.7%)	102 (30.3%)	337
	Taxi Driver	282 (66.5%)	142 (33.5%)	424
	Small Businessman	287 (66.7%)	143 (33.3%)	430
	Others	223 (51.4%)	211 (48.6%)	434
Respondent's Occupation	Poultry Raising/Cattle raising	757 (65.4%)	400 (34.6%)	1157
	Home-based Manufacturing	135 (74.6%)	46 (25.4%)	181
	Domestic Servant	68 (43.9%)	87 (56.1%)	155
	Factory Worker	100 (67.1%)	49 (32.9%)	149
	Taxi Driver	217 (72.1%)	84 (27.9%)	301
	Doctor/Lawyer/ Teacher	59 (56.7%)	45 (43.3%)	104
	Small Businessman	111 (55.8%)	88 (44.2%)	199
	Others	97 (71.9%)	38 (28.1%)	135

Findings: We can see from the above table, respondent's current age has highly significant effect on monthly total expenditure. Hence, 69.9% respondents whose age lies in ≤20 have monthly low expenditure. 68.6%, 61.1%, 47.8% respondents whose age lies between (21 to 29), (30 to 39), and 40 and above respectively has monthly low expenditure. 52.2% respondents whose age lies in 40 years and above have monthly high expenditure.

Type of place of residence has highly significant effect on monthly total expenditure. Hence, 61.7% and 38.3% in the rural respondents have monthly low expenditure and high expenditure respectively. On the other hand, 79.6% and 20.4% in the urban respondents have monthly low expenditure and high expenditure respectively.

We can see from the above table, education has highly significant effect on monthly total expenditure. 52.9% respondents who have no education has monthly low expenditure. 65.7%, 61.5%, 73.4%, 83.7% and 65.5% whose education levels incomplete primary, complete primary, incomplete secondary, complete secondary and higher respectively has monthly low expenditure. 34.5% who have higher education has monthly high expenditure.

Husband/partner's education level has highly significant effect on monthly total expenditure. 52.9% respondent's partners who have no education has monthly low expenditure. 69.8%, 70.9%, 61.8% and 65.5% whose education levels incomplete primary, complete primary, incomplete secondary, complete secondary and higher respectively has monthly low expenditure. 34.5% who have higher education has monthly high expenditure.

Monthly total income has statistically significant effect on monthly total expenditure. Hence, 63.3%, 67.4%, 62.2%, 57.7% and 69.2% respondents whose monthly total income ranges are ≤5000, 5000-15000, 15000-25000, 25000-35000 and more than 35000 taka have monthly low expenditure. 30.8% respondents whose monthly total income is more than 35000 taka have monthly high expenditure.

We can see from the above table, husband/partner's occupation has highly significant effect on monthly total expenditure. Hence, 62.5%, 75.9%, 69.7%, 66.5%, 66.7% and 51.4% respondents

whose partner's occupations are farmer, agricultural worker, rickshaw driver, taxi driver, small businessman and others have monthly low expenditure respectively. 48.6% respondents whose partner's occupation is others have monthly high expenditure.

Respondent's occupation has highly significant effect on monthly total expenditure. Hence, 65.4%, 74.6%, 43.9%, 67.1%, 72.1%, 56.7%, 55.8% and 71.9% respondents whose occupations are poultry raising or cattle raising, home-based manufacturing, domestic servant, factory worker, taxi driver, doctor or lawyer or teacher, small businessman and others have monthly low expenditure respectively. 44.2% respondents whose occupation is small businessman have monthly high expenditure.

Table of Chi-Square Test

	Value	df	Asymp. Sig. (2-sided)
Respondents current age	26.711[a]	3	.000
Type of place of residence	48.650[a]	1	.000
Education	80.693[a]	5	.000
Partner education level	39.039[a]	3	.000
Husband/Partner's age	41.224[a]	3	.000
Monthly total income	10.204[a]	4	.037
Husband/Partner's occupation	58.067[a]	5	.000
Respondent occupation	57.978[a]	7	.000

We want to test the following hypothesis-

H_0: There is no impact on monthly total expenditure with respect to respondents current age

H_1: H_0 is not true.

H_0: There is no impact on monthly total expenditure with respect to type of place of residence

H_1: H_0 is not true.

H_0: There is no impact on monthly total expenditure with respect to education.

H_1: H_0 is not true.

H_0: There is no impact on monthly total expenditure with respect to husband / partner's education level.

H_1: H_0 is not true.

H_0: There is no impact on monthly total expenditure with respect to husband/ partner's age.

H_1: H_0 is not true.

H_0: There is no impact on monthly total expenditure with respect to monthly total income.

H_1: H_0 is not true.

H_0: There is no impact on monthly total expenditure with respect to husband /partner's occupation.

H_1: H_0 is not true.

H_0: There is no impact on monthly total expenditure with respect to respondent's occupation.

H_1: H_0 is not true.

Comment: From the above table, we observed that at 5% level of significance chi-square value is $\chi^2 > \chi^2_{.05,3} = 7.814$ or $P - value < .05$. So we conclude that null hypothesis is rejected i.e. there is impact on monthly total expenditure with respect to respondents current age.

we observed that at 5% level of significance chi-square value is $\chi^2 > \chi^2_{.05,1} = 3.841$ or $P - value < .05$. So we conclude that null hypothesis is rejected i.e. there is impact on monthly total expenditure with respect to type of place of residence.

We see that at 5% level of significance chi-square value is $\chi^2 > \chi^2_{.05,5} = 11.070$ or $P - value < .05$. So we conclude that null hypothesis is rejected i.e. there is impact on monthly total expenditure with respect to education.

From the above table, we observed that at 5% level of significance chi-square value is $\chi^2 > \chi^2_{.05,3} = 7.814$ or $P - value < .05$. So we conclude that null hypothesis is rejected i.e. there is impact on monthly total expenditure with respect to husband/partner's education level.

We observed that at 5% level of significance chi-square value is $\chi^2 > \chi^2_{.05,3} = 7.814$ or $P - value < .05$. So we conclude that null hypothesis is rejected i.e. there is impact on monthly total expenditure with respect to husband/partner's age.

From the above table, we observed that at 5% level of significance chi-square value is $\chi^2 > \chi^2_{.05,4} = 9.487$ or $P - value < .05$. So we conclude that null hypothesis is rejected i.e. there is impact on monthly total expenditure with respect to monthly total income.

We observed that at 5% level of significance chi-square value is $\chi^2 > \chi^2_{.05,5} = 11.070$ or $P - value < .05$. So we conclude that null hypothesis is rejected i.e. there is impact on monthly total expenditure with respect to husband/partner's occupation.

From the above table, we observed that at 5% level of significance chi-square value is $\chi^2 > \chi^2_{.05,7} = 14.067$ or $P - value < .05$. So we conclude that null hypothesis is rejected i.e. there is impact on monthly total expenditure with respect to respondent's occupation.

Conclusion

Based on the findings of the study, we can conclude that income of individual respondents is increasing and the expenditure of individual respondents is also increasing. Hence, the contribution of women in family is also increasing day by day. To ahead the country's position economically we have to increase women's empowerment just like other developed countries. We have to increase our GDP growth and it is based on agriculture, industry, manufacturing and services. We need to improve conditions of these sectors for increasing GDP. The increasing trend of development is remarkable in recent years in Bangladesh. After all, the development of our country is increased gradually with the comparison of other developed and developing countries.

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