Population and Sustainable Development Goals: Establishing Linkages in the Pakistani Context

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FOREWORD

The Sustainable Development Goals (SDGs) are a set of 17 goals and 169 targets covering social, economic and environmental areas of sustainable development, which all the United Nations (UN) Member States have committed to achieve by 2030. As an affirmation of its political ownership and commitment, Pakistan integrated the SDGs into its national development agenda in February 2016, through a unanimous parliamentary resolution, and was in fact the first country to do so. Subsequently, task forces were set up in the National and Provincial Parliaments to review progress and facilitate legislative support for subsequent implementation. It was also one of the first countries to establish an SDG monitoring unit at the Planning Commission of Pakistan. Seven SDGs Support Units, instituted at Federal and Provincial Government levels, are facilitating coordination amongst the stakeholders.

Pakistan's current annual population growth rate of 2.04 percent raises serious concerns especially in this time of the Covid-19 crisis. Keeping in view the grave impact of population density on the pandemic, the need to prioritize the population issue has become more relevant and pressing than ever before. It has now become clearer than ever that the population numbers are unsustainable in the medium and long run and a major impediment in attaining the Sustainable Development Goals (SDGs). The post-2015 agenda, which seeks to achieve sustainable development through actions in three aspects: social, economic and environmental, offers Pakistan an opportunity to achieve these goals by bringing down its population growth rate to sustainable levels.

The SDG agenda has directly included population dynamics through inclusion of reproductive rights and services. There are two indicators referring to universal access and rights to reproductive health care including family planning, specifically SDG target 3.7 (By 2030 ensure universal access to sexual and reproductive health care services, including family planning, information and education and the integration of reproductive health into national (provincial) strategies and programs) and SDG target 5.6 (Ensure universal access to sexual and reproductive health and reproductive rights). Two or more targets like the need for family planning satisfied and adolescent fertility rate are included for measuring progress in family planning and fertility.

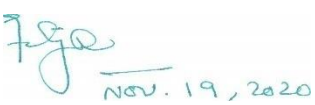
The fact that sexual and reproductive health and rights (SRHR) and family planning have been referred to more than once in the SDGs reveals their significance. The challenges confronted to achieve most SDGs are affected by population dynamics, in terms of age structures, population growth and migration and are exacerbated by huge and ever-increasing population numbers. Hence, most goals are linked to family

planning. Family planning can be the cross-sectoral intervention that can accelerate progress across five themes, which are the organizing principles set forth in the preamble of the Sustainable Development Goals of People, Planet, Prosperity, Peace, and Partnership.

Pakistan can be better positioned to achieve the SDGs if policy makers prioritize family planning in policies, programs, and funding. By investing in a fertility decline through a robust family planning program, we can significantly reduce the numbers of people in poverty; divert resources to improving maternal and infant survival, nutrition, educational attainment, etc. The unanimous resolution on the alarming rate of population growth passed by the Senate of Pakistan on January 20, 2020 was a testimony of the seriousness of political support for population issues. This landmark resolution was followed by the establishment of a Parliamentary Forum on Population to ensure cross-party political commitment and to advocate for population legislation in the parliament.

This Monograph provides not only an excellent and timely overview of the opportunities and challenges faced by Pakistan, but also an informed, evidence-based analysis exploring the critical linkage between family planning and SDGs in the Pakistani context. The authors of the monograph make an excellent case for mainstreaming family planning across sectors for people centered sustainable development. It can be an advocacy tool for encouraging greater coordination across national and provincial development plans and increase political buy-in for investing more in family planning. It deserves to be widely read by policymakers, researchers, and the general public. The monograph will also serve to inform the incumbent government of Pakistan that family planning is a cost effective, relatively inexpensive means of freeing resources for improving human development through higher quality health and education services provided by the state, both of which are key developmental targets of Prime Minister Imran Khan and his government.

The SDGs offer Pakistan another opportunity to rectify the mistakes of the past and come up with a strategy to reduce population growth rates with reductions in unwanted fertility. Sustainable development and fertility decline are inextricably linked, and family planning has been termed as a 'best buy intervention' for achieving SDGs. It is high time that we recognize the importance of creating a balance between our resources and our population. Till we do that, inclusive and sustainable development will remain elusive.



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CHAPTER ONE

Population and Poverty in Pakistan

Hanid Mukhtar[1]

Introduction

After a strong performance between 1960 and 1990, economic growth in Pakistan has sharply slowed down. The deceleration in growth of per capita GDP was even more pronounced, as the population growth remained high in comparison to other countries in the region. As a result, Pakistan's per capita GDP, which in 1990 was 60 percent higher than that of India and 126 percent higher than that of Bangladesh, has fallen below India (31 percent) and Bangladesh (1 percent). As is shown in section III of the chapter, Pakistan's economic slowdown is a result of many adverse factors, including continued reliance on wrong economic policies, weak macroeconomic fundamentals, and adverse security situation. Yet, Pakistan's high rate of population growth has contributed significantly to this slowdown by increasing consumption and keeping savings and investment rates very low. Nonetheless, despite this deceleration in growth of per capita income, poverty has continued to decline. This behooves us to ask the following important questions:

- How was Pakistan able to generate reasonably high rates of economic growth for such a long period of time, despite having some of the more adverse economic fundamentals in the region?

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- Why, since the 1990s, has the economic growth slowed down despite no significant change in economic policy or other macroeconomic fundamentals?
- Is the continued high rate of population growth in some way a cause of economic slowdown?
- Even with decelerating economic growth and continued high population growth, how was Pakistan able to reduce poverty, even more than some of the countries in the region with better economic and population trends?
- What, if any, is the role of high rate of population growth in poverty reduction in Pakistan? Is population growth elasticity of poverty so high that even a small decline in population growth rate leads to a significant reduction in poverty?

In an effort to find answers to the above questions, this chapter reviews the available literature to get insights into the correlation between population growth and poverty. The chapter asserts that in the case of Pakistan economic policy played a central role in defining the course of economic growth and poverty reduction in the country. However, using macroeconomic and household-level data, the chapter makes an attempt to show that population growth played an important role in dampening (or accentuating) the impact of policy on economic growth and poverty. The paper sheds light on the adequacy of the present economic and population policies of the government and highlights future pathways for accelerating economic growth and poverty reduction to the extent of eradicating, by 2030, extreme poverty for all people everywhere in the country (SDG1).

Section II of the chapter provides a review of the literature on the relationship between population growth and poverty. The first two questions have been intensively debated in previous works—Felipe et al. (2009), Lopez-Calix et al. (2012), Lopez-Calix (2013), Ahmed et al. (2013), and Rosbach et al. (2019). Section III briefly explains Pakistan's "growth paradox"—namely, higher economic growth with weak economic fundamentals—and the causes of the more recent economic slowdown. Using both macroeconomic and household data, the section then goes on to show statistical relationship between population and poverty. Section IV summarizes the main conclusions of the chapter and indicates the key policy steps that are needed to reverse the adverse trends in economic and population growth.

Population, Economic Growth and Poverty -- A Literature Review

The influence of population (or population growth) on the direction and magnitude of economic change has been a hotly debated topic among the demographers and economists over the last several decades. The debate has generally focused around the basic tenet of Thomas Malthus (1798), who convincingly argued a two-way

causation between population and economic welfare. He posited that higher incomes increased population by stimulating earlier marriages and higher birth rates, and by cutting down mortality from malnutrition and other factors. On the other hand, a high rate of population growth leads to lower per capita output (and consumption), as in the presence of a fixed factor (land) higher population leads to diminishing marginal productivity of labor.

The intense debate which Malthus' essay generated on the existence and direction of relationship between population (or population growth) and poverty took decades to converge on a somewhat obvious conclusion—the relationship between population growth and poverty in a given country depends on the local economic, social, cultural, and institutional environment. This, a rather disappointing conclusion in an academic sense, is still important, as it emphasizes that the policies which aim to influence incidence of poverty through population programs have to keep in view the local conditions, and a one-size-fits-all type of policies may not yield the desired results.

Given this lack of universality in relationship between population and income growth, the fundamental question is: is this relationship really a matter of concern? After all, at the household level, the demand for more children may be a rational decision on part of the parents, knowing well its full implications. In this context, low level of family savings, investment, and income may be optimal outcomes. This would be true if there were no market or government failures and if there were no (positive or negative) externalities to having more children. Unfortunately, in many developing countries, there are significant market and government failures, most importantly in delivery of population services, and there are real and pecuniary negative externalities (Birdsal et al 2001) which leads to a number of concerns—most importantly:

- Rapid population growth reduces the rate of economic growth by, for example, reducing investment in human and physical capital, which in turn adversely affects the economic welfare of many other people.
- Rapid population growth has negative externalities, leading to a degradation of natural resources.
- Rapid population growth has negative "pecuniary" externalities—that is, it reduces the incomes of some groups, particularly the poor, say by depressing real wages and thereby exacerbating poverty.

A. Population growth and poverty—some important pathways and correlations

Population and Economic Growth: Given the proven link between long-term economic growth and poverty reduction, effect of population on economic growth has been the most thoroughly investigated area in literature. Although higher rate of population growth is neither a necessary nor a sufficient condition for lower economic growth, yet the general empirical observation is that many countries with higher rates of

population growth tend to be poorer. The logic behind this relationship relies on the neo-classical paradigm that higher population growth rate depresses savings and investment as a larger share of national income goes into consumption. Moreover, high rate of population growth increases the supply of labor lowering labor productivity (and real wages).

A similar argument is made at the micro level as well. A greater proportion of income of larger families goes into consumption and a smaller proportion goes as savings or asset accumulation. Other things being the same—especially average age of the household—this implies that larger households are likely to be poorer than smaller households. As stated earlier, and elaborated in more detail later in this section, the problem in this relationship between family size and poverty is that household size may not be completely exogenous. Having few productive assets, poor households rely primarily on primitive production technologies and thus have a greater need for cheap labor, and therefore a higher demand for children. Lack of state benefits and pensions may also contribute to this demand, as children becomes a means of insurance or security in old age.

As indicated above, perceived costs and benefits of children, and thus family fertility behavior, depend on economic forces, social organizations, and cultural values. As such, the poverty/fertility relationship is contingent upon social and institutional characteristics, including education, availability of family planning and health services, and social and religious beliefs. However, these factors do not remain constant over time. Over the last two decades, developing countries have shown rather different paths in terms of the fertility transition and economic progress. Some countries have witnessed sharp fertility decline and impressive economic growth, whereas others have remained static with high fertility levels, low economic growth, and persistent poverty. Many countries in Africa and South Asia continue to have a population growth which is considered to be excessive in view of available national resources.

The most important investigation of the relationship between population and economic growth is the seminal work by Coale and Hoover (1958). Using the example of India, they compared two paths for the economy, one with higher fertility than the other, and reached the potent conclusion that not only was the growth of per capita income lower under the high-fertility scenario, so was the growth of aggregate gross national product (GNP). The study traced this link to the dependency burden (that is, ration on non-earner to earner in the household) which increases with an increase in household size, implying lower savings in larger households. As acquisition of productive assets by households depends on its savings, larger households are deprived of the returns from these assets. In addition, even the investment in human capital gets spread over a larger number (“capital widening”) rather than getting concentrated only on a few members (“capital deepening”). This, at the macro level, means that if the population was growing more slowly, the same amount of capital would be used to improve the quality of schooling or health services received by each

individual, instead of being diluted by having to extend coverage to more people, implying greater productivity of each individual.

These findings, however, were hotly disputed, mainly on empirical grounds, as a number of high-profile studies show no or little impact of household size on household savings (Levine and Renelt (1992)). This "revision" in thinking about the relationship between population and economics is well reflected in the difference in the conclusions of two National Academy of Sciences (NAS) reports. The first report (1971) classified the impact of population into five major categories.

I. Economic: Rapid population growth slows the growth of per capita incomes in the LDCs, perpetuates inequalities of income distribution, holds down saving and capital investment, increases unemployment and underemployment, shifts workers into unproductive pursuits, slows industrialization, holds back technological change, reduces demand for manufactured goods, inhibits development and utilization of natural resources, deteriorates the resource base, and distorts international trade.

II. Social: Rapid population growth results in rapid urbanization, strains intergenerational relationships, impedes social mobility, and widens gaps between traditional and other sectors.

III. Political: Rapid population growth worsens ethnic/religious/linguistic conflicts, administrative stresses, and political disruption.

IV. Family welfare: Rapid population growth inhibits the quality and quantity of child education, lowers maternal and child health, retards child development, and produces crowded housing and urban slums with associated illnesses.

V. Environment: Rapid population growth stimulates agricultural expansion which in turn results in soil erosion, water deterioration, destruction of wildlife and natural areas, and pollution; and pesticides poison people as well as domestic and wild animals.

On the other hand, the second report (1986) is much more moderate in tone and implies that:

I. There are both positive and negative impacts of population growth.

II. Given the available empirical evidence, only the direction of the impact of population growth could be determined while the actual size of the net impact of population growth could not be conclusively determined.

III. The net impact varies from country to country, although in most developing countries it will be negative

Contrary to the assertion of the NAS's second report, more recent empirical studies—for example, Kelly and Schmidt (1995, 2001)—showed large negative impacts of population change on growth of per capita income. In particular, Kelley and Schmidt (1995), using data from the 30-year period between 1960 and 1990 yielded the result that a unit decline from recorded median population growth rate of 2.54 to

1.54 percent results in an increase of per capita GNP growth from its median of 1.36 to 2.00 percent.

Looking at Pakistan, the rates of investment and savings have been chronically low, reflecting the pressure of rapidly growing population, although inadequate economic and financial polices also contribute significantly. Relatively higher rates of economic growth that Pakistan was able to achieve during the 1960s and the 1980s, despite the inadequacy of investment, were due to prevailing economic and policy conditions, and the type of investments made (Ahmed 1994).

Population and human capital: Other studies criticized Coale and Hoover's assumption that investments in education and health did not promote economic growth. These investments have been highlighted in the 'new growth economics' literature—for example, Barro (1997)—as well as their focus on short-run impacts of population and without consideration of longer-run impacts. The main emphasis of this research has been on the dual nature of population—a consumer and a factor of production. Higher population growth leads to higher consumption and the "crowding out" of savings and investment, thereby leading to diminishing returns to labor, which is the fundamental basis of traditional (alarmist) hypothesis. However, larger populations can encourage greater specialization and increased investments in knowledge, mediated in part through bigger and more important cities. Therefore, the net relation between greater population and per capita incomes depends on whether the inducements to human capital and expansion of knowledge are stronger than diminishing returns to natural resources (Becker et al. 1990).

Limitations to human development has long been a matter of grave concern for policy makers in Pakistan and seems to have contributed significantly in reducing the rate of economic growth by depressing the overall productivity and country's competitiveness in international markets (Lopez-Calix et al. 2013). These disadvantages adversely affected the sustainability of economic growth and led to an "episodic growth" pattern, where a few years of good economic growth are followed by a number of years of low growth.

Population and environment: By summarizing the historical trajectory from 1900 to 1970 of non-renewable natural resources, pollution, population size, food production, and industrial output, and simulating their trajectory from 1970 to 2100, Meadows et al. (1972) concluded that sustainable development could not be achieved without curtailing population growth and the use of natural resources. Others argued that more rapid population growth might help drive economic growth, by spurring technological innovation that can potentially stretch resources indefinitely. Boserup (1965) had argued that rising population tends to induce agricultural innovation and lead to agricultural intensification, allowing greater productivity per unit of land to feed the larger population. Simon (1981, 1996) argued that people and markets innovate in response to potential resource shortages, and therefore the resource base is effectively infinite. However, these studies tend to ignore, or at least understate, the cost of innovation, which for poor countries could be substantial. Hence, even the degradation of environment is

reversible through innovation and technology, the cost of doing so should be considered as the economic cost of population growth. In addition, some of the resources may be impossible to fully replenish through innovation and technology, signifying the adverse impact of population on economic growth.

However, in developing countries, where access to new technology is low and its cost a major deterrent in its adoption, the impact of rapid growth on degradation of natural resources is substantial, with poor and the vulnerable bearing the brunt of that impact. Pakistan is one of the countries that are most vulnerable to climate change, particularly to emerging water shortages. Pakistan is a semi-arid country with continued heavy dependence of irrigated agriculture. The inherent water scarcity has been exacerbated by rapid population growth, which not only increased the demand for water but also of food and other essentials. On the other hand, the water resource base is being degraded on a large scale by salinity and uncontrolled pollution. Groundwater is now being overexploited in many areas, and its quality is deteriorating; yet, tens of thousands of additional wells are being put into service every year. Flooding and drainage problems will get worse, especially in the lower Indus Basin, as silt builds up and narrow embankments force the rivers to flow within relatively narrow beds above the level of the land. Climate change is causing the glaciers of the Western Himalayas to melt and retreat. This is likely to exacerbate the already serious problems of flooding and draining during the next decades. When the glacial reservoirs are empty, there are likely to be dramatic decreases in river flows (Briscoe and Qamar 2018).

Demographic Factors—A Relook at Savings and Investment: Research in the 1980s and 1990s brought about a complete reversal in the view of role of population in a swing of the pendulum in the macroeconomic discussion. Bloom and Freeman (1988) and Blanchet (1991) showed that mortality and fertility declines had different impacts on economic growth. Thus, models that looked only at the impact of aggregate population were clearly mis-specified. A series of cross-country studies by Kelley and Schmidt (op cit.) indicated that the positive and negative effects of population probably offset each other in the 1960s and 1970s but produced a net negative effect in the 1980s. In their more recent work, they conclude that about 20 percent of economic growth over the period 1960 to 1995 can be attributed to mortality and fertility declines, with the larger contribution coming from mortality.

Rapid decline in population growth, and even more the dramatic acceleration in economic growth in East Asia in 1960–85, gave a further boost to the study of population and development. The keys to the relationship were thought to be decreased dependency burden (commonly known as the “demographic bonus”) leading to higher savings and more investment in education. An influential study by the World Bank (1993) argued that a large proportion of that growth was due to improvements in education, which in turn was made possible by lower population growth. Unlike Coale and Hoover who focused only on the short-run effects of population growth, these analyses also looked at the medium-term effects where a rising number of young people enter the labor force, and the long run effects that

occur as they retire. The dependency ratio declines as the age of household increases, but then at later stages may increase as number of retirees in the household start to increase. As such, household income shows an inverted U-shaped path over the life cycle of the household. Household consumption, on the other hand, shows a more stable path—increasing slowly over the life cycle. As such, household savings (and wealth) rise in the intermediate period and fall in the latter period of the life cycle. The high level of savings in the intermediate period (the "demographic bonus") is shown to be responsible for as much as one-third of the rapid economic growth in East Asia (Bloom and Canning 2001). These studies emphasize that it is the changes in demographic features (e.g., fertility, the age distribution, and life expectancy) as well as the timing of those changes that may matter.

Although repeated studies confirmed the existence of "demographic bonus" in most types of economies, the size of this "bonus" depends on the productivity of its labor force. The human capital aspect of labor force therefore is the main determinant of the magnitude of the "demographic bonus." The human capital, in turn, depends on the quantity and quality of education, skill development, and health services. The dilemma faced by developing countries is how to provide social services of reasonable quality to the rapid growing population. Analysis of Pakistani household data points to the possibility of reaping some "demographic bonus" (see Box 1). Rapidly increasing population imposes immense pressure on public services and infrastructure. In the case of Pakistan, this leads to erosion in their quality and diluting human capital development of public investment in social services.

Population growth and real wages: It is widely believed that more rapid population growth increases poverty by reducing real wages.2 However, as noted by McNicoll (1997), the relationship with poverty is "neither obvious nor well established." For example, Eastwood and Lipton (2001) identify at least 60 effects of population on poverty, and a recent study has questioned the assumption that an increase in the labour force (from an increase in population) necessarily reduces wages (Ahlburg 2002). The poverty measure in these studies is generally income poverty rather than a broader definition such as in Sen's capability approach (Sen 1985).

Distributional aspects of household size: There has been little evidence on the distributional effect of population, particularly compared to the growth effects. In a review, Lam (1987) noted that the empirical evidence leads to mixed conclusions. Furthermore, the review emphasized that the "certainty of negative distributional effects of population growth expressed in the 1974 World Bank report on population and development … seems to be a much stronger conclusion than the empirical and theoretical analysis of the issues can currently support."

[2] This assumption forms the basis of the so called "dual economy models" of economic development (Lewis 1954; Ranis and Fei 1961.

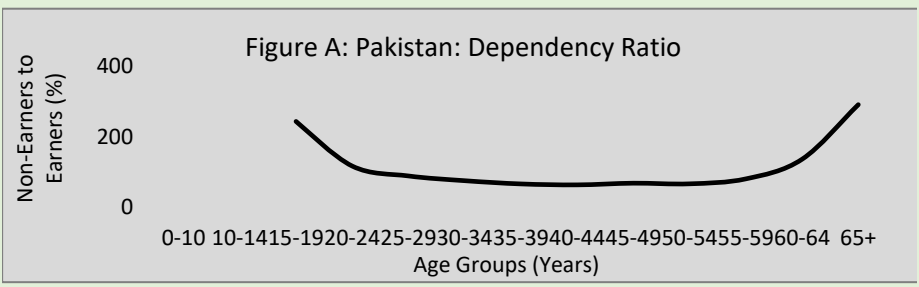
Box: The Demographic Bonus—Evidence from Household Data in Pakistan

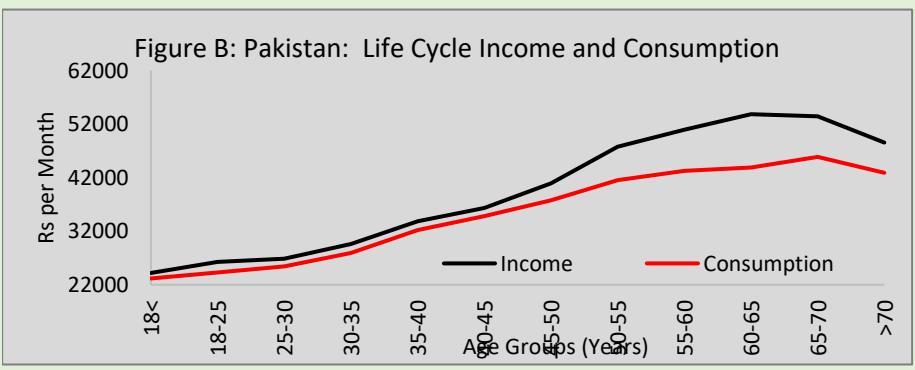
As mentioned in the text, the Demographic Bonus is a common outcome of demographic transition. As a household moves along the age scale, its dependency ratio falls and its income increases. As consumption increases more steadily, the increase in income leads to increased household savings. However, at the other end of the age scale, the number of retirees increases and income falls, leading to a decline in savings (Kelly and Williamson 1968; Bloom, Canning and Sevilla 2001).

For Pakistan, both phenomena are presented in graphs below. **Figure A** shows the dependency ratio across age groups. The dependency ratio falls with household age until the age of 50 years. After that it starts to rise again.

Figure B presents the life cycle income and consumption of a typical Pakistani household. The figure shows that household income, and consumption, increases until the common retirement age of 60–65years; subsequently, it declines. The overall consumption follows a similar path. The main difference between **Figures A and B** is that in the case of Pakistan (**Figure B**), household savings remain positive all through the household's life cycle. This is mainly for two reasons. First, in the absence of effective safety nets, its savings is the only insurance that the household has against any kind of adversity. Second, due to lack of access to borrowing instruments, the household has little choice but to compress its consumption in the event of low or falling income.

While the savings are never negative throughout the household's life cycle, they are generally low. Also, household savings increase sharply between ages 40–45 and 60–65, and decline after that. This indicates that despite the low level of savings throughout the life cycle, there could be a significant demographic "bonus" from demographic transition. To benefit from the "bonus," fertility has to come down sharply. In addition, the magnitude of this "bonus" could be expanded through investment in human capital.





Data Source: Pakistan Bureau of Statistics, Labour Force Statistics, 2017-18 and Household Integrated Survey, 2018-19.

Utilizing newer modeling ideas, recent results such as Eastwood and Lipton (1999 2001), provide more definitive conclusions. The study not only found that high fertility retards economic growth (as noted above) but also skews the distribution of income against the poor. Their estimate revealed that half of the estimated decline in poverty could be attributed to increases in economic growth and half to changes in the distribution of income. The results further highlighted the fact that, as fertility decline spreads to poor households, the poverty reducing benefits of fertility decline increases even more.

Population, poverty, and women: Women constitute not only a majority of the poor, they also face severity of poverty disproportionately greater than men. The gender inequalities embedded in societal norms in most developing countries put women, particularly in poor households, at a disadvantage in most spheres of life, aggravating the level of poverty and vulnerability. These gender norms define women's role as largely confined to the home as mother and caretaker, and men's role as responsible for productive activities outside the home. Girls and women in poor households bear a disproportionate share of the work and responsibility of feeding and caring for family members through unpaid household work. In poor rural households, for example, women's work is dominated by activities such as firewood, water and fodder collection, care of livestock, and subsistence agriculture. The drudgery of women's work and its time-intensive demands contribute to women's "time poverty" and greatly limit poor women's choice of other, more productive income-earning opportunities.

This limitation of women from income-earning activities obscures them from the eyes of policymakers. As such, institutional policies and laws tend to reinforce economic and social disparities by discriminating against women in provision of productive resources such as education, employment, land, and credit. In Pakistan, there is overwhelming evidence from statistics and research that indicates that girls and women are more disadvantaged than boys and men in their access to productive resources. For example, in education, while the primary school gender parity index has improved, it still indicates that there are only 85 girls enrolled in primary schools for every 100 boys.3 Moreover, 23 percent of the girls drop out of the schools before class 6, compared to 13 percent of boys.4 This is particularly true for larger and poor households, where cost of education plus their requirement to tend to younger siblings, force pre-mature discontinuation of their education. This gender bias at the household level is reflected at the national level in the form of fewer girls' schools (25 percent to 42 percent for boys).5 This lack of investment in the human capital of girls perpetuates a vicious, intergenerational cycle of poverty and disadvantage that

[3] World Bank, *World Development Indicators*, 2019.
[4] Pakistan Bureau of Statistics, *Pakistan Social and Livings Standard Measurement Survey*, 2018–19.
[5] In addition, both girls and boys have access to another 32 percent of co-ed primary schools.

is partly responsible for the intractable nature of poverty. Persistent gender inequality at household and policy levels accentuate women poverty.

Poverty and children: Poverty has severe consequences for child development. These consequences are compounded in larger households. As meager household resources (food, shelter, health and education budgets, etc.) are shared among many members, children lose out even if the parents are altruistic and care for their children. School dropout rates are significantly higher among children from poorer families, while the nutritional and health outcomes are significantly lower. More often, children are pulled out of school to find work to supplement family income. The phenomenon is more prevalent in larger households.6

B. Poverty to Population Growth — the more visible relationship

At the same time, a vast volume of literature has established an undeniable link between poverty and household size. A number of characteristics of poor household contribute to high fertility. The more important ones include: considering children as social safety net in parents old age; high level of infant mortality, so that higher number of births to replace the children which may not survive those early years of their life; low education and awareness, particularly in women of poor families; and lack of access, including their high cost, to family planning services. This bidirectional relationship between household size and poverty has a potential of creating a vicious cycle which can perpetuate poverty across generations. On the flip side, it points to the possibility of poverty reduction by converting this vicious cycle into a virtuous cycle through appropriate interventions.

In order to determine what possible interventions can achieve the objective, it is important to understand why poor parents continue to have more children. The most important reasons are given below:

Non-existing or weak social safety nets: For a greater part of its history, Pakistan did have a formal safety net system. In such an environment, children are considered as the only insurance that the parents can have. Even the present system, with its uniform benefit to all types of household, fails to incorporate the specific needs of different types of households. For example, the younger households get the same amount of cash transfer as older households, whereas the possibility of the former being able to supplement its income by working is greater than that of the latter. In other words, the present system of cash transfers does not specifically cater to loss in income due to old age or disability. In such a case where even the safety nets do not fully provide of the needs of the poor, especially the older and poor households, children are considered as investment goods, who can bring some income even from

6 Although some studies (Orbeta 1999) have found that family size does not significantly affect school attendance; it positively affects labor force participation. Similarly, Villamil (2002) found evidence that the probability of not going to school and working for children 5–14 years old is positively related with the number of young children (0–9 years) but is negatively related with number of older children (15–17 years) in the family.

a very young age, and when they grow they are a source of social and economic security for the parents, leading to larger size in poorer households. Reforming the safety nets system to cater to the financial security needs of old and poor households can help in reducing the size of household.

Infant mortality and child replacement: Whether for the reason of them being "investment" or "consumption" goods for the parents, there is demand for children in every family determined by family preference, its social and economic conditions, and its surroundings. In the event of high infant and child mortality, the decision by parents to have more children is driven by the possibility that at least the "desired" number will survive. Focused interventions in mother and child healthcare can reduce infant and child mortality, which overtime can reduce the need for larger families.

Divergence of private and public cost of children: Children, whether considered by parents as consumption or investment goods, have value for parents. However, there are also costs involved in having an additional child. The parents would opt to have another child as far as they deemed the marginal (social and/or economic) benefit of that additional child at least equal to the additional cost. The cost of having more children, however, is shared between the parents and others, especially the government. The former in terms of picking up the direct cost of meeting the basic needs (food, clothing, education, health, etc.) or through reducing their consumption of these essentials. At the macro level, the government shares the cost of providing subsidized education, health, and other basic services. For the poor households in particular, this cost sharing leads to a bigger household size than it would have been if all the costs were to be borne by the parents.

Unwanted Fertility/pregnancies. The most important factor that leads to poor households being larger in size is that some pregnancies therein are unwanted. This is partly because the poor are excluded from better quality public services and partly the cost of availing even public services may be unaffordable for the poor, if not for their prices then for the (actual and time) cost associated with getting the services. In repeated surveys, Pakistani women have said that their actual number of births is larger than what it should have been. The biggest reason why the actual number of births exceeds the desired number is due to "unmet need" for family planning services, as both markets and the government fail to provide adequate supply of contraceptive (and associated services) at an affordable cost. The implication for population policy of the existence of unwanted fertility is obvious— targeting the poor with subsidized family planning (FP) services. Given the limitation of outreach of government FP services, access of the poor to these subsidized services could be improved by the government's partnering with non-governmental and private sector for delivery of these services. For this, incentives of each partner need to be catered to through careful calibration of policy.

In Pakistan, for example, the proportion of unwanted pregnancies rose from 38% in 2002 to 46% in 2012. In 2012, there were approximately nine million pregnancies in Pakistan, of which 4.2 million were unintended. Of these unintended pregnancies, 54% resulted in induced abortions and 34% in unplanned births (Sathar et al. 2014). This indicates that contraceptive use has not kept pace with the growing desire for smaller families.

To summarize the debate, it would be foolhardy to deny the relationships between population and poverty. This bi-directional relationship points to a multi-generational vicious perpetuating poverty (and larger household size). It also reveals that this vicious cycle can be broken and can even be turned into a virtuous cycle through appropriate policy interventions. Rapid population growth not only affects economic growth by increasing consumption and reducing savings, but also imposes multiple negative externalities on the economy. For both these reasons, governments in developing countries have to treat population as an essential component of their growth and development strategy. Neglecting population in development and growth strategies is likely to impact sustainability of these strategies.

Population, Economic Growth, and Poverty in Pakistan

Pakistan's "Growth Paradox": Pakistan is one of the few countries which has sustained a robust growth for about 40 years. What makes Pakistan unique is that this growth was achieved and sustained when all basic macroeconomic fundamentals where pointing in the other direction. Pakistan's economic and social development across six decades (vis-à-vis its Asian comparators) is summarized in Tables 1 and 2. Pakistan's investment and savings rates have been among the lowest in the world (comparison with select Asian countries is given in Table 1). The fiscal and current account deficits have generally been very high by international comparisons. There has been a persistent shortage of skilled labor and Pakistan's social indicators are among the worst in the region (see Table 2) when compared to those in sub-Saharan Africa.

While population growth in Pakistan has declined over time, this drop was much smaller than most of the other countries in the region, and is now one of the highest in South Asia, despite Pakistan being the first country in the region to embark on a population program. This is primarily because, for multiple reasons, population lost its importance and priority in national planning. Even some of the administrative measures taken in good faith became some of the major obstacles for effective implementation of population program.[7]

[7] For many decades, the population program was a vertical program of the federal government, implemented by the Ministry of Population Welfare and financed from the development budget. This was done to accord the program a high priority in national development. This centralization of a program which was to be delivered at the grass-roots level divorced decision-making from ground realties. Implementing the program through a separate federal ministry (rather than

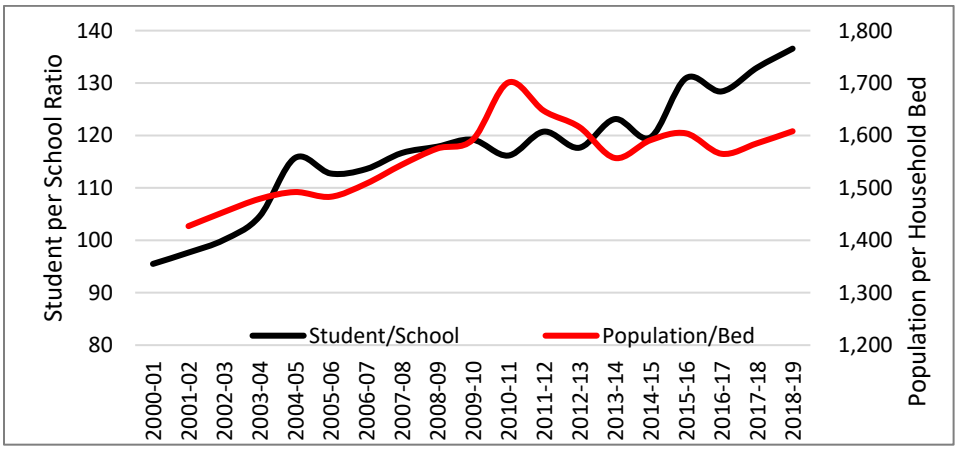
Table 1 shows that since the 1970s, Pakistan's economic indicators have been deteriorating and presently Pakistan has the worst indicators among the selected seven countries. The only surprising indicator is the Incremental Capital Output Ratios (ICORs), which have been persistently low for Pakistan, indicating that despite the decline in economic growth, Pakistan continues to outperform developing countries in Asia in getting the most growth from the little investment that is happening in the country. However, these low aggregate ICORs conceal the fact that rather than an indicator of efficiency of public investment, these ICORs represent the changing structure of the economy from high investment intensive sectors to low investment intensive sectors.

Table 2 presents some key social indicators for the same seven Asian countries. Other than the income distribution index (Gini coefficient), Pakistan historically underperforms other Asian countries. Even in the periods of high growth, Pakistan remained unable to convert that growth into social development. Hence, the average level of education and skills of the labor force in Pakistan is low. The average level of educational attainment that indicates level of supply of human capital is low in Pakistan. With 58 percent of total literacy rate in 2010–11, the country ranks lower than its South Asian peers including India (74 percent in fiscal 2011), Nepal (60 percent in 2010), and Sri Lanka (91 percent in 2010). The secondary school enrollment rate is below average at 34 percent, and average years of total schooling remains lower than other regions, despite some improvement during last decade—from 3.3 in 2000 to 4.9 in 2010 (Figure 23, left panel). The country doesn't rank any better on its workers' skills: 77 (out of 98) with a score of 4.10 (World Bank 2007). This may lead to hypothesize that low supply of human capital is a constraint to growth in Pakistan (Lopez-Calix 2013).

Other than the supply of social services, the quality of these services is also a concern. The average quality of health and education services has been declining over time. This partly because how rapidly growing population puts increasing pressure on already inadequate and fragile social infrastructure and services (Figure 1). This also indicates that public investment into social sectors has been inadequate to meet the demand created by the high rate of population growth.

health ministry) not only created a wedge between population program and reproductive health, it also limited the outreach of population program. Finally, funding the program from development budget implies that the program was to be implemented as a development project. This caused uncertainties and morale problems in staff, as the continuation of their jobs was dependent on the extension of the "project."

Figure 1: Increasing Population Pressure on Education and Health Facilities



Source: Ministry of Finance, *Economic Survey 2019.*

The relatively high rate of economic growth was achieved by making certain policy compromises. Since the late 1950s, Pakistan was able to generate relatively high economic growth through large public sector investments in so-called "mega-projects," including large dams and other irrigation projects, highways, railways energy, etc. Given that Pakistan has inherited a very frail infrastructure, as such these mega projects were very high return investments, leading to high economic growth, despite low overall investment and unfavorable social indicators.

These projects were financed through large-scale borrowing from domestic markets (including borrowing from the State Bank of Pakistan, i.e. money creation) and abroad, leading to a large build-up of public debt. The fiscal cost of these borrowings was kept low artificially through financial repression (i.e. keeping interest rates low[8]), depressing the growth of the financial sector. Still the interest cost of ballooning debt fed back into the fiscal deficit, eating away the fiscal space for public investment, which fell sharply in the 1990s and 2000s, leading to a decline in the overall investment (as a percent of GDP), which was one important factor behind the economic slowdown.

