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Human Capital Development and Inclusive Growth: Exploring the Role of Income through Heterogeneous Income Groups

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Abstract: This study examines two things. First, the confirmation of achieving inclusive growth through human capital development i.e. government expenditures on education and health. Second, the existence of a threshold effect between government expenditures on human capital development and income level, for growth inclusiveness. This study uses secondary panel data of 125 countries for the period of 20 years from 2000-2019 obtained from World Development Indicators (WDI) of the World Bank. The countries are grouped into four categories based on World Bank classification of countries according to their income levels, namely, low-income, lower-middle income, upper-middle-income, and high-income. The outcomes of this study reveal that human capital development has increasing effects on inclusive growth across all income levels. Therefore, there is a need to enhance human capital development to achieve the target of inclusive growth regardless of the income level of the economy. The empirical results show the existence of a statistically significant threshold effect between government expenditure on human capital development and income level for growth inclusiveness. Low-income and lower-middle-income countries need to raise the national income level to ensure achieving the growth through government's investment on human capital development.

Keywords: Inclusive Growth, Human Capital Development

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1. Introduction

This chapter introduces the topic of this study starting with a brief description of background of this research, rationale and a discussion of research gap. It also delineates objectives of the research and describes research questions.

1.2 Background of the Study

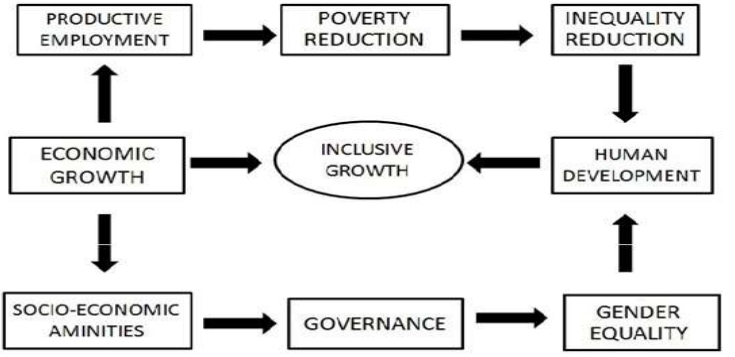
Economic progress of any country is typically measured through conventional parameters such as Gross Domestic products hereinafter referred to as GDP. On one hand, it does give an indication of how an economy is performing overall, but on the other hand it fails to provide an insight on how the specific segments of the economy are doing in terms of their contribution to the GDP (Ehigiamusoe & Lean, 2019). This leaves room not only for identifying the most significant contributing sectors but also the ones which should have been significant contributors in the overall economic growth. Building on this, the aspect of Inclusive Growth (ING, hereafter) needs to be focused on to identify its role in defining the economic progression (Horizons, 2020).

The ability of an economy to produce an increased amount of goods and services over a period of time is economic growth. Gross Domestic Product (GDP) growth indicates growth in economy and primarily used as an indicative measure of economic growth. A 3% increase in GDP growth would be interpreted as 3% more goods were produced by economy during the year and hence 3% is the rate of economic growth. However, contrary to economic growth, Inclusive Growth is the notion of providing equitable distribution of resources and opportunities over the course of economic growth to economic participants so that all sections of society can reap the fruits of this economic growth (Rafael and Almeida, 2013). This definition implies that there exists direct linkages between economic growth and the various dimensions of economic determinants, including

micro and macroeconomic determinants (Anand, Rahul; et al., 2013). As there are two dimensions of economic growth i.e. microeconomic dimension and macroeconomic dimension. As microeconomic dimension emphasizes structural reforms to promote competition and bring about and diversification in economy. On the other hand macroeconomic dimension focuses on economic aggregates such as changes in Gross National Product (GNP) of the country, Variations in Total Factor Productivity, Changes in Gross Domestic Product (GDP) and fluctuations in Aggregate Factor Inputs (Ianchovichina & Lundstrom, 2009).

For economic growth to be sustainable, inclusiveness is a prerequisite. Sometimes it is very difficult to maintain economic growth, partly because there are many negative externalities involved which increase with increased economic growth e.g., increased corruption as is usually the case in developing countries where corruption is a significant problem. However, for successful growth inclusiveness is essential because the main ingredients of growth include an unrestricted access to markets, equitable distribution of resources and an unbiased and robust regulatory environment (Grömling & Klös, 2019). The focus of inclusive growth is to support the poor in raising its status and standard of living, thereby including those who were previously excluded, into growth trajectory through increase in income and productive employment. Hence, the perspective of inclusiveness is long-term (Ianchovichina & Lundstrom, 2009).

The following figure provides an overall idea about main determinants of inclusive economic growth in an economy;



Source: Adapted from Paramasivan et al. (2014)

Figure 1.1: Theoretical model of the drivers of the inclusive growth

Over the past years, many organizations and government institutions have been working on inclusive growth in different countries. Importance of IG has been well manifested on regional as well as national and global level through a multitude of precedents (Heshmati et al., 2019). For example hosting of The World Economic Forum in Nigeria, was tagged creating jobs, promoting Inclusive Growth in its wake. The United Kingdom's Department for International Development (hereinafter referred to as DFID) of UK noted this in February 2014. As part of work goals and strategies, include inclusive growth. In addition, in May of 2014, The European Commission stressed the importance of private sector-led initiatives (Lee, 2019).

Furthermore, in some regions, rapid economic expansion is accompanied by unemployment, which is referred to as "futureless" or "jobless" growth. Such robust evidence suggested by studies has change the development motto of countries to Inclusive Growth and not just economic growth (Tilak, 2007). However, despite drawing the attention of notable researchers and politicians, this concept has not garnered an agreement on its aspects. Inclusive growth ensures poverty eradication, reduction in

income disparity and increase in per capita growth (Rauniyar & Kanbur, 2009).

Although Inclusive Growth has no universally accepted definition, which is general condition regarding dearth of agreement on a common definition of a term across all areas of economics, yet there is near unanimity on what inclusive growth means in general. As the term "inclusive" denotes "all," "complete," "whole," therefore we may define inclusive growth as the goal of ensuring that every economic agent i.e. every social, economic and income group is contributing its fair share to the economic growth process of the economy (Chand et al., 2019). On the basis of aforementioned concept, we may safely deduce that Inclusive Growth primarily addresses socio-economic/developmental issues including Unemployment, inequality and poverty (Klasen, 2017).

