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THE INFLUENCE FACTORS ON URBAN POPULATION PROBLEM IN THE CITY AREA IN BANGLADESH

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ABSTRACT

Urban Population has an important role in increasing a country's economic growth and its development. Urban population has a tremendous contribution on national growth then the rural sector. Even though in agricultural based country also get much earning revenue by urban population. Urban population may effect by several factors, responsible for rural-urban migration, influence the migrant's migration status. This study will try to identify the main reason for migrating people towards to the major cities. The paper will analyse the data of Urban Area Population Growth, Number of population, Literacy rate (%), GDP per capita growth, Average of per capita expenditure, Labour Force from 1988-2017 by building a regression model. This will clarify the confusion and draw a clear picture to understand the reason of urbanisation. This study will help all of the government and city planning bureau to identify the situation and can also predict the future of the major city of Bangladesh. Moreover, it will also help to identify the government influences along with various problem of the urban planning.

KEY WORDS: ***GDP, Urban expansion, Population growth. Migration, Labour forces.***

INTRODUCTION

Urbanization is a prime process among in the developing countries, as this influences directly to the economic and social development. In the Asian countries average economic growth has been increased rather than wealth and opportunities, which became more and more unequal. In the most cases the objectives of rural and regional development have not materialised because the needs, preferences and attitudes of the rural population were not properly incorporated into the programmes. All the developed countries focused on to the cities and set an outstation for extract primary products, expand the market for their manufactured goods and finally secure the local political power in their favour (Friedmann & Wuilff, 1976; Frank, 1976; Castells, 1977). In the 21st century urbanization increasingly in large number as the main driver is considered rural–urban migration. Beside rural –urban migration, increasing population in cities and town development also influence the increase of the level of urbanisation. As in the report of United Nations (2008) around 3.3 billion people is living in the cities and major town. According to the report within 2050 around 68% of people will live in to the cities, whereas 90% of this population increase taking place in Asia and Africa.

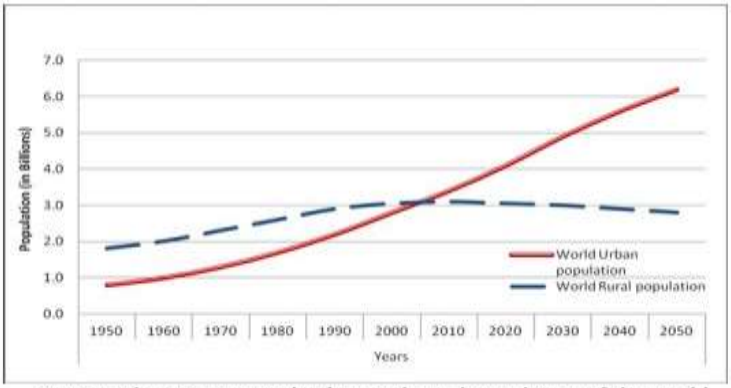

Figure 1: The UN projected Urban and Rural Population of the world.

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The capital city of Bangladesh is Dhaka city which is one of the most populated cities in the world. The population of the city increased at a rate of 6.9 from1975 to 2000 which was recorded as the highest growing population in the world, it increases from 2.2 million in 1975 to 12.3 million in 2000 (Hossain, 2013). As various problem like - immense population, many risky infrastructure, unplanned urbanisation and a geographical location that makes not only the capital but also the major cities facing very susceptible to climatic disasters. Beside that city resources and services such as water and sanitation are also creating immense pressure to the city life. As the city receives a large influx of migrants from rural parts of Bangladesh which affecting the city life as the number indicating around 0.4 million/year (Ishtiaque and Ullah 2013). The migrants come to the city area for work and to lead better life, where as they don't have the intention to securing livelihood at their village home. Their battle for spending life in Dhaka proceeds as they manage to work hard and poor living conditions, ordinarily in ghettos or squatter settlements with extremely poor or no water and sanitation where there might likewise be the danger of removals as their residency status is tricky. As indicated by a report from the Asian Development Bank (ADB, 2008:2), the effects of environmental change will be increasingly extreme amid times of exceptional precipitation in urban zones where 'waste is as of now a major issue, as sewers much of the time reinforcement in the wet storm.