Explicitly or tacitly, Pakistan continued to follow an import substitution policy through high import tariffs, which discouraged imports despite an overvalued exchange rate. This created a strong anti-export bias in the economy, as there was hardly any incentive for the producers to improve the quality of their products to the level of being competitive in international markets. Weaknesses of the financial sector and export disadvantages continue to haunt the country even today.

[8] The government was able to keep the interest rates low because the banking sector was dominated by government-owned banks.

The other important factor behind the falling rate of investment[9] and consequently of decline in economic growth is Pakistan's low saving rate. Pakistan's national saving rate is very low as compared to those of comparator countries (Table 1). Domestic saving is even lower. Pakistan's national saving rate is only a little more than one-third of the saving rate of Bangladesh and India and about one-fourth of that in China. This low level of national savings implies that Pakistan has to rely heavily on foreign borrowings to finance its investment. As a result, foreign debt has been growing over time causing extreme external vulnerabilities and repeated episodes of balance of payment crises.

A number of factors depress Pakistan's savings rate:

i. High rate of population growth causes a greater proportion of income going into consumption, particularly with low growth in income, leaving an increasingly smaller proportion of income that could be saved.

ii. Real returns to savings are low. In order to promote domestic investment, the government policy has aimed at keeping the interest rate low. The flip side of this is that the rate on bank deposits has been very low. For more than half of last twenty years, real deposit rate has been negative, implying that savers have been subsidizing investors through a loss in the overall purchasing power of their savings.

iii. Lack of growth of, and competition in, financial sector has deprived savers of more favorable and acceptable savings instrument (including non-interest Islamic banking instruments).

iv. Movement of domestic "savings" into non-productive investments, for example speculative investment in real estate foreign currency, and even flow of these savings into foreign markets.

Opportunities for making the required course correction in economic policy were repeatedly missed due to the concern that any such correction would lead to an economic slowdown with substantial political cost. In the absence of any course correction, the adverse effect of "over-use" of defunct policy options imposed an increasing burden on the economy leading to the economic slowdown anyway; while the need for required economic reforms remaining unaddressed.

In short, Pakistan's economic growth during the period between 1960 and 1990 was achieved by making some sensible investment, but the process created a number of distortions in the economy. As repeated governments failed to change the course of economic policy, these distortions spread to cover all major areas of the economy leading to the slowdown witnessed over the last 20 years. Adverse security and law and order situation and a string of natural calamities simply exacerbated the economic decline.

[9] Over the last 57 years (i.e., between 1962–64 and 2019–20), Investment to GDP ratio has halved (from 30 percent to 15 percent).

Table 1: Key Economic Indicators in Selected Asian Countries

		Bangladesh	China	India	Indonesia	Malaysia	Pakistan	Sri Lanka	Pakistan's Rank
GDP Growth (% per year)	1960-69	3.9	3.4	3.9	3.5	6.5	6.8	4.7	1
	1970-79	1.5	7.4	2.9	7.2	8.2	4.8	4.2	4
	1980-89	3.5	9.7	5.7	5.8	5.9	6.9	4.1	2
	1990-99	4.7	10.0	5.8	4.3	7.2	4.0	5.3	7
	2000-09	5.6	10.4	6.3	5.1	4.8	4.5	5.0	7
	2010-19	6.8	7.7	6.7	5.4	5.3	4.0	5.3	7
National Savings (% of GDP)	1960-69	--	--	--	--	--	--	--	--
	1970-79	5.5	--	15.1	--	26.8	13.5	9.9	2
	1980-89	20.4	35.4	16.5	22.3	27.8	17.4	25.1	3
	1990-99	23.3	39.2	24.9	24.7	34.7	17.1	23.2	7
	2000-09	32.9	44.7	32.4	25.1	35.7	15.4	22.3	6
	2010-19	37.3	47.1	33.0	31.3	29.8	13.3	28.4	7
Domestic Savings (% of GDP)	1960-69	8.4	27.1	8.2	5.1	21.4	10.6	11.8	4
	1970-79	1.9	36.7	12.5	19.9	28.0	11.6	15.2	6
	1980-89	12.3	35.0	15.7	26.7	33.3	10.0	17.8	7
	1990-99	15.4	39.6	23.9	28.4	40.6	16.4	18.0	7
	2000-09	20.6	44.2	29.9	28.3	43.0	14.0	16.9	7
	2010-19	22.7	47.4	31.2	33.8	34.0	7.9	23.2	7
Investment (% of GDP)	1960-69	--	20.4	16.1	16.9	16.1	19.0	15.1	5
	1970-79	--	26.8	17.6	18.6	23.0	17.6	16.1	6
	1980-89	16.1	29.0	21.9	24.3	30.3	18.8	25.9	6

		Bangladesh	China	India	Indonesia	Malaysia	Pakistan	Sri Lanka	Pakistan's Rank
	1990-99	19.4	31.2	25.1	27.4	36.3	18.7	24.6	7
	2000-09	25.3	37.8	31.4	23.2	22.6	17.7	23.5	7
	2010-19	29.1	43.2	30.4	32.2	24.6	15.5	26.8	7
Incremental Capital-Output Ratio (ICOR)	1960-69	--	6.1	4.1	4.8	2.5	2.4	3.2	6
	1970-79	--	3.6	6.0	2.6	2.8	3.0	3.8	4
	1980-89	4.6	3.0	3.9	4.2	5.2	2.5	6.2	7
	1990-99	4.1	3.1	4.3	6.4	5.0	4.3	4.7	5
	2000-09	4.5	3.6	5.0	4.6	4.7	3.5	4.7	7
	2010-19	4.3	5.6	4.5	5.9	4.6	3.5	5.1	7

Source: World Development Indicators, 2019.

Table 2: Social Indicators, Pakistan Vs Selected Asian Countries, 1960-20169

		Bangladesh	China	India	Indonesia	Malaysia	Pakistan	Sri Lanka	Pakistan's Rank
Fertility Rate (Births per Woman)	1960-69	6.9	6.2	5.8	5.6	5.9	6.6	5.0	6
	1970-79	6.8	4.1	5.2	5.1	4.5	6.6	3.9	6
	1980-89	5.6	2.6	4.5	3.8	3.8	6.4	3.0	7
	1990-99	3.8	1.8	3.7	2.8	3.3	5.7	2.3	7
	2000-09	2.8	1.6	3.0	2.5	2.4	4.5	2.3	7
	2010-19	2.2	1.7	2.4	2.4	2.1	3.7	2.2	7
Population Growth (% per year)	1960-69	3.0	2.0	2.1	2.7	2.9	3.8	2.4	7
	1970-79	2.1	2.0	2.3	2.5	2.4	3.1	1.9	7
	1980-89	2.6	1.4	2.3	2.1	2.6	2.7	1.5	7
	1990-99	2.2	1.1	1.9	1.6	2.6	2.6	0.9	7
	2000-09	1.5	0.6	1.6	1.3	2.0	2.4	0.8	7
	2010-19	1.1	0.5	1.2	1.3	1.4	2.1	0.8	7
Life Expectancy at Birth (Years)	1960-69	47.5	50.1	44.5	49.6	62.4	49.3	61.6	5
	1970-79	48.6	63.2	50.6	55.1	66.2	54.7	65.9	5
	1980-89	55.1	68.2	55.6	60.0	69.4	58.4	68.9	5
	1990-99	61.6	69.9	60.0	64.0	71.7	61.4	69.6	6
	2000-09	67.5	72.8	64.3	67.2	73.5	63.9	74.0	7
	2010-19	71.2	75.6	68.2	70.4	75.3	66.3	76.1	7

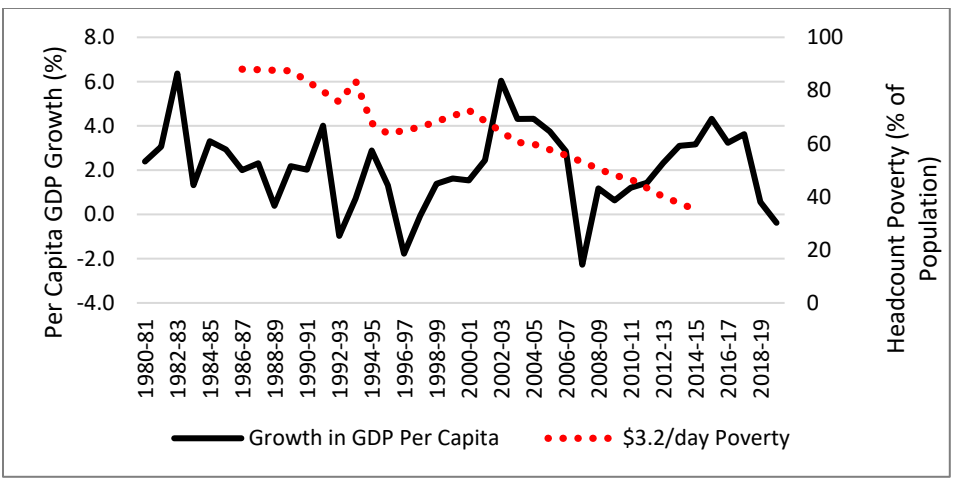
		Bangladesh	China	India	Indonesia	Malaysia	Pakistan	Sri Lanka	Pakistan's Rank
Infant Mortality (per 1000)	1960-69	157.2	83.1	151.2	131.1	51.7	159.5	59.5	7
	1970-79	144.2	64.1	131.4	99.6	34.7	133.1	48.1	6
	1980-89	119.1	43.5	102.3	74.6	19.4	116.7	26.9	6
	1990-99	83.0	37.9	78.9	51.8	11.8	96.9	17.1	7
	2000-09	51.2	21.7	56.9	34.7	7.4	77.5	12.6	7
	2010-19	31.6	9.8	36.2	23.9	7.0	62.9	7.9	7
GER Primary (Percent of children in age Cohort)	1960-69	--	--	--	--	--	--	--	--
	1970-79	70.8	113.5	81.6	88.3	93.9	52.2	95.0	7
	1980-89	72.7	117.5	87.3	117.0	95.4	54.1	117.7	7
	1990-99	83.8	115.3	92.7	111.1	96.4	58.6	107.9	7
	2000-09	101.6	103.0	102.3	108.7	98.4	77.2	100.4	7
	2010-19	112.5	98.9	108.7	107.2	103.3	86.6	100.5	7
GER Secondary (Percent of children in age Cohort)	1960-69	--	--	--	--	--	--	--	--
	1970-79	18.3	47.4	25.3	20.4	48.7	17.3	49.5	7
	1980-89	19.9	34.6	34.3	39.4	62.2	19.0	64.5	7
	1990-99	38.1	48.1	45.1	48.5	67.8	25.2	85.1	7
	2000-09	49.2	69.8	52.4	62.7	78.9	28.9	--	6
	2010-19	63.5	88.2	71.2	83.2	82.4	38.3	98.7	7

		Bangladesh	China	India	Indonesia	Malaysia	Pakistan	Sri Lanka	Pakistan's Rank
$1.9 a day Poverty (% of Population)	1960-69	--	--	--	--	--	--	--	--
	1970-79	--	--	63.1	--	--	--	--	--
	1980-89	30.6	--	53.5	68.4	2.2	62.4	14.1	5
	1990-99	39.5	51.3	47.6	50.8	1.2	33.0	9.4	3
	2000-09	30.0	21.7	36.4	22.1	0.5	19.3	5.2	3
	2010-19	17.0	4.3	22.5	7.4	0.0	6.6	1.5	4
Gini Coefficient (percent; 0=perfect equality)	1960-69	--	--	--	--	--	--	--	--
	1970-79	--	--	--	--	--	--	--	--
	1980-89	27.2	32.2	32.4	31.4	47.3	33.3	32.5	6
	1990-99	30.3	35.4	31.7	32.0	48.4	31.7	33.9	2
	2000-09	33.3	42.0	34.9	32.7	45.9	31.8	39.2	1
	2010-19	32.3	40.6	35.7	38.8	42.1	31.2	39.5	1

Source: World Development Indicators, 2019.

Population and Poverty—The Macroeconomic Aspects: The other surprising feature of economic trends in Pakistan is a sharp decline in poverty, particularly in the early 1990s. During the 1980s, Pakistan averaged a GDP growth of about 6.2 percent p.a., with a 3.4 percent in real per capita GDP; yet poverty remained high (87 percent).[10] In contrast, during the 1990s, growth in GDP per capita averaged only 1.4 percent p.a. (**Figure 2**) yet headline poverty declined by 190 basis points (to 68 percent). During the 2000s, average growth in per capita GDP was 2.1 percent p.a. and poverty continued to decline, but the overall decline during the decade (at 180 basis points) was marginally lower than in the 1990s. In the subsequent five-year period, per capita GDP growth dropped to 1.5 percent p.a. yet poverty continued to decline (by another 130 basis points).[11] Moreover, the decline in poverty has been much faster in urban areas. According a World Bank report (Redaelli 2019), the poverty head count rate in rural Pakistan was twice as much in urban areas—36pc versus 18pc—and the gap had remained virtually unchanged since 2001–02. Combined with the slow pace of urbanization—only about 35pc of the country's population lived in urban areas in 2014—this gap indicated that 80pc of Pakistan's poor continued to live in rural areas. Although the growth in per capita GDP during the next five-year period (1.7 percent p.a.) remained marginally higher than the first half of the decade, it is unlikely that the impressive run of poverty reduction would have continued. First, poverty is likely to be more stubborn as we move down the poverty scale, and a small improvement in per capita income, implied by relatively low GDP growth and continued high rate of growth of population, would make a sizeable dent in level of poverty.

Figure 2: Trends in Growth in Per Capita GDP and Poverty



Second, the COVID-19 pandemic is likely to have a disproportionately higher adverse impact on the poor. Although Pakistan has not been as badly hit by the pandemic as

[10] Based on a poverty line of $3.2 per person per day.
[11] Data for headcount poverty are available only until 2015.

many countries in the world and the region, yet the effect of pandemic may be quite severe as it may compound the problem the economy was already struggling with. It is likely to delay fiscal stabilization, which, in turn, will delay economic recovery. Moreover, the pandemic is expected to have a differential impact of different sectors on the economy, with agriculture bearing the least, and services sector the highest burden—the two sectors employing most of the country's poor. Hence, the impact of the pandemic on urban poverty is likely to be direct and much more severe than on rural poverty, which would bear the impact of pandemic largely due to demand reduction.

Nonetheless, Pakistan's reduction in poverty is more impressive when viewed in comparison with some of Pakistan's comparators (e.g., Bangladesh and India), who had a much stronger economic growth and a lower rate of population growth (**Tables 1 & 2**). In other words, these data reveal that Pakistan has a much higher elasticity of poverty reduction with respect to GDP (or GDP per capita) growth than India and Bangladesh. Explaining this high elasticity requires more in-depth cross-country analysis. Nonetheless, this sub-section will raise some possibilities that may explain, at least partially, Pakistan's steep decline in poverty.

First, it is important to emphasize that during the entire period between 1980–81 and 2014–15, the growth in real GDP per capita had declined, but it had never been negative. Positive growth in real per capita GDP would lower poverty, provided income inequalities were not worsened. As could be seen from **Table 2**, income inequality in Pakistan has remained fairly stable, and particularly in the latter years, Pakistan has done better than its comparator countries in terms of income distribution. Nonetheless, the decline in poverty has been much steeper that to be explained solely by this positivity of growth in real pec capita GDP.

Second, focusing on GDP growth, or even the growth in per capita GDP, may not be the best way to analyze poverty, particularly in developing countries where poor population is more concentrated in rural areas, in particular geographical regions (e.g., Balochistan) and derive its livelihood more some limited sectors (agriculture and some services sectors) than the overall economy. As such, it is the growth of value assed in the sectors from where the poor derive their income that becomes more important than GDP growth. Over the last three decades, growth in Pakistan's GDP has been driven by growth in services sector.

Most importantly, however, the importance of GDP growth as the sole driver of poverty reduction comes into question when external sources of income gain more prominence. Workers' remittances in Pakistan have been growing at a healthy pace over the last two decades. A bulk of these inflows end up in rural areas. Although not all these remittances are destined for poor households, the forward linkages of the consumption and investment made from these remittances definitely has a positive effect on the income and wellbeing of the poor.

As mentioned above, much more serious research is needed to provide a thorough explanation of poverty trends in Pakistan. However, at the aggregate level, an attempt is made to determine the impact on poverty of the three important variables discussed above, namely: GDP (or GDP growth), population (population growth), and remittances (growth in remittances). For this purpose, poverty level is defined by headcount poverty using $3.2 per day per person as the poverty line, while $1.9 per day per person is used to define poverty line for "extreme poverty". The analysis shows that remittances have a statistically significant effect in reducing poverty (and extreme poverty), as does the income (GDP). Population has a positive (i.e., increases poverty) but statistically insignificant impact on poverty and "extreme poverty".[12]

Micro level Investigation into Relationship between Population and Poverty: Although the regressions indicate that in Pakistan population may not have much impact on poverty levels, it is only appropriate to interpret this result with caution, as time series data on population may have some built-in weaknesses. The population data are primarily constructed by interpolating the figures for inter-censual years using some growth rates. For some years, these growth rates are obtained from other sample studies, but in other instances, they are mere assumptions. Hence, the quantitative impact of population on poverty requires further investigation.

Most household level studies have found a positive relationship between household size and poverty. For example, a study of rural poverty in Pakistan (Arif and Farooq 2012) reveals that around nine percent of rural households in Pakistan are chronically poor. However, chronic poverty declines to only four percent when three-wave data is taken into account. Moreover, the study shows that demographic variables, household size, and dependency ratio have a significant positive association with chronic poverty as well as falling into poverty. Positive effect of household on poverty is also found in a study by Sadiq.

The micro level investigation presented in this chapter is based on analysis of data obtained from the Household Integrated Economic Survey (HIES) 2018–19. Headcount poverty is determined by defining a poor household which has a monthly per capita (in terms of adult equivalent) consumption of less than Rs 3,785.77 and then counting the total number of members in the poor households and expressing them as a percentage of the total number of members (poor and non-poor) of all the households. The household size (the indicator of population) is the total number of members in the household, expressed in adult equivalent terms. Similarly, income-based poverty is determined by taking $3.2 per person per day poverty line and converting it to per capita monthly income in the local currency (by taking World Bank conversion factor). Similarly, the $1.9 per day per person poverty line is converted

[12] Log(Pov3.2)= 10.67 - 0.33*Log(GDP(-1)) + 0.013*Log(Pop(-1)) - 0.122*log(Remit(-1))
(9.17)** (-3.66)** (0.26) (-4.59)**Log(Pov3.2)=
10.67 - 0.33*Log(GDP(-1)) + 0.013*Log(Pop(-1)) - 0.122*log(Remit(-1))
(9.17)** (-3.66)** (0.26) (-4.59)**

into Pakistani rupee monthly income to define extreme poverty. The average levels of poverty (headcount) for Pakistan and all four provinces are summarized in **Table 3.**

Table 3: Poverty Headcount Under Different Poverty Lines

	(Percent of Population)				
Poverty Line	Pakistan	Punjab	Sindh	KPK	Balochistan
National	25.0	18.6	27.0	25.8	43.0
$1.9 per day per person	5.0	2.6	7.3	5.8	7.7
$3.2 per day per person	28.8	20.7	35.0	28.6	45.7

Household characteristics across household size: **Figure 3** shows relationships between key household characteristics and household size.[13] The figure depicts some important relationships, which may require further investigation, particularly in view of the insights into relationship between household size and poverty.

Figures 3A, 3B, and 3C provide the mean per capita income, per capita expenditure, and per capita savings of households by household size. It is clear from these figures that with an increase in household size, households are unable to maintain their per capita income per capita expenditure, or per capita savings. The mean per capita income declines sharply from almost Rs 21,000 for a single member household to about Rs 6,000 for a seven-member household, an average decline of about 18 percent for an increase of one member to household. However, from a household size of seven members, this decline is greatly moderated (to about 1.5 percent for every additional household member). The mean per capita consumption follows a similar pattern as per capita income; it declines from Rs 18,000 to Rs 5,700 per person as the household size increases from 1 to 7 members. Subsequently, the decline in per capita consumption slows down to reach Rs 4,600 per person for a household of over 14 members. This result is important as it is often argued that the impact of household size (i.e., population) on per-capita consumption (i.e., poverty) is dampened by economies of scale in consumption, as most consumer durables (house, appliances, pots and pans, etc.) are shared by all members of household.[14] In addition, there are some economies in bulk purchases of even some non-durable goods. **Figure 3B** does not rule out the existence of these scale economies but shows that these economies are more effective at the higher end of household size scale than at the lower end.

[13] As only 1.8 percent of households are larger than 15, in effect the household size was truncated at 15 (i.e., households with larger than 15 members were considered to have 15 members).

[14] These scale economies are cited as the strongest economic reasons for having joint families.

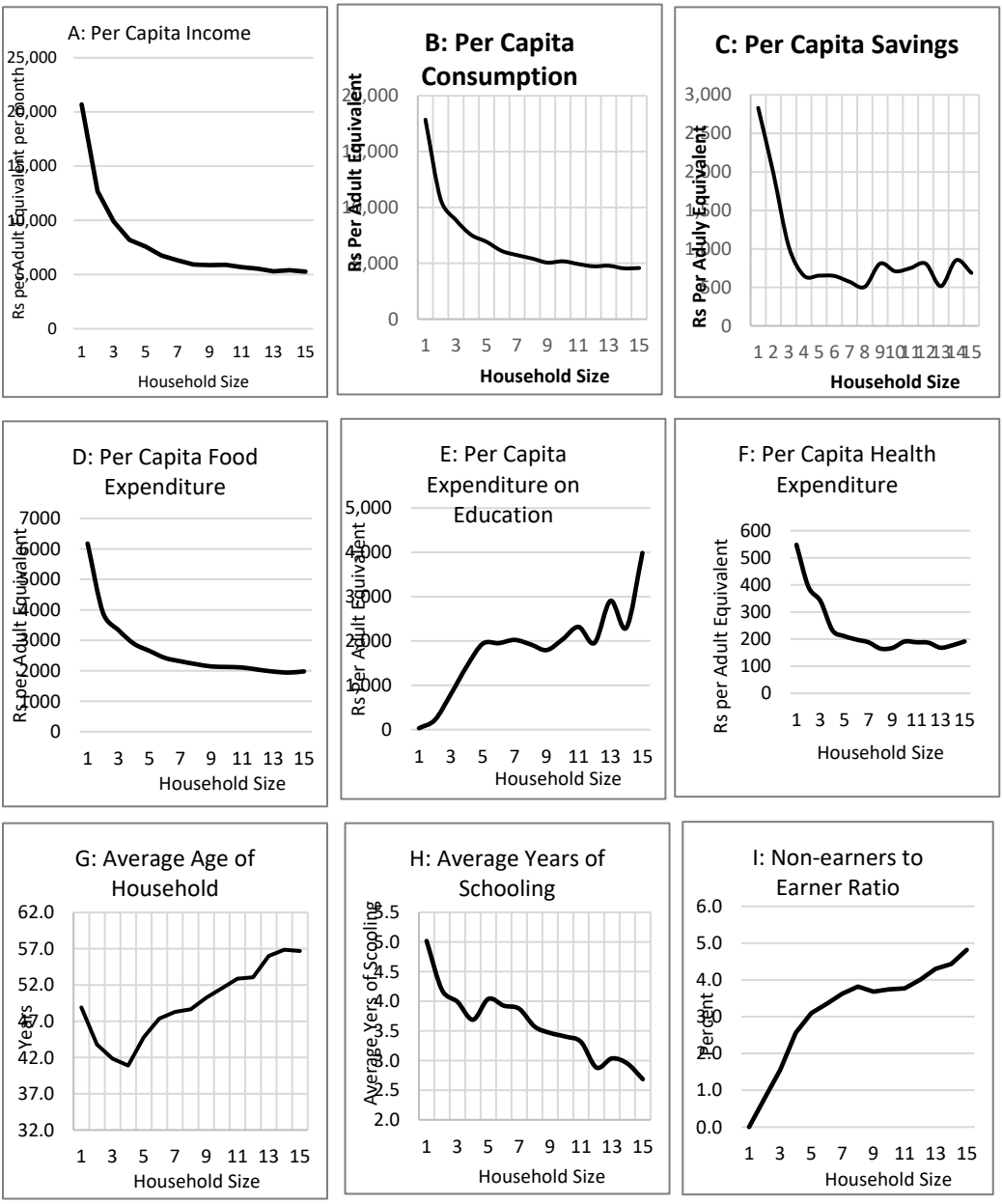
As poverty is usually defined by per capita consumption (i.e., expenditure), **Figure 3B** provides an indication for the relationship between poverty and household size which is elaborated in **Figure 4**. Poverty, irrespective of the poverty line taken, increases with household size, although extreme poverty (Headcount19) tends to stabilize after a household size increases to eight members.

Finally, the mean per capita savings decline from Rs 2,800 for a single person household to Rs 690 per person for a household of over 14 members (**Figure 3C**), indicating a somewhat sharper decline in per capita savings than in income. As household acquisition of assets is generally linked to its savings, the declining trend in per capita savings points to diminishing capacity of larger households to acquire assets. Even per capita expenditure on food declines with household size, indicating compromises made by the larger households in its nutritional standards to support its larger size.

Most surprising relationship shown in **Figure 3** is that of per capita expenditure on education, which shows a positive relationship with household size (**Figure 3E**). This is a surprising relationship for two reasons. First, a household's level of education (average years of schooling) declines with household size (**Figure 3H**)—this greatly reduces the possibility of larger households having children in higher-grade classes than smaller households.[15] Second, with total per capita expenditure declining with household size, the increase in per capita education expenditure (with household size) is possible if one or more (per capita) expenditures decline faster than total expenditure. In other words, higher in per capita education expenditure is made possible by substituting education for other household's "needs".

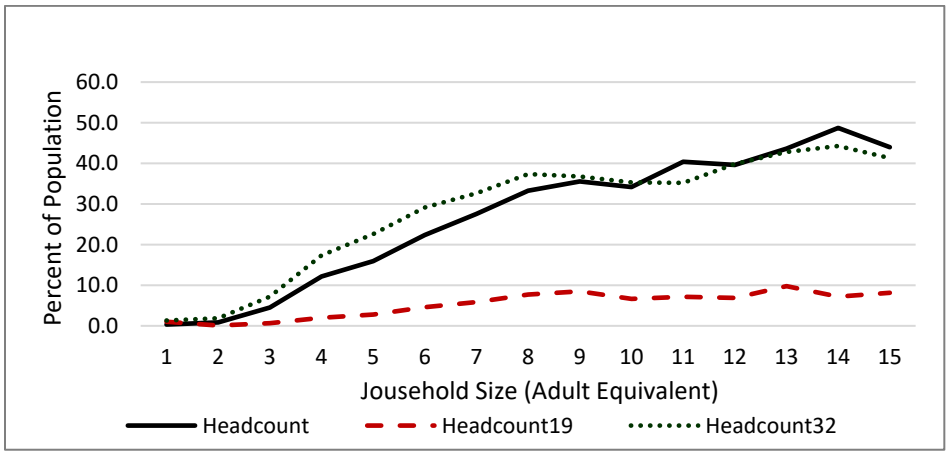
[15] This possibility is supported by the fact that larger households are older in age than smaller households (**Figure 2G**).

Figure 3: Household Socio-Economic Characteristics by Family Size



Source Pakista Bureau of Statistics, *Household Integrated Economic Survey, 2018-19.*

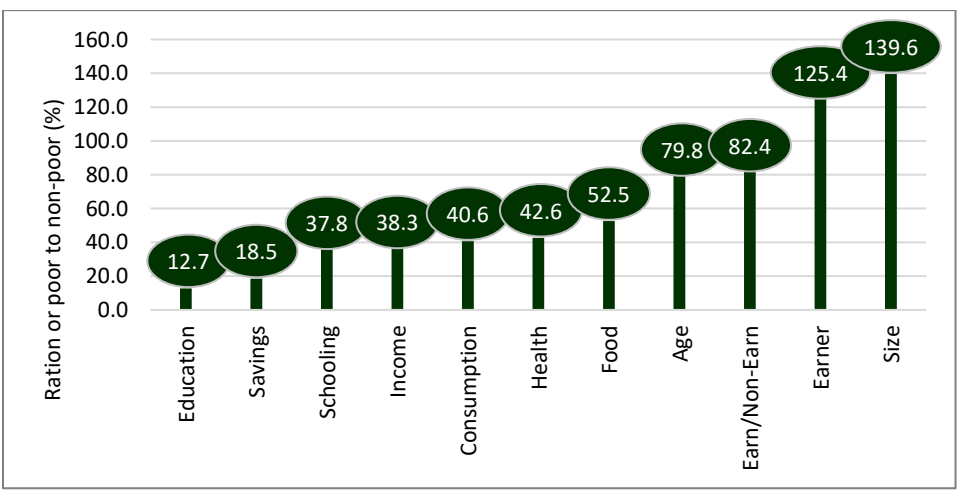
Figure 4: Headcount Poverty by Household Size



Source Pakista Bureau of Statistics, *Household Integrated Economic Survey, 2018-19.*

Household Profiles—Poor Vs Non-Poor: Figure 5 compares the characteristics of poor and non-poor households. On the average, poor households tend to be larger (by about 40 percent) than non-poor households. They are somewhat younger (by almost 5.5 years) than non-poor households. They have a little more than one-third of the schooling on non-poor households. They have more (by 25 percent) earners, which, despite their larger size, makes dependency (non-earner to earner) ratio 10 basis points (48 percent to 58 percent) smaller than non-poor households. Still, the average per capita income is 62 percent lower than that of non-poor households, while the per capita consumption is 59 percent lower, with per capita expenditure on education being about one-eighth of that of non-poor households, and per capita health expenditure less than half. Per capita savings of poor households constitutes only 19 percent of the savings of non-poor households.

Figure 5: Households Profile --Poor Vs Non-Poor



Source Pakista Bureau of Statistics, Household Integrated Economic Survey, 2018-19.

The above discussion indicates that looking from the perspective of household size or poverty, there seems to be a strong positive correlation between the two. However, the discussion also reveals that there are other factors that seem to influence poverty. In order to isolate the impact of population size from those of other factors, a multivariate statistical analysis was undertaken, where poverty indicators were regressed on household size and a number of other household characteristics for Pakistan and separately each of the four provinces.[16] The results (**Table 4**) shows that all the factors used in the analysis have significant impact on poverty (i.e., probability of household being poor) except household age and gender of the head of household. Household size has a strong positive effect on poverty, while per capita income has a strong negative effect. Poverty increases with the increased number of dependents in the household and declines with increased number of earners. Household education has a negative impact on poverty, while urban households are less likely to be poor.

The marginal effect of each factor on poverty is calculated at the sample average value of that factor. These marginal effects are presented in **Table 4A**. The Table shows that the probability of typical household being poor increases by 1.6 percent with an increase in size of household by one member. A 100 rupee increase in per capita income leads to a 0.8 percent in probability of household being poor. A household with an average schooling of 10 years has a 20 percent less probability of being poor than a completely uneducated household. An urban household has a three percent less chance of being poor than a rural household having exactly the same characteristics as that of the urban household.

[16] To assess the impact of household size on poverty, a multivariate logit analysis was undertaken where a binary variable (having value 1 of the household is below the poverty line of Rs 3,785.77 per month per person (in adult equivalent terms), and 0 otherwise) was regressed on household size (Size), per capita income, average age of the members of the household, number of earners in the household, a binary variable for the gender of the head of household (1 for female, 0 otherwise) and a binary variable for households location (1 for urban, 0 otherwise).

Table 4A: The Marginal Effects of Household Characteristics on Poverty

(percent)

	Pakistan	Punjab	Sindh	KPK	Balochistan
Household Size	1.537	1.813	1.106	1.933	1.105
Per capita Income	-0.008	-0.007	-0.013	-0.007	-0.016
Age of the Head of Household	-0.029	-0.021	-0.037	-0.064	-0.037
Dependency Ratio	0.041	0.036	0.074	-0.026	-0.023
Number of Earners	-0.027	-0.001	0.008	-0.014	-0.188
Average Years of Schooling	-2.059	-1.876	-1.378	-2.706	-2.456
Female Headed Household	-1.105	0.068	1.041	-2.321	5.412
Urban Household	-3.036	-0.929	-0.026	-4.917	-7.544

Not only does household size has a positive impact on the probability of being poor, it also (positively) influences poverty gap (**Table 5**) and severity of poverty (**Table 6**).

Table 5: Impact of Household Characteristics on Poverty Gap

	Pakistan	Punjab	Sindh	KPK	Balochistan
Constant	0.03402	0.02615	0.04567	0.04031	0.04388
t-Value	(11.27)	(6.72)	(6.69)	(5.68)	(3.9)
Size (adult equivalent)	0.00556	0.00646	0.00580	0.00431	0.00599
t-Value	(26.87)	(20.43)	(11.29)	(11.37)	(9.57)
Per capita income	-0.0000005	-0.0000002	-0.0000005	-0.0000013	-0.0000029
t-Value	(-7.17)	(-3.32)	(-3.42)	(-6.56)	(-5.21)
Avg. Age	-0.00029	-0.00031	-0.00024	-0.00010	-0.00010
t-Value	(-7.08)	(-5.91)	(-2.44)	(-1.18)	(-0.63)
Number of dependents	0.00031	0.00021	0.00066	-0.00002	0.00027
t-Value	(10.75)	(6.08)	(9.81)	(-0.28)	(2.45)
Number of Earners	-0.00006	-0.00002	-0.00030	-0.00023	-0.00040
t-Value	(-2.09)	(-0.58)	(-4.27)	(-3.01)	(-2.96)
Average Years of Schooling	-0.00532	-0.00502	-0.00517	-0.00453	-0.00632
t-Value	(-25.96)	(-19.21)	(-11.09)	(-9.18)	(-7.11)
Female Headed	-0.01194	-0.00576	0.00683	-0.00983	0.00841
t-Value	(-6.32)	(-2.64)	(0.98)	(-2.74)	(0.61)
Urban	-0.01694	-0.01130	-0.04042	-0.00640	-0.02077
t-Value	(-14.33)	(-7.35)	(-14.4)	(-2.5)	(-4.88)

Table 6: Impact of Household Characteristics on Severity of Poverty

	Pakistan	Punjab	Sindh	KPK	Balochistan
Constant	0.0093869	0.0071667	0.0139403	0.0097043	0.0114693
t-Value	(8.41)	(5.14)	(5.14)	(3.95)	(2.82)
Size (adult equivalent)	0.0015942	0.001893	0.0017464	0.0011818	0.0017182
t-Value	(20.86)	(16.72)	(8.56)	(9.00)	(7.61)
Per capita income	-1.23E-07	-5.26E-08	-1.46E-07	-3.38E-07	-8.64E-07
t-Value	(-5.14)	(-1.99)	(-2.63)	(-4.84)	(-4.24)
Avg. Age	-0.0000925	-0.0000937	-0.000089	-0.0000207	-0.0000384
t-Value	(-6.05)	(-5.00)	(-2.26)	(-0.68)	(-0.64)
Number of dependents	0.0000926	0.0000525	0.0002203	-7.23E-07	0.0000753
t-Value	(8.79)	(4.16)	(8.22)	(-0.03)	(1.86)
Number of Earners	-0.0000302	-0.0000154	-0.0001324	-0.000059	-0.0001283
t-Value	(-2.71)	(-1.18)	(-4.67)	(-2.22)	(-2.61)
Average Years of Schooling	-0.0014641	-0.0014173	-0.0013904	-0.001248	-0.0016506
t-Value	(-19.34)	(-15.14)	(-7.51)	(-7.31)	(-5.14)
Female Headed	-0.0040056	-0.0020309	0.0022337	-0.0030369	0.0052483
t-Value	(-5.74)	(-2.6)	(0.81)	(-2.44)	(1.06)
Urban	-0.0048642	-0.0029415	-0.0128411	-0.0017755	-0.0051812
t-Value	(-11.14)	(-5.34)	(-11.51)	(-2.00)	(-3.37)

I. Summary and Some Policy Implications

An attempt is made in this chapter to demonstrate as clearly as possible the link between population and poverty. All statistical evidence indicates that Pakistan's economy suffers from stress imposed by its rapidly growing population. The analysis also determines that there is a clear link from population to poverty at both the macro and at household levels. Statistical analysis demonstrates that the size of the household positively influences not only the incidence of poverty, but also poverty gaps and the severity of poverty. The main factors behind these influences are household savings, the labor supply and earnings of parents, and the investments in the education of children. The first two are known to be the primary engines for consumption smoothing of households. The last one is the main avenue for securing the future consumption of children and also of parents in their old age.

At the macro level, Pakistan's divergent growth and poverty trends have been a puzzle for many researchers. However, that is only because these trends are not viewed in as holistic a sense as they should have been. Pakistan's economic growth until the late 1980s was impressive by South Asian standards. Yet, that growth contained in itself mechanisms for its automatic slowdown. However, this slowdown is hastened by political uncertainties and adverse security conditions. In addition, continued high rate of population growth was a strong contributor to the economic slowdown, as it depressed the savings and investment to levels that are unable to support higher rates of economic growth. Although poverty in Pakistan continued to decline despite economic slowdown, that was partly because of the concentration of the poor along the poverty line, but mainly because of strong inflow of remittances sent by Pakistanis working abroad.