However, it is worth noting that merely solving these problems doesn't make economic growth inherently inclusive. As an example, in the instance when the wage rate exceeds GDP per capita (per capita income) and/or the instance when economic growth coupled with reduction in unemployment, poverty and a narrowing gap between rich and poor. It should be stressed, however, that inclusive progress is contingent on continuity and durability (Grömling & Klös, 2019). That is, the rate of growth must be consistent and reasonably stable.

In order to achieve inclusive growth, a strategy is required. Federal Government Budget of Nigeria for the year 2013 was themed "Fiscal Consolidation with Inclusive Growth," and this lead to importance of Inclusive growth being realized and adopted as a priority research topic by the International Monetary Fund (IMF) in November 2013 (De Haan, 2015).

Likewise other prominent institutions have actively engaged in research on the topic of inclusive growth, developed policy papers that highlighted

the importance of inclusive growth. These include United Nations Development Program (UNDP) and The Organization for Economic Cooperation & Development (OECD) (OECD, 2014). OECD, for example, recognized inequality, unemployment and poverty as three major problems that have not been addressed by the economic growth from the 1990s till the present date. In addition, the OECD highlights the significance of inclusive growth. Inclusionary growth is a goal among Sustainable Development Goals of the planned Open Working Group of OECD (Cournede et al., 2015)

The G20 has highlighted the lack of inclusive growth in the region, and has pushed for robust, well balanced and sustainable growth, with special emphasis on more inclusive growth trends that are expected to stimulate citizens' abilities. This was also emphasized by Anand et al. (2013), who noted that global events such as the Arab Spring, the widening gap between Main Street and Wall Street in developed economies, and the "three speeds" of the global economy have pushed inclusive growth to the fore and made it a central point of policy discussions (Chand et al., 2019).

Inclusive growth is broader in scope, as it simultaneously focuses not only on growth in economic output but also income distribution (Alexander, 2015). Investment that have long term benefits such as public investments and infrastructure development, financial sector development, industrial employment, health and education, literacy rate, school enrolment, institutional soundness, good governance and trade openness are all major determinants of inclusive growth (Ali & Zhuang, 2007).

Despite the diversity and variation in the way different organizations define inclusive growth its determinants are fairly consistent across most of these organizations. By using the OECD and UNDP concepts, HCD indicators, together with other socioeconomic variables can be considered robust and valid predictors of inclusive growth (Cournede et al., 2015). Various variables have been found to be helpful in achieving desired level

of inclusive growth and these include structural transformations, robust institutions, human capital investment, broad based growth, job creation and social protection all of which having been proven helpful to reach the desired levels of growth (Ali & Zhuang, 2007).

It is an unrealistic to surmise that if growth has been attained its effect will automatically transmitted down the line leading to reduction in inequality and poverty. Any discussion on inclusive growth is incomplete without mentioning structural reforms (Raheem et al., 2018). While structural change is a multifaceted phenomenon that is complex and interrelated to other economic factors as well, according to Matusyama (2008), this is mainly for two reasons i.e. firstly economic growth is affected by these changes and secondly as a complementary byproduct of these reforms, economy changes in its composition such as contribution of various sectors to employment and output, modifications in industry organization etc. The most notable example of structural transformation is the transition from a predominantly agricultural civilization majorly residing in rural areas to a highly industrialized society which is predominantly urban (Shafuda & De, 2020).

The knowledge and skills accumulated by the workers owing to their job experience are referred to as Human Capital. Economic value is derived from these skills due to increased productivity by the skilled workforce in an economy (Bareke et al., 2021). Human capital roots in the understanding that not all humans have same knowledge or skill set level and that by investing in developing the skill set of workforce, quality of work as well as productivity can be increased. There is a close link between economic growth and human capital development. This is because investment in the education, skill development and knowledge base of the people in an economy, it can flourish and enhance productivity (Oluwadamilola et al., 2018).

In this study, we argue that Human Capital Development (HCD) is a good parameter / indicator for ensuring and enhancing inclusive growth. It is difficult to entirely quantify HCD as it is a vast notion. We believe, however, that two of its main indicators are health and education. The inclusion of health and education among SDGs as well as the nine MDGs further strengthens this notion. Additionally, leading global organizations including the WHO, UNESCO, UNDP and OECD have regularly advocated for increased government spending on these sectors as well as improved service quality (Sarwar et al., 2021).

On account of the foregoing, this research aims to accomplish two broad goals. The first goal is to look at the possibility of raising government investment on health and education to promote inclusive growth. The second purpose is to see if there is a threshold effect between government health and education spending and the level of national income at which government spending on human capital development can assure inclusive growth (Shafuda & De, 2020).

The originality of this research stems from its goal. The majority of studies on inclusive growth that have been published are policy studies, which are less empirical than econometric studies or other scientific approaches because they are not motivated by econometric or other scientific methodologies (McKinley, 2010).

Owing to its importance, there have been an ever increasing discussion on inclusive growth at organizations, institutions and governments. This is primarily because an increase in GDP or the income of a country does not necessarily indicate growth but longer term and sustainable growth (Maku et al., 2019). The notion is further supported by the fact that most developing countries have high unemployment rates, vast income disparities, and rising poverty rates. Despite this, such countries continue to experience growth. As a result, the recorded growth does not indicate

the results of full population but only a subset of the population (Human Capital As Engine of Growth – the Role of Knowledge, 2020).

In view of equity and fairness, new arguments are centered on emphasizing that every economic agent contributes fairly to the economic growth of the country. Our examination is limited to two prominent proponents of inclusive growth i.e. the UNDP and the OECD in order to gain a thorough knowledge of the idea. Starting with the OECD, considerable emphasis was paid to the global economy's socioeconomic challenges (unemployment, inequality, and poverty) (Šimko & Ţuicu, 2015). Its definition of inclusive growth describes it as the growth that benefits and uplifts the most vulnerable segments of society and eliminates inequality and poverty. This dispute over poverty, inequality, and growth has raged for decades, and the aim of this study is not an attempt to resolve it. Rather, it aims to demonstrate the role that this argument can play in leading to inclusive growth (Oluwadamilola et al., 2018).

Inclusive growth takes center in this discussion because it aims to demonstrate to the governments that growth although necessary for long-term development, is not an essential condition because despite its importance it is merely a means or a process rather than being a destination in itself. Thus, governments should view growth as a means or tool for reaching larger goals. Hence, quality of growth is more important than quantity of growth (Vassilev, 2018). This argument also tries to dispel the myth of growth being solution to all the issues and problems of society. As a result, concerned stakeholders are being pushed to develop policies aimed at improving inequality and poverty-resistant growth (Gupta et al., 2021).

