



RESEARCH PAPER

Advancing the Role of Population for Sustainable Economic Development: An Investigation of the National Perspectives

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ABSTRACT

The current study attempts to explain the relationship between the increase in population growth with the economic growth in Pakistan. The nature of this relationship is ambiguous as it has positive as well as the negative relationship with economic growth. The causal relationship between population and economic growth is channelized often through changes in GDP. The data for this research is taken from 1972 to 2020. By employing the Generalized Method of Moments (GMM) that incorporates the endogeneity issues of the estimation, the research concludes that population growth is a factor that boosts economic activity by enhancing human capital and skill level in the country. Population increase has a significant direct effect on all aspects of the economic status of Pakistan and it increases the opportunities. Today trade openness promotes economic growth. It is suggested that the population may be provided with the skills and better opportunities so that this burden can be converted into an asset to enhance economic growth.

Introduction

A high population growth rate is considered the main factor affecting the economic growth in developing countries such as Pakistan. In the near past, several scholarly debates have been done on the correlated issue of population growth and economic wellbeing. Thomas Malthus'1798 highlighted the population-development problem first time as noted by (Todaro, 2006). Most researchers analyzed the inequity between population and resources. If the demand and supply for savings and capital efficiency are affected by population growth then it may influence economic development. Hammer (1986); Mason (1988); Shumaker & Clark (1992); Timmer (1994). That the population-resource imbalance by classical and modern

economics cannot be unnoticed as it has imperative implications, especially rapid economic growth.

The main query on population is that what should be its optimum size and its effects on economic development. This dimension has triggered by the Malthusian population growth theory that depicted the weak accordance between food production and the demands of a growing population. Moreover, the validity of this theory may not be worldwide especially in the case of industrialized economies, technological advancement boosted agricultural output that ensures food security for natives. While for Pakistan, the Population growth rate shows a general downwards trend from 3.1% in 1978 to 2.0% in 2017. (WDI, 1970). It is unveiled truth of Pakistan economy that there are abundant natural resources and most of these resources are currently lying idle; so by utilizing these resources the economic expansion may be achieved. It is also a key point that investors increasingly prefer highly populated countries just because of high demand (the guaranteed market for their products), but facts show the opposite for Pakistan. So, it is the right time to call for an empirical investigation into the population-economic development correlation to recommend and suggest the state authorities and other relevant stakeholders on the specific channels to be in line with population growth dynamics in Pakistan.

China provides a clear example by suddenly introducing a collection of specific methods to reduce the total fertility rate from about 5.8 to 2.2 births per woman between 1970 and 1980. The health of individuals in a country can only be roughly approximated in national averages, showed significant effects of adult survival rate (ASR) on economic growth for low-income countries. Economists have suspected that population dynamics influence economic growth, employment and poverty, and the management of assets. The three principal categories of assets are *physical* (human-built infrastructure related to economic activity), *natural* (natural resources and the services including waste material and energy cycling), and *human* (health and educational status of citizens (Iqbal et al., 2021)). Pakistan is categorized among the low-income economies of the world with one of the highest rates of population growth and high fertility (NIFC 1998). At the time of Independence, August 14, 1947, Pakistan's population was 32.5 million. Today, the population is greater than 199.71 million and the estimated fertility rate and population growth rate are 3.0% and 1.86% respectively. This makes Pakistan the sixth most populous country worldwide. (Pakistan economic survey 2016-17).

In this study, we used secondary data and for time series analysis we apply the GMM technique. Although there have been tremendous changes in demographic indicators for health, education, income and wealth, and employment in the past two decades, still there is room for improvement due to high growth rates.

Literature Review

The Malthusian population trap holds much significance by linking population and economic growth. This theory differentiates ratio to change as the

human population grows geometrically while the means of subsistence grows arithmetically because of the law of diminishing returns. The rapid population growth is a serious threat to economic development according to this theory. This is endorsed to the proposition that rapid population growth results in tightening work markets, enhancing underemployment, and inadequate labor force mobility across sectors. However, the Malthusian population theory stated that a high population growth rate is a real dilemma to any economy. Solow and Swan(1956) emphasized the “population growth rate” instead of “population-level” terminology. In the analysis of population dynamics, the author pointed out that raise in the population growth rate may be caused to trim down the capital per worker as well as the steady-state output per worker. As a consequence, elevated population growth may delay productivity and economic growth. Many researchers like Ahlburg (1998) and Becker *et al* (1999), explored the other side of the picture and stated that speedy population growth is not a problem at all, but rather a gateway for economic development. Ahlburg (1998) established the mechanism as high population lead to “technology pushed” and “demand pulled” that implies that higher population growth may raise the need for goods and services and pull-up technological advancement. So as an outcome, it significantly picks up labor productivity, enlarges income per capita and standards of living.