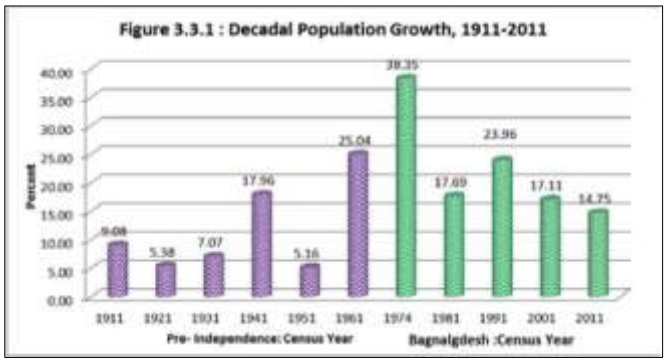

Figure 2: A Census Year Population Growth (1911-2011). Source: Bangladesh Bureau of Statistics 2011.

LITERATURE REVIEW

Within 2030 more than 1.1 billion Asian people will be shifted to the urban areas as the population of Asia is growing very rapidly (Asian Development Bank, 2008). As growing physical growth of metropolitan and city boundaries is the cause of Urbanization and rapid urban development in most of the Asian countries (Hugo, 2006; McGee and Robinson, 1995). According to Islam & Shafi (2010) physical, economic and social pattern influences the urbanisation the cities as the private sector has assumed a prominent position in those sectors.

Nasreen et.al (2006) argued that the modern cities are canters of employment, education and culture, but they are also canters of poverty, delinquency, crime, prostitution, alcoholism and drug abuse. As a rule, cities offer less space, less daylight, less fresh air, less greenery and more noise. Urbanization is the percentage of population living in cities and urban growth is the process of increasing this percentage. The urban expansion in Dhaka megacity has a significant impact on the local and global environment. Efforts to control urban expansion must start from a clear understanding of their various local, regional, and global driving forces. Studies of the interdependencies between the driving forces in the local spatial relationship in emerging Asian megacities are still limited. This study hypothesize that the local driving forces that affect urban expansion in the Dhaka megacity vary spatially. It was supposed that the local variation of demographic, infrastructural, and natural elements driving forces in the region are significantly affecting the urban expansion process in Dhaka megacity and are not spatially uniform. A clear picture and more specific about the existence of spatial variation of local elements driving-forces can facilitate planners and policy makers to manage and control urban expansion in the region.

METHODOLOGY

Data and Variables

To understand the factors which are driving urbanisation in Bangladesh various variables were included in the study. The study have used linear regression model to determine the connection between the independent and dependent variables. The multiple linear regression will helps to identify the ratio between regression coefficients and independent variables. Urban area was mentioned as

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the dependent variable (Y) as this the alternative for urban expansion in Bangladesh.

Variable	Variable Code	Detail Explanation
Y	URB	Urban Area Population
X1	POPGR	Population Growth
X2	POP	Number of population
X3	LTR	Literacy rate (%)
X4	GDP	GDP per capita growth
X5	EXPEND	Average of per capita expenditure
X6	LF	Labor Force

The analysis based on the time series indicators which also focused on the demographic determinants that are linked with the urbanisation. For error free data its being constantly check through, update and edit for analysis. Even the data places on GRETL, the figures are checked on a few times to make it Error free. This is how it further improves the accuracy of the data before the conduction of the analysing step. GRETL will be used for measuring the variables and also time series plot will be used to make for the graph. Regression analysis will be used to identify the significant value of the variables.