Efforts to explain the theoretical relationship between HCD metrics and inclusive growth is precluded by the existing literature. This suggests a great deal of ambiguity in the precise methods by which HCD's impacts

are conveyed to inclusive growth. However, we propose a credible mechanism for transmission of HCD's impact that is based on the government's budgetary policy. It is dependent on the success of both government taxation and government spending (Maku et al., 2019).

With further segmentation, the relationship between these indicators could be varying among the heterogeneous income groups. Such an analysis will help in devising relevant policies and taking the right measures to ensure a holistic economic progress (Gruzina et al., 2021).

The World Bank uses various characteristics as parameters for categorization of countries which includes geography, fragility, average level of income and lending eligibility. Income based categorization classifies economies of the world into four major income segments or groups i.e. high income group, upper middle, lower middle and low income groups (McKinley, 2010). Gross National Income (GNI) per capita is the parameter for this classification and it is measured by Atlas method. Low income and middle-income countries were first introduced in the first World Development report published in 1978 and $250 per capita was used as threshold to place/categorize countries in one group or the other. The middle-income group was further sub-divided into upper middle and lower middle income groups in the 1983 publication of World Development Report (Chand et al., 2019). High income country category was the last to be added to the spectrum of income group categorization of world economies and it was done in the WDR of 1989.

Income based categorization of countries by World Bank for the year 2020, places countries with income <$1,045 in low income group, while those with income >$1,045 and <$4,095 in lower-middle income group. Countries with per capita income >$4,095 and <$12,695 are placed in upper-middle income group while countries with per capita income > $12,969 are placed in High Income group by the world bank's World Development Report published in 2020 (Anand et al., 2021).

1.3 Research Gap

After synchronizing the literature, it is found that most of the studies on inclusive growth and human capital development have been conducted on individual countries, specific regions or small groups of countries thereby keeping the scope narrow. The scope of existing studies was limited to country-specific or maximum regional specific. Hence, there is a strong need to conduct a study from a global perspective.

Secondly, most of the panel data researchers have ignored or excluded the difference in income level of countries from their studies. So, there is a research gap to include income levels of the countries in a research to study this aspect as well. The importance of this argument stems from past studies as well as several researchers have pointed out that data panel which combines countries of different income levels in the same study panel could lead to estimation errors and incorrect results. This is also one of the reason this study undertakes to compare the results of a global panel including countries with various income classification through separate income groups.

Thirdly, and perhaps most crucially, previous research has not explored the notion that there is a threshold impact between national income levels at which increased government spending on the development of human capital (health and education, for example) would guarantee growth.

Hence, there is a gap to find out the aforementioned threshold effect (Raheem et al., 2018).

1.4 Objectives of the Study

The following three overarching goals are the focus of this study:

Firstly, empirically analyze, using a panel of 125 countries irrespective of their income, whether inclusive growth can be achieved merely through

an increase in government expenditures on human capital development (i.e. health and education).

Secondly, after dividing the countries into four heterogeneous income groups using the income classification of countries by World Bank, this study uses this classification to analyze whether these income groups have different empirical outcome. The income groups as defined earlier are low income, lower middle income, upper middle income and higher income groups defined by World Bank.

Lastly, the objective is to investigate the threshold effect between government expenditures on human capital development and income level in order to ensure achieving growth through defined heterogeneous income groups.

1.5 Research Questions

The study deals with following two research questions:

Does investment on human capital development enhances inclusive growth for heterogeneous income groups?

Does there exist any threshold effect between government expenditures on education and health and national income level for growth inclusiveness?

1.6 Research Hypothesis

Following are the research hypothesis:

H_0: Govt. expenditures on education and health don't enhance inclusive growth for heterogeneous income groups.

H_1: Govt. expenditures on education and health enhances inclusive growth for heterogeneous income groups.

H_0: There exists no threshold effect between government expenditures on education and health and national income level.

H_1: There exists a threshold effect between government expenditures on education and health and national income level.

1.7 Significance of the Study

The study brings global perspective to the study of human capital development and inclusive growth considering SDGs, investment on education and health are global subjects and it is the first study in this regard. Historically, all such studies primarily focused on specific countries or regions and utilized time series data sets to analyze the relationship between human capital development and inclusive growth. This limitation warrants a global study rather than a limited study focusing on few countries or a specific country only, in order to explore the concept from another dimension while conducting a robust empirical analysis. The study is aligned with advocacy of leading global organizations (WHO, UNESCO, UNDP and OECD) regarding increased government spending on education and health. Being global study, it will endorse the results/outcomes of individual/regional studies.

Furthermore, all the past studies on the subject have examined the relationship between human capital development and inclusive growth without incorporating the income level. Especially the studies which used panel data, have not considered heterogeneity of Income level among countries to play a role. To fulfill this gap, our research subdivides countries included in global data panel into four sub panels based on their income level and combining countries with similar income level into one panel. This yields two types of results, one of global panel and the other of sub-panels. The study then compares the results of different income groups with the global panel to analyze whether there is any difference. Further, this helps to address the disparity pointed out by various

researchers that pooling of heterogeneous income groups of countries can lead to estimation errors. Furthermore, it is also important because it will reflect how growth varies from low-income countries to high-income countries, based on government investment on human capital development.

Moreover, identification of threshold effect will be useful for effective allocation of resources on education and health across different income groups.

Furthermore, the research will facilitate the accomplishment of the third and fourth Sustainable Development Goals (SDGs), namely "quality education" and "good health and well-being," respectively. Human capital development through investment on education and health will lead to achieve these SDGs.

2. Literature Review

There is a plethora of research on inclusive growth and human capital development. In many countries, inclusive growth has been a major focus of development research and policymaking. However, there are multiple distinct definitions of inclusive growth in the literature, none of which converge on a common understanding of the notion, let alone a sensible way to operationalize it.

The idea of inclusive growth emerged as part of a larger shift in development theory away from the belief that equity must be sacrificed for growth or that growth must come from periods of deprivation. Instead, there was a widespread realization that not only is growth possible while preserving equity, but that growth and the reduction of poverty and inequality may even be mutually beneficial (Raheem et al., 2018).

