Nexus between Demographic Dividend, Human Capital and Socio-economic Development: Mediating role of Labor Force Participation

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Abstract

Study in hand is planned to dig out the important segment of society i.e. Demographic Dividend that is an accelerating force for socio-economic development. Demographic Dividend is a situation in which working age population increased and dependency ratio is decreased. This working force is a human capital for any state, its meticulous utilization through labor force participation brings development in state. The demographic dividend is a phase of high socio-economic acceleration that associated with the low fertility and mortality rate and the specially working age group of population is prominent. Developed and industrial countries utilize this demographic transition and used the productive age group for the development of the countries in the form of labor force participation, social capital and human capital development. But the developing countries face the issues that are associated with the demographic dividend such countries do not use their youth potential for the socio-economic development, and facing the problems of population burden. The major concern of the study is to explore the reasons behind the demographic transition and utilization of existing working age population for the sake of development in social and economic sphere by developing human Capital and labor force participation. Study in hand was conducted in three districts Rawalpindi, Faisalabad and Multan from geographically dividend zones of Punjab, Pakistan. 520 respondents sample was selected with the help of Taro Yamani formula. Mediation analysis performed for explaining the relationship among different variables that shows a significant association. Inferences depicts that Pakistan currently had a window for opportunity in the form of demographic dividend. Dividend can only be achieved through utilization the potential of youth by forming human capital in the form of skill development and inclusion of youth into labor market.

Keywords: *Demographic Dividend, Human Capital Formation, Labor force participation, Socio-economic Development, Mediation. JEL Code: F63, J21, J24*

1   Introduction

Demographic Dividend happens once a decline in the rate of birth brings alteration in the distribution of age that needs investment on their children for getting better future and family welfare. The decline in the birth rate increases the ratio of youth and decrease the dependent population. The greater ratio of young people in the country enhance the productive labor that produces for faster pace of development in labor market as well as economy and decrease the pressure on the household. The demographic trend of increasingly large youth populations at intervals the South Asia, geographical area,

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geographic region, and continent is also a cause for concern among academics, policymakers, and governments (Zogby, 2011).

The process of change in population patterns greatly influences the state's economy. Demographic change is not very simple phenomenon that only effects the socio-economic growth of a country, there is a holistic approach is necessary to cheek the overall impact of the dividend on state. There is a directly proportion relationship among population and socio-economic growth of a country, in future economic development will dependent on the change in population structure. Countries pay proper attention towards the population transition and invest greater on the human capital development have more chances to reap its dividend as compared to that countries which not focusing on their population changing and missed their dividend and faces challenges towards its state's socio-economic growth (Imai, et. al., 2008). Empirical evidences found from the study, those countries where economic development is not properly steam lined with their needs and population face low level performance in economic sector had more probability towards Civil war and conflict that create an atmosphere of tension and unrest (Moser and McIlwaine, 2006; Urdal, 2012).