Multiple Linear Regressions

Multiple linear regressions model is used to ensure that the estimated result does not divert from the actual results. There are six variables have been considered in the estimated model and economic model will be formed as:

$$URB = \beta 0 + \beta 1\ POPGR + \beta 2\ POP + \beta 3\ LTR + \beta 4\ GDP + \beta 5\ EXPEND + \beta 6 LF + \varepsilon$$

Hypotheses and Conceptual Framework

The independent variables and dependent variable are used to investigate the relationship and affecting determinants among the factors which influence Urban Area Population growth of Bangladesh. The independent variables will be used to explain the behaviour of dependent variable of Bangladesh in which the study is focused on to real scenario of urban area population increase. In view of this literature review, the hypotheses and conceptual framework are formulated in this section.

H1: Population growth has a significant positive relationship with the increase of urban area population growth.
H2: Population density has a significantly expanding urban population growth.
H3: Literacy rate growth has a significant positive relationship with the increase of urban area population growth.
H4: GDP consumption has a positive relationship with the increase urban area population growth.
H5: Expenditure has a significant relationship with the increase urban area population growth.
H6: Labour Force influence the population to move towards to the urban area.

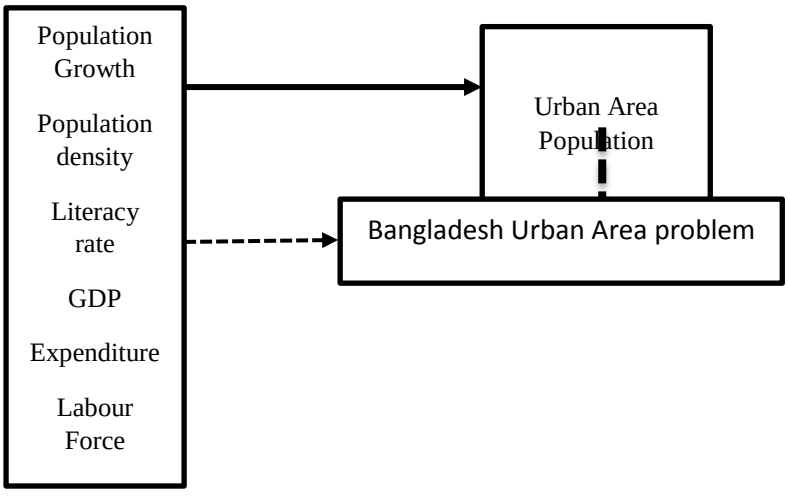

Figure 3: Conceptual Framework of variables.

Stationarity test – Time-series and Correlogram

A stationary time arrangement would ordinarily be made on the supposition that the factual

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properties of the factors would be accepted to be the same later on as the past. The direct of the stationarity test is acquiring a significant example insights alongside different factors as the portrayal of such measurements later on might be valuable if the arrangement is stationary (Shalit 2012). The vast majority business and financial time arrangement that are made accessible need aid as a rule a wide margin starting with stationary. The formal test including time-arrangement plot would investigate the patterns and diagram developments nearby its reference to the three classifications: test without consistent, test with steady and test with steady and pattern. The casual technique including the Correlogram would investigate the downwards pattern of the diagram and graph by signifying any decay to the zero value or below negative values, in order to satisfy for stationarity.

Augmented-Dickey Fuller (ADF) Test

In the ADF test, the trial of the null hypothesis of a unit root displayed in a period arrangement test as the option theory would more often than not be stationary relying upon which adaptation of test did.

Ordinary Least Square

Linear least square used to evaluate the obscure parameters in a multi relapse demonstrate by means of limiting the aggregate of the squares of contrasts between the adjusted information and those created by the direct capacity of an arrangement of logical factors. The outcome would can be communicated in a few structures which in this perspective the different relapse show. The p-value would be generally used to decide the importance of the individual factors however to a specific degree depending of cases (Weber and Monarchi 2008).