This transition occurred from the growth of development thinking, which was largely based on the developmental experiences of nations outside the

select group of industrialized countries as the twentieth century progressed. The strategy involved a number of distinct but interrelated advancements among poverty, growth and inequality are there in our understanding of the relationship (Warner, 2011).

The development literature, which turned into closely inspired through the trajectory of early developers (Grömling & Klös, 2019), tended to assume that after improvement turned into started, it might run on its own, incrementally following the equal steps toward excessive degrees of common wealth and industrialization.

List (1841) stated that temperate countries developed in four distinct ways: through agriculture, pastoral life, agriculture combined with manufacturing, and agriculture, manufacturing, and commerce (Vassilev, 2018). In Rostow's degrees of Growth model, traditional society, take-off conditions, maturity pressure, and age of excessive mass intake were all equivalent steps (1956; 1959).

Such framings of development implicitly assumed that average incomes would rise and overall living standards would improve along the naturally occurring sequence of stages and country developed (Anand et al., 2013).

The incorporation raised concerns that, as Kanbur (2000) notes, require active intervention to manage distributional issues across growth processes. These concerns were evident in wider theoretical and policy debates like the World Bank's Redistribution with Growth report (Chand et al., 2019) as well as official government policies like India's Third Five-Year Plan. Although the basic policies required for growth and the eradication of poverty are widely accepted, little is known about how they work. The reason behind is that reduction in poverty does not have to come at the cost of growth that results in long-term improvement in both a condition for poverty and the basis for poverty-reducing growth to promote inclusive growth (Ali & Zhuang, 2007). Rapid growth is

undoubtedly important for significant poverty reduction but it must be broad-based across sectors and equitable to be long-term sustainable. This is especially important given that some key determinants of growth (e.g., education, openness, and financial depth) have been linked to higher, raising the question of what proximate factors support inclusive growth (Raheem et al., 2018).

Klasen (2010) has stated, “Inclusive growth has become a strategic pillar to guide the ADB's operations in its operational strategy.”(Klasen, 2017). There is, however, not a particular definition or metric for tracking inclusive growth progress at the country, program or at a project level" (Horizons, 2020).

Only recently has there been a concerted attempt to build analytical frameworks for monitoring success in inclusive growth (Klasen, 2017). But the battle is far from ended.

The distribution of income gains is referred to as inclusive growth in the literature, whereas inclusive development is compared in some cases (De Haan, 2015).

This view doesn’t contradict the notion in a way that inclusivity implies not excluding any group although accommodates the notion of benefiting the most disadvantaged groups. When considering the reduction of disadvantages, inclusive growth could be referred to as "disadvantage-reducing" growth (Klasen, 2017).

Around the turn of the century, the term "inclusive" was initially applied to describe growth episodes, emphasizing the characteristics of what was perceived to be pro-poor growth (Anand et al., 2021). Furthermore, according to Ranieri and Ramos (2013), pro-poor growth is "one that allows the poor to actively participate in and significantly benefit from economic activity." The features that set apart pro-poor growth were

emphasized by using the term "inclusive economic growth." But as previously said, the majority of the research on pro-poorness has focused on economic outcomes, with non-income consequences only recently being added (OECD, 2014). Consequently, pro-poor growth—which is a subset of the larger concept of inclusive growth—and the concepts of inclusivity and taking part in and profiting from growth processes have come to be seen as related to but distinct from one another (McKinley, 2010).

Attempts to relate growth and inclusivity also have important pragmatic motivations. The popularity of Inclusive Growth in less developed countries stemmed partially from the fact that smaller states made redistribution more difficult. Similarly, in the Global North, redistribution is rarely at the top of people's minds (Raheem et al., 2018). In the United Kingdom, for example, 30% of the public agreed in 2014 that the government should spend more on welfare assistance for the poor, while 39% opposed. Taxation and redistribution are two electoral issues that Inclusive Growth helps to avoid (Horizons, 2020). It's certainly no surprise that Inclusive Growth has gained traction in the developed world at a time when most governments are facing austerity and unwilling to invest in redistribution.

According to Klasen (2017), the inclusive growth strategy has the power to reduce poverty and inequality on all fronts. Because inclusive growth creates connections between many policy sectors, it can aid in mobilizing more resources to fight poverty and inequality. Few politicians could successfully run on an anti-growth platform since growth is the dominant narrative, public institutions are built around it, and growth is the mainstream (Gruzina et al., 2021). Combining the growth agenda with an inclusive one can help businesses with a long history of growth focus address a new goal and attract new resources (Str et al., 2007).

Consequently, the agenda for inclusive growth helps to raise more funds in order to tackle the problem of poverty and inequality reduction. It tackles an issue with diminishing public support (inclusion) by applying a policy goal with broad support and substantial resources (growth) (Lee, 2019).

There is also a second set of arguments for why inclusive growth initiatives ought to be concentrated in cities. Part of a "global trend to devolution" has seen subnational administrations around the world receive more authority and responsibility (Gruzina et al., 2021). Cities have seen the greatest impact from this trend, as seen by the numerous best-selling books that highlight the importance of cities to the economy (Ramos et al., 2013).

Cities, paradoxically, have become particularly important economic actors as a result of structural change and globalization. Transition- Cities at that time were in a position to focus on the distribution of benefits and had improved somewhat post-industrial (Anand et al., 2013).

Cities-focused approaches reflect the fact that this is where inequality is most visible (Kazmi et al., 2017). For some time, academics have raised worry about rising inequality, while high-profile urban politicians, most notably Bill De Blasio, Mayor of New York, have successfully run for election on anti-inequality platforms. A third element is the growing unhappiness of some urban electorates with national policymakers' anti-poverty policies (Shafuda & De, 2020).

Research to date has concentrated on establishing whether growth benefits the poor. If the growth curve is perfectly flat, all percentiles develop at the same rate, leaving inequality intact, the growth process is called neutral distribution (Grömling & Klös, 2019). The reform is pro-poor if it considerably lowers poverty through redistribution. Pro poor growth is therefore equal to the distributional rectification times the usual growth

rate. It is necessary to identify the criteria and indicators for an inclusive growth framework in order to monitor national progress on inclusive growth (McKinley, 2010).