From the most recent couple of months, in Pakistan designers, researchers and policy makers focus on the profit that are existed in the focal point of the Pakistan's demographic pyramid. This enormous youth extent pulled in the consideration of the entire society and portrays the defender of high pace of birth and low pace of mortality or passing. In 1947 the people of Pakistan was 32.5 million. The population development pace of Pakistan is 2.2 evaluated by UN in 2008 and this rate will be multiplied in 2050. That has youth extent would be around 117 million. The disappointment of hostile to natalist strategies to control on population development making the young lump is an unending actuality in Pakistan. High fertility rate in Pakistan is in charge of this adolescent lump. The birth rate in Pakistan is still high, in this way the center piece of the population pyramid will demonstrate the increase in the youthful population until the expansion in population is checked. The present literature on nexus between youthful population and conflict doesn't concur that youngsters are rough by heredity, the young contribution in struggle frequently because of the constrained access to the assets. The increase in the worker or youth in the population pyramid is technically called youth bulge that placed at the middle of the pyramid that demonstrates the allotment of a blend of various age bunches in a population. The enormous youth part in it demonstrates a sweeping stage that has huge number of kids, high population development rate and fewer pieces of the dependents (Fuller, 2005). Following figure 1.1 clarifies the age structure of Pakistan.
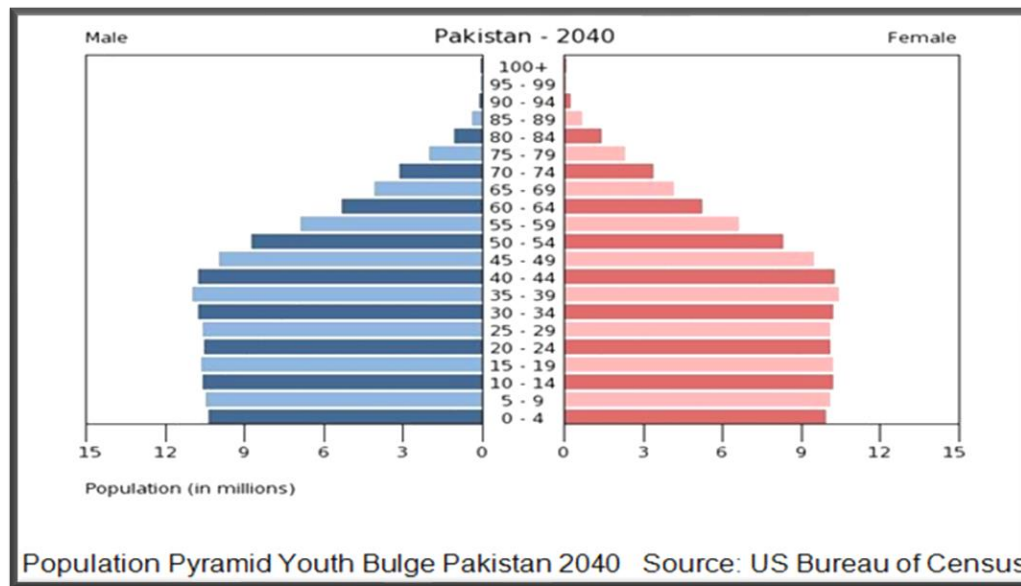
Figure 1.1 Population Pyramid in Pakistan 2040

1.1 Labor Supply

Demographic progress goes through the increase in the labor supply in two different manners. First the proportion of the young worker is increased, and secondly females are enter in the labor market more as the rate of fertility is decline. But it relies upon the capacity of the market and laborers to utilize this situation. The male bend demonstrates a high run of LFPR cresting between 25–50 years old which means males age twenty five to fifty more likely participate in the labor market. The female cooperation stays low all through their life expectancy, demonstrating no specific example. This pattern of low female work investment has continued after some time. As should be obvious that female LFPR shows a slight expanding pattern in recent years however has kept on staying low in the course of the most recent decade. Advantages of Demographic transition/dividend profit can't be harvested with a large portion of the population not completely dynamic in the work showcase as is predominant in the Pakistan. Only 1/5 women in the working age presented themselves dynamic and energetic in the labor market and rest of the other cannot take part in the income generating activities of the labor market that responsible for the missing of demographic dividend. This asset of young males and females should be utilized by making proper policies that matched with the changing demography of Pakistan and open the door of opportunities for them and captured the situation of opportunity.

1.2 Human Capital

Human capital is includes in those indicators of economic enhancement that increase the per capita income of the state. The effectual stock of human capital is a requirement for the human as well as economic development (Ali, et. al., 2018).

It is prefaced that Demographic dividend has critical impact on interest in human capital. Expanding future causes guardians to put more in their kids' human capital as the premium of advanced education increments and keeps going longer. As a result, the work power turns out to be progressively profitable, gets higher wages and there is improvement in the way of life (Bloom, et., al., 2001). With contracting of youthful population weight on the training framework is decreased, which can assist nations with investing more in improving the nature of instruction and in more significant levels, as opposed to in making interest in essential instruction. It can't be accentuated enough that it isn't the amount however the nature of training that is increasingly significant for human capital development and financial development (Dupreiz, 2003).