DATA ANALYSIS

Time series plot

According to the Figure: 3 it will be stated that the variables based on the time series plot can be identified as the category of Constant with trend. In Figure: 3 it is showing that there is a significant trend with the observation of the variables tremendously from 1988 to 2017 in the time series plot. The constant with trend which have a relation to the presence of an intercept on the vertical axis beside the attended of the trend.

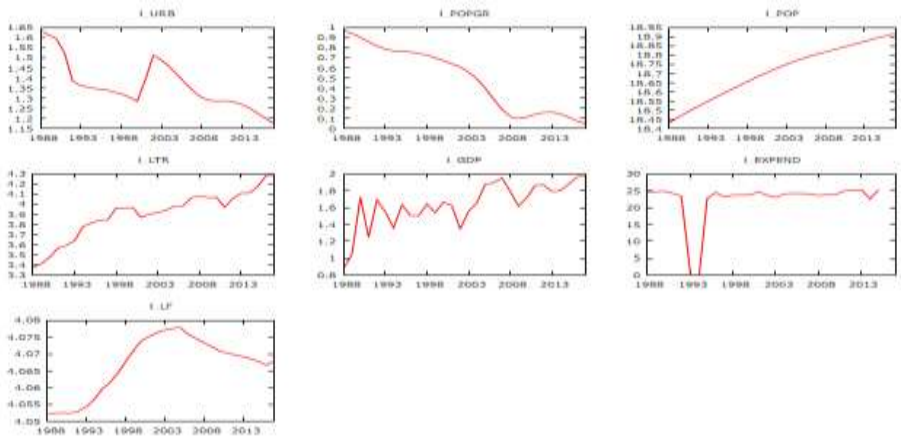

Figure 3: Time Series Plot for Urban Area Population, Population Growth, Number of population, Literacy rate (%), GDP per capita growth, Average of per capita expenditure, Labour Force (1988-2017).

Correlogram Plot

The Correlogram test ACF to Urban Area Population, Population Growth, Number of population, Literacy rate (%), GDP per capita growth, Average of per capita expenditure and Labour Force. It showed that the stationarity for inflation cannot be claimed on this variable at level data downwards trend in the beginning of the Correlogram which indicates the variable is declining to zero level. The variables continued a trend downwards after beyond the zero value in the end. The figure shows that there are some frequent moves over the ten lags.