Pakistan has paid a heavy price for being complacent and kept on adhering to outdated economic policies, even when there were clear signals that these policies have run their course and there is time for change. The declining poverty trend can lead to a similar complacency that Pakistan can ill afford. Pakistan continued to be a relatively young country, with a high dependency rate.[17] Lowering the fertility rate through appropriate policy actions will lower the dependency rate yielding "demographic bonus" that can propel economy to a higher growth trajectory and maintain the declining poverty trend.

The policy question therefore is how to reduce the rate of population growth by inducing people to have fewer children. From an economic perspective, the solution lies in reducing parents' need to have more children and creating incentives for smaller families.

The first and perhaps the easiest step for that is to reduce unintended pregnancies by improving the quantity and quality of family planning (FP) services. Despite

[17] According to the 1998 population census, 46.9 percent of population is below 15 years of age—only a marginal decline for 48.8 percent in the 1981 census.

devolution of population program to the province, the outreach of FP services has remained limited and fragmented.[18] Integrating services of the Health and Population Welfare departments under one leadership, with well-defined reporting and accountability channels, can greatly enhance the outreach of these services while at the same time improving the efficiency of delivery systems. Inducting non-government and private sector in delivery of these services can further improve their outreach.

Besides the issue of unwanted fertility problem, the population growth problem could be narrowed down to the matter of the so-called negative externalities of rapid population growth. The standard solution in economics to handle such externalities is reduce the demand for children by increasing the "cost" to the parents of having more children. This requires formulating a "tax-subsidy" which increases the "price" of children for the parents. This "tax" could be in the form of cash grants given to the parents for reducing fertility.[19] The political palatability of such a "tax-subsidy" mechanism remains a concern, however.

Other interventions, which, in the presence of negative externalities, governments may use to alter family's fertility behavior of the poor, involve making investments for enhancing human capital of poor families. These include:

- Improving the economic situation of the poor trough well-designed and well-targeted social safety net systems.
- Expanding income-earning opportunities for mothers in poor families.
- Improving the health of mothers and their children.
- Improving delivery and quality of public education so as to increase returns to education, which can increase participation rate and reduce dropout rates of children from poor families.
- Starting programs that help parents substitute for the income-earning capabilities of children and reducing the value of children as a source of immediate income and old-age security.
- In any event, the cost of these investments is not likely to be very high.

The fiscal cost of these investments is not likely to be exorbitant and given the huge economic and development cost imposed by rapidly increasing population, these investments may have the highest return of any investment the government can make. What is lacking perhaps is the political will and foresight to tackle a problem

[18] The FP services are provided almost independently by the provincial Population Welfare and Health departments, the latter through Family Health Workers, who primarily distribute contraceptives but are not adequately trained to provide more long-term services or appropriate advice.

[19] Such inventive systems have been tried in Singapore and Bangladesh, but with mixed results.

that can yield substantial returns, but possibly beyond the myopic horizon of the policymakers. What needs to be emphasized is that reducing the population growth rate is perhaps the most cost-effective solution to overcoming a large number of the country's social and economic problems. Ignoring the problem can keep the country stuck is a low equilibrium, further depressing its development and lagging it even more behind its comparators.

CHAPTER TWO

Population, Sustainable Economic Growth, and Productive Employment

Vaqar Ahmed[20]

Background

Investing in family planning is now appreciated as an instrument to lead countries towards a lower rate of population growth, ultimately culminating in a higher per capita investment in human capital. Taking East Asia as an example, this process was coupled with greater opportunities for decent and productive employment, and therefore also helps countries in achieving their poverty reduction goals.

The annual average growth rate of Pakistani population according to the census of 2017 is 2.4 percent. In absolute terms, the population was 207.8 million in 2017 compared to 132 million in 1998.[21] This total size of population does not include several areas in Gilgit-Baltistan and Azad Jammu and Kashmir. In any case, the 2017 census estimates now make Pakistan the fifth largest country in the world in terms of population size.

The census also reveals that Pakistan may perhaps be the fastest urbanizing country across South Asia. There are 75.6 million people (or 36.5 percent of total) now living in urban localities. Only in Sindh province 52 percent have already moved to urban settlements. The Punjab province remains the most populous province and home to 53 percent of the total population. This is followed by Sindh (23 percent), Khyber

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[21] Out of the total, 101 million (or 49 percent of total) is female population.

Pakhtunkhwa (14.7 percent), Balochistan (5.9 percent), Federally Administered Tribal Areas (2.4 percent), and Islamabad (1 percent). The top four cities by population haven't changed since the previous census. These remain Karachi, Lahore, Faisalabad, and Rawalpindi. However, Multan which was at number five in 1998 has been taken over by Gujranwala. This is followed by Peshawar, Multan, Hyderabad, Islamabad, and Quetta at number ten.

The life sex ratio (that is, males per 100 female) also changed since the previous census. This ratio now stands at 105 compared to 108.5 in 1998. While 63 percent of Pakistan's population was under 25 years of age (indicating a potential demographic dividend), and overall population growth is lower than the growth of the labor force, it is still worrying that in the next three decades, Pakistan's population could easily double according to business-as-usual estimates. If Pakistan's economic expansion is weak and resources are not created to absorb new entrants in to the labor force, this significant increase in population could have implications for SDG-8: "Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all" (Ishfaq et al. 2017; Ahmed 2015).

A key objective of this chapter is to study these implications and interlinkages of population growth, low economic expansion, and weak employment prospects. We also make a case for how family planning could play a pivotal role in keeping population growth within limits which can be sustained under prevalent economic circumstances. The next section provides an overview of state of the economy. This is followed by an analysis of how family size impacts household savings and poverty. Section-4 explains how population pressures could have implications for education, health, and food security. Section-5 will provide policy recommendations which are then followed by concluding remarks.

State of the Economy

Several decisions that impact macroeconomy are usually made at a household-level. Usually families decide their preference for education, labor, and savings. The recent literature argues that family economics should be a key aspect in macroeconomics. The changes in family structure have implications for aggregate labor supply and savings. Also, accounting for families (or decision making by families) is important to arrive at differences between the rich and the poor.[22] It is in this context that a critical study of the state of the economy and fiscal space available for human development and family planning interventions becomes crucial.

Despite some instances of short-term growth in Gross Domestic Product (GDP), Pakistan remains unable to transition towards sustained expansion in agriculture, industrial manufacturing, and services sector over the longer run. Box-1 shows that

[22] See also, Doepke and Tertilt (2016).

annual growth in GDP has remained on a downward trajectory over the longer term which in turn made it difficult to provide decent jobs and reduce poverty.

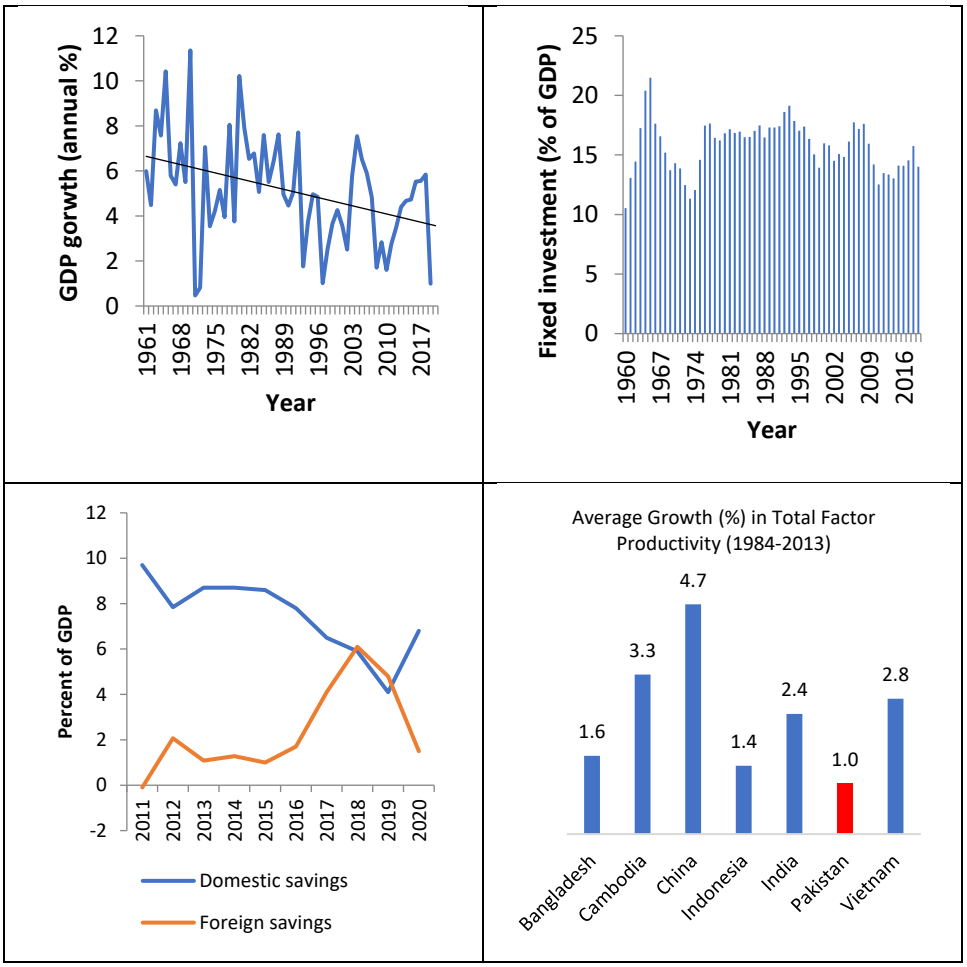
Two sets of reasons are often provided while diagnosing the weak economic growth in Pakistan. First are the structural factors in governance, including security, law and order issues, elite capture of productive resources, and a general lack of policy continuity in the longer term. Second are institutional factors including weak capabilities to undertake reforms much needed to boost private sector competitiveness and the ability to provide more jobs. These could include reform of taxation, utilities, and state-owned enterprises, which continue to compete with the private sector for resources and markets.

The economy's weakness in attracting or retaining savings coupled with low capacity to absorb aid reflected in low foreign savings to GDP ratio has resulted in weak investment rate. While government's own investment through development budgets continue to support some economic growth, there are still several areas across Pakistan where implementing infrastructure and social sector programs is not possible. The reasons for this include weaknesses in law and order, contract enforcement, deficit of relevant skills, and infrastructure and energy shortages, including low internet penetration rate. This milieu has in the past curtailed flow of public and private investments to areas particularly Balochistan, southern Punjab, interior Sindh, Karachi, and the western parts of Khyber Pakhtunkhwa. Even the local private sector is unable to envisage long term business plans (Ahmed and Qadir 2018).

The low levels of incentives to boost productivity via, for example, technological adoption results in large amount of potential domestic investment remaining unrealized (Nasir and Khalid 2004). Recent evaluation of financial sector inclusion programs has also indicated less than anticipated progress towards channelizing savings towards productive uses—a criticism which is also levelled against the rising levels of remittances Pakistan receives from diaspora abroad. Only once the pre-requisites for conducive private activity are in place and incentives for education, skills, and technology attainment are available, countries start to witness growth in capital formation.

The economic growth process is also determined by how efficiently a country utilizes its endowments of capital and labor. Usually this efficiency is measured by total factor productivity. We note in Box-1 that Pakistan has had low levels of productivity vis-à-vis other Asian economies. The existing literature attributes this to weak progress on education, health, institutions (and their governance), and trade openness (Isaksson 2007).

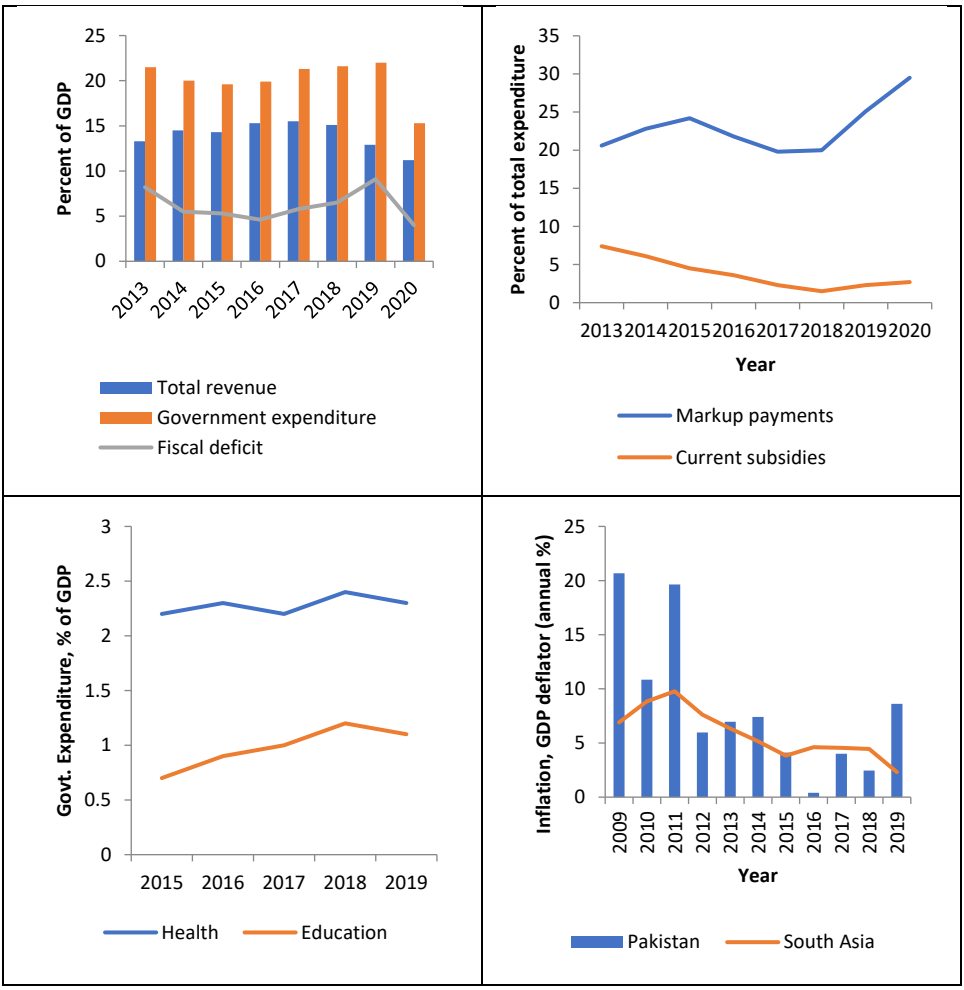
Box 1: Pakistan Macroeconomic Performance



Source: Economic Survey of Pakistan (various issues); World Development Indicators 2018; EconMap database 2014.

The fiscal resources of the state are also under stress. Large budget deficits have continued to result in rising levels of debt and debt servicing (Ahmed and Wahab 2012). The gap between tax revenues and government expenditures (as a percentage of GDP) could not be significantly narrowed. The low levels of tax effort are attributed to various exemptions, concessions, and preferential treatments, provided in the tax laws among other reasons (Pasha 2019). The SROs governing such concessions are rarely discussed in the parliament and are usually the discretion of the government in power—something which the International Monetary Fund now wishes to see changed. The task of increasing tax collection is all the more difficult in the presence of weak tax administration reforms. Despite several automation attempts, tax departments at federal and provincial levels suffer from human resource gaps and a large scope of discretion which ultimately gives rise to rent seeking (SDPI 2013b).

Box 2 Government Budget & Prices



Source: Economic Survey of Pakistan (various issues) and World Development Indicators 2018

Past attempts to practice austerity have not been successful. In fact, Covid-19 has also forced the government to put austerity goals behind and expand various social safety nets. The major items in the government's expenditure portfolio include debt servicing, salaries and pensions of a growing public sector, and defence expenditures—all items which may not see a large cut in the short term. This has left little fiscal space for development spending on uplift of infrastructure and augmenting human capital—fundamental ingredients for economic growth. We observe in Box-2 that public spending on education as a proportion of Pakistan's national income has not seen much increase. The same trend prevails in the case of the health sector.

The 18th Constitutional Amendment and the NFC award allowed provincial governments greater control over development projects in all social sectors. The

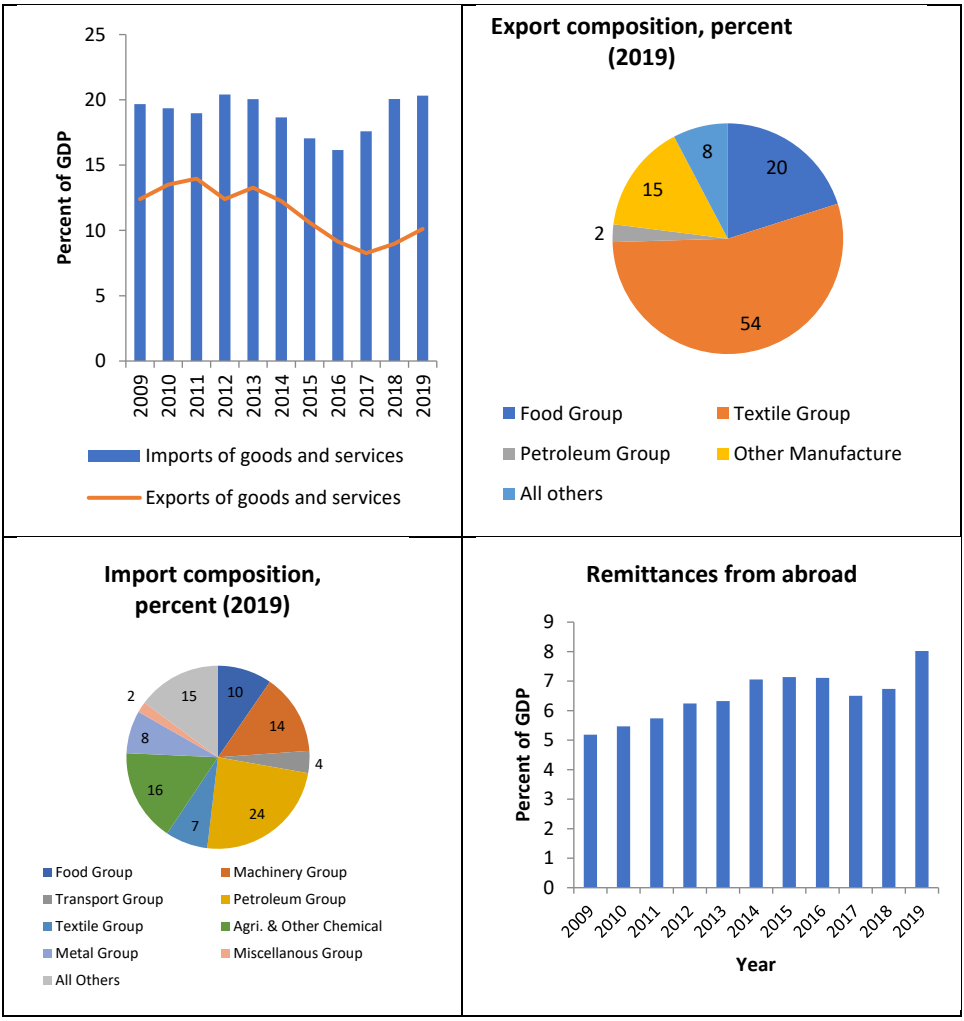
provinces have yet to demonstrate discipline in the utilization of these increased levels of transfers from the federal government. In fact, even some part of the Covid-19 emergency funds could not be utilized by the provinces even after six months of the initial outbreak in Pakistan.

None of the provincial governments have fully implemented results-based management and put in place key performance indicators which can ultimately enhance the efficiency of scarce financial resources. The efforts to improve provincial tax revenue collection have seen some success; however, several economic activities under the jurisdiction of provinces including agriculture, property, and transportation can still deliver much greater revenues than the current levels (Ahmed and Naqvi 2016).

An increase in the size of the government and persistently high budget deficits also pose inflationary pressures. Apart from eroding the purchasing power of the poorest of the poor and increased poverty, this also leads to increase in input prices for businesses in turn affecting the country's export competitiveness.

In the trade sector, we note that the export receipts have not grown at a pace envisaged across various trade policies. A key reason has been the inability to diversify exports in terms of products and regions. The low sophistication level in production of manufactured goods, quality control issues, high cost of inputs, and the shortfall in energy supply are some other macro-level reasons. More than 50 percent of exports are concentrated in textile and garments which are known to have a static demand abroad and face stiff competition from relative newcomers such as Bangladesh and Vietnam (Box 3). The research and development-based and technology-embodied exports have remained under two percent of the overall exports. Pakistan's exports to Asia—a continent termed as a driver of global demand—haven't increased by much. In the region, while exports to Afghanistan and China have shown some progress, trade with India and Iran and most economies of Central and South Asia remains limited (Hamid & Hayat 2012).

Box 3: Trade and Remittances



Source: Economic Survey of Pakistan (various issues) and World Development Indicators 2018

The remittances from abroad have had a stabilizing effect on Pakistan's balance of payments. This has helped the foreign exchange reserves and supported value of the Pakistani rupee in the medium term. These remittances have also been found to reduce poverty via an increase in non-farm incomes in relatively poorer districts of the country, particularly Western Khyber Pakhtunkhwa (Ahmed et al. 2010).

The above-mentioned state of the economy has implications for Pakistan's pursuit of SDGs. The process of sustainable development will involve a conscious drive to making economic growth processes inclusive, ensuring social justice and protection of environment and natural resources. Accomplishing such a sustainability framework requires responsible accounting of the resources at the national and sub-national levels which are being devoted to production and distribution of benefits.

This framework also binds us to treat our environment and natural endowments as a shared resource between current and future generations. In doing so the current generation assumes the responsibility of safeguarding the natural resources and promoting a growth of natural capital (Reid 1995).

The day-to-day economic management will need to be supplemented by having a longer-term shared vision for the economy. This is possible through a focus on three main areas. First are the efficient governance mechanisms for public service delivery. A failure to do this in letter and spirit resulted in Millennium Development Goals (MDGs) offering less-than-desired results. Mostly, wherever countries have defaulted on their targets under each of these goals, one finds a governance gap or more specifically: a) state's weak capacity to focus on targets that can lend maximum gains in terms of human development and in turn inclusive growth; b) missing reform of civil service responsible for the delivery of development goals; and c) weak capacity of communities to demand reform of social services (Ahmed 2014).

Second, economies such as Pakistan's have regularly faced violence of various types. Insulating development goals, policies, programs, and projects from violence has been difficult under weak institutions. The third aspect is that of women's safe participation in public spaces, taking action against violence against women, and enabling women to become active members of the labor force. The gender mainstreaming in national level policies is need of the hour.

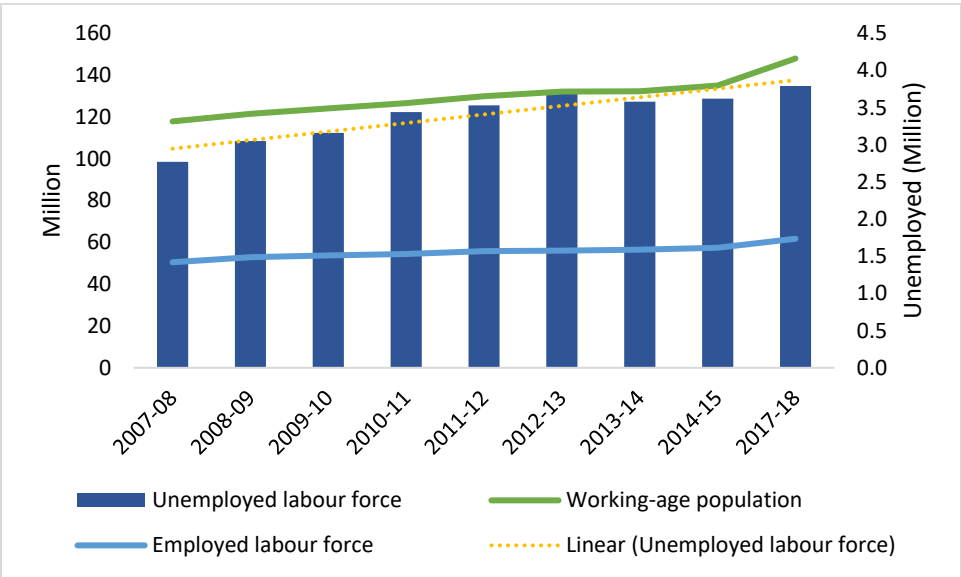
This essay argues that the current state of the economy leaves little fiscal space for investing in human capital development. We however make a case in the next section that even in case of present scarce public resources, an increased focus on female population is the need of the hour in order to have a more inclusive participation in workforce. This is only possible if women aren't burdened with constant childbearing responsibilities and have access to gainful employment opportunities.

Family size, household savings, and poverty reduction

We discuss in this section how family planning can help enhance women's empowerment, which can in turn lead to better standards of living for smaller families through channels which include higher household savings. Pakistan's economic predicaments and challenge for poverty reduction often gets exacerbated due to a large population and stock of unemployed in the country. Figure 1 indicates how people in working age population continues to grow and the gap between this and employed labor force is now starting to widen. This implies that the economy's capacity to absorb new entrants in the market is low – also shown by the gradual medium-term increase in the number of unemployed.[23]

[23] GoP, "Framework for Economic Growth," Planning Commission, *Government of Pakistan*, 2011.

Figure 1: Pakistan's employment pattern



Source: Economic Survey of Pakistan

Existing literature highlights the importance and interlinkages between smaller family sizes and higher savings rate—much needed to put developing economies on a high growth path (Sajid and Sarfaraz 2008). Jin (2013) had reported—based on data from 1983 to 2011—that household savings rate increased from 10.4 to 30.5 percent due to family size getting smaller and decline in fertility rates. The same has also been explained in the case of Pakistan. For example, Arif (2013) states: "a low dependency ratio, associated with a smaller number of children per family as a result of fertility decline, can contribute to economic growth through increased household savings." The author argued that population and demographic factors among other variables explain poverty in Pakistan. In particular, the family size, change in the age composition of household members, and gender of the head of household have an impact of household poverty.

Any discussion on the long-term pattern of family size remains incomplete without discussing the socio-demographic determinants of unmet need for family planning in Pakistan. For married women, Asif and Pervaiz (2019) have explained how the likelihood of unmet need for family planning could come down as the wealth status of women's household, number of living children, and husband's education increase. Women residing in rural areas were found more likely to have unmet need for family planning as compared to those in urban areas. Apart from the economic factors this is also attributed to a lack of exposure to information and mass media. This contributes to fear of side effects for using contraceptives. Lack of formal employment or weak labor market contracts have also been found to exacerbate these fears. With regard to social and religious conservatism, literature seems

divided as to how this may or may not lead to a preference for larger families in Pakistan.

A household's ability to access decent health services play a large role in intra-household decision making in favor of family planning. Sathar (2013) has explained:

nearly 1 million women in Pakistan seek unsafe abortions every year, a decision determined by the high level of unwanted pregnancies. Improved access to quality services will reduce the number of abortions and maternal and child deaths. Second, it is clear from inequities in unmet need for family planning and contraceptive use by income levels, and across urban and rural populations, why women who are poor have as many as two unwanted pregnancies compared with a quarter of this number for women who are not poor.

The author has made a case for the health sector to prioritize family planning. A careful evaluation is required if the Lady Health Worker Program is achieving this goal or needs to be supplemented by other related interventions. The private sector healthcare services while available in urban areas are mostly unaffordable by women from poorer households. An urgent study is also required to assess how COVID-19 may have disrupted the delivery of family planning services. This could provide important lessons regarding remedial measures once such services are disturbed due natural or man-made disasters.

It is important to understand that population's age composition matters for economic growth and decent jobs (Fox and Dyson 2015). Demographic dividend can only be realized once fertility rates decline and the proportion of the working age population grows. This change in age composition if coupled with an increase in savings and investment could bring dividends in terms of expansion of output and employment.

Implications for Education, Health, and Food Security

The population pressures and low levels of economic endowments have implications for future attainment of education, skills, and decent health standards.[24] The population-poverty-inequality nexus has made provision of social protection difficult (Osabohien et al. 2020). The United Nations Development Program's (UNDP) Human Development Index (HDI) for 2019 puts Pakistan at 152 out of 189 countries. According to the Ministry of Federal Education and Professional Training, 44 percent (or 22.8 million) school age children falling between the ages five and 16 years are out of school. The pupil-teacher ratio in primary schools of Pakistan was 44.28 in 2018, which is a decline from the 2016 number of 47.63. Almost 21 percent primary schools in the country do not have an appropriate size of faculty and are usually run by a single teacher.

Children not being in schools and belonging from regions hit by local violence are more vulnerable. For example, 58 percent of children in erstwhile FATA are not in

[24] This section also aims to update the authors perspective in Ahmed (2018).

school. Similarly, in the case of Balochistan, 70 percent children are not present in school. These children have often been found to fall in the hands of anti-state interests.

Shrinking public resources coupled with large family sizes (particularly in rural communities) gives rise to disparities in education. For example, the female literacy rate, according to the Pakistan Economic Survey 2019–20, is 58 percent. This is low if compared with male literacy rate at over 70 percent. It is therefore not surprising that the global gender gap index—a measure to capture gap between men and women across socio-economic indicators—ranks Pakistan 151 (third-to-last) out of 149 countries in 2020.

A large population will of course also have implications for health outcomes. While increasing the budgetary resources for this sector remains a challenge, equally difficult is to bring improvements in areas which could supplement health sector outcomes, for example provision of safe drinking water and efficient disposal of waste for a growing population. Most independent assessments have shown concern over the current state of infant mortality. According to 2016 statistics, out of 6.3 million children born in Pakistan, 441,000 died within the first 12 months. In fact, almost 2,90,000 children die before the end of their first month.[25]

UNICEF now considers Pakistan the riskiest country for newborn children. This is attributed to women in Pakistan having a lesser probability of receiving appropriate assistance during pregnancy. There are only 14 skilled health professionals for every 10,000 people. Going forward, it remains a challenge to have more mothers give birth in decent health facilities and under the care of skilled attendants (also see Manzoor et al. 2016).

The productivity of future labor force is also projected at low levels as out of the overall population of children, one-third are underweight. Similarly, 46 percent children are malnourished. Almost one-third of the children are anemic due to iron deficiency. The Ministry of Planning, Development and Special Initiatives, in its 2017 report "The Economic Consequences of Undernutrition in Pakistan: An Assessment of Losses," informed that malnutrition's economic loss stands at 3% of national income or USD 7.6 billion. To reverse this situation, donor-supported food fortification programs are underway, the sustainability of which can only be ensured through proper ownership of federal and provincial governments.

As population rate exceeds state's ability to augment health systems, the case of missing facilities at public hospitals requires urgent attention. Sindh, the second largest province in terms of population, faces this challenge where public hospitals only have one-third of the required facilities available. Patients from the rural districts throng to hospitals based in the cities, particularly Karachi, Hyderabad, and Sukkur,

[25] Also see Ahmed & Ahmed (2014) for poverty and social impact analysis of immunization programme in Pakistan.

often simply due to the lack of beds in rural areas. The capacity to respond to sudden disease outbreaks has also declined. For example, between 2016 and 2017, the number of affected persons by dengue in fact increased by 25 percent. In 2019, Grade II emergency by WHO was announced upon HIV outbreak in Sindh. This gave rise to several outbreaks afterwards in which majority of affectees were children.

The state's capacity to provide for food security needs of a growing population has also been on a downward trajectory. While food availability is not an immediate concern, food access—that is, distribution of food, food utilization, and dietary patterns—remains a concern. The daily diets have been termed by experts as lacking in the required levels of diversity; much is needed to overcome the deficiencies of micronutrients.

Studies which have simultaneously modeled climate change, food security, and population growth show how the lower fertility rates resulting from greater use of family planning can support food security. This happens through two important channels. First, by slowing population growth, thereby easing demand on already-stressed agricultural systems; and second, by changing population composition that can enable improved nutritional outcomes among children under five. These children have been termed to be highly vulnerable to food insecurity.[26]

Attaining SDG-8 Amid Rising Population: Some Recommendations

In the light of available evidence, we have tried to highlight that with rising population and low economic growth rates, potential to create decent jobs diminishes. In this regard, we offer some policy recommendations below focusing on two-pronged intervention. The first is to keep population growth under check. The second is to improve functioning of economy so that both public and private sectors can complement each other and transition to higher levels of savings and investment levels, in turn also expanding opportunities for employment.

a. Using evidence for policy and practice interventions: With provincial governments mandated to have a larger role in managing population and demographic priorities, it is important to have region-specific evidence and its role in advocacy and capacity building measures. While advocacy and outreach practices also require regular innovation, improved capacity is required for non-government organizations working in this space to provide orientation services to communities. It is important to view NGOs as an important element in social accountability which in turn could help the monitoring and learning process.

   In this regard, Jabbar et al. (2013) concluded that policy makers, public sector service providers, and private sector family planning programs need to focus on untapped pool of never users of contraceptives. This pool could include, for

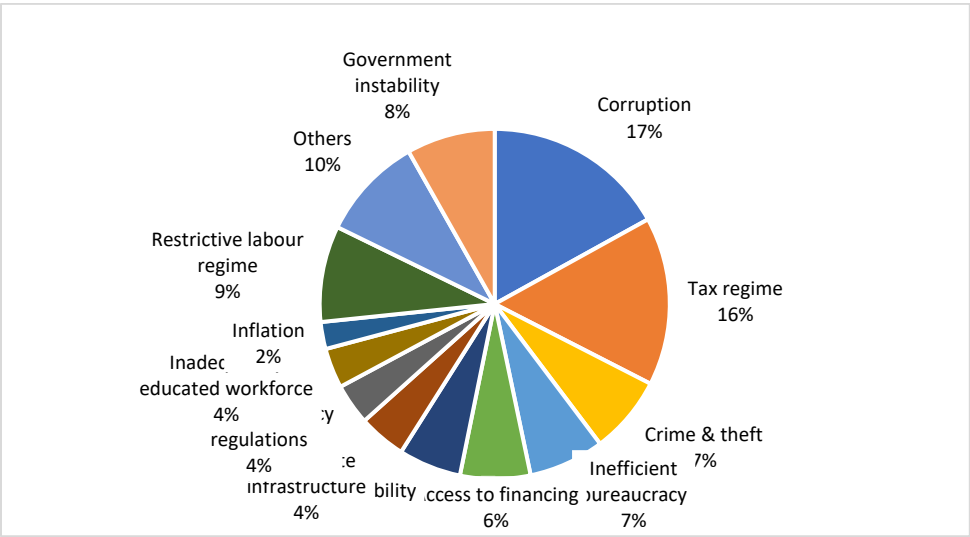
[26] For details: "Improving Access to Family Planning Can Promote Food Security in a Changing Climate". Accessed via web: https://www.measureevaluation.org/resources/publications/fs-12-71, accessed on November 5, 2020.

example, younger women from "underserved provinces, in higher wealth quintiles, who desire more children." Authors also suggest covering catchment areas, particularly in Balochistan and Sindh where there could be fewer lady health workers and ignorance to available methods.

b. Interventions to reduce economic gap in use of family planning methods: Family planning programs in Pakistan have the potential to target women, children, and wellbeing of disadvantageous groups. Having a multisectoral approach to address various sources of poverty and inequality through family planning interventions could lend greater efficiency and value for money. Aslam et al. (2016) have shown that while such programs usually address health-related needs of households, it is likely that with similar resources but better planning, education-related absolute inequalities among urban and rural dwellers could also be addressed. Overall, the medium to longer term provision of improved education will have positive spillover effects for health and population-related outcomes.

c. Remove barriers to productive employment: This perhaps will only be possible by focusing on both wage- and self-employment opportunities across the country. Absorbing increases in the labor force through public sector initiatives is not sustainable and therefore barriers to private enterprise growth need to be addressed. It is only through a reduction in regulatory burden and other business costs faced by the firms that the state could create more jobs in the productive sectors (Ahmed 2017). The figure below indicates some of the most pressing problems faced by private enterprises including rent seeking and a complex tax regime—areas where federal and provincial governments could help.

Figure 2: Most Problematic Factors for Doing Business



Source: World Competitiveness Report 2017–18

This effort has to be complimented by expanding skills base and issues of liquidity and start up financing faced by newcomers. This will require, among other things, expediting active and passive labor market programs. Covid-19 has created an emergency to speed up the digital transformation in most sectors and professions. Therefore, the existing curriculum of technical and vocational education training institutions needs to be revisited. A more proactive lending ecosystem is required so that financing needs of youth and startups are addressed—an area where central bank and other financial institutions could help.

d. Protect fiscal space for human development and infrastructure: Pakistan cannot afford weaknesses in public finance management which in turn could make it difficult to finance much needed enabling infrastructure that complements human development. It is imperative that in line with the commitment to IMF Extended Fund Facility, federal and provincial governments continue to increase resource mobilization efforts, through tax and non-tax measures and protect budgetary allocation for both social sectors and infrastructure uplift. This is in line with the spirit of Fiscal Responsibility and Debt Limitation Act (see Ahmed 2015b; Jamali and Ahmed 2015).