Pakistan is standing on the position where it get benefits from the existing youth that is the need for progress. Nations in East Asia Exploited Demographic profit since they made convenient interests in essential and after that auxiliary training. The aftereffect of this interest in these nations in training reflected in increasingly gainful work which had the option to take advantage of the Lucky break offered by Demographic dividend (Phang. 2005; Bricklayer, 2005). Just by having a school going population in the "right" extents doesn't make the Demographic dividend benefits programmed. Without any arranging it can just bring about huge fragments of population which are uneducated, incompetent and badly prepared to adjust to the changing scene conditions, at both miniaturized scale and large scale level.

Improved human capital is an essential for capitalizing on the Demographic dividend as the wellsprings of higher profitability are highly dependent on science-based learning and data applied to creation. There is an expanding shift from conventional rural and made Merchandise to increasingly modern administrations and farming and industrial made items. Changes are rising in the mainland monetary exercises are sorted out as a move is occurring from a mass, standard production to flexible customized creation. This gives a critical edge to the nations that have a work power having aptitudes and information to adjust to the changing economic situations. A Nation like Pakistan that is yet to unravel its essential Tutoring (primary teaching) issues can, best case scenario have a few patches of achievement yet not hope to Exploit what "Demographic profit" brings to the table (Lutz, 2013).

1.3 Objective:

• To explore the relationship between demographic dividend and its effects on socio-economic development by forming human capital and labor supply.

2   Theoretical Framework

2.1   Theory of Demographic Transition by Warren Thompson-1929

"Societies are experiencing modernization and advancement from a high-level, high-mortality, modern system to a low-gen style. Transition is also a global development, and every country is a veteran as it begins its development. The change in the demography happened in the world in different time periods because all of the states in the globe not standing on the equal level of progress (Kirk, 1996; Lee, 2003).

2.2   Human Capital Theory

Human capital theory claims that information, skills, knowledge and socio-personal characteristics of man are economically very valuable. In human capital theory, people are considered as economic entities that act as their economy performs. Role and importance of human capital is a broader concern of debate among policy makers, economist and analysis of productivity as well as education (Ali, et., al., 2018).

Theory of Modern human capital claims that behavior of people is associated with their self-interest who are working the freely in the labor market where they face lot of competition. Becker & Bowles was not agreeing with this main assumption. They says that all type of the behavior of people are not always concerned with the economic interest of individual who are in the labor market where they competition. To some extent Becker agreeing with the modern theory of human capital that people has need and interest in the markets during their operations or functioning. But he also reported that the discrimination in the labor market is an important barrier that affects the work ability or functioning of the individual in market. Becker found that the discriminatory attitude towards the individuals working in the market badly effects their wages (income reduction) and productivity. Moreover, he is concerned with the idea when people face discrimination in market than how can they freely function in the market? (Becker, 2007).