The literature mentioned above emphasizes how important it is to assess inclusive growth and its sources. In fact, the lack of a single volume defining inclusive growth in the Proceedings of the 2011 OECD/World Bank Conference, where academics and stakeholders from around the globe discussed the challenges of implementing and sustaining inclusive growth policy, indicates how we still struggle to come up with a succinct and universally understood definition of inclusive growth (OECD, 2014). Throughout the conference, learning was applied in at least six different contexts: decreasing income inequality, eliminating absolute poverty, internalizing external growth factors, closing the income gap between the north and south, and decreasing opportunity inequality, which includes giving emerging market economies more room in international governance and providing access to resources like finance, education, and the legal system (Vassilev, 2018).

After providing an introduction of the idea of inclusive growth as well as its drivers, the measurement-related challenges should be investigated. Measuring inclusive growth faces a similar fate as there is no consensus on a meaningful definition (Vassilev, 2018). The concept of social opportunity Function was dependent on two factors: the population's average opportunity availability and the distribution of opportunities within the population. The poor are given more weight in this role (Son, 2010). As a result, opportunities produced for the impoverished are more essential than possibilities created for the wealthy. Increased access to these possibilities would result in more inclusive growth (Šimko & Ţuicu, 2015).

Using the macro social mobility function, the micro research on income distribution presented by Ali and Son (2007) serves as the foundation for

a measurement of inclusive growth. Their measure offers a framework for analyzing equity and efficiency simultaneously (Neagu & Teodoru, 2018). The indicator is also employed in low- and emerging-earnings nations to study the dynamics and determinants of inclusive boom (Raheem et al., 2018).

According to the model, inclusive growth is correlated with both income growth and distribution. Using consumer's theory, the income and substitution effect was divided into growth and distributional components (Raheem et al., 2018).

To capture these features, it should satisfy two properties, one for capturing growth dimension it should be increasing and argument and secondly it should satisfy the transfer property - any transfer that comes through a poor one to a richer one, reduces the function's value (Ehigiamusoe & Lean, 2019).

Within the nonappearance of a clear definition of comprehensive development, endeavors to measure it have depended on the arbitrary utilize of case definitions. Be that as it may, small exertion has been made to operationalize the definitions of comprehensive development and in this way assess comprehensive development. The tremendous larger part of works that conceptualize comprehensive development don't go past a conceptual work out (Horizons, 2020).

There are studies that examine the performance of a country in supporting poor growth and its causes and indeed, any assessment of poverty trends can be analyzed in terms of supporting poverty Growth was considered a "weak absolute". (Raheem et al., 2018). Outlook As far as growth is concerned almost in sufficiently long periods - analysis of the pervasiveness of growth is still rare. The few existing assessments reflect conceptual discussion, while highlighting practical challenges by

implementing inclusive growth metrics, particularly in terms of data availability (McKinley, 2010).

Anand et al. (2013) reported that Iankovichina and Lundstrom (2009) presented an analytical framework for the analysis of inclusive growth with respect to the pace and pattern of growth. This method, which considers a number of variables, emphasizes the employability of the poor, the cost of capital, geography, and infrastructure, as well as obstacles to inclusive growth, rather than assessing a nation's level of inclusivity (Ranieri & Ramos, 2013). They therefore don't offer an indication of inclusion. Rather, their technique is especially suitable for identifying impediments to involvement and may therefore be helpful in policy-making, as the application of analytical frameworks in Zambia, for instance, indicates (Anand et al., 2021).

McKinley (2010) proposed an overarching growth index that is based on the Asian Development Bank's long-term strategic framework 2008-2020. It states that in order to achieve overarching growth, two things must happen: (1) sustainable growth that generates and increases economic opportunities; and (2) wider access (McKinley, 2010). These are opportunities for community members to participate in growth and take advantage of it. Growth, economic infrastructure, income and equality poverty, productive employment, gender equality, human capabilities and social support are all included (Dahlström et al., 2017). The measurement of the recommended data in each these indicators is largely consistent with the conceptualization of the inclusive growth index and the availability of data, which McKinley emphasizes as a barrier to the inclusive operation of definitions of inclusive growth (McKinley, 2010).

McKinley (2010) proposed an Inclusive Growth Index, which states that inclusive growth requires sustainable growth that creates and expands economic opportunities. . And (2) can provide these opportunities for community members to contribute to growth and infrastructure, wealthy

incomes, social support, equality, gender equality and human capabilities (McKinley, 2010).

The recommendations made for each of these indicators are largely inconsistent with the conceptualization of inclusive growth and can be adapted (McKinley, 2010). Mckinley (2017) acknowledges the predictability of value judgments in constructing a composite index that includes a variety of indicators of inclusive growth, but argues that such an effort nevertheless leads to clarifying differences and facilitating work to achieve a common ground as well as progress assessments (Dahlström et al., 2017).

In spite of the reality that McKinley's proposed composite record for by and large development contains a noteworthy share in these regions, it slacks behind, particularly since the weighting conspire utilized is profoundly alluring. In spite of these deficiencies, the utilize of the Combined Development List in case ponders in Bangladesh, Cambodia, India, Indonesia, the Philippines and Uzbekistan may be a welcome special case to the broad need of operational definitions for evaluating comprehensive development (McKinley, 2010).

According to the African Development Bank, part of its continuous endeavor to provide a mechanism to evaluate inclusive growth and inform development policy is the creation of an inclusive growth index. This is consistent with its long-term strategy's use of inclusive growth as a guiding concept (Ali & Zhuang, 2007).

Work creation, get to fundamental foundation and social administrations, financial openings, voice and responsibility, territorial integration, social security, get to beneficial information and rural efficiency have been detailed in this list . Making such an record must overcome the same deterrents that McKinley (2010) proposed composite list (McKinley, 2010).

Ramos, Ranieri, and Lamens (2013) as of late proposed lessening development incorporation. This concept is distinctive from past pointers since it tries to evaluate the effect of the development handle in terms of comprehensiveness and at the same time evacuate the sum of accomplished development from the file (Shuaibu & Oladayo, 2016). These three factors in this think about, based on the concept of comprehensive development as a handle that makes strides benefit sharing and support, incorporate: salary destitution, imbalance (as an marker for the measurement of benefit sharing), and the employment-to-population proportion (Gruzina et al., 2021).

The file highlights destitution and disparity, which have long been key markers of pro-poor and unavoidable development, and combines them with the work file to consider cooperation. In arrange to diminish the issues of self-assertive weight choice of each flag, these three markers were given the same weight within the list (Maku et al., 2019). This paper analyzes the degree of consideration in 43 creating nations over two time periods, as well as the inescapability of the growth process - changes within the level of incorporation over time as a work of GDP development (Oluwadamilola et al., 2018).