The wastages in government expenditure can be minimized through appropriate policy measures, accounting practices, and real-time monitoring and evaluation of public schemes. Currently the federal public sector development program and spending under provincial annual development plans have multiplicity of similar schemes leading to wastage of scarce budgetary resources. Also, it is

clear from recent evaluations by Planning Commission that almost one-third of the disbursed development spending is not reaching the beneficiary (Khan et al. 2016).

e. Strengthening public-private dialogue process: The public sector alone may not be able to put SDGs back on track given the Covid-19 emergency. It is important that local private sector should see investment in human resource development as a priority and look into the potential of public private partnerships on a wider scale.27

   The role of NGOs at the community level in creating ownership for SDG-8 is important. Behavioral and attitudinal changes necessary for adopting new technologies in production processes (for example, a focus on greening the supply chains in manufacturing sectors) can come about through industry mobilization by local NGOs.[28] Social entrepreneurship is another model at the local level that can help informal innovation, particularly across rural communities. This should be encouraged through legislative, policy, and regulatory measures (see also Yaseen and Ahmed 2016).

f. Role of the parliament to keep SDG-8 on track with a focus on population and demographic priorities: The parliamentary oversight should keep the achievement of SDGs on track. There are several instruments which parliamentarians could employ to exercise oversight. For example, as per the mandate given to the elected representatives, the parliament could ask the government for: regular information; public clarification of policy; and obtaining information from sources outside the government. Parliamentarians could express views to the civil service and the public; form a special committee to meet regularly to discuss this subject; and resort to a sub-committee which can co-opt technical experts.

   The Parliament's SDGs Task Forces in the federal and provincial level assemblies should ensure that the commitment to SDG-8 remains a priority in the wake of rising working age population. These Task Forces should also ensure regular and broad-based debate around keeping a focus on above mentioned issues. The Parliament's leadership, for example Chairman Senate and Speaker National Assembly, should seek updates on the implementation status from the Task Force decisions, particularly those related to population issues. In the current setup under PTI, the Task Force on Population is being headed by the President which should provide the initiative with an addition impetus.

   These Task Forces also need to realize that civil service remains the single most important instrument for development administration. Therefore, reform of the

[27] Private sector has also been a key actor in peace building; see Khan and Ahmed (2014).
[28] See also Abbas and Ahmed (2016).

public administration should be high on the agenda. Innovative models of reforms in line with success examples from other countries can motivate the civil servants towards a focus on outcomes and better efficiency and effectiveness of public expenditure. Similarly, the Task Forces at the provincial level also need to ensure the stakes of women and marginalized groups.

g. Looking at population priorities through social justice lens: It is important to ensure a focus on family planning and health issues in existing social protection programs. Currently the major social protection programs by the federal and provincial governments include: (a) social security (Government Employees Pension Fund, Employees Old-age Benefits Institutions, and Workers Welfare Fund); (b) cash assistance (Benazir Income Support Programme, Zakat, and Bait ul Mal); (c) subsidy for Utility Stores Corporation, and on consumption of electricity, gas, wheat, and sugar; and (d) employment promotion program (Works Programme, Grant to Pakistan Poverty Alleviation Fund, Youth loan schemes). It was pointed out in SDPI (2013a) that there remains a room to make these programs multi-sectoral and improve targeting efficiency, extent of program coverage, degree of ease of access, adequacy of support, grievance redressal, sustainability, and exit mechanism from the above mentioned program.

   There are also various conditional cash transfer programs where family planning and health priorities could be integrated. The stipend program for female students in Khyber Pakhtunkhwa province which has now been upscaled and made universal across the province is one such example (Ahmed and Zeshan 2014). Envisioning several complementary outcomes together will require strengthening the PC-I (project proposal preparation) process at planning departments. While the project proposals are being formulated, there is minimum input from health and education sector practitioners responsible for spending the available funds. More inputs are required from institutions and specialists that help uncover the reasons for delays in disbursements of budgets.[29]

   Even where a monitoring mechanism for public sector projects is present, the feedback to the higher tiers in management is missing. The evaluation and learning based on the monitoring data is often found missing. The grievance redressal mechanisms are not properly documented and accessing them involves high costs. IT-enabled complaint management is an innovation in some projects and should be replicated in case of other projects. The synergies with other transfer programs in the same provinces need to be created (Ahmed et al. 2013). There is also a need to deliver these programs in hard areas or regions hit by violence.

[29] The case is not very different in the case of health sector projects. For example, see: Ahmed and Ahmed (2014).

The social protection outcomes can also be improved through promoting volunteerism among youth and communities in a manner that the activities conducted have a linkage with job creation. Some models linking volunteerism and self-employment are explained in UN DESA (2007). Second, the role of corporate social responsibility (CSR) in sustaining social sector programs such as education and health has not been fully explored. Many of the public sector social assistance and labor market (job creating) programs that are hard to sustain over the longer run can find another life via cash or in-kind channeling of CSR (Khan and Ahmed 2014).

h. Paying attention to the sustainability of growth process: There has to be a conscious effort by both public and private sectors to move away from the past's lackluster approach to deal with climate change and environmental deterioration. Pakistan's environment quality indicators require attention if economic expansion has to be sustained in a responsible manner over longer time periods.

   This challenge is closely related to the energy, food, and water security in the country. A lack of coordination across provinces on these subjects could be avoided through a well-functioning national-level Climate Change Authority. Enhanced Coordination among the conservation and environmental protection departments of provinces and Islamabad in the post 18th amendment scenario is much desired. Environmental issues and climate change do not take into account varied political perspectives and as such a national response needs to be coordinated and comprehensive. The already approved National Water Policy also waits its implementation in letter and spirit.

Government commitment also needs to show in terms of greater budget disbursement to relevant ministries and departments responsible for correcting production processes. Currently institutions responsible for environment and climate change policy and governance get only a fraction of the development funds. This has major repercussions in terms of technical capacity to monitor the impact of climate change as well as industrial and residential pollution. A regional approach to climate change is also required so that all in the neighborhood share a common vision for responsible production and consumption.

It is also the case that the demand for environmental reforms from the communities is weak. Only a few civil society organizations are involved in the capacity building of communities vulnerable to climate change. These efforts need to be scaled up given the rising fossil fuel consumption, depletion of forests, and changes in land use. The development plans and provincial industrial policies (if any) are also not in compliance with the national climate change policy. One example is the government's goal to engage Chinese counterparts to expand coal-based power generation capacity in Pakistan. This can threaten Pakistan's already vulnerable environment profile.

The capacities to manage natural resource endowment have weakened. Pasha (2014) explains that since 2000, there has been little change in the water availability at farm gate. Due to poor maintenance of canals the surface water provided by irrigation system suffers significant leakages. Private tube wells which are the main sources of ground water have increased by 58% since 2000. Deforestation has also been rampant and almost 22% forest area had depleted between the years 2000 and 2018.

The entry point for reform is essentially people's own evolving understanding about how changes in climate are responsible for decline in crop productivity, food availability, and income. Zaheer and Colom (2013) show that 72% population in Pakistan feels that the government will not be able to respond to the climate challenge. A possible agenda for the development partners in Pakistan can be to strengthen the civil society's efforts towards sustainability which can act as a pressure on the state institutions. The development partners providing technical assistance to the government should seek compliance of public investment with green economy principles—that is, where income and employment are driven by investments that reduce emissions and enhance energy efficiency.

The responsibility for protecting environment also has to be taught in academic institutions. The university and college level curricula need to provide greater space to education regarding environment and climate change. The universities can also help in bridging the data and information gaps which remains a major hindrance in preparing region-specific environmental protection plans. For example, in several regions, the data regarding composition of air pollution (in a particular city) or industrial waste were missing. Since the government departments currently lack capacity in this regard, the academia may be supported to fill that gap.

Water resource development also remains a neglected area. While the water policy came out in 2018, because of the political transition and election phase progress towards implementation framework has been very slow. Provinces have also come up with their own laws on water management. The government will also need to show resolve and take some unpopular decision to conserve water resources and promote their responsible use. The issue of water charges in the agriculture sector, for example, will be a key test of the government. Likewise, political consensus is also required to build smaller scale dams and reservoirs for rainwater harvesting.

Establishing a groundwater authority was also one of the recommendations of the water policy. That authority has not come about. An active debate is required in the parliament on devising comprehensive terms of reference of this authority so that depletion of groundwater aquifers can be quickly addressed.

Provision of clean drinking water was a key election promise of the incumbent government. This is closely related to the high health spending which citizens have to incur due to lack of safe water in several parts of the country. While several initiatives were undertaken during the past few years to improve service delivery in the water

sector (for example, Punjab Saaf Pani Company, Changa Pani, and some initiatives by Water and Sanitation Agency, Hyderabad), an evidence-based evaluation is still required to learn if these programs have delivered their goals and perhaps can be replicated in other parts of the country.

Conclusion

This essay provides an understanding of how population and demographic factors could impact progress towards SDG-8. We have suggested an approach which prioritizes attention to family planning issues as household size impacts savings and poverty. We have also tried to advocate that a combined focus on SDG-8 and population priorities could improve social justice and environmental outcomes in Pakistan.

The policy response to promote social justice should not be limited to addressing unequal patterns in income levels. Horizontal inequalities such as those between various culturally formed groups within a society are equally important (Stewart 2002). Such inequalities are linked with identity-based distinctions in a society and promote grievances among the relatively neglected and may possibly facilitate conflict (Østby 2008). These types of differences could exacerbate gender, racial, ethnic, class, or nativity inequalities. Horizontal inequalities pose a challenge to Pakistan's law makers and practitioners' community. All political parties in the country are guilty of not giving enough 'voice' and 'effective representation' to the women, youth, and minorities in the country. Recent literature has also suggested the need to ease in-country migration which in turn can help social mobility across Pakistan.[30]

Our approach has validation from the East Asian experience. The economies known as 'Asian Tigers' capitalized on their demographic dividend through a policy focus and sustained investment in education, healthcare, family planning, and supporting inclusion of women in the workforce (Mir 2018).

This inclusive participation in the workforce is only possible if women aren't burdened with constant childbearing responsibilities—an aspect which requires Pakistan to continue its efforts towards family planning. Improved and timely family planning efforts can help enhance gainful employment for women over the medium term, which can in turn lead to better standards of living for smaller families since smaller size of the household contributes to higher savings by the family.

An opportunity to achieve all this in Pakistan will only be around until the time the country has low numbers of economically dependent people. And, this opportunity can be seized by investing in human capital development, along with an increased focus on female population.

[30] See Ishfaq et al. 2017.

CHAPTER THREE

Education and Population: Making the Case for Accelerating SDGs in Pakistan

Baela Raza Jamil[31]

Introduction

Education and population are inextricably linked; one cannot be achieved without the other. Despite modest gains, the under-investment in both continues to elude the necessary thresholds needed for Pakistan's sustained development. Pakistan's population of estimated 220 million makes it the 5th most populous country of the world. The weak metrics of health, education, and population are stacked against progress in human development, especially for girls and women; for 50 percent of the population, the challenges are structurally complex and multi-layered. Given the sharp dip in ranking of Pakistan on the Global Gender Gap Index Report 2020 (comprising economic participation, health and survival, education attainment, and political empowerment) of the World Economic Forum (WEF) from 112 in 2006 to 151 in 2020 out of 153 countries, there is ample cause for concern. In education attainment, Pakistan stands at 143 in global rankings, while in health it ranks at 149 (WEF 2020: 277–278). The population bomb is ticking for Pakistan with significant ripple effects for meeting all Sustainable Development Goals (SDGs) 2030 and especially SDG 4. An ongoing crisis with 22.6 million out-of-school children (aged 5–

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16), the majority of them being girls, the annual population growth rate of 2.4 percent translates into the challenge of creating millions of education spaces annually—a losing battle. There is a minimal annual investment of 2 to 2.5 percent GDP in education and up to two percent in health and population (Economic Survey of Pakistan 2019–20; PES 2016–17; World Bank 2019).

The latest poverty estimates record 24 percent of Pakistan's population living below the national poverty line (31 percent rural and 13 percent urban). According to the multidimensional poverty index (MPI), 38 percent of the population is poor (54.6 percent rural and 9.4 percent urban). MPI comprises three dimensions and ten weighted indicators across health (2), education (2), and income (6).[32] Pakistan accounts for 14 percent of the 541 million global population living in intense deprivation. Poverty, low levels of gender empowerment and equality, women's exclusion from decision making, and low access to essential services lead to higher chances of unmet needs for education and early marriages and unwanted pregnancies, lowering overall investment in education of all children, and especially girls.

Early Endorsement of SDGs 2030

The above metrics of vulnerability stand in sharp contrast to Pakistan being amongst the most progressive[33] countries to own and globally endorse the SDGs 2030 in February 2016 through a unanimous parliamentary resolution and establishing active parliamentary task forces and SDG coordinating units (8) at national and provincial levels. The commitment is to be lauded. The SDGs present a comprehensive menu, where each of the 17 goals compliments several others (SDG 4 on Education linked to 11 SDGs, while SDGs 3 and 5 on population linked to nine SDGs). The 17 SDGs to be met globally by 2030 are embedded in five overarching thematic principles: People, Planet, Prosperity, Peace, and Partnership (5Ps). Pakistan belongs to the group of nine most high population countries in the world and has the potential of being a major influencer like, China, Indonesia, India, Bangladesh, Mexico, Brazil, Egypt, and Nigeria. However, similar to Nigeria, its record on population and education indicates poorly on social capital creation, human and economic development, and gender equality, thus undermining the 5Ps.

As articulated in SDG 4, "Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all"—12 years of basic education is the minimum investment required to trigger the benefits of *all* five Ps, creating firm pathways towards achieving all 17 SDGs. Article 25A of the Constitution of Pakistan has finally committed 12 years of education as a fundamental right for all children 5–16 years of age in the country since 2010. Similarly, family planning is emerging as key priority area globally and nationally. It is now recognized as a major subsector in

[32] MPI: People experiencing deprivation in at least one third of these ten weighted indicators fall into the category of multidimensionally poor.
[33] See Labor Force Survey (LFS) 2017-18

need of focused efforts and resources. Moreover, the interlinkages between the SDGs are now an established discourse. What exactly is the problem, then? Which dots are not being connected? This essay will build an evidence-based case for investing in family planning and education in Pakistan.

Literature Review

Globally, over the decades, there has been an increased recognition of the importance of education in general and female education in particular. Education is not just as an important goal on its own; it also positive affects other arms of development, including maternal and infant mortality, family planning[34], fertility, and gender equality. One cross-national study from the 1990s indicates an outsized effect of girls' secondary education on fertility rates, much more than GDP increase or health programs (Subbarao and Raney 1995). Other studies highlight a similar relationship between female education and low fertility (UN Women in Pakistan 2020; Sundarum et al. 2019; Vavrus and Larsen, 2003; Lloyd, Kaufman, and Hewett, 2000). Education and fertility transition go hand in hand (Lloyd et al. 2000).

This body of literature, providing evidence for the strong correlation between education, women's choices, and family planning, gains further relevance post-2015 to achieve the SDGs. This directly affects multiple SDGs, including SDG 4 on education, envisioning universal education (12 years) for *all* children by 2030. Education empowers girls and women, reducing the risk they face of unwanted pregnancies, early marriages, and other barriers that hinder economic betterment and effective family planning. The virtuous cycle is triggered with female education, leading to lower fertility rates, birth spacing, lower population growth, higher human development, and, by extension, mitigation of climate change and resource exhaustion (O'Neill 2020; Kharas 2016).

One of the barriers to effective family planning and increased choices for women is early child marriage. Educational attainment along with lower household poverty can prevent early marriages for girls. Conversely, the probability of early marriage for girls starts declining with secondary level of education and reduces further with higher education. Pakistan's scorecard on early marriages reveals that one percent of girls were married before age 15, while more than 25 percent of young women were married before age 18, the majority being either 16 or 17 (HIES 2018; UN Women in Pakistan 2020)—whereas according to UNICEF, 18 percent of girls get married under the age of 18 (2020). A study from Bangladesh that collected data from two cohorts of women demonstrates that with improvement in education level, women tend to have more autonomy over the use of contraceptives, as a result of both increased awareness and more choices (Blunch 2019). On the flip side, any disruptions to

[34] Family planning includes the services, policies, information, attitudes, practices, and commodities, including contraceptives, that give women, men, couples, and adolescents the ability to avoid unintended pregnancy and choose if and when to have a child. (Investing in Family Planning: Key to Achieving the Sustainable Development Goals)

female education are likely to cause negative outcomes for fertility decline and control (Kebede, Goujon, and Lutz 2019). Thus, one of the key early recommendations is that girls should be provided with more and extended educational opportunities especially amongst the most vulnerable groups (Paul 2019).

Education and economic development are closely intertwined, and there is substantial research to support this conclusion. Ozturk (2008), for example, found that education is not only a fundamental factor in attaining higher levels of economic development, but also fundamental in improving the quality of lives of people, besides having tremendous social benefits. Multiple studies have found an overwhelmingly positive relationship between increase in female education and the rate of economic growth, quality of lives, and social benefits within a country over a period of time (Hassan and Rafaz 2017; Tansel and Güngör 2016, Ozturk 2008). The latest Global Education Monitoring (GEM) Report and its Gender supplement (2020) graphically highlight how "gender intersects with other characteristics to exacerbate education exclusion."

The evidence of intersectionality is highlighted in this monograph juxtaposing the nexus of social inequality, patriarchal norms and authority, and reinforcing each other to accentuate exclusions and vulnerability of the weakest groups. It is the unravelling of such "embedded assumptions" that will lead to inclusion and substantive gender equality (Piketty 2019).

When viewed within the context of sustainable development goals, the patterns and scale of education and particularly girls' education, family planning, and sustainable population growth assume high significance. The target for SDG 4, including universal education, would not be achieved if the resources did not match up for the sheer scale of 22.6 million children still out-of-school, comprising 44 percent of the total population in this age group (UNICEF 2019). These out-of-school children (OOSC) do not include the three "at risk" groups in school for dropouts because of poor learning and vulnerability with respect to early years, upper primary, and lower secondary grades (UNICEF 2014). The target of universal education (primary and secondary) cannot be sustainably achieved with the current volume of annual addition of children to the population, without requisite resources to ensure their fundamental right to education. This generates a vicious cycle of low education, poverty, likelihood of early marriages, early pregnancies, low birth spacing, high fertility, and higher population growth rate, stretching chronically low resources for social sectors, thus undermining the constitutional provision of 12 years of education. Low education level for girls translates not just into early marriages but also child labor often in its worst forms, including violence, sexual abuse, and trafficking. There is an urgency to support groups who are at a socio-economic disadvantage, who can invest in their children's education, so that girls marry late thereby averting young age pregnancies, reducing risk of maternal mortality, and improving inter-generational well-being.

The articulation of SDG 4 Goal, its 7 Targets, and 3 Means of Implementation backed by global (11) and thematic (43) indicators opens up a panorama of capabilities for *all* girls and boys, including young/old adolescents and women and men. When SDG 4 and its targets are juxtaposed against poverty reduction, nutrition, health, gender equality, reduction of inequality, economic growth, climate change, and partnerships, education is truly a transformative catalyst. This is well captured in the strong narrative meticulously negotiated by a diverse global community of actors through multiple iterations over three years (2012–2015) across diverse geographies.

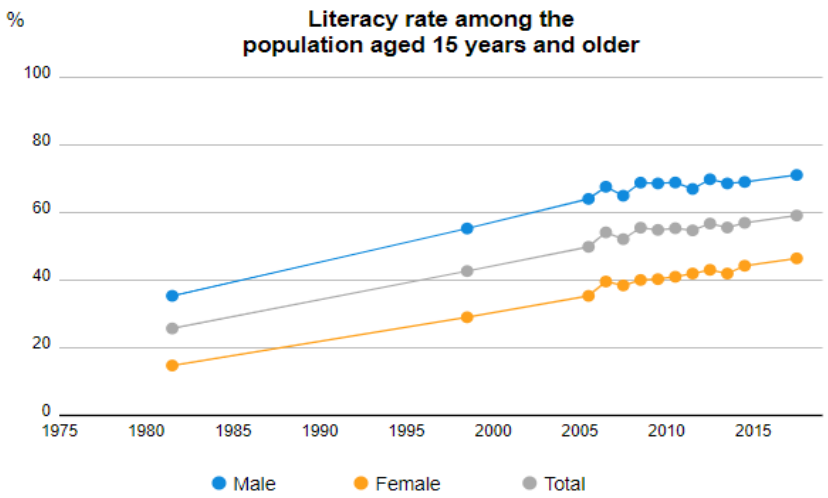
8 of the SDGs are either directly or indirectly linked with family planning, particularly SDGs 3 and 5. SDG 17 on Partnerships is cross-cutting for all goals and underpins both family planning and education. Family planning is the cross-sectoral intervention that can accelerate progress across five themes, which are the organizing principles set forth in the preamble of the SDGs' 5Ps. Sexual and reproductive health and rights (SRHR) and family planning have been referred to repeatedly in the SDGs, amply demonstrating their importance, and especially their critical transactional relationship with education, especially for girls, supporting both cognitive and life skills.

Evidence on Education in Pakistan: Unmet Needs for Girls and Boys

With a population of nearly 220 million, and more than half the population under the age of 24, Pakistan's need for education services is considerably higher compared to other countries, even in the Global South.

Pakistan faces a bleak situation in terms of educating its young population, a state of affairs reflected in its continuously poor performance on the Human Development Index (HDI) rankings. Despite the fact that Pakistan's government (both at the federal and provincial levels) has committed to providing free education to all the children between the age of five and 16 years of age under the provisions of Article 25A of the Constitution, an estimated 22.6 million children remain out of school (UNICEF 2018). Literacy rates continue to grow at a dismal pace.

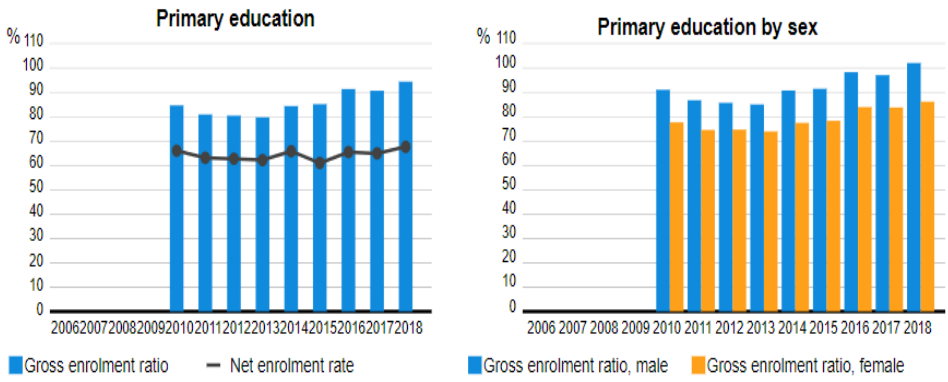
Figure 1: Literacy rate among the population aged 15 years and older



Source: UNESCO Institute of Statistics

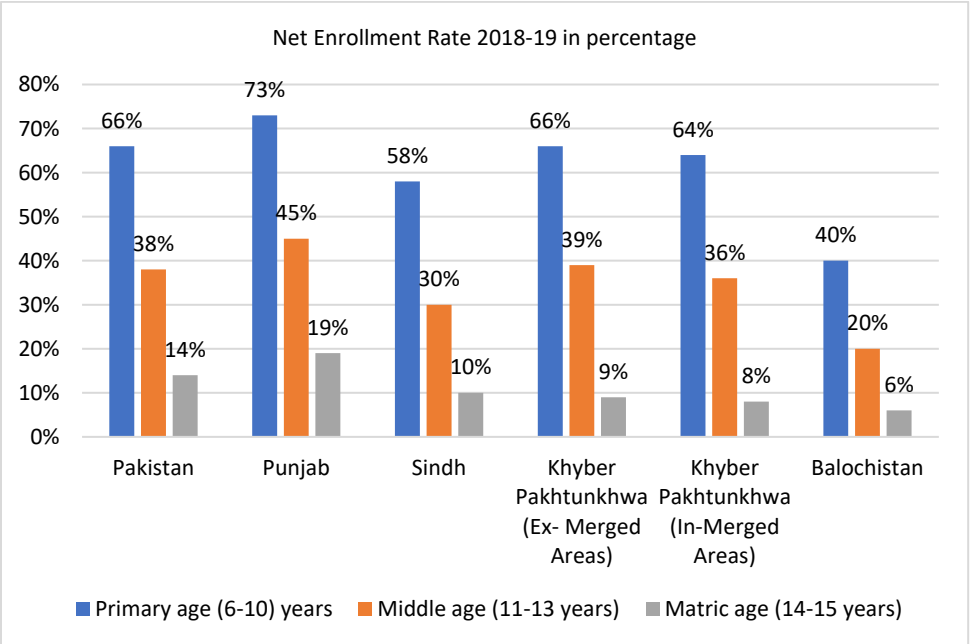
Pakistan's adult literacy rate in 2017–18 was a mere 62.2 percent, a much lower proportion than its neighbors (LFS 2017) and women trailing behind men by 19.5 percent (72.5 percent and 53 percent). As figures 2 and 3 below highlight, the gross (under and overage) and net enrollment ratios (NERs) for the age-specific population bands by gender at primary, middle, and matric/secondary are drastically low in Pakistan, contributing to the education and gender equality crisis in the country.

Figure 2:



Source: UNESCO Institute of Statistics

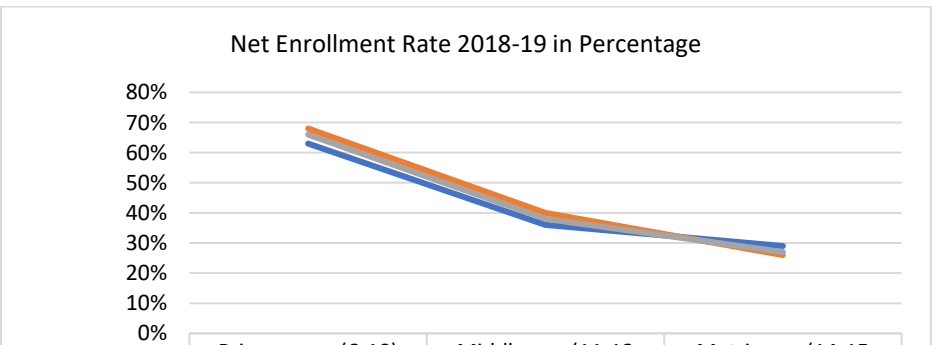
Figure 3: Net Enrollment Rates by Level and Province/Areas



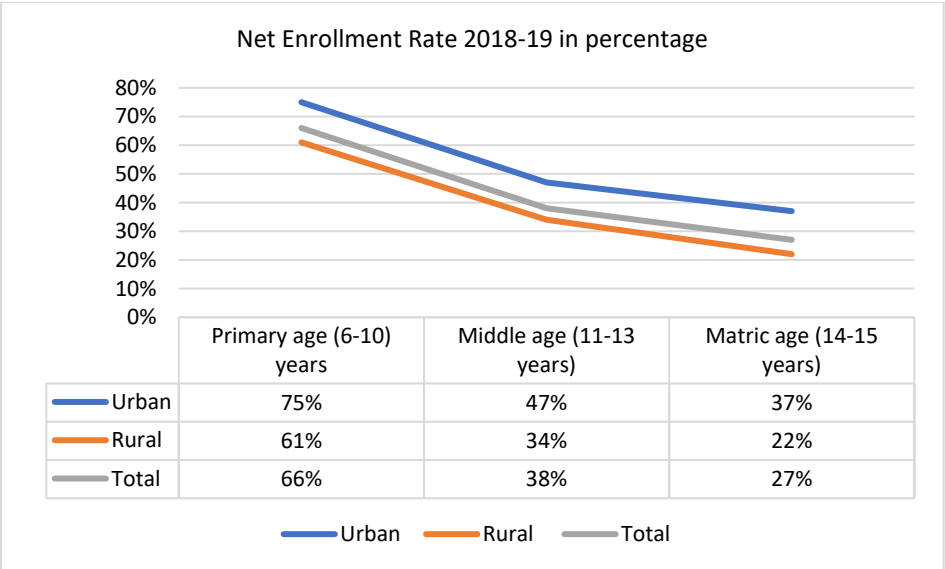
Source: HIES-PSLMs 2018-19

At the matriculation level (grade 10), enrollment dips to as low as six percent in Balochistan with Punjab highest at 19 percent, highlighting inequity of access by region for both girls and boys; these low rates translate into early and adolescent marriages.

Figure 4a and 4b:



	Primary age (6-10) years	Middle age (11-13 years)	Matric age (14-15 years)
Female	63%	36%	29%
Male	68%	40%	26%
Total	66%	38%	27%



	Primary age (6-10) years	Middle age (11-13 years)	Matric age (14-15 years)
Urban	75%	47%	37%
Rural	61%	34%	22%
Total	66%	38%	27%

Source: PSLM 2018-19

In Fig. 4a above, girls trail boys by five percent at the primary and four percent at the middle level, respectively, whereas boys trail girls by three percent at the secondary level! Once girls are able to complete middle level, they are likely to sustain their edge over boys at the secondary level. This highlights the urgency of opportunity for girls to complete middle or lower secondary education (grade 8) that will further contribute to pushing their age of marriage beyond adolescence. Currently, a large majority of 25 percent+ marriages below 18 years take place at 16–17 years of age (HIES 2018-19). The urban to rural gap for provision of services is 14 percent primary, 13 percent middle, and 15 percent matric (grade 10), skewed in favor of urban areas in Pakistan (Fig. 4b). It reflects a structural and progressive facilities/service gap for children (girls and boys) by geography and literacy rate between men and women. The NER gaps in enrollment reflect a significant supply side challenge—that of low service provision. Lack of facilities in close proximity to children's residence is a major issue, especially for girls who without transport cannot travel far to attend middle and secondary schools due to poverty, safety, and protection challenges.

Learning Poverty

The enrollment gap is further exacerbated with the substantive challenge of learning poverty (WB 2019). Pakistan's scorecard of 75 percent Learning Poverty of all 10-year olds being unable to read a basic text with comprehension is much higher than 58 percent for the rest of South Asia (WB 2019). This trend is well-corroborated by the Annual Status of Education Report's (ASER 2010–2019) citizen-led surveys by a civil society organization Idara-e-Taleem-o-Aagahi (ITA), providing annual benchmarked data on basic learning. Concurrently with issues of schooling, access,

and provision, the crisis of learning is an acute one, where schooling/attendance does not automatically lead to learning gains as children are not acquiring the age-appropriate learning outcomes (ASER 2020).

Access and learning gaps morph into serious equity challenges in education and productivity in Pakistan. The learning poverty crisis in the country exacerbates economic poverty. A child's socio-economic background has an outsized effect on their education prospects, decision-making, and future trajectories. Evidence from the ASER survey covering more than 264,000 children annually in Pakistan indicates the stark difference across inter and intra income groups for girls and boys. There is an enrollment gap of 20 percent between girls and boys within the poorest income quartile (ASER 2019). In terms of learning levels, there is a progressive increase in competency across wealth quartiles, translating into better learning and enrollment for children in households and across gender with higher resources at their disposal.

Figure 5:

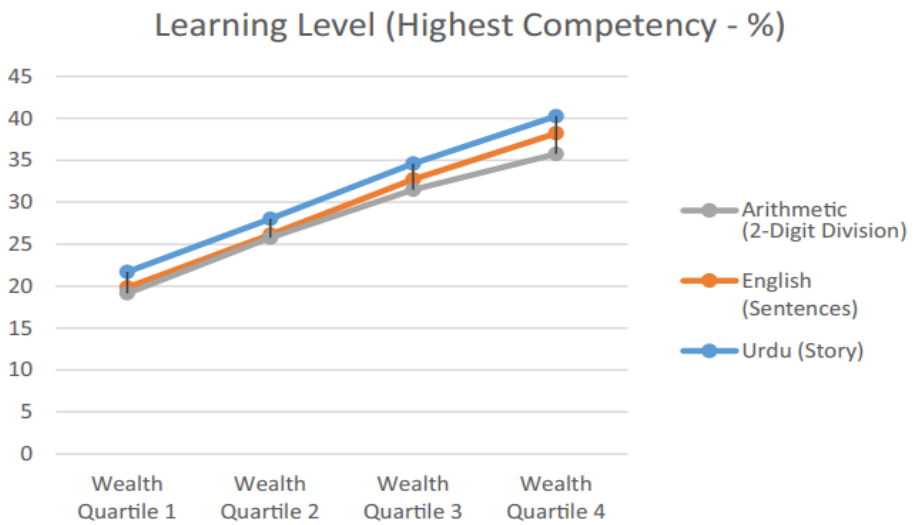
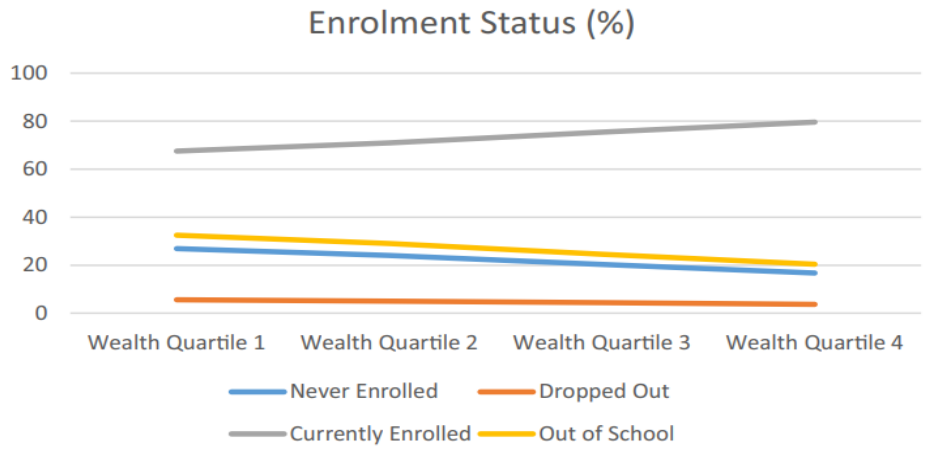


Figure 6: Enrollment, Drop Out, Never Enrolled by Wealth Status



In Fig. 6 above, trends are similar for enrollment. Children belonging to the highest wealth quartile are most likely to be enrolled in school and at a far lesser risk of dropping out or not enrolling. Inequity in education is further exacerbated since children from wealthier households are likelier to attend well-resourced schools with a higher quality of content and opportunities for both cognitive and non-cognitive skills. There is an urgency for public policy to support the poorest groups to stay in schools longer, especially for girls to learn better and delay risks of early marriage and unwanted pregnancies.

Pakistan's demographic profile

Over the past two decades, the country's population has grown at an unsustainably high growth rate of 2.4 percent annually with a fertility rate of 3.6; improved enrollment trends do not translate into lowering of fertility rate, unless there is a recognition of their interconnectedness and the subsequent sustained efforts to address that. This is further compounded by the fact that most of this growth has occurred in sub-regions/provinces with fewer resources and tough geography, such as Balochistan (3.37 percent) and rural Sindh (2.4), where comprehensive service-provision is a major structural issue for both education and family planning.

Figure 7:

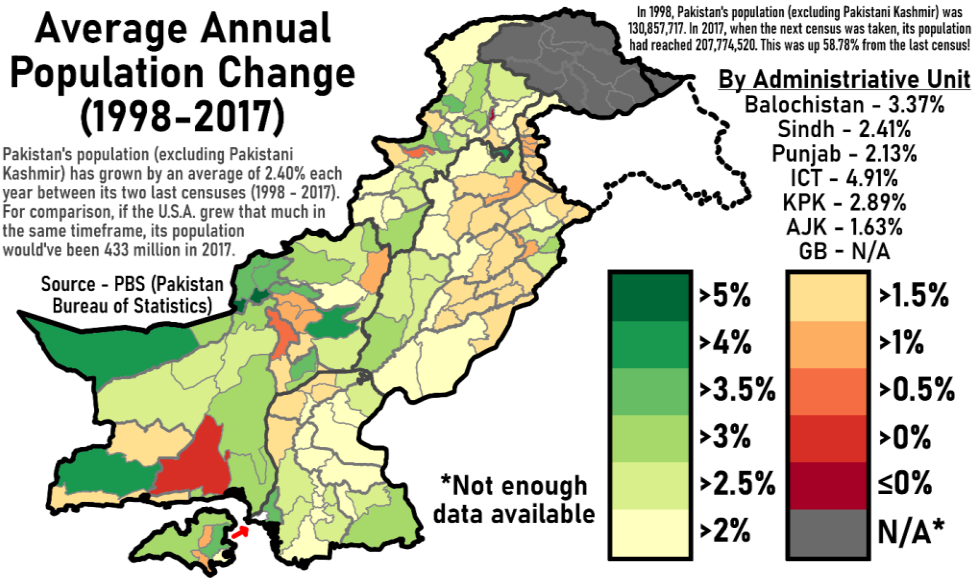


Table 3.1: South Asia- Growth Rate and Out of School Children at Primary Level (millions)

Country	1999 Annual Population Growth Rate (1995-2000)	2001 Out of School Children in Million	2019 Annual Population Growth Rate (2010-19)	2019 Out of School Children in Million
India	1.6 %	20.54	1.2 %	2.886
Bangladesh	1.7 %	2.425	1.1 %	1.000
Nepal	2.4 %	0.917	1.1 %	0.200
Pakistan	2.8 %	8.144	2.4 %	5.000

Source: Development Advocate Pakistan 2019

There is a statistically significant relationship between population growth rate and out-of-school children. Countries with lower population growth over decades can translate into better enrollment outcomes (Table 1). Pakistan is lagging behind all other countries in both sectors.