2.3 Theoretical Mediation Model
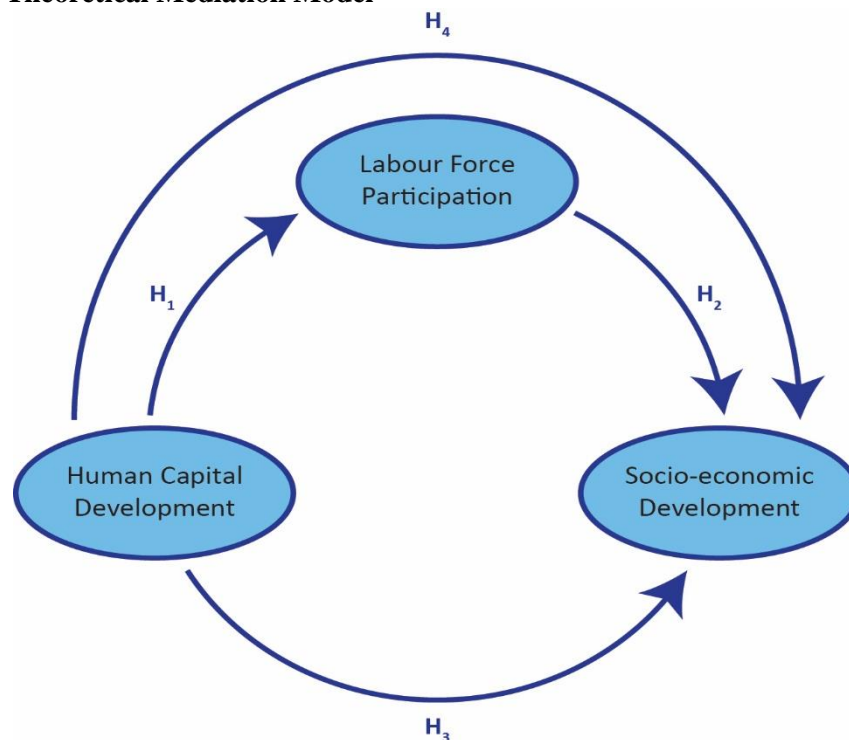
3 Materials and Methods

The method is also an organization of particular rules and techniques which depend on the fact that the analysis depends on what information requirements are evaluated (Nachmias and Nachmias, 1992). The validity, responsibility and accuracy of analytical analysis depend on the scientific method. Study in hand was conducted in Punjab Pakistan. Three districts choose from the north, central and south zones of Pakistan i.e. Rawalpindi, Faisalabad and Multan through multistage sampling technique. Sample of 520 respondents was selected through Taro Yamani formula. Moreover, well planned interview schedule prepared for the purpose of date collection. Inferential statistics applied to check the mediation effects between the variables.

4 Discussions & Results

The explanation of the results obtained from the field data is an integral part of the study. Without these steps and a summary of prophecy, which is the purpose of scientific research, it cannot be achieved.

4.1 Regression Analysis

Regression analysis is work to check out the impact of one variable (independent) on the next variable (dependent). In the first part of regression analysis, direct paths are done. In the second part, indirect paths (mediation) of variables are analyzed.

Regression Analysis for Direct Paths
H₁: There is relationship between Human Capital Formation and labor force participation

Table 4.1: Summary

Model	R	R^2	Adjusted R^2	Std. Error of the estimate	Change Statistics		
					F-Change	df1 df2	Significance
1	.868	.754	.753	.58	52.45	1 298	.000

Predictors: (Constant), HCF

Simple Regression used applied to check the impact of human capital formation on labor force participation, regression analysis is employed. Results showed in table 4.1 illustrates that human capital formation had has significant impact on labor force participation as F= 52.45, p<0.00. The R2= 0.75 which shows that 75% change in labor force participation is due to human capital formation because skilled labor has greater chance to indulge in the labor market.

Table 4.2: Coefficients

Model	Unstandardized-Coefficient		Standardized-Coefficient	T	Sig.
	B	Std.-Error	Beta		
(Constant)	3.41	.19		17.97	.000
HCF	.39	.05	.86	42.763	.000

Dependent variable: LFP

Table 4.2 depicts the prediction about labor force participation due to one unit change in the human capital. The coefficient of human capital formation is β= 0.86, p<0.00, which shows that one unit change in human capital formation on average 86% change in labor force participation rate. Human capital formation has significant and positive association with labor force participation. This result coincide with Bloom and Canning (2017) who concluded that demographic bonus countries formed on the time period of forty to fifty years, this bonus enhance the human capital by reducing the dependent population and increase labor for the labor market. The young labor force enhances the per capita income of the state. Results again matched with Human capital Theory. Human capital with innate or acquired skills has more chance to get jobs in the labor

market that enhance the household income and ultimately effects the social and economic development as well (Becker, 2006).

H2: There is association between labor force participation and socio-economic development.

Table 4.3: Summary

Model	R	R^2square	Adjusted-R^2	Std. Error	Change-Statistics		
					F-Change	df1 df2	Sig. F change
1	.858	.736	.736	.763	57.92	1 298	.001

Predictors: (Constant), LFP

Table 4.3 explains the direct impact of mediator on the dependent variable. To find the impact of labor force participation on socio-economic development, regression analysis is employed. Results depicts that that labor force participation has significant impact on socio-economic development as F= 57.92, p<0.001. The R2= 0.736 which shows that 73% change in socio-economic development is due to labor force participation.