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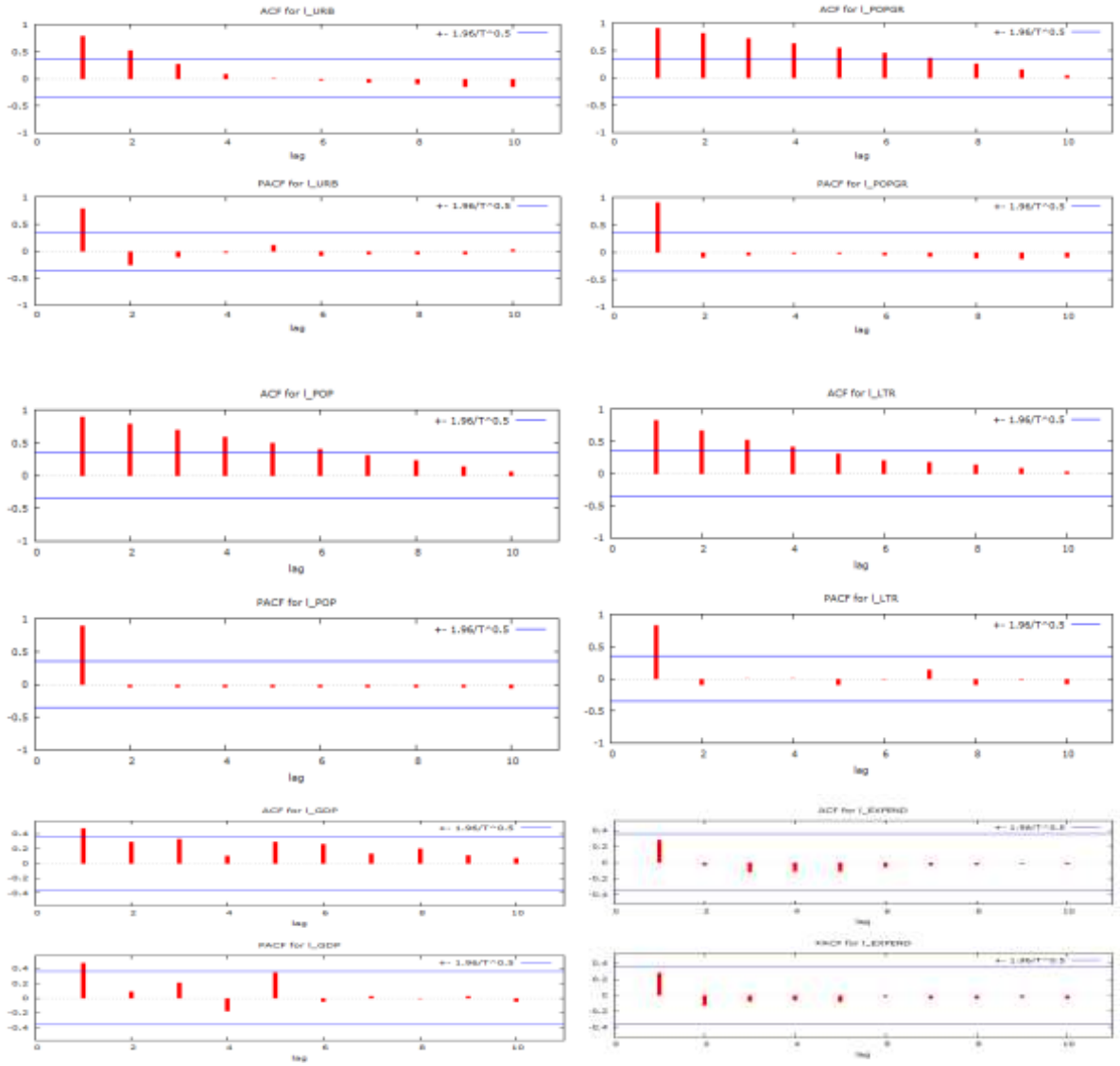

Figure 4: Correlogram Plot for Urban Area Population, Population Growth, Number of population, Literacy rate (%), GDP per capita growth, Average of per capita expenditure and Labour Force (1988-2017).

Augmented-Dickey Fuller (ADF)

To understand that the data is stationary or not stationary Augmented Dickey-Fuller (ADF) test will be needed to analyse. Augmented Dickey-Fuller (ADF) test have three categories without constant, with constant, with constant and trend which can be denoted as stationary if the P value shows as below 0.05 (5% significance level).

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Variable	P–value		
	Without constant	With constant	With constant & trend
URB	0.1321	0.1858	0.0861s
POPGR	0.1803	0.9998	0.5911
POP	0.1004	0.01909	0.9144
LTR	0.999	0.3951	0.3971
GDP	0.9837	0.01139	1.614e-005
EXPEND	0.3127	0.01126	1
LF	0.8584	0.001169	0.004702

Correlation Matrix

To study the relation between the effects of independent and dependent variables, correlation matrix have been used. Correlation matrix would be used to measure the existence of relationship between the independent variables via a range of values against the standard average.