Endeavors to survey comprehensive development give experiences not as it were into crucial improvements inside and between nations, but too into a conceptual discourse of comprehensive development, as they survey the ampleness of definitions (Abbas, 2000). They are fundamentally restricted to surveying changes in learning as a result of development. They don't appear causation, nor do they clarify the way in which development happened, since it as it were decides whether they happen at the same time or not, whether they are related or not. This should be taken under consideration when analyzing the centrality of distributed discoveries (Khan et al., 2019).

Diverse studies have defined human capital in different ways. As previously noted in articles, human capital comprises health, education, knowledge, migration, and other factors that could raise workers' productivity and the nation's GDP (Sarwar et al., 2021). In the final two decades of the 20th century, human capital dominated the growth literature due to the significant rise of endogenous growth theory, which was put forth by Lucas (1988) and Romer (1986) as an alternative to the earlier neoclassical theory of growth (Curea & Ciora, 2013). They maintained that if capital is efficiently allocated to human capital, it can be returned to the scale in the form of sustainable returns, despite the fact that scale returns are diminishing and poor.

Roemer (1986) proposed a long-term economic growth model in which human education capital is considered as input to production that increases production and marginal growth over time. He goes on to say that a country with a huge amount of human capital is expanding significantly faster than a country with a small amount of human capital (Human Capital As Engine of Growth – the Role of Knowledge, 2020).

Munir and Arshad (2018) investigate the short- and long-term effects of Pakistan's physical capital stock and real human capital on the country's economic growth using the endogenous growth model. According to Ayertey Odonkor et al. (2019), the research findings back up the endogenous growth model, which states that factors like human capital and actual physical capital accumulation raise employment rates, per capita income, labor productivity, and economic growth resources. This means that GDP accumulates for each workforce that has these factors. The impact of human capital on economic growth was investigated by Rosendo Silva et al. (2018). The findings indicate that enhancing health has a significant and positive impact on economic growth since a healthy worker may further boost labor productivity (Shafuda & De, 2020).

Nilia and Sitana (2016) investigate the favorable short- and long-term correlation between human capital and growth. The primary finding was that any shock to human capital development could hinder growth, thus policymakers need to pay attention to human capital development (Maku et al., 2019). Suhravat and Giri (2016) looked at the long-term relationship between economic and economic growth as well as the effects of financial development and growth in SAARC countries (Sarwar et al., 2021). Suhrawat and Gary (2015) also provide a long-term connection to India's economic growth. Using the endogenous growth model (2012), Massoud and Hardaker investigated the effects of financial development on emerging economies (G20 Development Working Group (DWG), 2019). It was found that financial development is essential for growth and that the relationship between stock market development and financial growth is stable over time (Abubakar et al., 2020).

The link between human capital and growth was examined by Siddiqui and Rahman (2017) in a number of Asian countries. Experimental Bayesian technique was used. According to this study, primary and secondary education play a greater role in changing economic growth in East Asia, while vocational and secondary education has a beneficial effect on economic growth in South Asia (Maku et al., 2019).

The impact of human capital on economic growth in sub-Saharan Africa was studied by Ogundari and Awokuse (2018). As a measure of human capital, they looked at human capital and health. The results of GMM system showed that both health and education have a positive effect on economic growth and health has a greater impact than education (Horizons, 2020).

The studies of literature show a strong focus on human capital and economic growth. The relationship between primary education and economic growth is frequently examined, in addition to other elements such as higher education, research and technology (Horizons, 2020).

Human capital and physical capital have also been compared in studies. Education seems to boost economic growth. Reducing poverty and increasing employment have a significant impact on economic growth. In both rich and developing nations, population increase, the development of human capital, and economic growth have all been studied (Abubakar et al., 2020).

Using cross-country panel data, Hur (2014) investigated the relationship between fiscal policy and IG. The findings showed that government investment on health and education, particularly in poor nations, has a substantial impact on IG. He also suggested increasing health-care spending, public-sector investment, and social-sector subsidies to increase growth inclusiveness (Baily et al., 2021).

Agreeing to Adedeji et al. (2013), instruction and wellbeing are basic donors to the IG. Auxiliary school enrolment and fabulous wellbeing increment laborer efficiency and improve wage conveyance. According to Haan (2013), solid financial development, HCD, and high-quality teach are all vital supporters to comprehensive development (Kazmi et al., 2017).

The improvement of human capital, combined with solid financial development, incorporates a significant affect on comprehensive development. Instruction and healthcare, framework and vitality speculation, monetary segment improvement, and solid administration are basic approach devices for achieving the comprehensive development point (Eigbiremolen & Anaduaka, 2014). In arrange to attain comprehensive development, instruction is required. It progresses the quality of the workforce, which boosts financial development and decreased destitution. Additionally, dynamic charges, higher benefits uses, higher work share of pay, and social security are all basic components that contribute to the next level of incorporation (Bareke et al., 2021).

Omotayo (2015) states that there is a direct and positive correlation between human capital investment and economic growth in Nigeria, with an increase in GDP following an increase in human capital allocation. Kanyo (2013) asserted that capital expenditures have little impact on economic growth, presumably because of Nigeria's low use of expenditures, but that investing in human capital has the potential to drive economic growth (Wilson & Briscoe, 2004). This supports the findings of Campbell and Agbiokuro (2014), who found that real government spending on education positively affects the expansion of the Nigerian economy as a whole (Maku et al., 2019).

This study showed that Solo's assumption about high population growth / low returns in the Nigerian economy was not valid, which was a surprising finding. According to Arabi and Abdullah (2013), the quality of education is a major factor in economic growth, and people with higher education have a greater impact on economic return than those with only a high school diploma (Abubakar et al., 2020). In terms of health-related interactions, Jaiyeoba (2015) discovered a long-term link in Nigeria between government investment in education, health, and economic growth (Eigbiremolen & Anaduaka, 2014).

Despite the progressive taxation, social protection and infrastructure development, spending in HCD is required to meet the IG target. To achieve the IG and development, economies must invest in basic infrastructure, health services, and secondary and higher education. Investment in health and education are the most important sectors for inclusive growth (Horizons, 2020).