Table 4.4: Coefficients

Model	Unstandardized-Coefficient		Standardized-Coefficient	T	Sig.
	B	Std. Error	Beta		
(Constant)	3.52	.23		15.46	.000
LFP	.17	.03	.858	40.832	.001

Dependent variable: SED

The coefficient of labor force participation is β= 0.85, p<0.00, which depicts that one unit change in labor force participation brings on average 85% change in socio-economic development. LFP has significant and positive relationship with Socio-economic development. UNFPA (2016) discussed it in this way that Demographic Dividend (DD) is an momentary force for the growth in economy through decline in birth and death and increase the working age labor as compared to dependent population. The era of this dividend of demography only be sustained and brings socio-economic development if the working population is proper trained and educate, having god health and engaged in economic activity. Moreover, economic development achieved through equal participation of females in the labor market.

It also cited with the gender and development approach of feminist perspectives that the real development only be achieve through the equal access for female labor in the market where they can participate and enjoy empowerment through economic independence and also contribute for the economy (Templen, 2009; Lutz, et. al., 2013).

H3: There is Association between Human Capital Formation and socio-economic development.

Table 4.5: Summary

Model	R	R^2	Adjusted R^2	Std. Error of the estimate	Change-Statistics		
					F-Change	df1 df2	Significance
1	.843	.711	.711	.798	52.45	1 298	.000

Predictors: (Constant), HCF

To probe the effect of labor force participation on socio-economic development simple linear regression is employed. Results showed that human capital formation has significant impact on socio-economic as F= 52.45, p<0.00. The R2= 0.71 which shows that 71% change in socio-economic development is due to human capital formation rest of the change is due to other factors.

Table 4.6: Coefficients

Model	Unstandardized-Coefficient		Standardized-Coefficient	T	Sig.
	B	Std.-Error	Beta		
(Constant)	2.99	.28		10.73	.000
HCF	.30	.07	.843	38.390	.000

Dependent variable: SED

The coefficient of human capital formation is β= 0.843, p<0.00, which shows that one unit change in human capital formation on average 84% change in socio-economic development. Human capital formation has significant and positive relationship with socio-economic development. Results coincide with Adeyemi and Ogunsola (2016) who reported nexus between human capital and economic progress in Nigeria. The findings depict a strong direct association among life expectancy, educational enrollment, per capita income and socio-economic development. The recommend that better policies and commitment of government is need towards education, because education furnish the skills of population and develop them that leads towards socio-economic development. Similarly it linked with Abbas (2011) who examined the association between human capital and development between Pakistan and Sri Lanka. His inference depicts the essential role of human capital towards the socio-economic well-being in these two states/countries.

4.2 Summary of Direct Path

Overall summary of all the hypotheses is given in Table 4.7. Results show that all the hypotheses are signification and accepted which reveal that all associations are positive and significant. All direct paths hypotheses have positive impact on dependent variables. Human capital formation and labor force participation have positive impact

on socio-economic development. In the same way LFP has positive significant effect on development of social and economic sphere.

Table 4.7: Direct Paths Summary

Hypo No	Hypothesis Statement	B	Result
H_1	Association between human capital formation and labor force participation	.86	Accepted
H_2	Association between labor force participation and socio-economic development	.85	Accepted
H_3	Association between human capital formation and socio-economic development	.84	Accepted

4.3 Regression Analysis of Indirect Paths

H4: Labor force participation mediates the relationship between human capital formation and socio-economic development Barren and Kenny, (1986) suggested four conditions to find out the mediation between all variables. To check mediation first, regression was found among human capital formation and labor force participation which demonstrated significant results (p<0.00) with positive relationship as β= 0.86. Secondly, regression was found among labor force participation and socio-economic development which demonstrated significant results (p<0.00) with positive relationship as β=.85. At third step, regression was found among Human Capital formation and socio-economic development which demonstrated significant results (p<0.00) with positive relationship as β=.84. For fourth step, regression was found among human capital formation and socio-economic development with labor force participation as mediator.