With meagre resources to spend on education and an ever-increasing young population, the current COVID-19 pandemic is adding to the complex challenges of sustaining even the current fragile metrics. While the lower budgetary outlay for education remains a reality, it is also vital to reduce the stock and flow of

children entering the school going population to improve the quality of education. Concepts of population, family planning, birth spacing, and its relation to resources and growth have been reinforced in the upcoming new Single National Curriculum as a major thematic area (Annex 1).

Pakistan's latest Demographic and Health Survey (2017–18) highlights that women with higher education tend to have lesser children and women with no education marry more than six years earlier than women with higher education (18.7 years versus 24.9 years). Closely related are the statistics on child mortality; children of mothers with no education are more likely to die young (91 deaths per 1000 live births) as compared to children of mothers with education (38 deaths per 1000 live births). Similarly, increased education for women results in better pre-natal and ante-natal health outcomes, and increased awareness of sexually transmitted diseases such as HIV (NIPS 2018). This is reflective of the effect education has on women's personal empowerment, awareness, decision making, and choices—and subsequently, on effective family planning and labor force participation.

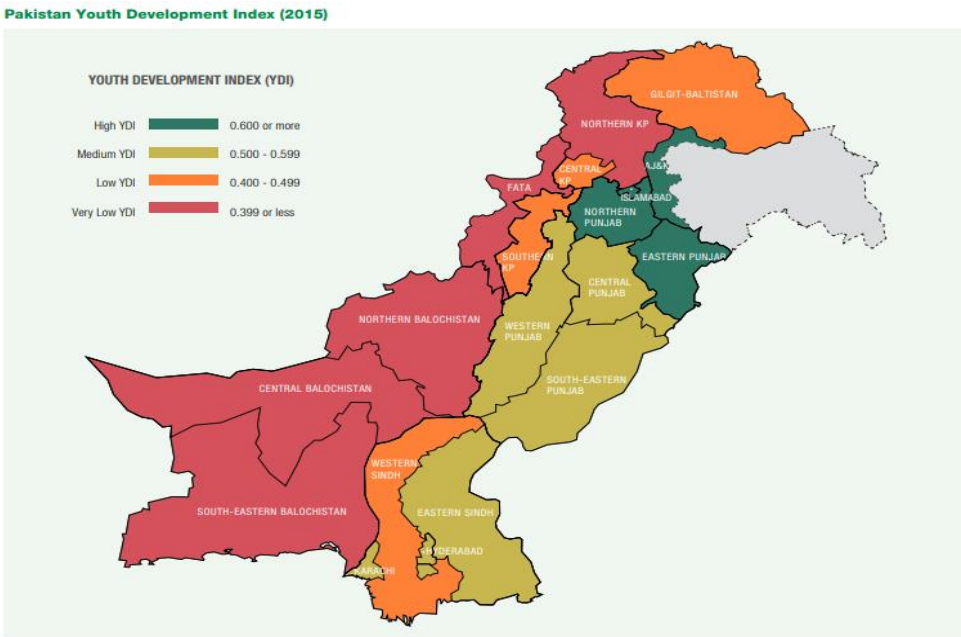
Repercussions of Education and Population Lags: Offsetting Through Social Safety Nets

While poverty and its consequences are a problem across the Global South, the high population rate in Pakistan makes solutions more complex. Pakistan has not been able to provide comprehensive social protection to a large section of the population. Successive governments have made efforts in this area. Starting from the Benazir Income Support Program (BISP) to the recently "re-conceptualized" nation-wide roll out of the comprehensive Ehsaas Program in 2020, the government is committed to providing targeted and gender-sensitive social protection and safety net options to offset poverty and poor capabilities to at least 50 percent girls/women. This is indeed commendable; however, an appraisal of the data shows some limitations. According to the Human Development Report 2017, a mere 4.9 percent population is covered by social protection in Pakistan. The proportion is even lower for urban dwellers at 2.9 percent comprising almost 40 percent of the population living in urban areas, estimated to increase to 50 percent by 2025! There are also wide intra-regional differences with the proportion of population receiving social protection being as low as less than one percent in certain sub-regions/provinces. A silver lining to the COVID-19 response has been upscaling social protection by Ehsaas Program nationwide to millions more poor households (women and youth) in need through transparent targeting and a comprehensive set of conditional cash transfers (CCTs) for income stabilization, education at all levels, skills, livelihoods, etc.

Lack of social protection affects Pakistan's young population in particular. The young adults (19–24) are more likely to be unemployed with women severely under-employed, low-paid, and generally unable to access social protection services. According to recent estimates, the unemployment rate for the youth population (aged 24 and below) would be as high as ten percent for males and 16 percent for females,

a much higher proportion compared to older populations. The recently constructed Youth Development Index further highlights this gap (Figure 8). The estimated unemployment rate for population aged 20–24 years is as high as 11.5 percent. Women's overall economic participation is merely 24 percent (LFS 2017–18), repeatedly highlighting poor investment in girls' education, leading to low decision making in education, income, health, and marriage (UN Women in Pakistan 2020).

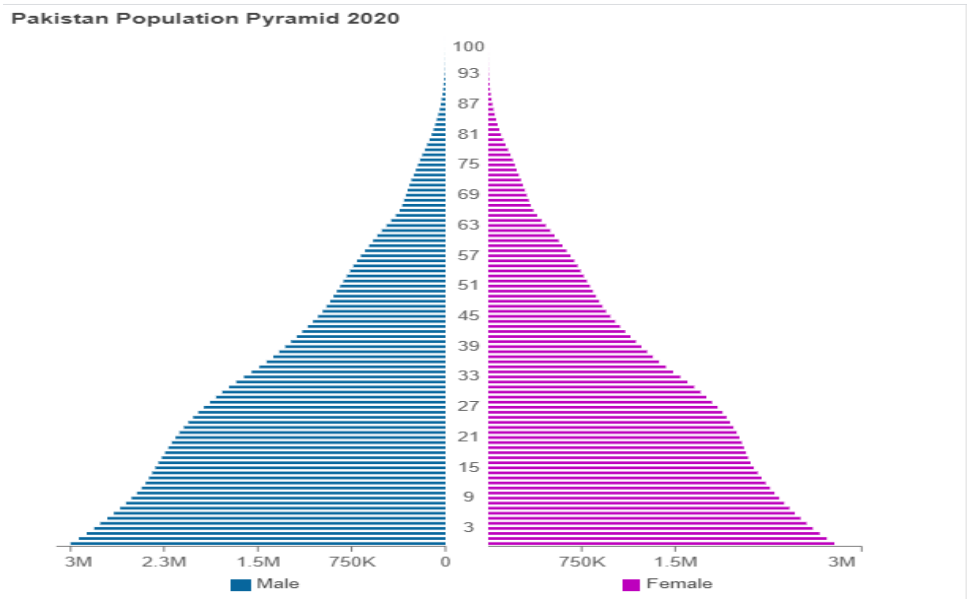
Figure 8:



Source: Human Development Report 2017

Second, while the high growth rate has provided Pakistan with a huge youth demographic dividend (Figure 9), it has also adversely impacted gender equality and economic empowerment, the two key components of any development strategy needed to reap the gains from the youth bulge with a high young and economically active population. As the recent Global Gender Gap report demonstrates, Pakistan lags in gender equality. When it comes to economic empowerment, Pakistan ranks at 151 out of 153 with a high parity gap (WEF 2020).

Figure 9: Pakistan Population Pyramid 2020



Source: World Population Review 2020

Third, along with poverty and gender inequality, a high population growth rate also produces an extensive resource-constraint. Its negative consequences are reflected in the form of unmet needs in nutrition, health, and child mortality and growth. At the moment, Pakistan is undergoing a learning and stunting crisis simultaneously. The Demographic and Health Survey (2017/18) indicates that 38 percent of children in Pakistan are stunted, seven percent are wasted, and three percent are overweight. Only one out of five children born in the last two years were breastfed immediately after birth. Accordingly, there is also a nutrition deficiency in Pakistan—just 21 percent of children aged 6–23 months receive meals with the minimum recommended diversity and only 63 percent receive meals at the minimum frequency. A mere 13 percent meet the criteria of a minimum acceptable diet. There are further deficiencies in micronutrient intake. Scaling Up Nutrition (SUN) initiative has been underway in Pakistan as a multi-sectoral program coordinated by the Ministry of Planning, Development and Special Initiatives (Planning Commission); however, the challenges of institutional cross-sectoral inter-departmental collaboration are immense in Pakistan. The effort to draw attention to holistic early years support, beginning early with nutrition, health, gender equality, and education, is being redesigned through a National Early Childhood Development (ECD) initiative focusing on 0–8 years by the Ministry (PD&Special Initiatives), SUN Secretariat, and UNICEF (2020).

Family Planning in Pakistan: A Mixed Scenario of Largely Unmet Needs!

On the one hand, there are commitments and strong policy statements towards effective family planning services, while on the other, there are wide unmet persistent gaps. Unsurprisingly, women's sexual health and reproductive rights are lagging behind, hampering Pakistan's aspirations for gender equality and women empowerment, which can engender positive outcomes for both population planning and education. According to the DHS (2017–2018), modern contraceptive usage by currently married women has stagnated over the last five years, with only 25 percent of married women using it in 2017–18 resulting in over 3.8 million unintended pregnancies (2018). The Lady Health Workers (LHWs) play a major role in making family planning possible with provision of injectables, oral pills, and condoms to women (18 percent, 26 percent, and 15 percent, respectively). However, there is clear information asymmetry. A mere 19 percent of women are informed about all three quality-of-service indicators (side effects, what to do in case of side effects, and other methods). There is also a trend of contraceptive discontinuation with more that 30 percent of the women discontinuing it within the past five years. There is evidence of a larger gap in unmet family planning needs and even the desire for it. According to UNFPA estimates there are 5.5 million women with unmet need of contraceptives (2020) and during COVID-19 the use of contraceptives is projected to decline further by 20 percent, adding 2.1 million additional women to unmet needs (UNFPA 2020). There is an urgency to register that modern contraceptive services are critical to maternal healthcare to support the health of women, families, and communities, saving precious resources for each dollar spent wisely on access to family planning services.

Evidence shows that with appropriate contraceptive use, women can continue with their education and attain the skills to enter gainful employment and achieve their educational goals before first birth. In Pakistan, eight percent of adolescent girls start childbearing by age 15–19; six percent have had a live birth; and two percent are pregnant with their first child. Pregnancies before age 18 are regarded as high-risk pregnancies. However, these figures are almost twice for women age 15–19 with no education—15 percent have begun childbearing, and 11 percent of these young women have already had a live birth. Childbearing decreases by more than three-fold among those with a secondary education (4 percent) (UNFPA 2020). There is an inextricable link between education and first birth.

More education also leads to women giving birth at an older age, which can offset the negative effects of unplanned birth spacing. Shorter intervals between childbirths have adverse consequences for both women and children as well as their future prospects. Thus, it is preferable that women gain education before taking on the role of birthing and child rearing. Births among older women occur after longer intervals than births among younger women. The median birth interval among women aged

40–49 is 19.4 months longer than the interval among women aged 15–19 (39.1 months versus 19.7 months) (UNFPA 2020).

A deeper dive into the data highlights other aspects of family planning in Pakistan. Similar to the wealth-based disparity for education outcomes and social protection within the country, access to family planning and its subsequent outcomes also vary by level of wealth. As Figure 10 below highlights, the use of contraceptives increases as wealth increases. Women in the highest quintile have a usage rate almost twice that of women from poorer households. Thus, family planning correlates with availability of resources/income and there is an urgency for services to be made affordable and readily accessible. This is further demonstrated by examining how unmet needs in family planning map onto wealth (Figure 11), much like education. The use of family planning unmet needs is progressively lower from lower-income households compared to higher-income households. Here, the challenges of both demand and supply reinforce 'unmet' needs.

Figure 10: Use of Modern Methods by HH Wealth

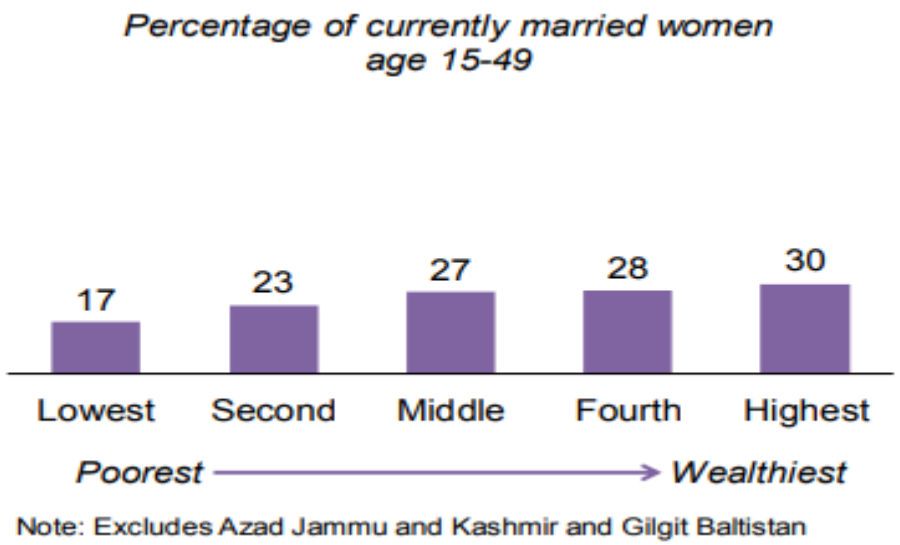
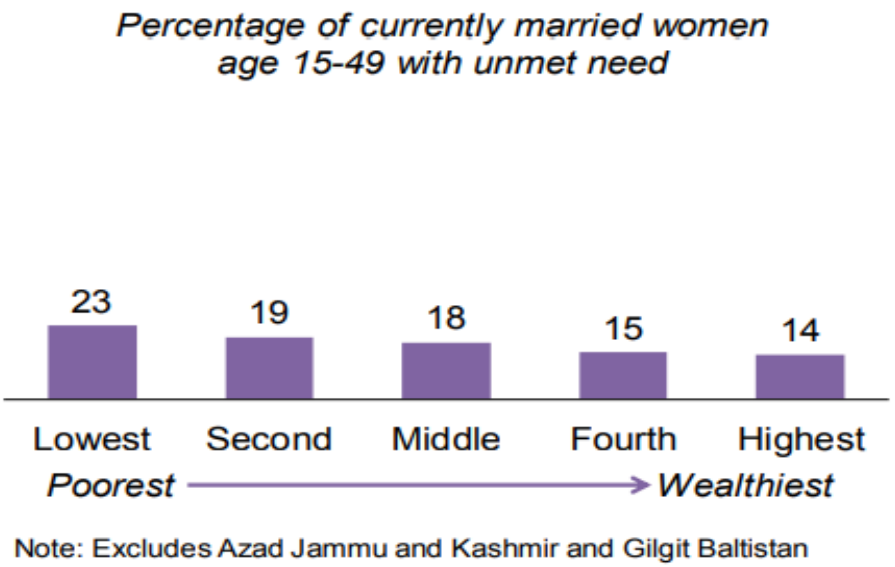


Figure 3.11: Unmet Need by currently married women by wealth



Source: DHS 2017–18

There are further gaps in family planning and women's health. The survey reveals that only six in ten mothers and newborns receive a postnatal care check within two days of delivery and nearly 70 percent of the women reported at least one problem in accessing health care services. This is also reflected in the lower nutritional status of women—as many as five percent of the women aged 15–49 are short (less than 145 cm), and nine percent are underweight (Body Mass Index/BMI less than 18.5). More than half of the women (52 percent) are overweight or obese (BMI greater than or equal to 25.0).

Early Marriages, Unmet Needs of Education & Family Planning

Early marriages go against both Pakistan's constitutional entitlements and laws (Child Marriage Restraint Acts: 16 years and in Sindh 18 years) as well as the country's commitment to Article 25A (education up to 16 years) and the SDGs. HIES (2018) reveals that more than 25 percent girls under the age of 18 suffer early marriages in Pakistan. Early marriages translate into higher fertility rates, negative impact on mother's health/mortality, and higher population growth rate. Young women are stifled in making decisions especially on reproductive health. According to a recent study, only seven percent women can decide on their own about contraception, while for 88 percent it is a decision made jointly with the spouse (UN Women, 2020). Early marriages combined with poverty and low education outcomes for mothers create barriers on maternal care, child health and nutrition, and emotional health and learning outcomes, thus hindering developmental milestones of both the young mother and child. Even though the use of contraceptives has risen over time (9 percent in 1990–91 to 26 percent in 2012–13) it is still an under sub-

optimal (25 percent PDHS 2017/18). This is essentially a crippling reality for Pakistan, further compromising its ability to achieve SDG targets/goals and future growth. It is critical to turn the page and reduce health risks including maternal mortality and disability.

SDGs: Synergies and Reinforcement

Pakistani demographics within a life cycle-framing reveal stark vulnerabilities striking from birth onwards. The effort towards achievement of SDGs by 2030 is therefore in need of extensive review, re-conceptualization, and sustained investment over time. With the right policy choices and an evidence-based approach towards planning and implementation, matched by resources, Pakistan can fulfill its SDG commitments, particularly that of SDG 4, with family planning/sustainable population growth as an active component of a concurrent gender equality strategy. The clustered symbiotic connections for SDGs centered around education and population are well illustrated in Figure 12 below.

Figure 12: SDGs 2030: Clustered Symbiotic Linkages of Education and Family Planning

Second Chance Programs for Unmet Education Needs and Life Skills based Education: A Case Study from South Punjab, Pakistan Scaling up what works!

The cycle of education and family planning implies that as much as family planning influences education outcomes, the inverse is also true. Thus, fundamental solutions must be rooted in education that begins in early years to narrow discrimination gaps and to look at alternative programs for dropouts, especially young girls. One such working model from South Punjab to reclaim girls who dropped out (9–19 years of age) is a bespoke second chance program called Siyani Sahelian (wise friends) that was conceptualized to target vulnerable beneficiaries. The program concurrently

offers remedial learning at primary, middle, and secondary levels along with a strong strand of non-cognitive soft skills. The latter is a response to supporting gender empowerment through health, hygiene, family planning, gender sensitization, and edtech package called Life-Skills Based Education (LSBE). As a particular type of pedagogy, LSBE reinforces mainstream/academic curricula. It provides an ideal space to teach young and adolescent girls about family planning, women's rights, legal options, critical thinking, and self-confidence they need to navigate through life.

Box 2 summarizes how Siyani Sahelian, a second chance accelerated initiative by ITA, implemented across four districts reaching 41,000+ girls in partnership with international and local partners, utilizes LSBE.

Siyani Sahelian—Advancing Action for Adolescent Girls

Life Skills Based Education (LSBE) is a cross-cutting strand provided to all beneficiaries enrolled in remedial and/or vocational strands. LSBE has a minimum 60-hours of content which aims to equip adolescent girls with core skills to create a positive change in their attitudes and prepare marginalized girls for a better tomorrow. The strand incorporates strong values of leadership, communication, health and hygiene, and critical thinking ability.

The program also raised awareness about the rights of women through a mobile cinema and thematic films/animations in collaboration with renowned partners (Sharmeen Obaid Chinoy Films). Film screenings on multiple subjects such as importance of education, social skills, menstrual hygiene, protection from sexual harassment, and COVID-19 safety have taken place in target districts across schools/communities to raise awareness about the issues facing girls and increase their potential to become influential leaders.

The drive towards LSBE covered more than 22,000 girls (as of March 2020) reaching 41,000 adolescent girls who are well-aware of their rights as well as family planning services. The key aim of the program is to use education—second-chance education with a focus on student-centered learning—to mitigate and preempt any potential problems girls face. It has also boldly addressed hitherto invisible issues where a culture of silence persists at heavy costs for girls and women suffering behind closed doors. The issues spread across early marriages, domestic violence, sexual abuse, unsafe childbirth, and other challenges faced in the efforts for making SDGs a reality. The program is a low-cost high impact model for scaling up in varied local contexts across Pakistan with targeted linkages across health, nutrition, and population.

Findings from pre and post evaluation of SS phase I (2018–2020) reveal that they are much more confident and aware of their rights and responsibilities as citizens and have also demonstrated positive behavioral changes as a result of the experience ranging from six to 18 months duration. Integrating life skills-based education into the academic curriculum in future projects is critical, reinforced by teachers in every subject (*as relevant*), rather than a merely standalone subject.

Conclusion and Recommendations

This essay highlights data-driven evidence on unmet needs for education and family planning that have a huge impact on meeting or missing SDGs. Investing in girls' and women's education and health is both a multiplier and an anchor strategy with high returns on investment (RoI) to break the cycle of poverty and discrimination across generations. Education for 5–16 years as guaranteed in the Constitution of Pakistan as a fundamental right would enable and give voice to women in decision-making about critical issues of survival, development, and participation in choices at personal and societal levels. In spite of some progress, evidence of large gaps of unmet needs of education and family planning indicates major under-investment, especially for adolescent girls and women, leading to exclusion and multiple barriers at formal and customary levels. These morph into dropouts and low transition from primary to secondary education, early marriages and unwanted pregnancies, worst forms of child labor, and extreme violence against women and children.

Pakistan—in spite of high-level decision making, policies, target setting, election promises, and sector planning—has been unable to scale up and commit resources consistently to education, health, and population. As a result, targets continue to be missed, making it one of the starkly worrying case studies of the South Asian region. Metrics on millions of girls missing primary and secondary education and 2.4 percent population growth rate put Pakistan in the 'red zone' of human development captured well by GEI (WEC) HDI (UNDP 2019) and the GEM Report 2020. The costs for low investment in education and population growth lead to trillions of dollars lost in productivity and earnings (WB 2018), including tragic stories at the personal, family, and societal levels. There is ample evidence to show that fertility decline has a positive impact on girls' education, and women who practice family planning invest positively in better educated girls.

Gender interacts with other disadvantages to exacerbate exclusion from education with the poorest girls unable to complete secondary/matric education. Disadvantages and poverty in poorest rural households translates into girls being four times as likely to be illiterate than those from the richest households including discrimination within the households between girls and boys. Girls with disabilities, if poor and in rural areas, are the worst off with low levels of learning and remain extremely disadvantaged for choices about marriage, access to services, and decisions about family planning.

Making Family Planning work for SDGs: Actions and Next Steps

As this essay demonstrates, there is a need for urgent action in this thematic area, especially within Global South settings. There is an urgency to actively explore workable solutions that governments in Pakistan can adopt. To this end, the first priority has to be a concerted effort towards feasible, cost-effective, decentralized, and scalable solutions drawing upon best practices.

Local Responses: Local responses imply involvement and active engagement right down to the community levels where buy-in from communities would inevitably push the drive for family planning. The role of nationwide field-level operators with respect to Lady Health Workers and primary and secondary school teachers will have to be recognized and supported; they will have to be empowered as the grounded interface between government's development efforts and local communities. A decentralized and community-level response to this crisis, reinforced by conducive and constantly evolving local and provincial level state structures and institutions, will produce positive and visible results. Service-delivery mechanisms for family and population planning have to be made adequate and accessible for the most marginalized of women/girls in rural areas.

Provincial Responses: At provincial level, there is an essential and indisputable need for investments by governments into family planning and gender equality. This is to be reflected in higher budgetary allocations for these sectors as well as delineation and empowerment of focal persons and departments who can effectively ensure well-distributed family planning services in Pakistan. There is also a strong imperative for intra-provincial coordination on family planning, education, and SDGs as a clustered, impactful, and results-based approach.

Innovations and Programs: Second chance programs, a blanket cover for girls (especially adolescents) through conditional social safety nets for secondary education backed by functional facility options are critical innovations to be implemented at scale in Pakistan to leapfrog current gaps and delay early marriages and pregnancies. Service delivery improvement—both for education and population/health services for girls, adolescent girls, and young adults—is critical. Family planning and life skills can be incorporated into these programs and initiatives through public-private partnerships to delay the first pregnancy with options for education, skilling, and employment.

Data-driven Advocacy and Communications: There is a need for crisper evidence and data on family planning and education in provinces, particularly disaggregated by key measures and conditions. Moreover, data on already running programs, especially in Punjab and Khyber Pakhtunkhwa provinces, should be made available so lessons can be learned and incorporated for future policy reforms and initiatives.

National Responses: On a more strategic, national level, there is a need to recognize that family planning unmet needs along with poor education outcomes are the products of persistent resource deprivation and inability to afford these essential services by the poor/poorest population groups. Thus, the efforts towards expanding the social protection net for the sectors should be accelerated further to provide support, especially for the poor and poorest quintiles where the unmet needs are likely to be higher. This would require not just financial commitment but also continued awareness efforts, optimized service delivery, and a *smart* inter-sectoral

systems approach to family planning, social protection, and education through an inter-generational lens.

A landscape study (Population Council 2016) of unmet family planning needs lists concrete policy actions that must and can be undertaken towards achievement of universal family planning provision, along with accelerating efforts for SDGs. There is an urgency for:

- transformative communication strategy targeting all stakeholders;
- engaging with men for family planning;
- undertaking youth-friendly approaches to reach the next generation with family planning information;
- incorporating private sector provision for increased access;
- mainstreaming ownership of the family planning mandate in the health system;
- developing a multi-sectoral coordination mechanism for provincial policy implementation and underpin strategies with strong monitoring; and
- evaluation, learning, and prioritizing family planning at the highest policy levels and in investments.

Choices must be made now, which are reflected not just in the education sector and population planning documents but also in implementation. These are also to be well tracked at the provincial and district levels. The Government of Pakistan has committed time and again to universal access to education and sexual and reproductive healthcare including expanded contraceptive services. The Government stands by as signatory to UN SDGs committed to the Family Planning (FP2020) global partnership. The commitment emanates from the Supreme Court of Pakistan's task force on population growth (2018) and endorsement by the Council of Common Interests (CCI). It is therefore time to enhance service provision for the synergies to flow from intelligent and partnership-based investments in education and family planning services, especially for the poorest quartiles, where girls education can be impacted.

In 2022, the political parties will begin preparation for another round of elections scheduled for 2023, including revisiting political manifestos that must boldly be committed to 12 years of education for girls and boys (25A), reduction in population growth rates, improved services for family planning, and reduced unwanted pregnancies in every village and union council of the country.

In order to make these efforts coherent and unified, there is an urgent need to develop a high-powered forum with the involvement and consensus of all stakeholders. This forum would be enabled to initiate and steer the national policy discussion on population planning and its linkages to education.

Global and Glocal Responses: There is an urgency to institutionalize and provide credibility to the family planning services for sustainable population growth linked to the SDGs within locally contextualized goal posts. Government departments, at both the federal/national and sub-national and local/district levels, are pivotal in undertaking this task as an enabler. In Pakistan, there is considerable activity underway; Federal and provincial SDGs-coordinating units/cells are working with departments, civil society, think tanks, private sector, and development partners. The Government of Pakistan has linked data collection, planning, and annual budgetary outlays with reporting in the Economic Survey of Pakistan (2019–20) to reflect global commitments to the SDGs. The Voluntary National Report (VNR) presented at the UN High Level Political Forum (HLPF) in 2019 by Pakistan is an example of a good practice. Annual VNRs must continue as a regular stock take to share national initiatives as a comprehensive report on SDG targets, expenditure tracking with outcomes across education, health, and population metrics.

To build upon work done at the local and national levels, there is dire need to continue engaging with global and multi-lateral organizations and forums. This engagement will allow for an active national discourse on family planning, achieving sustainable population growth rates, integrating education and SDGs in national policies, and implementing provincial initiatives to bridge unmet needs.

There is a strong case for local, national, and global logic for investing especially in young mothers and early marriage adolescents as is evidenced in Pakistan. With over 25 percent girls married under 18 years of age and a majority at 16–17 years in Pakistan, it is vital to ensure that adolescent and young women are enabled to complete 12 years of schooling, delay early marriages, and use contraception before the birth of the first child. This is a practical approach and is likely to help them continue with their education and skills to seek gainful employment and reduce maternal and child mortality associated with young age mothers.

The actions promised by the judiciary, the parliament, and the executive in Pakistan for the citizens of the country to meet the longstanding unmet needs for education and family planning, especially for girls and young women, are imperative; they must, and can, be accelerated to be on track to meet the SDGs.

Annex I

Single National Curriculum

Social Studies Grade 4-5-

Theme: Geography

Sub Themes: Population

Population comes under the theme Geography in the Single National Curriculum 2020. Standard 7 of the theme states that "**Students will be able to develop an understanding of population and its implications."**

Following is the Benchmark and SLOs stated:

B 8: Define the terms 'population' and 'high population growth,' and explain the effects of imbalance between population and resources

Single National Curriculum

Social Studies Grade 4-5-

Detailed

Theme: Geography

Sub Themes: Population

Geography is the study of the physical and human environment and their influence on each other. It includes studying the physical (landforms, locations, vegetation and natural resources) and human (people, culture and characteristics of places) aspects of the planet, understanding the processes of inter-dependency involved, and in making environment friendly decisions.

STANDARD – 7 All students will learn to read the globe/map, along with the ability to use it to enhance their understanding of geography, landforms and various physical features of Pakistan. They will understand the interaction between land and its people, weather, and climate. They will develop an awareness of the prevalence and management of natural disasters and the required safety measures. **Students will be able to develop an understanding of population and its implications.**

Benchmarks

B 8: Define the terms 'population' and 'high population growth,' and explain the effects of imbalance between population and resources

Grade 4:

Theme: Population

SLO: Population • Define the terms Population and Census. • Explain the importance of Census. • Describe the distribution of population in the region and give a map of the region/province. • Enlist the major problems caused by overpopulation.

Grade 5:

Theme: Population

SLO: Population • Define the term growth rate and population density • Describe the factors affecting population increase in Pakistan. • Describe the impact of population increase on quality of daily life in the student's community.

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http://mofept.gov.pk/SiteImage/Misc/files/Social%20Studies%20Aug%2012.pdf

CHAPTER FOUR

Reducing Population Growth and Increasing Gender Equality: Fostering a Virtuous Cycle

Nida Kirmani[35]

Reproductive rights and family planning are intrinsically linked to the achievement of several of the Sustainable Development Goals, especially Goal 5, the achievement of gender equality and the empowerment of women and girls (see Starbird et al. 2016). 'Gender equality' refers to equality in terms of human rights, goods, opportunities, and services among people of all genders, while 'empowerment' refers to expanding people's capacity to make and act on decisions. As Kabeer (1999) argues, empowerment is "the expansion in [women's] ability to make strategic life choices in a context where the ability was previously denied to them." Empowerment is hence both a goal and a process. This chapter focuses on both sets of interrelated goals and their relationship to population planning.

Most of the work on gender and fertility thus far has focused on how improving the position of women and girls in society can lead to lower birth rates—a kind of instrumentalist approach to gender equality. This chapter flips the association to argue that, in order to achieve gender equality, it is imperative that policymakers focus on reducing the country's population growth rate in a manner that empowers

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women and is sensitive to gender relations. Rather than prioritizing one or the other, policymakers must understand that the two are intrinsically related. In other words, reducing the population growth rate through expanding access to contraception and reproductive rights will create more possibilities for women's empowerment, and increased women's empowerment will help reduce the population growth rate. Hence, both need to be prioritized simultaneously by policymakers.

If women are overburdened mentally and physically with childbearing, and if their primary value in society is based on their ability to produce and raise children, and sons in particular, the chances of their being able to realize their empowerment goals remain low. One the other hand, when women have fewer children at a later age, the evidence shows that the conditions for empowerment are improved. Hence, an investment in one will create the conditions for the other. However, investing in family planning alone is not enough. As women's rights advocates highlighted way back in 1994 at the International Conference on Population and Development (ICPD), policies must prioritize reproductive rights in a holistic manner rather than focusing only on isolated targets related to contraceptive usage alone, which has been the trend in Pakistan thus far. As Kabeer (1994, p. 187) argued more than two decades ago, "Population policies over the past few decades offer an excellent illustration of why merely targeting women, without considering the broader social relations in which they live, is unlikely either to change their lives or to achieve the intended goals." Hence, in order to reduce the population growth rate, the government must move beyond blunt targets and actively create the conditions to achieve gender equality.

This chapter provides evidence of roadblocks to the achievement of gender equality and sustainable fertility rates. It gives an overview of some of the root causes for slow progress when it comes to meeting population planning goals, particularly with regard to particular gender equality indicators. At the heart of this discussion is the argument that a holistic, rights-based approach to family planning must be adopted in order to bring the fertility rate closer to replacement levels and move Pakistan closer to fulfilling its commitment to SDG 5—the achievement of gender equality and the empowerment of women and girls. Incorporating reproductive rights and taking a gender-sensitive approach to family planning will directly lead to the overall empowerment of women and girls in terms of increasing their autonomy with regard to their health, and it will also indirectly support the process of empowerment by creating the conditions for increased gender equality across various spheres.

Centering Reproductive Rights

Women's rights advocates have been lobbying for decades to put reproductive rights at the center of international and national development policies. These efforts culminated in the International Conference for Population and Development in Cairo in 1994, which made great strides in shifting the policy discussion from a narrow Malthusian focus on coercive and target-based family planning programs to a more

comprehensive approach hinging on reproductive health and rights for women. Principle 4 of the ICPD Programme of Action states:

Advancing gender equality and equity and the empowerment of women, and the elimination of all kinds of violence against women, and ensuring women's ability to control their own fertility, are cornerstones of population and development-related programmes. The human rights of women and the girl-child are an inalienable, integral and indivisible part of universal human rights. The full and equal participation of women in civil, cultural, economic, political, and social life, at the national, regional and international levels, and the eradication of all forms of discrimination on grounds of sex, are priority objectives of the international community.

Hence, the ICPD placed the rights of women and girls to control their own fertility at the center of the development agenda. While critics argued that the ICPD was led by a small group of Western feminists, research shows that the shift had already been occurring over the previous decade across developing countries as well (Hempel 1996, p. 73). During this time, women's health advocates started focusing more on comprehensive care as opposed to the more common target-driven, at times coercive, national family planning programs introduced in some countries (*ibid.*, p. 74). In fact, despite charges of carrying a 'Western agenda,' it was a Pakistani woman, Dr. Nafis Sadik, who is considered to be the architect of the ICPD (Population Reference Bureau 2000).

The most important change brought about by the ICPD was a shift from looking at women as objects of development to treating them as rights-bearing subjects instead. The ICPD declaration moves away from individual responsibility and makes governmental and inter-governmental agencies responsible for promoting policies that guarantee a respect for women's rights at all levels—the interpersonal, community, state and international. The document also makes the crucial connection between eliminating all forms of violence against women and girls and the realization of women's reproductive rights (see Petchesky 1995, p. 154).

However, 26 years after the landmark ICPD, the reproductive rights approach has still not been widely adopted, and many countries have either not changed their approach or have backslided into the old target-driven models. Furthermore, there is a still a huge gap in many countries between the number of women who do not want to conceive and those who actually have access to contraception, including in Pakistan (see Slaymaker et al. 2020, Starbird et al. 2016). Another worrying indicator is a lack of available statistical data related to sexual and reproductive behavior, which makes measuring progress since the ICPD difficult in and of itself (Shaw 2020). Despite the persisting lack of reproductive rights in countries around the world and the unsustainable population growth rates in many developing countries, there has been a gradual reduction in interest on the part of policymakers, donors, and in turn, researchers in the decades following the ICPD. In Pakistan as well, the

approach has been largely target-based, which has been inadequate in reducing the fertility rate to sustainable levels. One of the reasons for this has been a lack of attention to women's empowerment and reproductive rights.

SDG 5: A Commitment to Gender Equality and Women's Empowerment

Even more than with the previous Millennium Development Goals, women's rights organizations played a crucial role in making sure gender equality and women's empowerment were included as one of the seventeen SDGs (Sen 2019). Goal 5 contains nine target areas and fourteen indicators to help gauge whether those targets are being met. The targets include:

- End discrimination against women and girls
- End all violence against and exploitation of women and girls
- Eliminate forced marriage and genital mutilation
- Value unpaid care and promote shared domestic responsibilities
- Ensure full participation in leadership and decision-making
- Universal access to reproductive rights and health
- Equal rights to economic resources, property ownership, and financial services
- Promote empowerment of women through technology
- Adopt and strengthen policies and enforceable legislation for gender equality

Each of the target areas aims to tackle the root causes of gender inequality around the world. All of the countries that have signed onto these goals, including Pakistan, which was one of the first countries to do so, have an obligation to track and make concerted efforts in terms of policy formulation and implementation to reach each of these targets. Pakistan has grouped the SDGs in terms of priority, with SDG 5 appearing in the second of the three tiers identified.[36] Unfortunately, four years after the country made this commitment, there is little public information available that documents any kind of progress in reaching this goal.