Since the advent of the Solo growth model (1956), education has been considered as a fundamental predictor of economic growth. Despite the fact that Solo did not explicitly include education in his theory of development, the prominent place of technology in his model provided pressure to focus on education. However, technological innovation

requires an educated population (Ehigiamusoe & Lean, 2019). Nelson and Phelps (1966) explicitly stated this link in what they called "investing in humans": Employees needed training to use new technology (whose development was considered exogenous), thus productivity. Increased all factors and encouraged economic development (Horizons, 2020). Human capital played an important role in technical progress and economic growth decades later, thanks to endogenous growth theories. Accumulation of human capital through training and on-the-job training, based on new growth theories such as Lucas (1988) (Horizons, 2020). Romer (1990); Mankiw, Romer, & Will (1992); Barro and Sala-i-Martin (1997) promote economic growth by improving labor productivity, promoting innovation and technological adaptation, and reducing fertility (Baily et al., 2021).

Additionally, Mankiw, Romer, and Will (1992) found that the versatility of GDP per capita relative to the enrollment rate for non-oil trading nations is 0.66 and for OECD nations 0.76, and contrasts in enrollment rates can lead to a need of income meeting. Clarify. 1960 and 1985. Agreeing to Pushcart and Lee (2010), expanding the normal school year by one year increments per capita GDP from 1.7% to 12.1%, depending on the characteristics (i.e. arbitrary relapse versus settled impacts), in Cohen and Soto (2007) calculate the return on school a long time from 12.3% to 22.1%. Hanushek and Woessmann (2009) found that expanding a unit in a country's normal cognitive test scores increments its per capita salary (Khan et al., 2019).

However, several studies highlight the development of human capital in order to achieve long-term EG. Arrow (1962) did, however, introduce the concept of human capital while discussing the method of learning by doing. Furthermore, in Romer's famous work on the long-term determination of EG (1986, 1990), HCD was identified as a crucial component of economic growth. As a result, economies with more human

capital tends to raise faster since they are more adept at comprehending modern technology ways (Maku et al., 2019).

Human capital is a significant factor and a driving force in the R&D business. As a result, it promotes technological advancement and, as a result, economic growth (Romer, 1990). More capital can be accumulated by educated workers (Raheem et al., 2018). In comparison to less educated professionals, they have a greater understanding of modern technology (Fernandez & Mauro, 2000). A higher school enrolment rate is essential for achieving a faster long-term growth rate. Furthermore, education increases worker productivity, allowing them to earn more and maintain a higher standard of living (Horizons, 2020).

Better education is critical to accelerating long term growth. It also increases worker productivity. Quality education and health care, as well as the accumulation of physical capital, have a significant positive impact on the EG (Eigbiremolen & Anaduaka, 2014).

The amount that spend by the government on health and education helps to the development of HCD. It boosts worker productivity, allowing EG to move at a faster speed. The importance of health in HCD cannot be overstated. It helps workers to be more productive. As a result, it is vital to invest more in HCD capital in order to improve the growth process in the short and long-term. Long-term economic growth requires investment in human capital as well as physical capital accumulation (Kazmi et al., 2017). Health is a crucial aspect of HCD and is required for speedier EG. Better-for-your labors are very popular. Because they work for such a long time, they are always creative enough to earn comparatively high pay (Abubakar et al., 2020).

Furthermore, education increases a worker's earning potential. HCD development through education spending is critical for poverty reduction, especially in emerging nations. As a result, governments should capitalize

more in education to reduce poverty, particularly in rural areas (Abbas, 2000).

Similarly, better diet has a good impact on worker health. As a result, they are more productive and make more money. The common of the workforce can participate in the growth process through accumulating human capital through education. It ensures female workers' engagement and allows them to earn a greater wage at a younger age (Winters, 2012). Entrepreneurial education contributes to the creation of jobs in a favourable way. Furthermore, government spending on health and education has a big influence on jobs (Ekanem & Emanghe, 2014). Education also attests to the fact that labor, whether male and female, contributes to output-generating activities that raise people's standards of living (Maku et al., 2019).

By concluding it, human capital development is critical for both advanced and developing countries to accelerate long-term growth. In many developed countries, quality education combined with a high school enrolment rate has helped long-term growth. Increased enrollment rates also had a significant positive impact on long-term EG in developing nations. In developed economies, HCD accumulation is a significant source of EG (Shuaibu & Oladayo, 2016).

The presence of comprehensive development guarantees that all the nation areas are dynamic within the development prepare of the economy. Past considers recommend that to improve comprehensive development, the government must increment use on instruction and health (Shafuda & De, 2020). The endeavors to extend the government's venture in these segments (instruction and wellbeing) would further generate extra government income. Subsequently, the government must center on progressing its consumption on wellbeing and instruction (Ali, 2007).

However, not all economies respond identically to all policy decisions. Also, the level of income in an economy matters towards such a government's decision to improve human capital development expenditures (Wilson & Briscoe, 2004).

Subsequently, it may be a critical require for arrangement choices to decide that salary level, at which an increment in government consumption on instruction and wellbeing would guarantee development and improvement. Doing this suggests that this consider would confirm the presence of an edge impact (in case any) between government consumptions and national pay level (Personal & Archive, 2015).

The literature mentioned above makes it clear that developing human capital via health and education improves growth inclusivity. Overall, the bulk of research demonstrated that inclusive growth is substantially and favorably correlated with human capital development, as demonstrated by health and education. On the contrary, there are few research which have proven negative association between education and economic growth (Pelinescua, 2015), Afzal et al., 2010). Moreover, the studies like Eggoh et al. (2015), Tobing & Jeng (2012), Wang et al. (2019), Mehrara (2011) and Eggoh et al. (2011) have also shown negative or no relationship between health and economic growth.

3 Data and Methodology

In this chapter, the nature of data used and methodology adopted in this study is discussed. This study used secondary panel data of 125 countries for a period of 20 years from 2000-2019. The data is taken from WDI of World Bank. Our primary intention was to include all those countries of the world which have data on inclusive growth, govt. expenditures of education and govt. expenditures on health for at least three decades. Unfortunately, even after intensive research, the data on health couldn’t be

found prior to 2000 from all possible available sources[1]. Hence, the unavailability of the data has limited the overall scope of this study.

In order to incorporate income levels, the countries have been assembled into four different categories according to their income levels which are further based on World Bank's classification of the countries. Relying on the available literature, the study followed the works of Iqbal et al. (2021), Ehigiamusoe et al. (2021), Ehigiamusoe and Lean (2019), Majeed and Tauqir (2020), among others, and used World Banks's classification of countries on the basis of income levels.