Correlation coefficients, using the observations 1988 - 2017
5% critical value (two-tailed) = 0.3610 for n = 30

1_URB	1_POPGR	1_POP	1_LTR	1_GDP	
1.0000	0.7182	-0.7487	-0.8506	-0.7332	1_URB
	1.0000	-0.9549	-0.8753	-0.7581	1_POPGR
		1.0000	0.9516	0.7776	1_POP
			1.0000	0.7760	1_LTR
				1.0000	1_GDP

1_EXPEND	1_LF	
0.1833	-0.3937	1_URB
-0.0595	-0.6165	1_POPGR
0.0843	0.7617	1_POP
-0.0123	0.7395	1_LTR
0.0193	0.5369	1_GDP
1.0000	0.2820	1_EXPEND
	1.0000	1_LF

Table 1: Correlation Matrix between Urban Area Population, Population Growth, Number of population, Literacy rate (%), GDP per capita growth, Average of per capita expenditure and Labour Force (1988-2017).

Multicollinearity

To determining the multicollinearity this research paper follow the correlation coefficient method. The test will conduct if there is a multicollinearity present in the correlation coefficient if it will be more than 0.8/80%. In the test table 1 it shows that there is no multicollinearity and all the variable is under 0.8/80%.

Ordinary Least Square Results

Ordinary Least Square used to evaluate the obscure parameters in a multi relapse demonstrate by means of limiting the aggregate of the squares of contrasts between the adjusted information and those created by the direct capacity of an arrangement of logical factors**.** The p-value would be generally used to decide the importance of the individual factors however to a specific degree depending of cases (Weber and Monarchi 2008). Beside that to examine the robustness, OLS would be conducted for the test.

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Model 1: OLS, using observations 1988-2017 (T = 29) Missing or incomplete observations dropped: 1 Dependent variable: l_URB					
Constant	*Coefficient*	*Std. Error*	*t-ratio*	*p-value*	
	−28.0736	6.97512	−4.025	0.0006	***
l_POPGR (X1)	−0.0245945	0.118534	−0.2075	0.8375	
l_POP (X2)	0.246017	0.415573	0.5920	0.5599	
l_LTR (X3)	−0.744570	0.134827	−5.522	<0.0001	***
l_GDP (X4)	−0.0842549	0.0521778	−1.615	0.1206	
l_EXPEND (X5)	0.00176122	0.00149331	1.179	0.2508	
l_LF (X6)	6.84797	1.97948	3.459	0.0022	***

Mean dependent var	**1.370627**	**S.D. dependent var**	**0.117346**
Sum squared resid	0.044461	**S.E. of regression**	0.044955
R-squared	0.884685	**Adjusted R-squared**	0.853235
F(6, 22)	28.13024	**P-value(F)**	2.99e-09
Log-likelihood	52.81705	**Akaike criterion**	−91.63410
Schwarz criterion	−82.06303	**Hannan-Quinn**	−88.63656

Table 2: Ordinary Least Square Test for Urban Area Population, Population Growth, Number of population, Literacy rate (%), GDP per capita growth, Average of per capita expenditure and Labour Force (1988-2017).

P value: P value is compared with the significance value. If the P value is less than the significance level that means the null hypothesis is rejected which is α = .05, If P Value is greater than or equal to the significance level that means the null hypothesis is not rejected. Among all the variable Population growth is (0.0006), Literacy rate (< 0.0001) and Labour force (0.0022) have a significant level with the Urban Area population growth (URB) of Bangladesh.

R-squared: R-squared shows that how much all of the independent variable together explain dependent variable. In this study the highest R-squared considered for Bangladesh 88%.

Adjusted R-squared: Adjusted R2 showed the percentage of variation explained by only the independent variables that actually affect the dependent variable. According to the OLS table the Adjusted R-squared is 85% which shows tremendous affect by the independent variable.

P Value (F): P value (f) tests the overall significance level of regression model. The significance level for this study is considered as 5% or .05. After data analysing, from the table: 2, P value (F) has found as 2.99e-09 which is respectively less than the significance level. So the model is good fit and the null hypothesis is rejected.