As Starbird et al. (2016) have pointed out, and as this chapter also argues, women's access to family planning and their ability to exercise autonomy in the reproductive sphere is critical to the achievement of SDG 5:

Increasing women's ability to choose the number, timing, and spacing of their children, or their ability to decide if they want to bear children at all, is fundamental for women's control over the circumstances of their lives and for the full achievement of SDG 5. (*ibid*., p. 197)

In each of the target areas included in SDG 5, there is a direct link to women's ability to exercise their reproductive rights and to have the ability to have fewer children if

[36] National Initiative for Sustainable Development Goals (https://www.sdgpakistan.pk/ accessed August 30, 2020).

they so desire. Hence, without effective family planning policies, the achievement of gender equality and women's empowerment will remain elusive.

How Far is Pakistan from Achieving SDG 5?

While the situation for women and girls in Pakistan varies depending on class, region, age, and whether they live in rural or urban areas, in overall terms Pakistan is one of the lowest-ranking countries in the world when it comes to gender equality. In the *Global Gender Gap Report 2020*, Pakistan ranked a dismal 151 out of a total of 153 countries; the Georgetown Institute for Women, Peace and Security (2019) ranks Pakistan 164 out of 167.[37] In each of the target areas identified as part of the SDGs, Pakistan is faring poorly when compared with other countries. Increased reproductive rights for women, including access to contraceptives and reproductive health services along with autonomy over reproductive choices, would create an environment in which gender equality in all areas could be improved.

Discrimination at all levels and in the public and private spheres is widespread, and while many laws exist on the books related to the rights of women and recently the transgender community, in practice, very few are actually implemented. Gender-based violence is a direct violation of bodily autonomy and is hence one of the greatest hindrances to women's and girls' empowerment. While the available evidence is patchy at best given the low rate of reporting, even the limited statistics that are available paint a grim picture regarding the prevalence of violence against women with one in three married women reporting that they have faced physical violence at the hands of their husbands (Quresh and D'Lima 2017). Thirty-four percent of ever-married women report facing some form of spousal abuse during their marriage (National Institute of Population Studies 2019). However, studies have found much higher rates than are reported in the Pakistan Demographic and Health Survey (PDHS). Ali et al. (2015), in their study of intimate partner violence, found that 77 percent of women had experienced sexual violence, 90 percent had experienced psychological violence, and 50 percent had experienced physical violence. Furthermore, attitudes towards gender-based violence reveal a worrying trend with 42 percent of women feeling that it was justified for a husband to beat his wife under particular circumstances—a rate even higher than that reported by men (National Institute of Population Studies 2019, p. 276). Also worrying is the lack of support for victims of abuse and the culture of silence surrounding it. The majority of women (56%) who have reported experiencing physical or sexual violence say that they have never sought help or even spoken to anyone about stopping or resisting the violence (*ibid*., 303). While information about forced marriages is scant given the general lack of a concept of female consent in marriage, child marriages and forced conversions, particularly of young Hindu women in Sindh, remain widespread (see Ackerman

[37] Georgetown Institute for Women, Peace and Security, 'Pakistan's Performance on the Women, Peace and Security Index Compared to 9 Other Countries in the South Asia Region,' https://giwps.georgetown.edu/country/pakistan/ (accessed on August 30, 2020).

2018).[38] Studies conducted in other contexts have clearly demonstrated a link between gender-based violence in multiple forms and a lack of reproductive autonomy (see Raj 2019).

In terms of women's economic participation, Pakistan is amongst the bottom ten worst-performing countries (World Economic Forum 2019, p. 11). Only about 25 percent of women are engaged in paid employment, and only 18 percent of labor income goes to women (*ibid.*, 32).[39] The high birth rate, which is connected with the idea that a woman's primarily role is motherhood, is one of the reasons behind a low rate of economic participation. Women in Pakistan perform the vast bulk of unpaid labor within the home. According to UN Women's *Progress of the World's Women 2019-2020* report, for every one hour a man spends on unpaid care and domestic work, Pakistani women spend 11 hours doing the same (Ahmed 2019). Of course, a higher birth rate means a higher amount of unpaid labor for women who are most often the primary caregivers for children. In terms of financial security, women are in an extremely poor position with only 3 percent of women as compared to 72 percent of men owning a house and 2 percent of women as compared to 27 percent of men owning any land (National Institute of Population Studies 2019, p. 269). This also means women are more dependent on producing male offspring as a form of security, which would incentivize having more children (see Kandiyoti 1988).

Women's participation in decision-making in the public and private spheres is one of the key components of achieving gender equality. When it comes to political empowerment, Pakistan ranks 93 out of 153 (World Economic Forum 2019, p. 277), a position that is far from ideal but slightly better than other indicators, likely because of the quota for women's participation in the provincial and national assemblies and due to fact that Benazir Bhutto spent five years serving as prime minister. The greater number of women in the provincial and national assemblies coincides with relatively more legislation related to women's rights being passed in the last fifteen years. However, population planning and reproductive rights are still rarely the subjects of legislative action.

In terms of the fertility rate in particular, women's decision-making power within the home is one of the most important factors. According to the PDHS 2017-2018, less than half of the women reported participating in decision-making within the household regarding purchases or visiting family/relatives, although participation did increase steadily with age (National Institute of Population Studies 2019, p. 275). The PDHS also indicates a relationship between women's decision-making power and their desire for more children, with women who participate more in decision-making

[38] Despite efforts by women's rights advocates to change the law, the legal age of marriage for women in Pakistan is still sixteen while the age for men is eighteen.
[39] According to the World Bank, this number is even lower at 22%. (https://data.worldbank.org/indicator/SL.TLF.CACT.FE.ZS?locations=PK, accessed August 30, 2020)

reporting a lower average number of desired children (3.8 versus 4.2). Furthermore, women who participate in decision-making are more likely to have their contraceptive needs met as well (*ibid.*, p. 278). It should be noted that women's decision-making power varies depending on where they live (urban/rural and region), their age, education level, and socio-economic status (see Mahmood 2002).

When it comes to health and survival for women and girls, Pakistan ranks 149 out of 153 (World Economic Forum 2019, p. 13), which includes a measure for reproductive rights and takes into account the worrying sex ratio of 92 percent (as opposed to the naturally occurring rate of 94 percent) of girls born as compared to boys (*ibid.*, p. 15). A sex ratio that is skewed in favor of boys is an indication of son preference; as mentioned earlier, this has direct links with higher fertility rates overall. While maternal mortality has declined considerably over the last two decades, Pakistan still has one of the highest maternal mortality ratios in the region, 140 deaths per 100,000 live births.[40] The right to access and make decisions about one's own health is foundational in terms of reproductive rights. In Pakistan, 41 percent of women reported making decisions about their own health with their husbands, 37 percent of women reported that these decisions are made primarily by their husbands, and only 10 percent of women reported taking these decisions themselves (National Institute for Population Studies 2019: 274). This has direct implications for women's ability to engage in decision-making regarding their reproductive health as women who report higher decision-making capacity within the family are much more likely to engage in reproductive health seeking behavior (*ibid.*, p. 279).

Hence, Pakistan is faring worst in the South Asian region and is close to the bottom of the list in the world when it comes to its performance with regard to the achievement of gender equality (World Economic Forum 2019, p. 24). The fact that women and girls are unable to achieve their rights in each of these target areas means that it is more difficult for women to exercise their reproductive rights and translates into a higher birth rate overall. Conversely, a high birth rate makes any improvement in each of these indicators that much harder to achieve.

The Fertility Rate and Reproductive Rights in Pakistan

While fertility rates have declined in Pakistan over the last three decades—from an average of 6.5 children per woman in 1980 to 3.6 in 2018—Pakistan still lags far behind many countries with similar socio-economic profiles.[41] The declining growth rate over the last three decades is partially the result of increased knowledge and use of contraceptives, but relatively little credit for this can go to the government. The

[40] World Health Organization, 'Maternal Mortality in 2000-2017,' https://www.who.int/gho/maternal_health/countries/pak.pdf?ua=1 (accessed August 30, 2020).

[41] The World Bank, https://data.worldbank.org/indicator/SP.DYN.TFRT.IN?locations=PK (accessed August 28, 2020).

1990s witnessed an increase in contraceptive usage from 12 percent in 1990 to 33 percent in 2000 (Khan et al. 2013). During the 1994 ICPD, Pakistan pledged to provide universal access to family planning by 2010 (Hardee and Leahy 2008)—a target that remains to be met. The Lady Health Worker (LHW) Programme was also initiated by the government in 1994, which has played a key role in providing healthcare to women, particularly in rural areas (see Hafeez et al. 2011). However, LHWs continue to be too few in number, underpaid, and insecure in terms of their employment, which hinders their ability to provide effective services to under-served women. The 1990s and 2000s also witnessed an increasing role of non-governmental organizations (NGOs) and private providers in provision of family planning services—part of a wider trend of decreasing public spending on social welfare in Pakistan and globally.

A review of policies since the inception of family planning programs in the 1950s reveals a largely supply-driven, target-oriented approach, which has been short-term in orientation, has focused little attention on the structural roots of population growth, and has not prioritized gender equality or women's empowerment. One of the indications of this is the continued domination of the language of 'family planning' rather than 'reproductive rights' in official documents, which is only mentioned in superficial terms and not reflected in actual policies. A blunt focus on contraceptive provision has clearly proven inadequate in bringing the population growth rate down to sustainable levels and has done little to improve women's overall position in society.

Largely due to a history of ineffective policies and a general lack of commitment on the part of the government, Pakistan continues to have one of the highest birth rates in the region. Bangladesh, which has been hailed for taking a relatively more holistic approach to population planning (see Simmons 1996), has seen a decline from a similar total fertility rate to Pakistan's in 1980 to a rate of 2 births per woman in 2018. While some have argued that structural changes are more responsible for the demographic shift that has taken place in Bangladesh (see Kabeer 2001), most also agree that effective policies and their implementation has contributed significantly to slowing the population growth rate to replacement levels. The same cannot be said of Pakistan where, if the current growth rate continues, the country's population will double in the next two decades (Iqbal 2020). Hence, more concerted efforts must be made on the part of policymakers to ensure that Pakistan's growth rate is reduced to replacement levels. This is not only crucial with regard to the country's already over-stretched resources but, as this chapter argues, it is also a necessary precondition for the realization of women's empowerment and gender equality.

While many may oppose the use of contraceptives for a variety of religious and cultural reasons, the idea that this is the main reason for the low uptake of contraceptives is largely untrue. In fact, many people would like to use modern methods of contraception but simply do not have access. The contraceptive

prevalence rate in Pakistan is 35% while the overall demand is 55%. Pakistan is in no way alone when it comes to unmet family planning needs:

A 2014 report found that less than half of currently married women use modern contraception in 37 of 46 countries, and around one quarter or more of currently married women have an unmet need for family planning in 21 of the 46 countries. (Starbird et al. 2016)

In the case of Pakistan, the overall fertility rate could be decreased to 3.1 births per women if this need was met (Khan et al. 2018). Worryingly, modern contraceptive use has actually stagnated, with the PDHS 2017-2018 reporting that 26 percent of women used a modern method of contraception between 2012-2013 as compared to 25 percent in 2017-2018 (National Institute of Population Studies 2019, p. 113). A closer look at the statistics reveals that a lack of knowledge of contraceptives is likely not the main hindrance to reducing the birth rate. In fact, 99 percent of married women reported having knowledge of at least one contraceptive method (Pakistan Bureau of Statistics 2019). Studies have also shown that men's knowledge of contraceptive methods is even greater than that of women, which is significant given that men often play an even greater role in decision-making regarding family planning (see Kiani 2003). Hence, there is a huge discrepancy between knowledge and use, which remains to be explained. A lack of female empowerment in terms of decision-making, particularly concerning their own health; mobility; and the pressure to produce sons might be one of the main reasons for such a low contraceptive usage rate, along with a basic failure in service provision. Because of the high rate of unwanted pregnancies, Pakistan also has one of the highest rates of abortion in the world, many of which are conducted in extremely unsafe and unhygienic conditions (see Singh et al. 2018).

There are several reasons behind the relatively high birth rate in Pakistan linked both to socio-economic and cultural factors and a high level of gender inequality. A study conducted by Hakim and Mahmood (1994) found that the greatest factors influencing the fertility rate were age at marriage, education of both partners, employment status of both partners, and region. In terms of educational attainment, Pakistan is also lagging behind with a female literacy rate of 46 percent (as compared to 71 percent for men) (World Economic Forum 2019, p. 24). According to the PDHS 2017-2018, young women (ages 15-19) are more likely than young men to be currently married (14 percent versus 3 percent), which means both that their childbearing years are extended and that they are less likely to be able to assert any kind of authority over their reproductive choices (National Institute for Population Studies 2019). Another important factor is the existence of son preference. While the prevalence of sex selective abortion is still relatively low, especially compared with neighboring India, the country's skewed sex ratios indicate a relatively higher rate of female mortality in children under 5 (see Sathar et al. 2015). There is a clear link between the desire for more sons and a higher birth rate as couples with daughters keep trying for more children until they are able to have a son. The PDHS 2006-2007

found that 65 percent of women with three sons did not want any more children while only 14 percent of women with three daughters felt the same. Hence, all of the available evidence demonstrates a clear link between a prevailing lack of gender equality and a continuously high population growth rate.

A Declining Fertility Rate: Creating the Ground for Gender Equality

This chapter argues that a lower fertility rate is a crucial precondition for the achievement of gender equality and women's empowerment. While anthropologists such as Ortner (1974) and Rubin (1975) have long argued that women's primary role as bearers of children has contributed to their subordination and placed them in an asymmetric power relation with men, relatively few studies have actually explored the link between lower fertility rates and empowerment. One of the reasons for this is the difficulty in measuring an abstract concept such as empowerment as compared to measuring well-being, which has clearer indicators. In terms of improving women's and girls' well-being, many studies have shown that reducing the average number of children per woman directly leads to improved overall health indicators for women, which may be a prerequisite for empowerment but is not an indicator in and of itself (see Grown et al. 2005). While lowering the birth rate does not guarantee that women and girls will automatically be empowered, studies have shown that lower fertility rates help to create the *conditions* for women's empowerment.

Most research conducted so far has focused on how women's empowerment can help reduce the fertility rate. One of the most comprehensive reviews on this subject was published by Upadhyay et al. (2014), which focused on the connection between several indicators of empowerment including women's education, employment, role in decision-making, mobility, financial autonomy, power within marriage, exposure to public life, access to contraception, and aspirations. While the importance of various indicators varied, their study did find that women's empowerment played a key role in reducing the number of children per woman.

Phan (2013) identifies four key pathways related to women's empowerment that could lead to lower fertility rates: education, employment, participation in household decision-making, and autonomy in terms of their own fertility. Female education has been proven time and again to lead to higher rates of healthcare usage in general and modern contraception in particular. Female labor force participation, which is particularly low in Pakistan, increases the role incompatibility between being mothers and being engaged in paid work. It also brings more economic independence for women and enhances their decision-making power. Participation in household decision-making also means that women will participate more in their own reproductive decision-making, and finally, autonomy in terms of fertility increases the chances that women will use modern methods of contraception. As outlined above, Pakistan lags behind in all four areas.

Studies conducted in the country also demonstrate that improvements in key areas related to women's empowerment have led to fertility decline. Hakim and

Mahmood's (1994) research, for example, demonstrates that increases in levels of education for girls coupled with an increase in the average age at marriage—two factors that are interlinked—has significant effects on reducing the number of children borne per woman. Sathar and Kazi's (2000) research on rural women also found that women's engagement in paid employment even more than education had a positive relationship with their overall autonomy within the household, including their ability to make decisions related to their own fertility. A study comparing the autonomy of rural and urban women conducted by Mahmood (2002) also found that women who are more mobile and who are able to access health services are more likely to participate in household decision-making and hence have more control over their reproductive behavior.

While much has been written about how women's empowerment can lead to fertility decline, relatively less has been written about how fertility decline can contribute to women's and girls' empowerment. However, all available evidence demonstrates a clear link between the two. The Population Council (Ahad and Adil 2020) has mapped out the connection between women's and girls' empowerment and reduced fertility rates in four key domains: education, employment, household decision-making, and mobility. Their research shows that higher rates of female education delays the age of marriage for girls, hence also reducing the number of childbearing years. Early marriage has been linked to poor health outcomes for girls and young women and reduced decision-making power in the household. Hence, investing in girls' education is a key means of reducing the population growth rate both by delaying the average at marriage and increasing women's decision-making power, including in the realm of reproductive choice. The Population Council also found that higher employment rates for women were directly linked to lower fertility rates. Women who have access to contraceptives are more likely to participate in the labor force, and conversely, women who are engaged in paid labor are more likely to have fewer children (see Babiarz et al. 2017). Hence, the Population Council highlights the underlying links between increased access to family planning and the process of women's and girls' empowerment.

A study by Stoebenau et al. (2013) is one of the most comprehensive attempts to explore the links between reduced fertility rates and improvements in women's lives; their research focuses attention on three domains: women's overall well-being, their empowerment, and the transformation of social structures. All three of these domains are mutually reinforcing. Their findings show that reductions in the fertility rate tend to improve women's lives in terms health and survival, education, labor force participation and employment, and the value of daughters within the household. All four of these areas are key prerequisites for the empowerment of women and girls, but they do not translate into empowerment in and of themselves. The authors argue that:

A change in women's lives is more likely to be empowering if it creates a "new" opportunity that was rare for prior cohorts of women, if it causes changes in women's

customary roles and responsibilities, and if women themselves are involved in creating these dynamics. (*ibid*., p. 8)

What is less clear is whether these changes necessarily lead to overall transformation of gender relations at a societal level. The research by Stoebenau and colleagues shows that, while relations in the public sphere have changed to some extent as a consequence of reduced fertility levels, relations within the private sphere, i.e., the institution of the family, are more rigid (*ibid.*, p. 30). For this reason, countries that have gone through the demographic transition from high to low fertility rates, including many in Western Europe and East Asia, actually see the opposite problem and are now struggling to maintain replacement levels of fertility as women are unable to juggle the demands of paid employment and their domestic responsibilities and are hence having fewer children (see McDonald 2000, Brinton 2019). What is clear from the research is that a reduction in fertility levels can act as a catalyst, creating the ground for other types of social transformations that are necessary for the achievement of gender equality, but reducing fertility levels alone is also not enough. This is why governments must make women's empowerment central to any long-term family planning strategy.

The Way Forward: Adopting a Gender-Based Rights Approach

While this chapter has been largely focused on the empowerment of women and girls, it is also extremely important that men and boys also be taken into consideration when formulating any policy related to population planning. Data from the PDHS (National Institute of Population Studies 2019) along with research in Pakistan and elsewhere have highlighted the role men already play within fertility-related decisions (see Kiani 2003, Duvendack and Palmer-Jones 2017). Hence, policies should include a focus on educating boys and men about the importance of reproductive rights rather than focusing solely on women. This in no way means empowering men further to make decisions for their wives but promoting communication between both partners and support for women's right to have the ultimate decision-making authority over their own reproductive choices. As feminists have long been arguing, taking a gender-based approach does not mean only focusing on women and girls; it means focusing on the power relations between and amongst women and men in a manner that promotes equality and is beneficial to all.

As the evidence in this chapter has clearly demonstrated, the long-term success of any family planning policy depends on the empowerment of women and girls, and the empowerment of women and girls can only take place if fertility levels are reduced. Hence, policies must keep reproductive rights at the center from the outset. Furthermore, in order for policies to be successful and sustainable, they cannot be formulated in a top-down fashion. Women and girls and men and boys must play a role in their formulation and feel like they have a stake in their successful implementation. Policies with regard to family planning must center reproductive rights and focus on the structural roots of high fertility rates. This means moving

away from blunt targets and focusing instead on improving the economic and educational opportunities for women and men and improving access not only to contraceptives, but improving the quality of healthcare overall. As this chapter has clearly demonstrated, the achievement of gender equality and sustainable fertility rates are not isolated issues but are rather interlinked and tied to wider societal structures of power.

However, it should also be emphasized that reducing the population growth rate is not necessarily a guarantee to achieving gender equality on its own, and neither should women's empowerment be viewed instrumentally primarily as a *means* of reducing the population. As the evidence has demonstrated, a reduction in fertility rates might improve women's social standing in *some* spheres, but it does not guarantee empowerment in *all* spheres. Research has shown that, while declining fertility rates have improved women's overall position in the public sphere, gender relations within the private sphere have not changed to the same extent (Stoebenau et al. 2013). In many countries, the population growth rate is below replacement levels, leading to concerns about a demographic imbalance. In countries facing such a crisis, gender inequality within the domestic sphere may be one of the roots causes for the decreasing birth rate as women choose to have fewer children in order to be able to maintain a career outside of the home. In these contexts, increasing gender equality and making it possible for women to manage paid work and childrearing through more family-friendly employment policies and more equal sharing of domestic responsibilities between women and men could actually help *increase* the population growth rate (Brinton 2019). While Pakistan is still very far from reaching this point, the lesson learned should be that the achievement of gender equality means promoting more egalitarian households where responsibilities for paid and unpaid work are shared; such an arrangement is more gender equal and is also conducive to maintaining a sustainable population growth rate—one that is close to replacement levels.

Pakistan clearly has a long way to go in terms of the achievement SDG 5, but the future does not have to be so grim. While the indicators may be far from ideal, the last three decades have also shown some promising trends. The fertility rate has declined significantly, even if progress is slow, and the numbers of women and girls who are gaining formal education and engaging in paid employment are also steadily increasing. This is the time where policymakers at the provincial and national levels should be making a coordinated push towards accelerating these processes by focusing their attention and investing resources in promoting a reproductive rights-based approach to family planning, which can help create the ground for women's empowerment across various spheres. Such efforts would serve a dual purpose by both helping to lower the population growth rate and by moving Pakistan closer to fulfilling its commitment under the SDGs with regard to gender equality and the empowerment of women and girls.

CHAPTER FIVE

Investing in Family Planning: Key to Saving Lives

Zalla Khattak[42], Ali M. Mir[43] and Maqsood Sadiq[44]

1. Exploring the Problem

Pakistan is falling behind most of its neighbors and many other Muslim countries in terms of its overall health indicators, particularly maternal and child health indicators. This is predominantly evident in the levels of maternal and neonatal mortality, and incidence of unintended pregnancies. It is estimated that there are 9,500 maternal deaths and 0.5 million child deaths occurring annually in Pakistan: during every hour, 750 children are born, one mother dies from pregnancy related causes, and 50 children die before reaching the age of five.[45] These figures seem particularly high when compared to the maternal mortality ratio (maternal deaths per 100,000 live births) in other regional countries like the Islamic Republic of Iran (16), Turkey (17), Saudi Arabia (17), and Malaysia (29).[46] On the other hand, it is also true

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[45] UNIA estimates and PDHS 2017-18
[46] WHO, UNICEF, UNFPA, World Bank Group and UNPD (MMEIG) - September 2019 https://data.unicef.org/topic/maternal-health/maternal-mortality/

that the number of maternal deaths in the country are gradually coming down. Our maternal mortality ratio has fallen from 276 to 186 deaths per 100,000 live births in a period of 14 years. However, we are still losing a mother due to pregnancy related causes nearly every hour.

Pakistan unfortunately is among the top five countries that have the highest proportion of premature births. It is estimated that out of nearly 6 million births in Pakistan, a million babies are born prematurely. Owing to a lack of adequate facilities, 600 babies die every day in Pakistan due to prematurity, asphyxia, and infections. Even those preterm babies who survive, without proper care are likely to suffer from vision and hearing problems and respiratory disorders. Pakistan also has the dubious distinction of being among the top 5 countries having the highest number of neonatal deaths, i.e., deaths of babies below one month of age. We are only second to Lesotho, while the other four are the Central African Republic, South Sudan and Somalia. The major cause of neonatal deaths in Pakistan is preterm births.

Between 2012–13 and 2017–18, the neonatal mortality rate did fall from 55 to 42 deaths per 1,000 live births, but this is well above the South Asia average rate of 28, and of course far higher than the rate in most developed nations.[47]

In many cases, the deaths and morbidity stem from pregnancies that were never intended or are inadequately spaced or poorly timed. It is estimated that in 2012, approximately 4.2 million of the total 9 million pregnancies in Pakistan (46 percent) were unintended. Of these, 54 percent ended in induced abortions, while 34 percent resulted in approximately 1.4 million unplanned births.[48] Nearly 2 million Pakistani women resort to induced abortions each year, with lack of access to good quality family planning services as a major reason. Nearly 700,000 of these women face complications after the abortions, which can result in disability and mortality. Maternal and child health indicators are a good measure to gauge a country's level of development. Our statistics reflect the sorry state of our health care system and the government's priorities.

Issues Afflicting the Health system

Numerous factors have contributed to the slow progress in maternal, newborn and child health (MNCH) in the country. Some of the main social determinants include poverty, high rates of illiteracy, lack of empowerment and voice among women and girls, and also high fertility rates. The total fertility rate in Pakistan is highest in the region, at 3.6 births per woman; in comparison, the wanted fertility rate is 2.9,

[47] NIPS and ICF, PDHS 2017-18, UN Inter-agency Group for Child Mortality Estimation, Levels and Trends in Child Mortality; Report 2015, New York: UNICEF, 2015
[48] Induced Abortions and Unintended Pregnancies in Pakistan; 2014

implying that on average women in the country want 0.7 less child than the current rate.[49]

The high fertility rate is not only a challenge for the health sector but has a demographic impact with far-reaching developmental implications. Between the two censuses of 1998 and 2017, the population growth rate was 2.4 percent, very high compared to other countries that have attained replacement levels of fertility such as India (1.2 percent), Bangladesh (1.1 percent), Iran (1.4 percent), and Indonesia (1.1 percent).[50] With such a high population growth rate, a large proportion of the country's resources are consumed instead of being accumulated as capital for development. The pace of development therefore lags behind the fast expanding needs of the population, contributing to stagnation in social service delivery. Pakistan's population is projected to reach 221 million by 2020, 234 million by 2023, and 263 million by 2030 by medium fertility variant and 269 million by 2030 by high fertility variant.[51] This rapid increase signifies a continual expansion in the absolute numbers to be served in order to attain the SDGs and is unsustainable in both the medium and the long run.

Pakistan's high population growth rate is linked to our low Contraceptive Prevalence Rate which is the lowest in the region. Compared to the CPR of 77 percent in Iran, the CPR in Pakistan is around 35 percent.

Coverage rates for essential health interventions remain low in the country, with wide geographic and socioeconomic disparities in access. A largely unregulated private sector addresses some of the gaps in service availability, but the quality of care can be poor. These issues are compounded by a lack of community awareness and suboptimal care-seeking behaviors in the population.[52]

Within the health sector, some of the main challenges include weak governance, low financial allocation (only 0.97 percent of GDP in the public sector), inadequate access to Universal Health Coverage and quality of care, crises in health workforce, in terms of lack of professional trained health workers, frequent health emergencies, and a lack of focus on addressing determinants of health. The rapid increase in population requires concomitant increases in the outlay on health facilities and expansion of the health system, but resource constraints make this difficult.

[49] PDHS 2017-18
[50] Pakistan Bureau of Statistics 2017
[51] United Nations, Department of Economic and Social Affairs, Population Division (2019). World Population Prospects 2019, Online Edition. Rev. 1.
[52] Effect and feasibility of district level scale up of maternal, newborn and child health interventions in Pakistan: a quasi- experimental study

In the next 10 years Pakistan has to implement a wide-ranging agenda in order to make progress in achieving the SDG Goal 3 "Ensure healthy lives and promote well-being for all at all ages".

2. Linkages between Family Planning and SDG Goal 3: The Evidence

The SDG agenda on health is quite wide, with 13 targets and 27 indicators concerning both health issues and health systems. Maternal, newborn, and child health feature prominently in the targets, as was the case in the agenda of the Millennium Development Goals (MDGs). Other targets concern communicable, non-communicable, and tropical diseases; substance abuse; road traffic accidents; mental health; environmental pollution; universal health coverage; health financing; health workforce recruitment; health information systems; and research and development.[53]

Targets of Goal 3 pertaining to maternal and child health

Target 3.1: *By 2030, reduce the global maternal mortality ratio to less than 70 per 100,000 live births.*

Target 3.2: *By 2030, end preventable deaths of newborns and children under 5 years of age, with all countries aiming to reduce neonatal mortality to at least as low as 12 per 1,000 live births and under-5 mortality to at least as low as 25 per 1,000 live births.*

Target 3.7: *By 2030, ensure universal access to sexual and reproductive health-care services, including for family planning, information and education, and the integration of reproductive health into national strategies and programmes.*

Within Goal 3, Target 3.7 specifically focuses on ensuring universal access to sexual and reproductive health services, including family planning, and is to be measured in terms of the proportion of women of reproductive age (15–49 years) who have their demand for family planning met with modern methods and the adolescent birth rate. This indicator is interesting compared to other indicators such as CPR, because it measures success in meeting the demand that is already predicted to exist, enabling a clear view of performance in service delivery, separate from demand creation aspects. Progress against this target is necessary to secure couples' right to have as many children as they want, when they want them. However, it is also crucial for success against the other Goal 3 targets, especially Target 3.1, which calls for reducing the global maternal mortality ratio to less than 70 per 100,000 live births, and Target 3.2, under which the neonatal mortality is to be reduced to at least as low as 12 per 1,000 live births and under-5 mortality to at least as low as 25 per 1,000 live births.

[53] Sustainable Development Goals; http://www.un.org/sustainabledevelopment/health/

In the current context of persistently poor MNCH indicators, high fertility, rapid population growth, and severe resource constraints obtaining in Pakistan, there is a need to prioritize high-impact and low-cost investments that address problems at the root. As the following sections will show, family planning is one such area.

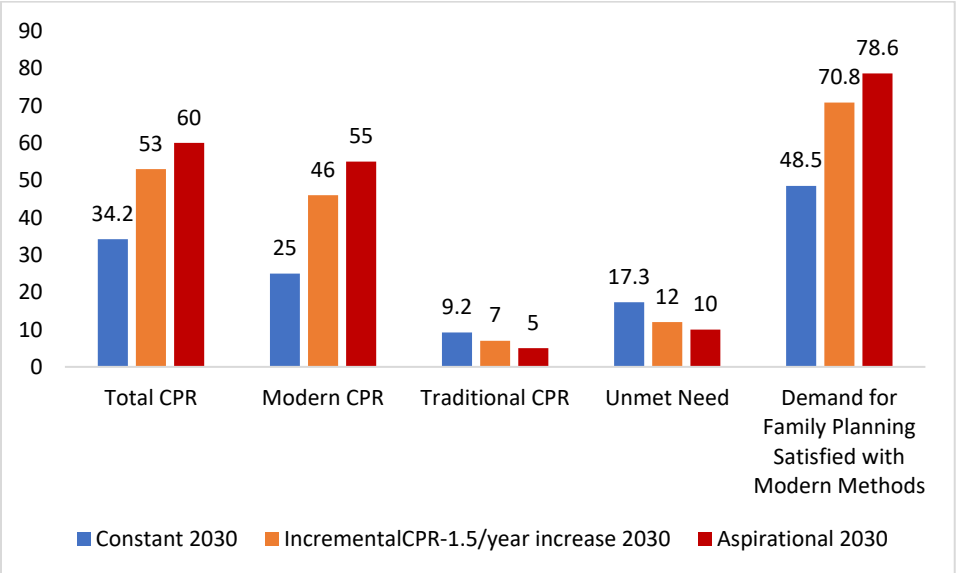
Family Planning can directly improve maternal and child health and nutrition, contribute to several other health and wider SDGs, and at the same time reduce the burden on the health system.

Following the Supreme Court's *suo motu* notice of Pakistan's alarming rate of population growth in 2018, a national task force was set up to recommend measures to increase contraceptive prevalence and reduce unmet need for family planning. Its recommendations were approved by the Council of Common Interests (CCI) in November 2018, and the federation and provinces have to collectively work to meet these decisions. The national targets are to lower the population growth rate of the country to 1.5 percent by 2025, and to 1.1 percent by 2030, and increase the contraceptive prevalence rate to 50 percent by 2025 and 60 percent by 2030.[54]

The newly developed projection graph by the Population Council demonstrates the significance and contribution of CPR on improving maternal and child health outcomes and thereby contributing towards the attainment of various SDG 3 targets. It presents three scenarios: if the status quo remains and CPR follows the current trajectory where we will reach by 2030. The second scenario shows that if we increase our CPR by 1.5 per annum where that will lead us and the third scenario indicates that if the CCI target (of attaining CPR of 60 percent by 2030) is met, what impact it will have.

[54] Investing in Family Planning for Maternal and Child Health in Pakistan, Dr. Sheh Mureed

Projection Graph[55]



Family planning improves maternal, perinatal, and infant health outcomes by enabling healthy timing and spacing of pregnancies (HTSP). Global evidence has unequivocally established that closely spaced pregnancies contribute to adverse maternal and child outcomes. When a pregnancy occurs six months after a live birth, it leads to a 70 percent increased risk of a maternal death, 60 percent increased risk of a stillbirth, 230 percent increased risk of a miscarriage, and a 170 percent increased risk of a newborn death.[56] The healthiest period for a pregnancy is between the ages of 18 and 34, with a gap of at least 24 months after a birth (which ensures an interval of about 3 years between births), while avoiding more than 4 births.[57]

Family planning not only enables HTSP, but also allows couples to limit births after they have attained their desired family size, thereby averting the economic, social, and health consequences of unplanned births on families, especially mothers.[58]

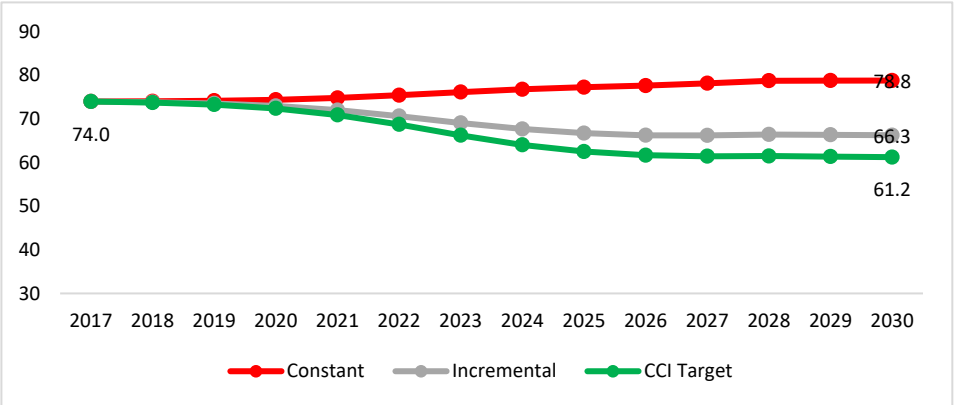
[55] Population Council estimates; calculation for SDGs based on Health Policy Plus. 2017. "Family Planning-Sustainable Development Goals Model." Washington, DC: Palladium, Health Policy Plus. Model development team: Kaja Jurczynska, Scott Moreland, Suzy Sacher, and Matthew Deas

[56] HTSP 101: Everything You Want to Know About Healthy Timing and Spacing of Pregnancy

[57] Ibid.

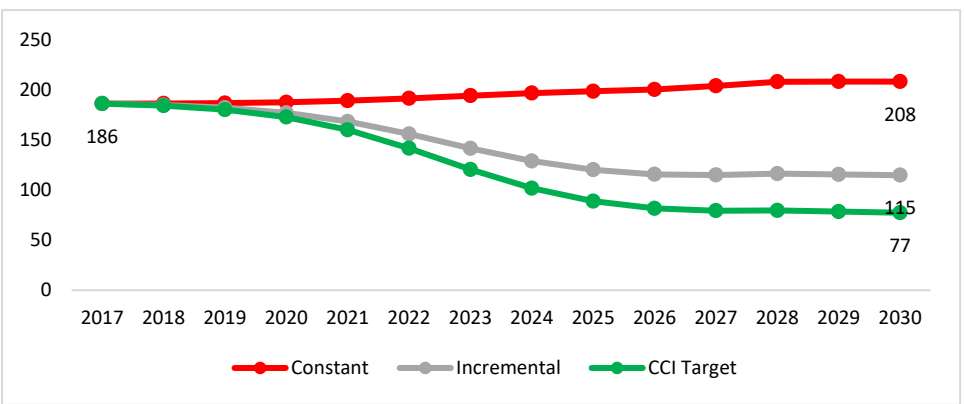
[58] Induced Abortions and Unintended Pregnancies in Pakistan; 2014

Projection Graph for Under-Five Mortality[59]



Birth spacing alone can reduce the risk of neonatal deaths by about 50 percent by reducing the occurrence of preterm and low birth weight births.[60] Following the roadmap set forth by the Council of Common Interests (2018), and attaining CPR of 60 percent by 2030, we can significantly decrease maternal and child mortality rates. Population Council estimates indicate that if we follow the direction as decided upon by the CCI taskforce, (60 percent CPR target) MMR can be brought down to 77, and the under-five mortality rate can be brought down to 61 per 1000 live births.[61]

Projection Graph for MMR[62]



[59] Population Council estimates; calculation for SDGs based on Health Policy Plus. 2017. "Family Planning-Sustainable Development Goals Model." Washington, DC: Palladium, Health Policy Plus. Model development team: Kaja Jurczynska, Scott Moreland, Suzy Sacher, and Matthew Deas

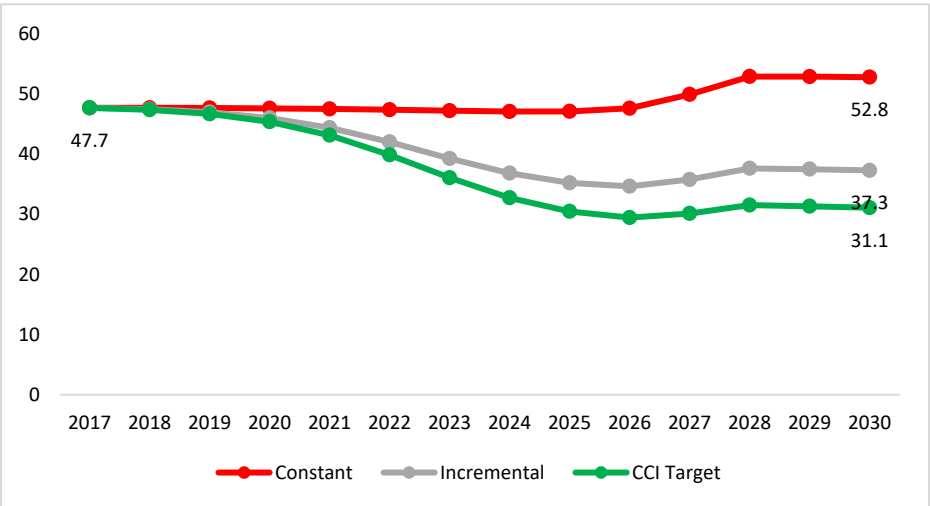
[60] Population Council estimates

[61] Jurczynska, K., et al. 2017

[62] [62] Population Council estimates; calculation for SDGs based on Health Policy Plus. 2017. "Family Planning-Sustainable Development Goals Model." Washington, DC:

According to the Pakistan Demographic and Health Survey PDHS 2017-18, nearly 18 percent of women became pregnant six to seventeen months after a live birth and 37 percent within 24 months. PDHS data shows that the highest proportion of closely spaced pregnancies occur in the adolescent age group of 15-19 years. Compared to older women, this group also has the highest unmet need for spacing, nearly one out of six women in this age bracket wants to space her pregnancies but is unable to do so.