Becker *et al* (1999) took population as the strength of a nation since it is the main source of real wealth. The high population growth rate caused the high working class that is one of the most important factors of production. Moreover, Becker *et al* (1999), on the other hand, agree with both Malthus (1798) and Solow and Swan (1956), stated that swift population growth deteriorates economic development. Kothare (1999) analyzed the relationship between population growth and economic development in India and explored that population growth has a positive significant effect on economic growth. Albatel (2005) investigated the population growth and economic development in Saudi Arabia and found that quick population growth hurts economic growth and savings. According to an African study, Asongu (2013) focused the population growth and investment and established a long-run positive causal linkage from population growth to public and domestic investment.

Adetiloye& Adeyemo (2012) examined capital formation, domestic investment, and population growth in Nigeria. The article showed that there is a negative correlation between growth rates of the population and capital formation. In another study, Tsukazaki (2012),examined the demographic changes and economic development in Ethiopia and stated that there is a strong and negative long-run connection between per capita income and population growth. Its descriptive investigation signified opposite links of population growth with landholding, forest coverage, and HDI score.

likewise, in Pakistan, Ahmad *et al* (2013), explored the impact of population growth on economic growth and originated that contributed of population growth has a positive and significant impact on economic expansion but is negatively

exaggerated to unemployment in Pakistan (Shaheen et al., 2015; Nasir et al., 2021, Yasmin et al., 2021). More recently, Zhang (2015), investigated the association between population growth and economic development in Asian countries and finished that population growth affects economic development negatively in less developing countries such as China, India, and Indonesia. Correspondingly, Ali et al (2015) analyzed the impact of population growth on economic growth in Bangladesh. The results showed that there is a negative relationship between population growth and economic progress in Bangladesh, even as foreign investment and export promotion only have a minute impact on the country's economic growth. Tartiyuset al (2015), analyzed the impact of population growth on economic expansion in Nigeria. the study indicates that there is a positive bond between economic growth and population, fertility, and export growth; whereas negative associations were found among economic growth and life expectancy, and crude death rate.

Gupta et al, (2011) investigated population, poverty, and sustainable development: literature showed broad consensus that while policy and institutional settings are key in shaping the prospects of economic growth and poverty reduction, the rate of population growth also matters. This Study depicted that reducing the fertility rate facilitates economic growth in countries having a low level of income. Low dependency ratios create a window of opportunity for savings, increased productivity, and investment. so if properly managed it may transform living standards permanently.

Akram and Khan (2008) investigated the long-term impact of health on economic growth in Pakistan. Human capital plays a pivotal role in sustainable economic growth. Economic development resulted in improved nutrition, better sanitation, innovations in medical technologies, all these boosted life expectancies and reduce the infant mortality rate so the impact of health is only a long-run phenomenon and in the short, there is no significant relationship between health variables and economic growth.

Material and Methods

Economic growth rates are affected by the demographic indicators as the population growth. The data for many demographic and macroeconomic variables are collected for the period 1972 to 2020 on annual basis.

Theoretical and Empirical Methodology

Hansen (1982) proposed a statistical methodology known as the Generalized Method of Moments (GMM). This technique bounces the capability of estimation to evaluate alternative methodologies to explore significant economic singularities without fully developing each of their elements (Hansen, 1982; Newey & McFadden, 1994). Instrumental variables are the significant part of the estimation, these are the

variables are that are correlated with exogenous variables and uncorrelated with errors.

a) Empirical Model Specification

Model: Contemplation of Population on Economic growth

$$GDI = \delta_0 + \delta_1 INF + \delta_2 ER + \delta_3 TOP + \delta_4 GCF + \delta_5 FDI + \delta_6 POP + \epsilon_{it} \quad (1)$$

ϵ_{it} = Error term and δ_0 is Intercept and $\delta_1, \delta_2, \delta_3, \delta_4, \delta_5$ are the Slope coefficients.