Multiple Regression Model

URB (Y) = β0 + β1 POPGR (X1) + β2 POP (X2) + β3 LTR (X3) + β4 GDP(X4) + β5 EXPEND (X5) + β6LF (X6) + ε

Or, $Y = \beta 0+\beta 1X1+\beta 2X2+\beta 3X3+\beta 4X4+\beta 5X5+ \beta 5X6$

Or, Y = −28.0736 + −0.0245945 + 0.246017 + −0.744570 + −0.0842549 + 0.00176122 + 6.84797

RESULT

In this study the result shows that the labour forces have a significant impact on urban area population growth. Total labour force comprises people aged 15 and older people who supply labour for the production of goods and services during a specified period. The testing for hypothesis indicates that Labour Force is significant and also has been positively affecting Bangladesh urban population growth at a significant level of 0.1. The labour forces increasing indicates that the high demand of labour supply that impacts on increasing urban area population growth tremendously. As there are no government rules for housing, industry growth and increasing life standard in Bangladesh, so that the urban area is being compromised. Another component literacy rate is impacting for the growth of urban area tremendously as most the people of Bangladesh moved towards to the cities as the better opportunities are developed on city based. The government tries to fulfil basic need but most of the educational facilities created for city based.

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Recommendations

1. Push factors in the rural Areas and Pull factors in the urban areas should be specified then government and the concerned authority should act on this to redress this.
2. The huge exodus from rural areas to urban centres has been on the rise. The most common reasons are obsolete farming methods and lack of modern facilities and services in villages have reduced living on farms to a nightmare forcing the farmers, especially younger ones, leaving the village for finding the city of their dreams. There is a diverse range of ways for stopping the movement. One possible solution may be that the government should equip the farms with modern farming methods and by providing the farmers with small loans so as they can have a decent way of making the ends meet. The experiment in countries like China has been very rewarding and their way can be followed.
3. To bring urban migration to a tolerable level, important services in rural areas such as health services and education must be ensured. Establishing hospitals, universities, sub-government departments in a central area between villages can prevent people's migration to a great extent. In another step, it is possible to encourage investment in agriculture and animal production, both from the rural people themselves, by allocating a special support to farmers and herders. Livestock, or by channelling funds into these areas by creating incentives for investment, thus avoiding some of the reasons for rural migration to get money in cities.
4. Development gap between the Rural Villages and the urban Mega Cities can stop the migration towards the Big Cities.
5. Making jobs are available in the big cities, so people's rush to city area is quite common in search of job or better earnings that becomes an influencing factor on urban population. Government should concentrate in technological advancement & infrastructure development in the rural villages in no time.

CONCLUSION

This paper has depicted the migration of people to city areas. This migration keeps close association with other dominant factors such as high demand of labour forces, rise of per capita income of people, available employment facilities in the city areas. Due to this migration, increasing population in the urban areas leaves an impact in the socio-economic and environmental issues. Huge industrialization partly requires this migration, but owing to lacking of proper planning and influences of the government, this problem is getting severe. It is realized and sensed with a great concern that over few years the rural economy sustains non-availability of work force during the time when there remains a high demand of labour. To bring a balance between urban and rural economy, loophole and setbacks should be indented. At the same time proper guidelines should be drawn up. The author firmly assumes this opinion that results put forward in this paper will be beneficial for the planners and researchers who will work in the coming days in the field of urban migration.

Limitations of the study

First limitation of this research paper is sample size of the study which it is considered small with 30 observations only. As for the analysis part it used annual data from 1988 to 2017 and it seems to be not enough for finalizing the analysis. As the longer period of time for increasing samples size the better analysis and reliability on the variables' results. Moreover, it is recommended for further research to put more effort to find more supported previous study in education variable because in this study researcher did not find enough past studies in line with education variable. It is advisedly to use different type of indicator for infrastructure as infrastructure has lots of dimensions from physical measures such as railways, roads, airports and sea ports to development in institutions like legal services and accounting. This point has been supported by Asiedu (2002), to have the reliability and availability for infrastructure, institutional development of infrastructure needs to be taken into consideration for measuring this variable.

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