Projection Graph for Adolescent Birth Rate[63]



The Population Council further estimates that even without increasing the current coverage of skilled birth attendance, by simply meeting the 17 percent unmet need for family planning and thus raising current contraceptive use from 34 to 51 percent, we could lower maternal mortality by around 30 percent and save nearly 4000 maternal lives every year.

Effective use of family planning methods also helps women time and space their pregnancies to ensure healthy nutritional outcomes for their children as well as their own selves, which is highly relevant to the second SDG, specifically Target 2.2. Among the key factors underlying dramatic reduction in child stunting prevalence in five countries - Nepal, Ethiopia, Peru, Kyrgyz Republic, and Senegal - a modeling study identified improvements in maternal education and nutrition, maternal and

Palladium, Health Policy Plus. Model development team: Kaja Jurczynska, Scott Moreland, Suzy Sacher, and Matthew Deas

[63] Population Council estimates; calculation for SDGs based on Health Policy Plus. 2017. "Family Planning-Sustainable Development Goals Model." Washington, DC: Palladium, Health Policy Plus. Model development team: Kaja Jurczynska, Scott Moreland, Suzy Sacher, and Matthew Deas

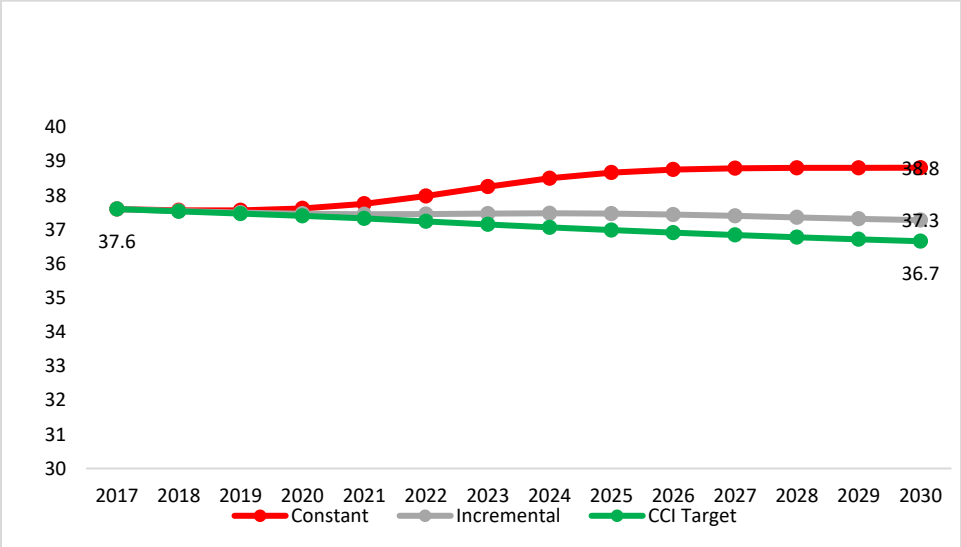
newborn care, and adequate birth intervals.[64] The study proposed a framework of organizing direct and indirect nutrition-based interventions not necessarily restricted to the health sector.

Spacing pregnancies at least 24 months apart (the equivalent of 3 years between births) is directly linked to the reduction of a key measure of malnutrition, stunting, among children under 5 years of age. Children born after a two-year interval or less, compared with a four-year interval, are 27 percent more likely to be stunted and 23 percent more likely to be underweight.[65]

In Pakistan, key findings of the National Nutrition Survey (2018) indicate that four out of ten children under five years of age are stunted while 18 percent suffer from wasting. According to the figures, the double burden of malnutrition is becoming increasingly evident with almost 29 percent of children underweight, alongside a high prevalence of overweight (9.5 percent) in the same age group. Nonetheless, stunting remains a major problem in Pakistan, with around 12 million children with low height for age. The average reduction rate per annum is estimated at 0.5 percent point which is too low to significantly reduce the overall rate of stunting in the country.[66] If we move in the direction which has been decided upon by CCI (of attaining CPR of 60 percent by 2030), based on Population Council projections, the percentage of stunting in children under five years of age can be brought down to 36.7 by 2030.[67]

[64] How countries can reduce child stunting at scale: lessons from exemplar countries
[65] Investing in Family Planning: Key to Achieving the Sustainable Development Goals
[66] Ibid.
[67] Jurczynska, K., et al. 2017

Projection Graph for Stunting[68]



It is pertinent to mention that a mother's poor nutrition can also have adverse effects on foetal nutrition and growth, and hence infant survival.[69] Notably, one out of seven (14.4 percent) women of reproductive age in Pakistan are undernourished; the population of malnourished women is higher in rural areas, while obesity is more prevalent amongst urban women.[70] With nearly 37 percent of pregnancies in the country occurring within an interval of less than two years, healthcare providers must counsel all women in the reproductive age bracket on the benefits of birth spacing and provide the requisite family planning services to mitigate this risk.[71]

Apart from maternal mortality and morbidity, closely spaced pregnancies can also lead to iodine deficiencies and intellectual deficit in mothers and their newborns, respectively. This linkage is relevant to SDG Target 3.4, which pertains, along with non-communicable diseases, to mental health and wellbeing. The linkage between iodine deficiency and mental disability has not been adequately explored; therefore, the general public is not very well informed about how this deficiency can be prevented or its potential consequences, especially for young children and women of reproductive age. Approximately 18 percent of women of reproductive age in Pakistan are iodine deficient, primarily in the rural areas. Even mild to moderate

[68] Population Council estimates; calculation for SDGs based on Health Policy Plus. 2017. "Family Planning-Sustainable Development Goals Model." Washington, DC: Palladium, Health Policy Plus. Model development team: Kaja Jurczynska, Scott Moreland, Suzy Sacher, and Matthew Deas

[69] Birth Spacing: Three to Five Saves Lives, Population Reports

[70] National Nutrition Survey 2018: Key Findings Report

[71] Mir 2019.

maternal iodine deficiency in early pregnancy is associated with suboptimal cognitive development in the offspring. Research evidence shows that repeated pregnancies can deplete a woman's iodine stores, underscoring the need for birth spacing.[72]

Another health benefit of family planning programming lies in the critical role it can play in preventing the transmission of HIV/AIDS. a priority under SDG Target 3.3, at a time when nearly 34 million adults and children are living with the epidemic worldwide, and women of childbearing age account for approximately half of the infected population.[73] The correct and long-term use of male or female condoms not only prevents transmission of the HIV virus, but also avoids unintended pregnancies in women with HIV, reducing the risk of potential transmission of the virus to the newborn, as well as maternal deaths (including those related to HIV). In Pakistan, an estimated 150,000 people are living with HIV/AIDS, out whom 69 percent are men and 29 percent are women.[74]

The above linkages show that family planning has a direct impact on health and wellbeing at the individual level, especially in terms of improving maternal, neonatal and child health outcomes. An immediate implication of increased family planning, therefore, is that lives are saved. Efficacious family planning programs enable couples to plan and implement suitable birth intervals and help protect the health and nutrition of their children, culminating in lasting impacts on the health and well-being of the population at large.

However, there is also a less direct but larger level at which family planning can contribute to the attainment of Goal 3, along with several other SDGs. Investments in addressing and increasing the demand for family planning can reduce Pakistan's population growth rate and facilitate its demographic transition. At the household level, this can lower the dependency ratio and enable savings, improving the standard of living, including access to food and quality health services. At the macro level, it can improve the productivity of the workforce and reduce stress on natural resources, especially for agricultural purposes, contributing to livelihoods, food security, and nutrition. A slowdown in population growth would also provide much needed reprieve for health, education, and other social services to catch up with public needs, and for urban environments to be better planned and more healthful. In terms of other Goal 3 targets, reduced fertility and population growth would indirectly help reduce the number of deaths, injuries, and illnesses associated with road traffic accidents (Target 3.6), as well as pollution and hazardous chemicals (Target 3.7), and also free up more resources for strengthening capacity for early warning, risk reduction, and management of health risks (Target 3.d).

[72] Mir 2019.
[73] Investing in Family Planning: Key to Achieving the Sustainable Development Goals
[74] NACP, DMC

3. Healthcare Cost Savings Achievable through Family Planning

Providing a complete package of maternal and newborn care is expensive and can be especially difficult for low- and middle-income countries. It would cost Pakistan $1.894 billion annually to provide newborn and maternal healthcare to all pregnant women, as per the standards recommended by the World Health Organization; this includes $1.596 billion for women with intended pregnancies, and an estimated $298 million for those who have unintended pregnancies.[75] The most effective way to lower these costs is to reduce the number of unintended pregnancies, i.e., pregnancies that take place among women who want to postpone pregnancy or stop childbearing altogether.

According to the 2017 census data, there are an estimated 10.1 million pregnancies in Pakistan each year, of which 3.8 million (37 percent) are unintended. It is estimated that 20 percent of these unintended pregnancies result in unplanned births, and 69 percent in induced abortions, while the rest end in miscarriages. Most of these unintended pregnancies result from an unmet need for modern contraception. If the women wanting to avoid pregnancy adopted modern contraceptive methods and all the pregnant women and their newborns received the recommended care, Pakistan would save $152 million. The cost of averting an unintended pregnancy through family planning is much lower than the cost of maternal and newborn health care required for that pregnancy; every additional dollar spent on modern contraceptive services lowers the cost of maternal and newborn care by $2.66.[76] In fact, simultaneously expanding both modern contraceptive services and maternal and newborn care would result in cost savings compared with expanding either set of services alone.[77]

The Population Council estimates that, under a hypothetical scenario in which all unmet need for family planning is met with modern contraceptive methods, the number of unintended pregnancies per year would drop to as low as 670,000.[78] Compared to current levels, this amounts to an 82-percent reduction in the national annual numbers of unplanned births, abortions and miscarriages; a decline of nearly 1,000 in the number of maternal deaths; and the prevention of 350,000 DALYs. The number of induced abortions would decline by 2.1 million, the majority of which would likely have been unsafe. These outcomes, which could considerably improve the overall well-being of women and their families throughout the country, would have the greatest effect on the poorest households, where unintended pregnancies

[75] Adding it Up: Costs and Benefits of Meeting the Contraceptive and Maternal and Newborn Health Needs of Women in Pakistan
[76] Ibid.

[78] This number primarily reflects the unintended pregnancies that would continue to arise due to method failure.

would decline by 91 percent, compared to 74 percent in the wealthiest households.[79]

4. Addressing the Unmet Need for Contraception: The Ask

The evidence presented above indicates that the lives, health, and well-being of mothers and their children in Pakistan can be better protected by enabling healthy timing and especially spacing of births through increased use of family planning. This would not only reduce the probability and occurrence of high-risk pregnancies, but also reduce the need for care related to abortions and for carrying unintended pregnancies to term. An increase in modern contraceptive services reduces the overall costs associated with maternal and newborn care.

Over the last twelve years, there have been some improvements in maternal health care. The latest PDHS data shows that the proportions of women seeking antenatal care (at least one visit) from skilled providers and opting to deliver their babies at health facilities have increased to 86 percent and 66 percent, respectively. However, the majority of pregnant women in Pakistan still do not have access to the kind of maternal and newborn care that they need.[80] Most notably, in stark contrast to the improving trends in antenatal care and institutional deliveries, the modern contraceptive prevalence rate has dropped from 26 percent in 2012-13 to 25 percent in 2017-18.[81] Meanwhile, 17 percent of women have unmet need for family planning. In 2012, the Government of Pakistan committed to increasing the contraceptive prevalence rate (CPR) to 50 percent by 2020, by ensuring universal access to voluntary family planning services. However, despite substantial demand for family planning, no progress could be made to reduce unmet demand and the CPR has remained stagnant at around 34 percent for over a decade.

PDHS data also indicates disparities in contraceptive use and the extent of unmet need for family planning across different segments of women: those who are poor, less educated, live in rural areas, and are young have greater unmet need. The highest proportion of closely spaced pregnancies occur in the adolescent age group of 15-19 years. Compared to older women, women in this age group also have the highest unmet need for spacing, with nearly one out of every six wanting to space pregnancies but unable to do so. An increase in the contraceptive prevalence rate (60 percent by 2030), as decided upon by the CCI recommendations, could lead to a drastic decrease in the adolescent birth rate (21.1) and bring it down to around 31.1 by 2030.[82]

Preventing unwanted pregnancies with the effective use of family planning can slow down population growth and contribute to achieving other important development

[79] Ibid.
[80] NIPS and ICF, PDHS 2017-18
[81] PDHS 2012-13, 2017-18
[82] Jurczynska, K., et al. 2017

goals. According to a study (2018), based on United Nations' projections, Pakistan is one of the 13 countries expected to be furthest from reaching the benchmark, apart from Afghanistan, Democratic Republic of Congo, Ghana, Haiti, Liberia, Mali, Mozambique, Nigeria, the Philippines, Senegal, South Sudan, and Yemen.[83]

Under Target 3.7, the benchmark for percentage of demand for family planning satisfied with modern contraception is 75 percent.[84] Countries vary immensely in both their current and future expected levels of met demand. In order to achieve the 2030 benchmark, on average, low- and middle-income countries need to double their currently projected rates of progress.[85] Based on these benchmark projections, which assume that 75 percent of the United Nations' projected demand for family planning[86] would be met with modern methods by 2030, the projected mCPR for Pakistan is 52.4 percent. Pakistan needs to increase its mCPR by 10.9 percent by 2030 in order to achieve the benchmark. Aside from the immense direct health benefits, doing so would also bring down the annual population growth rate to 1.01 percent, by decreasing the total fertility rate to 1.90 by 2030.[87]

There is evidence available from Pakistan that shows that we can do it. A USAID-funded Family Planning project, FALAH implemented by the Population Council, showed that unmet need can be reduced, total demand increased, and contraceptive prevalence increased in 14 widely different district settings through various public and private sector interventions.

The catalysts that led to this change were repositioning communications around family planning, extolling the benefits of birth spacing articulated in the media and interpersonal communications; at the district health system level, improving public sector quality of services, ensuring contraceptive availability and training of facility staff; including community based LHWs; and finally, through involving men in family planning. contraceptive prevalence increased in the project districts from 29.4 percent to 37.9 percent in a period of 3.5 years.

[83] United Nations Department of Economic and Social Affairs Population Division. Model-based estimates and projections of family planning indicators. New York: United Nations; 2014. Available from: http:// www.un.org/en/development/desa/population/theme/ family-planning/cp_model.shtml
[84] Goodkind 2018
[85] Choi Y, Fabic MS, Hounton S, et al. Meeting demand for family planning within a generation: prospects and implications at country level. Glob Health Action. 2015; 8:29734.
[86] The Population Division, at the United Nations Department of Social and Economic Affairs, produces a systematic and comprehensive series of annual, model-based estimates and projections of key family planning indicators. The estimates and projections are based on the country-specific data compiled in *World Contraceptive Use 2020.* Model results are as of February 2020.
[87] Goodkind 2018

5. The Way Forward: Recommendations & Key Strategies

Pakistan is well-positioned to build upon the foundation laid by Vision 2025 by the Ministry of Planning, Development and Reform and to proactively synergize, implement and enforce the commitments by national and provincial stakeholders in implementing the SDGs, particularly with regard to family planning. While the health sector must provide leadership in the delivery of family planning services, ensuring that services are available and accessible to all Pakistanis will require a more coordinated approach across sectors. Post-devolution, all the provinces have developed their respective population policies. The federation can facilitate the implementation of these policies through resource allocation, legislation and regulations while remaining within the ambit of the 18th constitutional amendment.

As the evidence presented in this chapter indicates, investments in family planning must be a priority for Pakistan to achieve its health-related SDG targets. The following more focused subsets of recommended strategies can help mainstream family planning in our health response (i.e., Goal 3).

A. Accessibility:

By investing in fertility decline through a robust family planning program, Pakistan can significantly reduce the numbers of people living in poverty; with an equitable approach, it can divert resources to improving maternal and infant survival, nutrition, educational attainment, etc. In order to achieve substantial improvements in maternal and newborn health care coverage and reductions in maternal mortality, there is a need for greater investment in the health care infrastructure and providing outreach services. Expanding access to contraceptives and increasing the number of health outlets, with trained health care providers, can help address the unmet need for family planning. Domestic resources, including private sector philanthropy and corporate social responsibility, must be tapped to enhance the federal Public Sector Development Program budget to support maternal and child health initiatives. For instance, the mandate and coverage of the National Health Insurance scheme needs to be broadened to include access to preventive care such as family planning services.

According to the CCI recommendations, FP services are to be provided through all public and private health facilities. This decision needs to be fully implemented, as it can have several advantages. Most couples are hesitant visiting the socially stigmatized and discrete FP centers; but general health facility visits offer several opportunities for discussing family planning, such as during antenatal care visits, immediately after delivery, and during postnatal checkups. Couples can be encouraged to discuss their family planning needs and individually focused options can be suggested to help meet their needs. This service delivery approach would also allow men to discuss family planning with male health care providers. The supply chain management system is also to be strengthened to ensure availability of all

contraceptives at service delivery points. Family planning commodities should be included in the essential drug list of primary, secondary and tertiary drug list.

B. Availability:

Mitigating unmet need, reducing unwanted pregnancies by providing universal access to affordable, acceptable, high quality family planning services. Creating demand through behavior change facilitated through community mobilization; the use of the media to propagate the new narrative on population.

Unmet need for family planning (FP) stems from the inability of women to access services. The Lady Health Worker (LHW) program, launched in 1994, had the mandate to provide doorstep FP services to rural women, who have higher unmet need and more unintended pregnancies than urban women. This highly acclaimed program is currently plagued with many issues, the foremost of which is a perennial shortage of contraceptive supplies. Within public sector health facilities, service providers do not consider offering family planning services and counselling as their responsibility.

To fulfil women's need for family planning with modern contraceptive methods, the following concrete measures can be adopted: building capacity of the existing staff in counseling; increasing availability of the full range of methods of contraception; mobilizing and engaging communities at the grass roots level; provision of prenatal and post-partum care facilities; task shifting so contraceptives can be dispensed by lower cadres of providers; task sharing between different cadres, for example, enabling Lady Health Workers (LHWs) to provide some of the services that Lady Health Visitors (LHVs); developing effective child health programs; lastly and most importantly, empowering women by providing equal access to education and employment opportunities.

C. Affordability:

Enhancing financing for family planning services can be an effective mechanism of reaching out to the rural poor and marginalized women and can be effectively achieved through greater engagement of the private sector. Poorer women have more to gain compared to wealthier women from improved coverage of modern contraceptive services. To ensure equity, poor and rural couples who cannot access family planning services through conventional means need to be reached in creative ways, for example, through provision of subsidized products through private sector providers; through voucher schemes; and especially through public sector community-based distribution systems employing community health workers. As per the CCI decision, federal and provincial governments are mandated to link population programs with social safety net programs like the Benazir Income Support Program and introduce conditional cash transfer schemes or other incentive schemes for adoption of family planning services and institutionalized birth delivery.

D. Media

An effective strategy would be reaching out to the young, since nearly 60 percent of the population is below the age of 25 years and 44 percent is in the age group 15-44 years (Census 2017). There is a need to inform young couples through school-based life skills-based education on topics such as marital preparedness, family planning, health and hygiene, and health promotion, and to match the information with services that are youth friendly. Media can be an effective tool to promote family planning as a socially and religiously acceptable practice. It can provide information on the health benefits of fertility regulation and how fertility regulation can help achieve a balance between family size and the ability of couples to meet the basic rights of their children. Introducing and promoting the new narrative of Tawazzun/Balance, that gives parents the freedom to plan the number and spacing of their children according to their resources in order to fulfill the basic rights of each family member. Propagating the new narrative can help remove misgivings among certain quarters about the past narrative on population. It has a more altruistic approach which makes the message more health and wellbeing oriented, hence more appealing to people across different backgrounds.

E. Accountability:

What gets measured, gets done.[88] For better accountability we need reliable data on demographic parameters such as fertility, infant and child mortality, contraceptive prevalence, unmet need and demand satisfied. Given the need for frequent updates, the data needs to be available with greater periodicity, through representative surveys conducted preferably every two years as well as analysis of routine monitoring data being collected through the various information systems. Data shown on a dashboard can help policy makers to gauge the progress being made in implementing the CCI recommendations. Accountability structures need to be put in place right up to the grass root level that include peoples representatives, the media, civil society and policy makers to see to that peoples rights are ensured, their demands met and better health outcomes achieved.

Conclusion:

Family planning and its impact on SDGs needs to be more deeply entrenched in our national political discourse for more effective policy formulation. Understanding how family planning outcomes directly and indirectly feed into improvements in other SDG indicators may persuade structural reforms which are needed to bring about the changes that would enable the entire health infrastructure to actively engage in providing family planning. As this chapter indicates, there is considerable evidence to suggest that investing in family planning can be the most cost-effective way to

[88] Sathar 2018

achieve SDGs; given its high population growth rate, failure to meet SDGs could have catastrophic repercussions in the future for Pakistan.

The CCI decisions to bring down Pakistan's alarming population growth rate to sustainable levels include legislation, financing, universal access to services, supply chain, behavioral change, mass communication, and education. They provide an excellent roadmap for population/family planning policies and programs in Pakistan, and if properly implemented and followed up, could enable the country to lower its population growth rate, and also help gauge progress along the way.

The objectives and processes of sustainable development and fertility decline are inextricably linked; therefore, joint strategies need to be evolved and developed in order to successfully achieve these goals.

CHAPTER SIX

Linkages between Population Growth and Climate Change

Heman Das Lohano[89]

Introduction

Pakistan has been singled out as one of the countries that is experiencing both high risks of climate change impacts as well as high population growth rates. The country is recognized as one of the most vulnerable countries in the world to climate change (UNDP 2015). According to the Global Climate Risk Index 2020 report, Pakistan has been ranked number five among the most affected countries in the world in terms of impacts of extreme weather events during the period 1999–2018 (Eckstein et al. 2020). Moreover, Pakistan is the fifth most populous country in the world, with a fertility rate of 3.5 which is relatively very high as compared to the average fertility rate of 2.4 in South Asia and also 2.4 in the world (World Bank 2020).

A recent study by Sathar and Khan (2019) explored the climate change impacts, exposure, and vulnerability in different zones, and implications for migration-as-adaptation in Pakistan. However, little empirical evidence has been produced examining the linkages between population growth and climate change, as well as implications for family planning for the sake of addressing climate change in Pakistan.

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This study examines the linkages between population growth and climate change and analyzes them in the context of the fulfillment of the following Sustainable Development Goal (SDG): “Take urgent action to combat climate change and its impacts.” The objective of this study is to conduct an informed and evidence-based analysis on these interlinkages useful for policymakers in developing policies related to family planning and climate change in Pakistan. This study uses a combination of descriptive statistics, trend analysis, and literature review.

Climate Change Policy and Sustainable Development Goal

In this section, we review the existing policy on climate change in Pakistan and the SDG on climate change.

To address climate change, Pakistan has formulated a National Climate Change Policy (Government of Pakistan 2012); it has also passed the Pakistan Climate Change Act, 2017, and formed the Ministry of Climate Change in the federal government in 2017.The policy document provides framework for achieving climate resilient development with specific objectives including sustainable economic growth taking into account climate change, integration of climate policy with other related sectors’ policies, promoting pro-poor gender-sensitive adaptation and cost-effective mitigation measures, and ensuring water security, food security, and energy security keeping in view climate change impacts among other objectives for climate resilient development.

SDG 13 is on climate change and states: “Take urgent action to combat climate change and its impacts.” The United Nations has specified the following targets under this goal:

(13.1) Strengthen resilience and adaptive capacity to climate-related disasters;

(13.2) Integrate climate change measures into policy and planning;

(13.3) Build knowledge and capacity to meet climate change;

(13.A) Implement then UN Framework Convention on Climate Change; and

(13.B) Promote mechanisms to raise capacity for planning and management (Ritchie et al. 2018).

Evidence on Linkages between Population Growth and Climate Change

This section reviews global literature on linkages between population growth and climate change.

3.1 Effects of Population on Emissions: Fertility Rate as Climate Mitigation Policy

The impact of population growth on environment has been studied quite extensively. One of the foundational models that recognizes the impact of population on environment was developed by Ehrlich and Holdren (1971). This model was expanded into the IPAT model which states that the impact (I) on environment is equal to the product of three factors including population (P), affluence (A), and technology (T) (Ehrlich & Holdren, 1972). The application of IPAT to greenhouse gas (GHG) emissions is referred to as Kaya identity, which states that the total emissions are the product of four factors including human population, GDP per capita, energy intensity, and carbon efficiency (Kaya and Yokobori, 1997). Thus, this model shows that the human population has a positive impact on total emissions. If there are more people and emissions per capita remain unchanged, then the total emissions per time period would increase with population growth.

There have been numerous empirical studies on measuring the impact of population size on emissions. O'Neill et al. (2012) review the studies from different countries and find that a one percent increase in the population would result in a one percent increase in CO_2 emissions. Martínez-Zarzoso (2007) find that the elasticity for the impact of population growth on emissions is significant and more than one percent for new European Union member countries while it is non-significant and less than one percent for old European Union member countries. Iwejingi (2013) conducted a descriptive analysis and showed that population growth causes climate change through increasing activities including agriculture cultivation, deforestation, oil extraction, increasing automobiles, and creating wastes in Nigeria.

Starbird et al. (2016) explore the linkages between family planning and attainment of SDGs including the goal on climate change. Based on the empirical evidence in the literature, they show that family planning is essential for attaining the sustainable development goal on climate change and can accelerate the progress in achieving its targets. They argue that family planning is an easy approach to managing climate change adaptation and reduction of emissions. Casey and Galor (2017) show that fertility rates affect carbon emissions through three channels: total population; the age structure of the population; and economic output. They find that decrease in fertility rates would decrease CO_2 emissions and would also increase per capita income. They estimated that moving from the medium to the low variant of the UN fertility projection leads to 35 percent lower annual emissions and 15 percent higher per capita income by the end of this century.

Budolfson and Spears (2020) state that it is desirable to reduce fertility rate by promoting reproductive health care, education, and social equality. They state that reducing fertility has some minimal effects on emissions. However, they argue that it should not be used as a substitute for other climate mitigation policies.

Speidel et al. (2015) show that family planning is a cost-effective approach to resolve the issues of food security and climate change and find that a decrease in fertility rate would lead to less intense global climate change. Wheeler and Hammer (2010) also find that family planning is a cost-effective approach for reducing CO_2 emissions relative to other approaches including using biofuels and solar and wind as sources of energy.

3.2 Effects of Population on Climate Induced Damages: Lower Emissions Policy

If there are more people in future due to relatively high fertility rates, then more people in future will be exposed to damages due to climate change. Thus, the damages by carbon emissions would be larger, so the optimal level of current carbon emissions should be lower (Budolfson and Spears 2020). Scovronick et al. (2017) and Budolfson et al. (2018) show that if the climate-induced damages are taken into account due to relatively higher fertility rates, this would have important implications for optimal emissions policy.

3.3 Effects of Population on Climate Induced Damages: Adaptation and Fertility Policies

Dodson et al. (2020) state that the strategy of decreasing fertility rate has a great potential to address climate change impacts, and policymakers should use this strategy while designing policies to limit climate disruption and lessen its impacts. Asefi-Najafabady et al. (2018) examine human exposure to extreme heat and show that the interaction between climate and population is often the largest driver of future exposure, more important than changes in climate or population alone.

Bryant (2009) examined the climate change impacts across countries and found that developing countries would be more affected by climate change. The study also found that family planning can potentially mitigate the climate change impacts if there is more access of family planning to poor communities in least-developed countries. Hall et al. (2017) show that projected rapid population growth will be the leading cause of food insecurity and widespread undernourishment across Africa. Dawson et al. (2016 show that projections of a rapidly growing population, coupled with global climate change, is expected to have significant negative impacts on food security.

Moreland and Smith (2013) examine the potential of family planning to address the effects of climate change. They identified that the issue of food security would be more intense with climate change in Ethiopia and found that it would become less intense with lower population growth rates. This study estimates that by the year 2050, slower population growth will compensate completely for the effects of climate change on food insecurity.

Smirnov et al. (2016) examine the relative importance of climate change and population growth for exposure to future extreme droughts. They find that climate

change and population growth account for 60 percent and nine percent of drought exposure, respectively, while their interaction between climate change and population growth accounts for 31 percent of the exposure. They find that drought exposure would be experienced by 129 countries due to climate change alone, by 23 countries due to population growth alone, and by 38 countries due to the interaction between climate change and population growth.

Ahmadalipour et al. (2019) find that controlling population growth is relatively more effective than climate change mitigation measures for reducing drought risk in Africa, as it improves socioeconomic vulnerability and reduces potential exposure to drought. Jones et al. (2018) show that a lower population pathway led to a reduction in exposure of roughly one-third relative to the higher growth pathway. Lutz (2009) states that strengthening human capacity primarily through education which, in turn, also reduces population growth and enhances economic growth, is the most promising investment for adaptation to climate change impacts.

3.4 Effects of Climate Change on Size of Future Population

Climate change directly through temperature or indirectly through disease, drought, and other mechanisms could change mortality rates and fertility rates (Budolfson and Spears 2020). Effect of temperature on mortality has been studied in various studies (e.g., Barreca et al. 2016; Geruso and Spears 2018). Sherwood and Huber (2010) argue that humans have limits on adaptation to temperature and thus continuous skin temperature above 35° C is intolerable. The combination of heat and humidity would have a much greater effect on human as compared to heat or humidity alone. Sobolewski et al. (2020) find that a human can manage to do some physical activity when the weather is hot and dry. However, when the weather is hot and humid, it is more problematic as the surrounding environment inhibits evaporation of sweat, which in turn inhibits the lowering the body temperature. Another study found that climate change might also increase the variance of the size of future populations (Spears 2015).

4. Trends in Population Growth and Climate Change Impacts in Pakistan

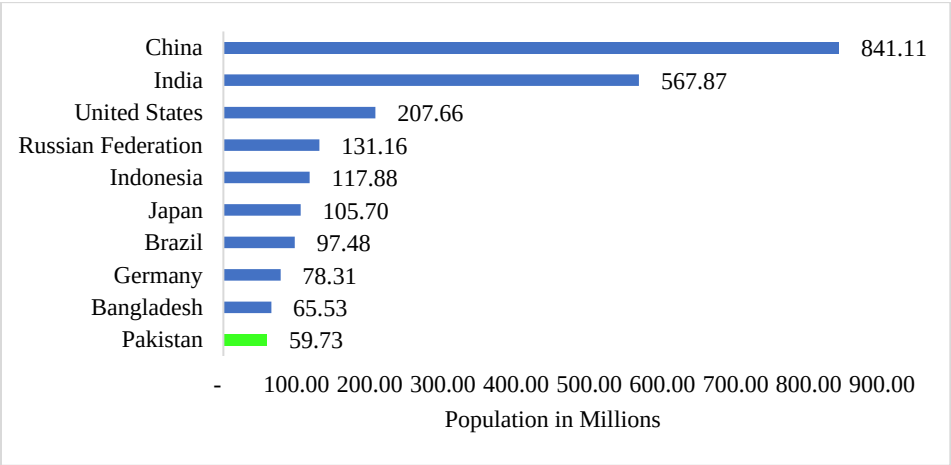
This section presents the descriptive statistics and trend analysis on population growth, fertility rate, emissions, climate change impacts, and coastal erosion in Pakistan.

4.1 Population Growth and Fertility Rates

Pakistan was ranked the 10th most populous country in the world in 1971 (Figure 1). By 2019, it had jumped to become the 5th most populous country in the world (Figure 2). The ranking changed mainly due to high population growth rates and high fertility rates in Pakistan. Figure 3 shows the comparison of population growth rates among Pakistan, South Asia, and the world. Figure 4 shows the comparison of fertility rates among Pakistan, South Asia, and the world. Figure 5 shows the comparison of fertility rates among South Asian countries. These figures clearly show that population growth rate and fertility rate continue to be higher than South Asia's average rates as well as the world's average rates. Furthermore, Pakistan's fertility rate is the second highest in South Asian countries.

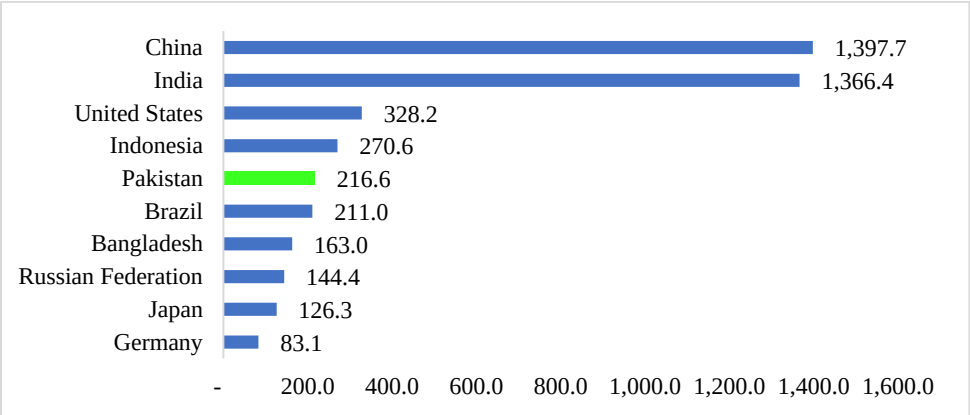
Table 1 shows the total fertility rate and wanted fertility rate in Pakistan in 2017–18. The total fertility rate in Pakistan is 3.6 percent and the wanted fertility rate is 2.9 percent. This indicates that the observed fertility rate is still 0.7 percent points above the wanted fertility rate.