Where

GDP = Gross domestic product growth

INF = Inflation rate

ER = Exchange rate

TOP = Trade Openness

GFC = Capital

POP = Population growth

Results and Discussion

**Table 1
Descriptive Results**

	GDP	INF	ER	TOP	GCF	FDI	POP
Mean	4.9309	9.1035	44.4578	0.3038	17.7730	1.1341	2.5756
Median	4.8465	9.7500	38.5951	0.3000	18.1424	0.7500	2.4846
Maximum	10.2157	20.8000	168.6289	0.3700	20.8183	3.9000	3.3604
Minimum	1.0144	3.1000	9.9000	0.2500	14.1206	0.0600	1.9541
Std. Dev.	2.0666	3.6662	29.9184	0.0292	1.6096	0.9939	0.5047
Skewness	0.2242	0.4051	0.3938	0.1556	-0.5257	1.0992	0.3095
Kurtosis	2.7015	3.6994	1.7524	2.3203	2.4286	3.3158	1.4794

Source: Author's Estimations with E-views 9.5.

**Table 2
Correlation Analysis**

	INF	ER	TOP	GCF	FDI	POP
GDP	-0.1852	-0.4163	0.1261	0.2425	-0.2398	0.4609
INF		0.2382	-0.1032	-0.0468	0.2788	-0.1847
ER			-0.4755	-0.7174	0.7584	-0.29113

TOP	0.5504	-0.3968	0.3148
GCF		-0.3182	0.5275
FDI			-0.3585

Source: Author's Estimations with E-views 9.5.

Table 3
Unit root analysis

Variables	Intercept	Intercept and Trend	None
GDP*	-4.56(0.00)	-4.62(0.00)	-4.18(0.01)
PG	-2.10(0.27)	-2.9(0.19)	-2.61(0.01)
Δ PG*	-5.05(0.00)	-4.90(0.00)	-2.05(0.02)
GCF	-1.76(0.39)	-2.78(0.29)	-0.63(0.45)
Δ GCF*	-6.17(0.000)	-6.08(0.00)	-6.18(0.00)
ER	2.11 (0.99)	-2.82 (0.19)	0.19 (0.73)
Δ ER*	-5.02 (0.00)	-6.17 (0.00)	-0.51 (0.48)
INF	-3.91(0.00)	-3.48(0.05)	-1.12(0.22)
Δ INF*	-8.45(0.00)	-8.22(0.00)	-8.53(0.00)
FDI	-1.31(0.58)	-4.5651 (0.00)	-0.28(0.56)
Δ FDI*	-6.70(0.00)	-6.27(0.00)	-6.60(0.00)
TOP	0.39(0.96)	-0.91 (0.92)	1.71 (0.94)
Δ TOP*	-4.87(0.00)	-5.08(0.00)	-4.74 (0.00)

Source: Author's Estimations with E-views 9.5.

Note: values in parenthesis represent the P-Value and Values with * are the stationary values.

Table 4
Empirical results
Contemplation of Population on Economic growth

Variable	Coefficient	t-Statistic	Prob.
INF	-0.09221	-1.45647	0.1582
ER	-0.1294	-3.10238	0.0049
TOP	0.365097	3.488787	0.0019
GCF	1.78469	5.38367	0.0000
FDI	0.35573	1.25278	0.2224
POP	3.399082	3.291763	0.0031
C	2.943267	0.349418	0.7298

Source: Author's Estimations with E-views 9.5.

The expected signs of all coefficients are according to the theoretical background. The exchange rate has a negative and significant relationship positive with the GDP growth rate. Coefficients for foreign investment and exports are positive though not significant. Foreign investment and export promotion are a more recent phenomenon in Pakistan. Trade openness policies were adopted in the early 1990s and this policy has been moderately successful. Now foreign aid is not available at concessional terms after the end of the cold war. That is why various governments have offered diverse incentives to attract foreign investment. Pakistan has succeeded in attracting \$3.02 in foreign direct investment (FDI) in 2005-06- the highest ever in the country's history, against \$0.89 billion in the same period last year. Significant improvement in the country's overall macroeconomic environment and up-gradation of Pakistan credit rating has helped attract large inflows of FDI (Safdar et al., 2021). Population and capital also have a positive function with economic growth. As the population grows there is a significant probability that there may be an increase in human capital that led to economic growth.

Conclusion

The impact of population growth in the economic growth of Asian Developing countries increase GDP. We can conclude that higher population growth will enhance the GDP as well as push the economy in Pakistan up. Consequently, the economic growth in Pakistan will be improved. The government of Pakistan's policies and programs to contain the uninhibited population growth have not made an enviable success. By employing the Generalized Method of Moments (GMM) that incorporates the endogeneity issues of the estimation, the research concludes that population growth is a factor that boosts economic activity by enhancing human capital and skill level in the country. Population increase has a significant direct effect on all aspects of the economic status of Pakistan and it increases the opportunities. Today trade openness promotes economic growth. It is suggested that the population may be provided with the skills and better opportunities so that this burden can be converted into an asset to enhance economic growth.

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