### Table 4.8: Regression Analysis H4 (Mediation)

Conditions	R^2	B	B, (S.E)	F-Change	df1,df2	Sig	$B_{ind}=B_a*B_b$
1. HCF→ LFP	.75	.86	.39, (.05)	20.03	1, 298	.000	
2. LFP → SED	.73	.85	.17, (.03)	53.92	1, 298	.000	.06
3. HCF→ SED	.71	.84	.30, (.07)	16.17	1, 298	.000	
4. HCF LFP SED		.66				.000	

Ba= unstandardized coefficient of HCF Bb= unstandardized coefficient of LFP

After performing the simple linear regression the next step is to check the mediation. The hypothesis four explains the association between human capital formation and

socio-economic development as the mediating role of the labor force participation. On the bases of mediation the final results demonstrated still significant results (p<0.000) therefore full mediation does not exist but β (i.e. standardized beta) decrease from 0.84 to 0.66 that refers to partial mediation.

Sobel's test was worked to find the all hypothesis significance and effect of it variable effect. Results show the significance of all hypothesis and human capital formation and labor force participation have significant effect on socio-economic development (B_{ind}=0.06, p<0.00).
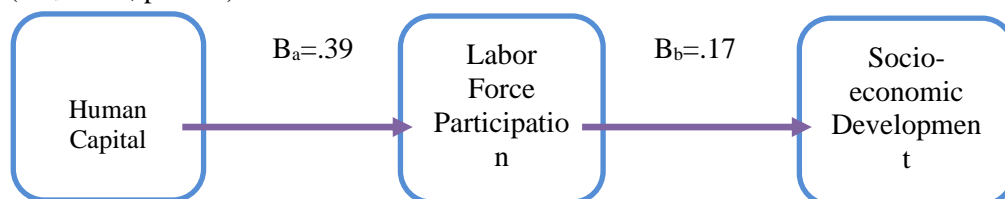
Sobel's test: 0.06, z= 3.65, p<0.00

Demographic Dividend is the whole form of economic advantages that comes from the change in the structure of population. It is the proportion of young population that provides a great extent of human capital to the state. State needs to shape its human capital for easy entry into the labor market for both males and females. Proper training and skills give them easy access to labor market. If the labor market easily absorb the potential of youth than the socio-economic development is inevitable. All factors such as working age population, meticulous utilization of population in the form of labor force ultimately effects the socio-economic development of the state in a positive manner (Tesu, 2017). This again matched with the human capital, resource and population management and gender and development theory that are focusing on the skill development and adjustment of population into labor market for enhancement of per capita income and invite development. It also matched with the Fertig et al (2009) concluded that the change in population structure effects the accumulation of human capital in Germany from the panel data of 1966 to 86. Researcher depicts that change in demographic had a strong impact on the human capital formation among the young people of German. The change occurring in the labor market of Germany during the era of 80s and 90s had a great effect on the highest schooling and professional level degrees because it is the need of market. The youth having the skill easily enter in the labor market that positively effects the socio-economic development of Germany.

5 CONCLUSION

On the bases of mediation it was concluded that there is a strong relationship between human capital formation, labor force participation and socio-economic development. Findings reveals that Pakistan can harness its existing demographic dividend by meticulous utilization of its young human capital, provision of skills to the youth open new horizon in the labor market where they can get equal and better opportunity that enhance household and per capita income of the people that ultimately leads towards

the socio-economic development in the state. We convert this youth potential through better and timely policy making and establishing new business sphere by enhancing national and international investment.

Author Contributions: Muhammad Idrees is handling the entire paper writing and formatting and fieldwork and writing the introduction, Prof Dr. Zahira Batool supervised the whole team and develop the methodology, Dr. Muhammad Shabbir is the part of data collection team and interviewed the respondents and refine the collected information. Dr. Sadaf Mahmood contributes to the tool development and analysis.

Data Availability Statement: Data is Primary in Nature, Directly Collected from Field and available in original form with the research team, and will be provided on request.

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