Figure 1: Top ten most populous countries in the world in 1971



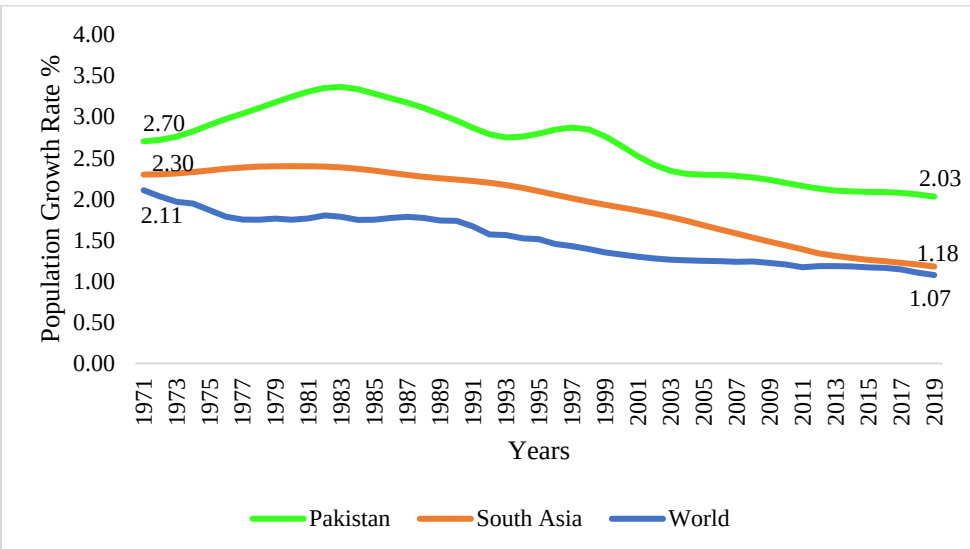
Source: Data from World Bank (2020)

Figure 2: Top ten most populous countries in the world in 2019



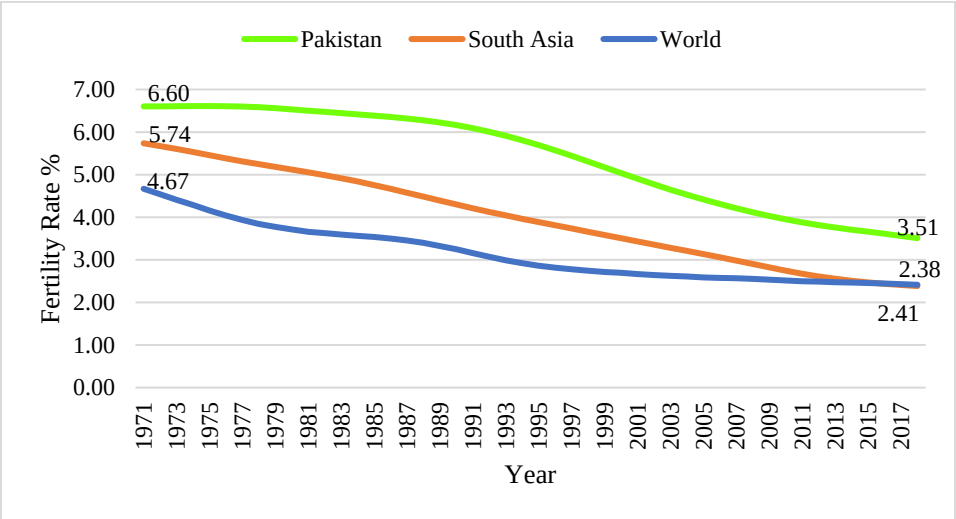
Source: Data from World Bank (2020)

Figure 3: Population growth rate in Pakistan, South Asia and World from 1971 to 2019



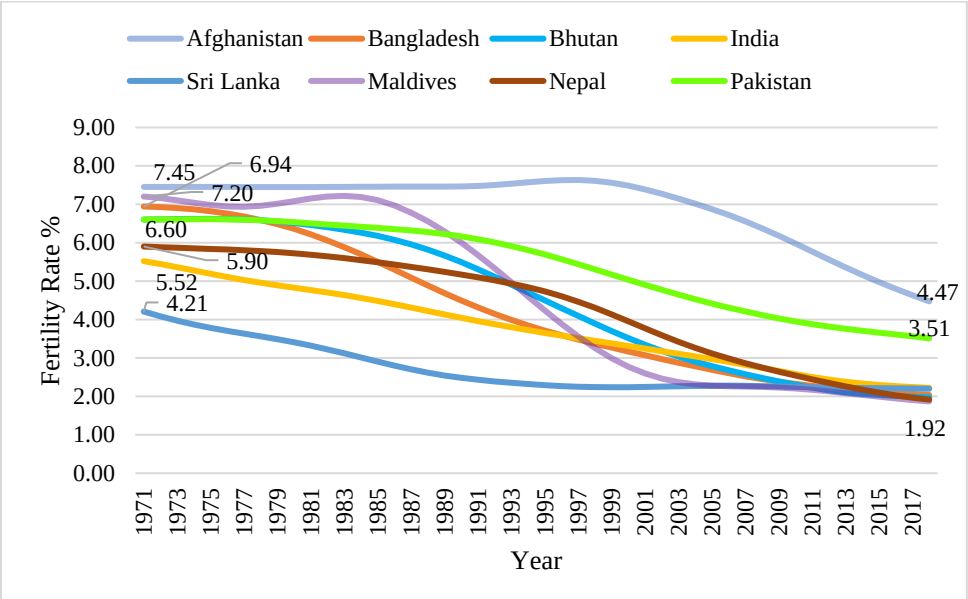
Source: Data from World Bank (2020)

Figure 4: Fertility rate for Pakistan, South Asia and World from 1971 to 2018



Source: Data from World Bank (2020)

Figure 5: Fertility rate in the South Asian Countries from 1971 to 2018



Source: Data from World Bank (2020)

Table 1: Fertility rate and wanted fertility rate in Pakistan in 2017-18

	Fertility rate	Wanted fertility rate
Overall Pakistan	**3.6**	**2.9**
Residence		
Urban	2.9	2.4
Rural	3.9	3.2
Province/Administrative units		
Punjab	3.4	2.8
Sindh	3.6	3
Khyber Pakhtunkhwa	4	3.2
Balochistan	4	3.1
ICT Islamabad	3	2.2
FATA	4.8	4.2

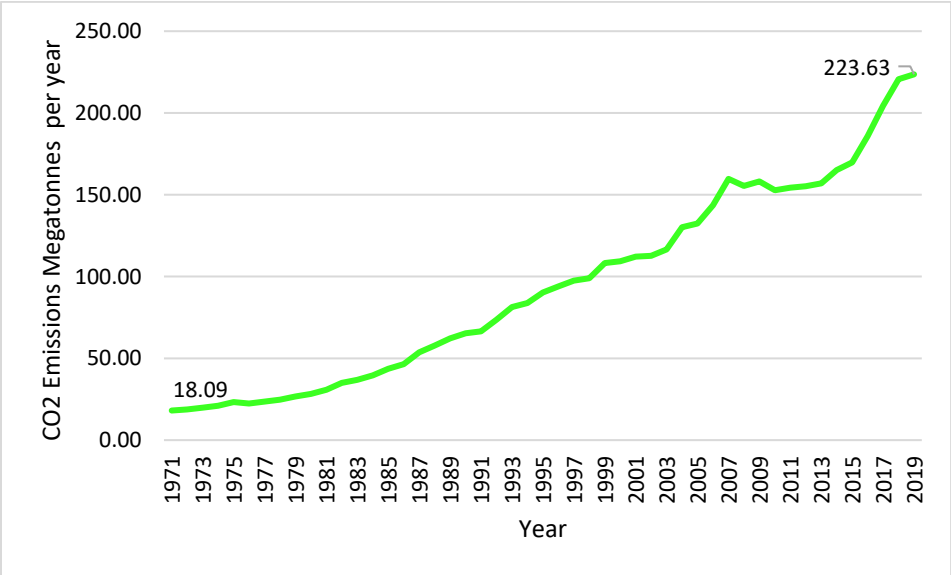
Source: Pakistan Demographic and Health Survey 2017-18

Note: Overall Pakistan excludes Azad Jammu and Kashmir and Gilgit Baltistan

4.2 Emissions

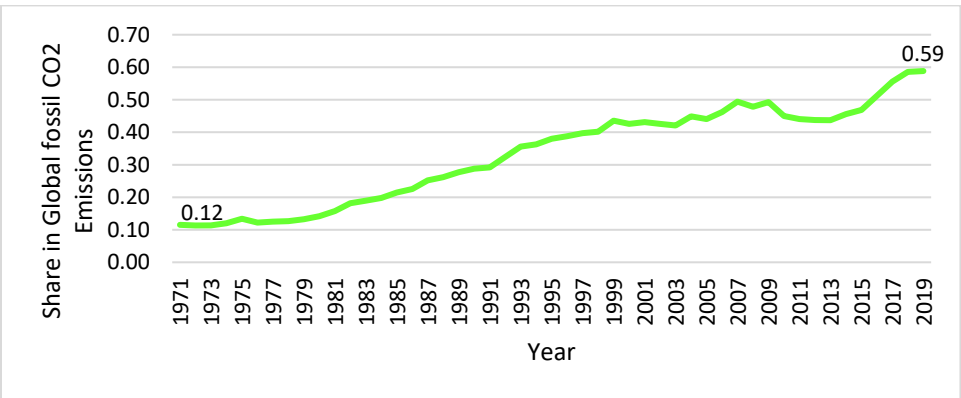
Figure 6 shows that in 1971 Pakistan's CO_2 emissions were 18.09 megatonnes, which increased to 223.63 megatonnes per year in 2019. Figure 7 shows Pakistan's share in global fossil CO_2 emissions. Figure 8 presents per capita CO_2 emissions. Pakistan was ranked as 148th largest per capita fossil CO_2 emitter globally in 2019. Figure 9 shows comparison of per capita CO_2 emissions among South Asian countries.

Figure 6: Fossil CO_2 emissions from 1971 to 2019 in Pakistan



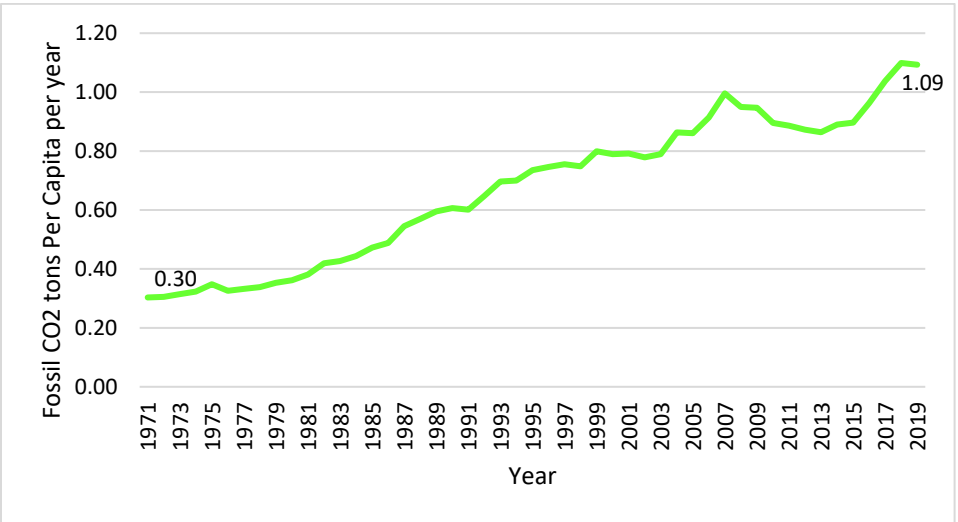
Source: Data from EDGAR (2020)

Figure 7: Share of Pakistan in Global fossil CO_2 emissions from 1971 to 2019



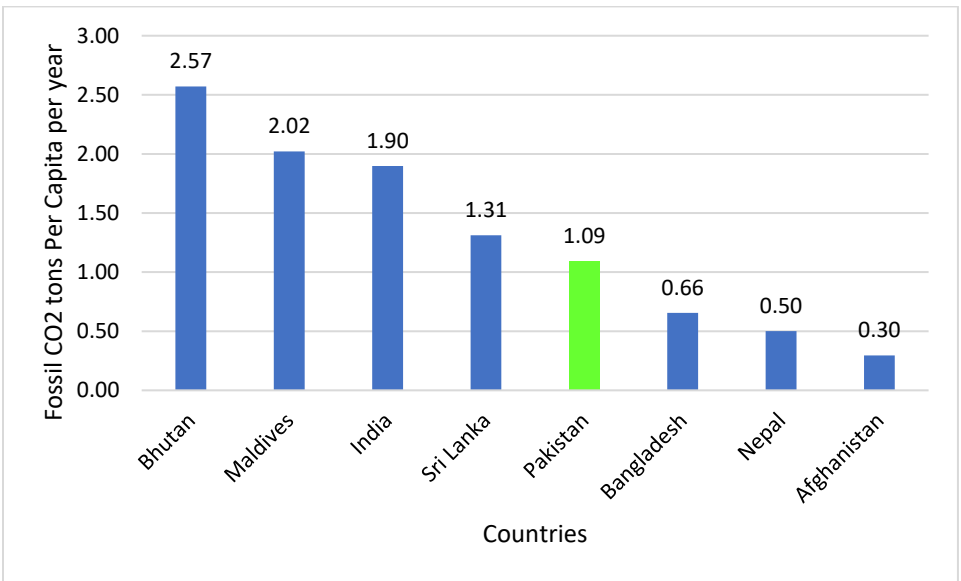
Source: Data from EDGAR (2020)

Figure 8: Per capita fossil CO_2 emission from 1971 to 2019 for Pakistan



Source: Data from EDGAR (2020)

Figure 9: Fossil CO_2 emissions per capita in South Asian countries in 2019

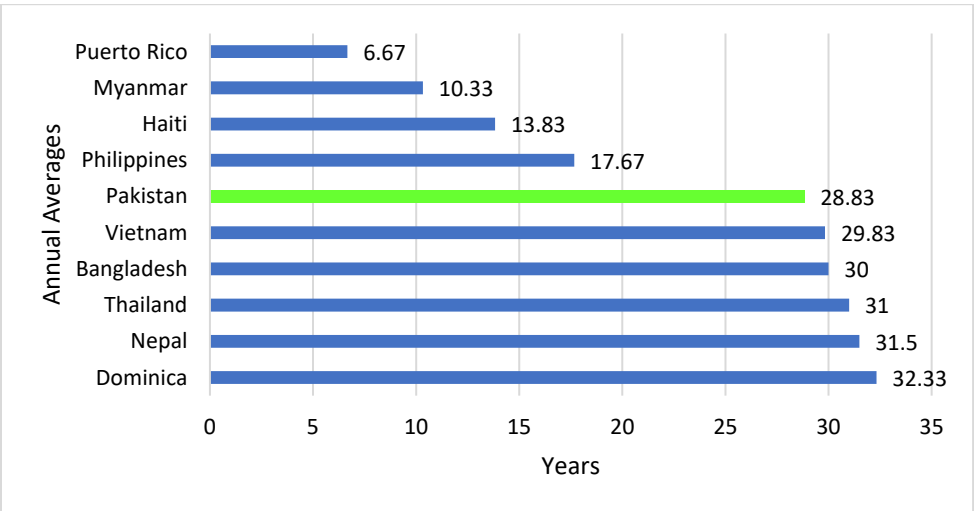


Source: Data from EDGAR (2020)

4.3 Impacts of Extreme Weather Events

According to the Global Climate Risk Index 2020 report, Pakistan has been ranked number five among the most affected countries in the world in terms of impacts of extreme weather events during the period 1999–2018 (Figure 10). During this period, average annual losses were 3.8 billion USD-PPP (0.53 percent of GDP) and average annual death toll was 499 (0.3 deaths per 100 thousand inhabitants (Eckstein et al. 2020).

Figure 10: Climate Risk Index in ten most affected countries in the world during 1999–2018



Source: Data from Eckstein et al. (2020)

Note: A lower climate risk index score represents a higher ranking and more affected relative to others.

4.4 Coastal Erosion

Pakistan is endowed with very rich coastal resources, providing valuable ecosystem services including provisioning services, supporting services, regulating services, and cultural services. The coastal resources of Pakistan are under threat due to both climate change and population growth. Climate change poses serious threats to the coastal resources not only by the rising of the sea levels but also by changing rainfall pattern and erratic water flow from the Indus river into the sea. Furthermore, due to population growth, the water demand from agriculture, industries, and households has been increasing, which has thus resulted in more erratic water flow into the sea. Thus, the coastal resources of Pakistan have been degrading over time due to climate change and population growth.

Figure 11 presents the pattern of sea level along the coast of Karachi as reported by the PSMSL (2020) along with fitted of exponential trend. The data show that the sea

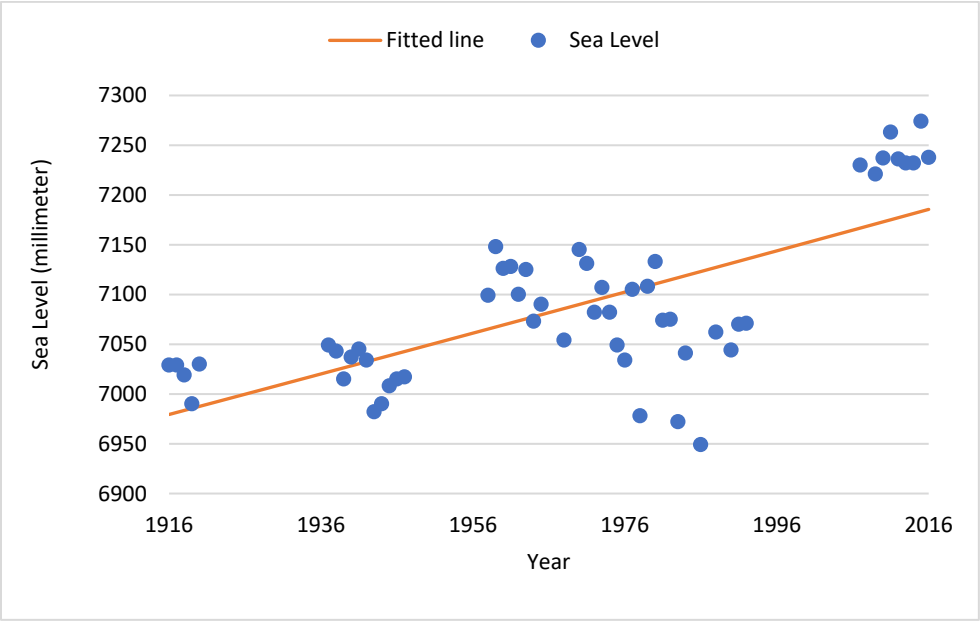
level has risen from 7029 to 7238 mm during the 1916–2016 period, indicating its rise by 209 mm (or 20.9 cm) in the past 100 years. This shows that the average rise in sea level has been 2.09 mm per year. Figure 11 indicates that sea level rise has been higher in recent years relative to the past century. According to the IPCC's fourth assessment report 2007, as cited in Rasul et al. (2012), sea levels during the 20th century rose about 150–200 mm (1.5 to 2.0 mm per year), with the rate at the end of the century increasing to about 3.1 mm per year which is significantly higher than the average rate for the 20th century.

The coastline of Pakistan includes two parts: Sindh coast and Makran coast. The Indus delta is about 85 percent of the Sindh coastal belt and is the most important ecosystem of Pakistan (MFF Pakistan 2016). Figure 12 shows the area under water; the salt-affected area in the Indus delta has increased from 1972 and 2018 due to sea intrusion. During this period, area under water has increased by 97 thousand hectares while the salt-affected area has increased by 135 thousand hectares. Due to these changes, the area under vegetation and other uses has thus decreased, as shown in Figure 13. Furthermore, the area under mangroves has also decreased as shown in Figure 14.

Sánchez-Triana et al. (2015) estimated that 39 percent of the agricultural land has been badly affected by sea water intrusion and an additional 11 percent of the cultivated land has partially been affected and is at the risk of further degradation in Sindh. Mahar and Zaighiam (2019) conducted the analysis using satellite data and found that the cultivated area in the Indus delta has declined over time. They found that the cultivated area declined from 47,320 hectares in 1998 to 19,744 hectares in 2018, showing a decline of 58 percent in the two decades. The situation has hurt the dwelling livelihoods as the region has experienced a drop in agricultural productivity and decline in fish catches, ultimately causing forced migration for survival.

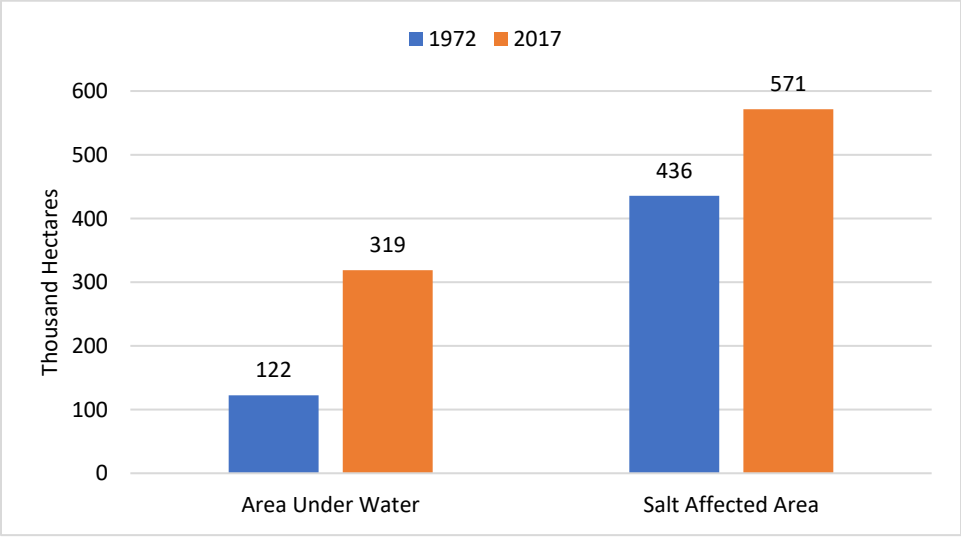
As discussed above, coastal resources in Pakistan have been badly affected by both climate change and population growth. The coastal areas are facing sea intrusion, which is attributed to sea level rise and erratic water flow from the Indus river into the sea. Figure 15 presents the number of days (out of around 182 days) with zero water flow below Kotri Barrage in Kharif (Apr-Sep) and Rabi (Oct-March) seasons, and shows that zero environmental flow has been very frequent and has increased since the year 2001. Figure 16 presents the number of days with zero water flow below Kotri Barrage in a year (sum of Kharif and Rabi), and shows an upward trend over time. Maintaining a continuous flow downstream of Kotri Barrage is critical for sustaining the ecosystems of the Indus Delta (Young et al. 2019). Figures 15 and 16 clearly show a lack of continuous flow and extreme low flow for consecutive years, which can be attributed to climate change as well as growing water demand from agriculture, industries, and households due to population growth.

Figure 11: Annual Average Sea Level at Karachi during 1916–2018



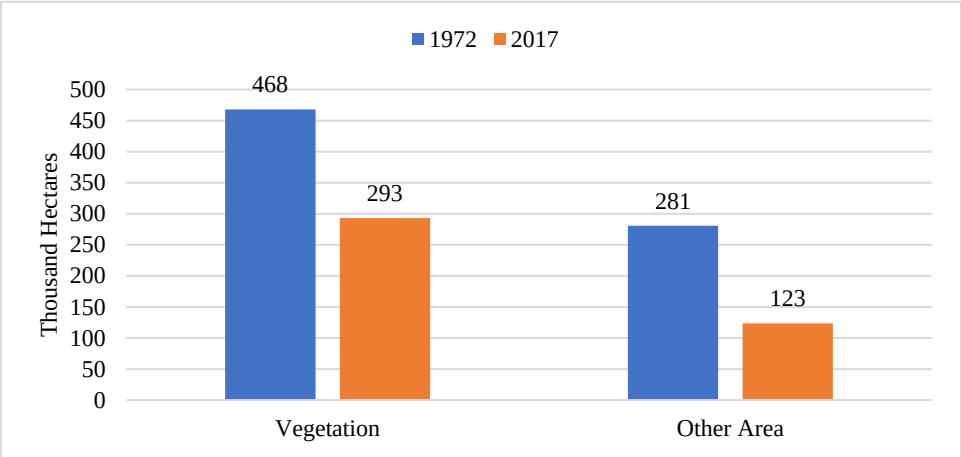
Source: PSMSL (2020)

Figure 12: Increase in Area under Water and Salt Affected Area in Indus Delta



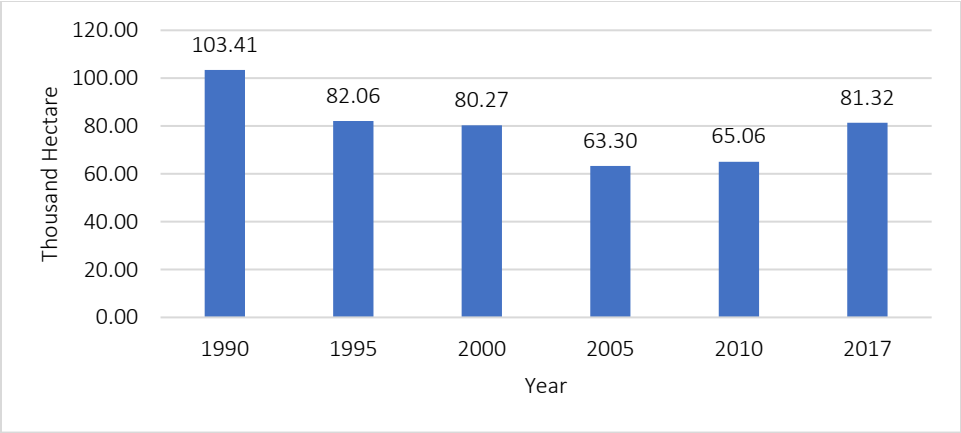
Source: Data from Siyal (2018)

Figure 13: Decrease in Vegetation and Other Areas in Indus Delta



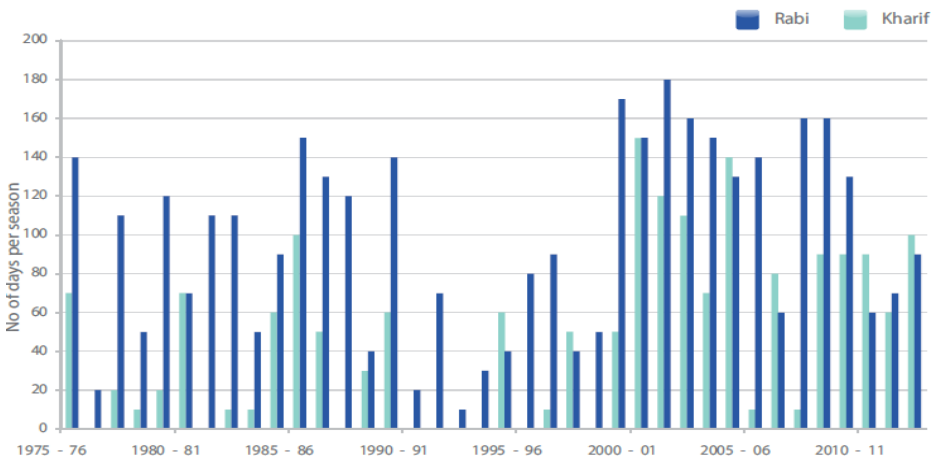
Source: Data from Siyal (2018)

Figure 14: Decrease in Mangroves Area in Indus Delta



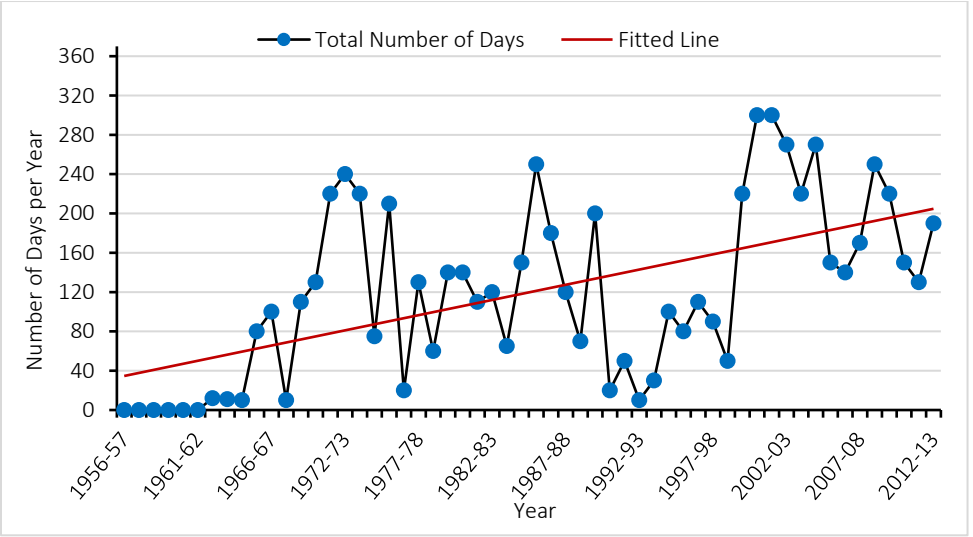
Source: Data from Siyal (2018)

Figure 15: Number of days with zero water flow below Kotri Barrage in Kharif and Rabi Seasons



Source: Indus River System Authority (IRSA) as cited in UNDP (2016)

Figure 16: Number of days with zero water flow below Kotri Barrage in a Year



Source: Siyal (2018)

5. Discussion and Conclusions

Based on the descriptive statistics, trend analysis, and evidence from the literature review, in this section we draw implications for the linkages between fertility rates and climate change in the context of Pakistan.

As shown in the sections above, Pakistan is the fifth most populous country in the world, with a population of 216.6 million in 2019. The fertility rate in Pakistan is 3.5, which is relatively very high as compared to the average fertility rate of 2.4 in South Asia and also 2.4 in the world. Data from the household survey further show that the wanted fertility rate is 2.9 in Pakistan. This shows that there is a demand for family planning programs and Pakistan has the potential to reduce the fertility rate with initiatives by households voluntarily.

Pakistan is also the fifth most affected country in the world in terms of impacts of extreme weather events during the period 1999–2018 according to the Global Climate Risk Index 2020 report (Eckstein et al. 2020). Furthermore, due to climate change and population growth, Pakistan's natural resources including coastal areas and wetlands are under threat. Thus, Pakistan needs to take urgent action to mitigate the negative impacts of climate change by adopting an integrated approach that jointly considers climate change, environment, and population growth.

Evidence-based analysis in existing literature shows that family planning is essential in planning to attain the SDG on climate change and it can also accelerate the progress in achieving its targets in time (Starbird et al. 2016). Moreover, it is a cost-effective strategy to address the climate change challenges (Speidel et al. 2015; Wheeler and Hammer, 2010). Starbird et al. (2016) argue that high fertility rates expose more people to climate risk and aggravates the negative impacts of climate change. Family planning can help reduce the climate risks and strengthen the resilience of people. Thus, along with climate adaptation measures, family planning would be an effective part of strategies to mitigate the negative climate change impacts and for achieving climate-resilient development in Pakistan. Furthermore, family planning would also help reduce emissions. Mansoor and Sultana (2018) empirically estimated the elasticity for the impact of population on emissions in Pakistan as 0.24, which shows that 1 percent decrease in population would lead to 0.24 percent decrease in the emissions. Pakistan's share in global emission has been increasing over time and has reached 0.59 percent. Despite the small share, keeping in view the increasing trend of carbon emissions, Pakistan can contribute in emission reduction by reducing fertility rate through family planning. Furthermore, family planning can also help in supporting Nationally Determined Contributions submitted by Pakistan and other countries in the world as per the commitments made in the 2015 Paris Agreement (UNFCCC 2020).

Based on the evidence in existing empirical studies and keeping in view descriptive statistics and trend analysis, we propose the following recommendations. Pakistan needs to invest in family planning to achieve a balance between sustainability of

natural resources and population size. Data on wanted fertility rates indicate that there is a demand for family planning programs, and Pakistan has the potential to reduce the fertility rate with initiative by households voluntarily. Finally, Pakistan needs to develop policy for sustainable development by adopting an integrated approach that jointly considers climate change, environment, natural resources, population dynamics, and family planning.

EPILOGUE

The Sustainable Development Goals are an all-encompassing inclusive and sustainable global agenda that calls for ending poverty, protecting the planet, ending gender discrimination, and ensuring that all people enjoy peace and prosperity. The 17 SDGs to be met globally by 2030 present a comprehensive set of targets and are embedded in five overarching thematic principles: People, Planet, Prosperity, Peace, and Partnership. The goals are interconnected; success in attaining one would imply success in attaining the others. Pakistan's record fares poorly on social capital creation, human and economic development, and gender equality, thus undermining the organizing principles set forth in the preamble of the SDGs'. Being the fifth most populous country in the world, the impact of population dynamics like population size, its distribution and rate of growth are critical in the attainment of all the 17 SDGs in more than one way in Pakistan.

This Monograph provides an in-depth understanding of how population and demographic factors could impact progress towards the achievement of the Sustainable Development Goals. The findings attempt to outline the linkages between lowering population growth through family planning and SDGs' and highlight the transformational benefits that voluntary family planning can bring to women, families, communities, and the country at large ----by improving health of families, increasing productivity, increasing household savings, mitigating the impact of climate change, and gender equality. Evidence-based analyses by eminent authors underscore the significance of family planning in attaining the sustainable development goals, by investing effectively in human capital development, along with an increased focus on female population. The population pressures and low levels of economic endowments have implications for future attainment of education, skills, and decent health standards.

In order to understand the imposing challenge that confronts Pakistan, it would suffice to point out that the financing gap between government's total revenue and total expenditure stands at Rs. 2.5 to 3 trillion[90]. With such a massive gap, federal and provincial governments would be hard pressed to finance even half of the SDGs, let alone all 17. The rapidly increasing population growth rate is adding to the funding deficit, especially in the social sector; effectively reducing the growth rate would alleviate this pressure and allow some increase in spending in these sectors. Given

[90] Budgetary estimates and data from State Bank of Pakistan (SBP) plus Finance Division, Govt. of Pakistan

its high population growth rate compared to the rest of the region, failure to meet SDGs could have catastrophic repercussions in the future[91].

Family Planning can directly improve maternal and child health and nutrition, contribute to several other health and wider SDGs, and at the same time reduce the burden on the health system. In this context, SDG target 3.7 ("*By 2030, ensure universal access to sexual and reproductive health-care services, including for family planning, information and education, and the integration of reproductive health into national strategies and programmes*") has wider implications, as the effective use of family planning can not only slow down population growth, but also contribute to achieving other important development goals. In fact, universal access to contraception is considered as one of the smartest investments in terms of social, economic and environmental benefit per dollar spent, second only to trade.[92]

The availability of family planning services affects education prospects and human capital, especially among adolescent girls, by preventing teenage pregnancies and allowing girls to stay in school. Increased reproductive rights for women, including access to contraceptives and reproductive health services along with autonomy over reproductive choices, would create an environment in which gender equality in all areas could be improved. Hence, without effective family planning policies, the achievement of gender equality and women's empowerment will remain intangible.

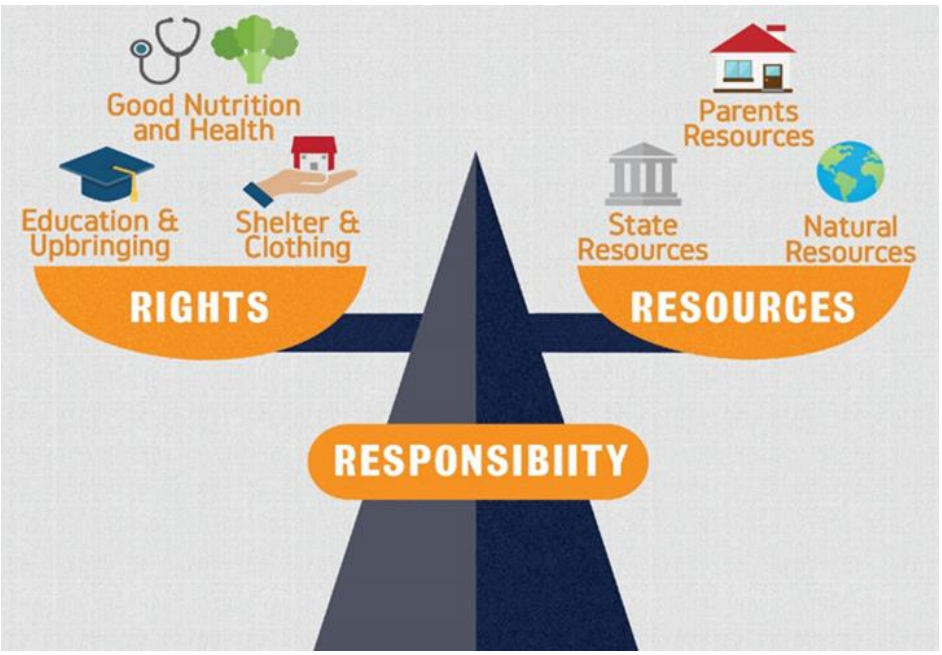
Family Planning could also improve access to food by lowering the dependency ratio. Urbanization and population dynamics are intrinsically linked, particularly internal and external migration, with poverty as a root cause. Access to modern contraceptives can propel the economy, help protect the environment, and contribute to overall poverty reduction.[93] Pakistan needs to take urgent action to mitigate the negative impacts of climate change by adapting an integrated approach that jointly considers climate change, environment and population growth. Consequently, family planning can indirectly benefit the collective wellbeing of the people, by reducing fertility and population growth rate.

Changes in the age-sex structure of the population have implications for health, education, and employment indicators, in particular Pakistan's chances of harnessing the demographic dividend to accelerate economic growth.[94] Demographic

[91] It is worth noting that of the total expenditure on health, more than 70 percent goes to expenditure heads like salaries. Intuitively, then, we can assume that the expenditure which can really make an impact is lower than officially reported.
[92] Copenhagen Post-2015 Consensus Center; https://www.copenhagenconsensus.com/post-2015-consensus/populationanddemography
[93] Family planning as a critical component of sustainable global development
[94] Based on Nayab (2006), the demographic dividend may be defined as the potential economic benefits offered by changes in the age structure of the population during the demographic transition, when there is an increase in the working-age population and an associated decline in the dependent age population. As a net effect, the rate of growth of the labour force exceeds that of the total population.

dividend can only be realized once fertility rates decline and the proportion of the working age population grows.

There is an urgency to actively explore workable solutions that the Government of Pakistan can adopt. The authors' contributions present considerable evidence to suggest that investing in family planning can be the most cost-effective way to not only overcoming a large number of the country's social and economic problems, but also to achieving the SDGs.



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