Low income ($1,045 or less), lower medium income ($1,046 to $4,095), upper middle income ($4,096 to $12,695), and high income ($12,696 or more) are the four groups. 38 lower middle income nations, 32 higher medium income countries, 39 high income countries, and 16 low income countries were included in the study. The lack of data makes it possible to include just a certain number of low-income counties in this analysis. The study's participating nations are enumerated in Appendix Table No. 5.

Following is the summary of categories and countries included in the study:

Table 3.1: Summary of Countries

Sr. No	**Abbreviation**	**Category**	**2020 GNI per Capita** (July 1, 2021)	**Total Number of Countries** (According to GNI per Capita)	**Total Number of Countries** (According to data availability)

[1] IFS, Penn World, Trading Economics, UN Data Set and SWIID

1	LIC	Low-Income-Countries	$1,045 or less	27	16
2	LMIC	Lower-Middle-Income-Countries	From $1,046 to $4,095	55	38
3	UMIC	Upper-Middle-Income-Countries	From $4,096 to $12,695	55	32
4	HIC	High-Income-Countries	$12,696 or more	80	39
Total				**217**	**125**

3.1 Conceptual Framework

Since the key purpose of the study is to find the (threshold) level of income at which increase in govt. exp. on HCD i.e. education & health would ensure growth. This within itself contains an implicit assumption that government expenditure on human capital development positively effects the economic/inclusive growth which has already been approved by several studies conducted for different geographies. However, since the study is using all income group economies from all of the regions of the world, therefore, it is necessary to first achieve inclusive growth for all income countries involved in the study.

Regardless of the fact that the inclusive growth has different definitions across different institution, however, there are few common determinants of inclusive growth. Using the notion of UNDP and OECD, it can be

summarised that HCD indicators serve as strong and valid determinants of inclusive growth.

Economic growth is an important component of inclusive growth. Economic growth is significantly influenced by Human Capital Development. In the current study, we argued that HCD could be a viable and effective strategy for ensuring and enhancing inclusive growth. HCD is a vast notion that cannot be quantified in its entirety. However, we contend that education and health are two of the HCD's most important indicators. This notion is also backed by the fact that both education and health have maintained their importance as essential MDG and SDG objectives. Furthermore, international organizations such as the United Nations Development Programme (UNDP), the Organization for Economic Cooperation and Development (OECD), UNESCO, and the World Health Organization (WHO) have consistently advocated for improved education and health, as well as increased government spending in these areas. There has been ample evidence that confirmed the positive association between investment on human capital, through education & health and the economic growth, (Ravallion 2004; Hull 2009).

Health and education access determines the quality of human capital development. In order to guarantee that the working population have the human traits necessary for successful employment, investments in human capital development, such as those made in health care and education, are essential. Human capacities need to be enhanced for growth to be inclusive. Within the framework of inclusive growth analysis, health and education spending can also serve as indicators of the degree of opportunity equality among a nation's citizens.

Since, it is argued that human capital development indicators are the key determinants for achieving inclusive growth. Therefore, government expenditures or investment in education & health lead to enhance the productivity and efficiency of the individuals. Since outcomes of the

employment are essential outcomes for growth inclusiveness (Raheem et al., 2018), consequently, productive employment remains one of the topmost drivers for attaining inclusive growth.

3.2 Variable Definitions

The key variables in this research study are inclusive growth as a dependent variable, and government's expenditure on HCD i.e. education & health, as dependent variables.

Dependent Variable

In the literature, different proxies are used to capture inclusive growth. GDP per capita, measured at current US dollars (Aoyagi & Ganelli, 2015; Anand et al., 2013) and GDP per person employed (Raheem et al., 2018; Kouton, J. 2020) are two major proxies used to capture the growth. However, GDP per person employed sounds like the most suitable proxy to capture inclusive growth. It reflects two things, first) "average opportunities that are available to the whole population" and secondly) "how all these opportunities are dispersed amongst the population".

Relying on available literature, the study followed the works of Raheem et al. (2018), Oyinlola and Adedeji (2019), Kouton (2020), Oyinlola et al. (2020), Nketia et al. (2022), among others, and used GDP per person employed as a proxy to measure inclusive growth because both aspects of growth and employment are being captured at the same time. According to the World Bank, the GDP per person employed is defined as "GDP divided by the total employment in an economy". GDP per person employed is measured in constant 2017 PPP $.

Independent Variables

Our dependent variables include the labor force, physical capital (gross fixed capital formation), and government spending on health and education. "Current operating expenditures in education, including wages

and salaries and excluding capital investments in buildings and equipment" is the definition of the variable for government spending on education (measured in current US dollars). However, "per capita public health expenditure in current US dollars, which covers current health expenditures include healthcare goods and services consumed during each year" is the metric used to measure health spending.

In line with Hur (2014) and Ali et al. (2012), we measured the physical capital using gross fixed capital formation as a proxy. "Land improvements (fences, ditches, drains, and so forth); plant, machinery, and equipment purchases; and the construction of roads, railways, and the like, including schools, offices, hospitals, private residential dwellings, commercial and industrial buildings, are all included in gross fixed capital formation (formerly gross domestic fixed investment)." The units of measurement are current US dollars. Economic growth is positively impacted by capital production (Anand et al., 2013; Gibescu 2010).

Furthermore, we have followed Hur (2014) and utilized the labor force (as a percentage of the overall population) as a proxy. "People in the labor force are those who, for a set amount of time, provide labor to produce goods and services. They must be at least 15 years old." It encompasses job seekers who are new to the workforce as well as those who are unemployed but looking for work. Not everyone who works is included, however. Students, family workers, and unpaid laborers are frequently left out, and some nations do not include members of the military services in their calculations. The number of workers changes throughout the year due to the influx and outflow of seasonal workers.

Control Variables:

Control variables included in the analysis are foreign direct investment (FDI), trade openness (TOP), inflation (INF) and; population growth rate (PGR).

Trade Openness (TOP)

Trade openness is measured by "dividing the sum of imports and exports with GDP", following the Hur (2014) and Aoyagi and Ganelli (2015). TOP has a positive and significant impact on the economic growth of the economy and it also helps in boosting inclusive growth (Keho 2017; Anand et al., 2013)

Foreign Direct Investment (FDI)

By following Anand et al. (2013), we measure the FDI using the total FDI capital stock as a proxy. The net influx represented as a percentage of GDP is known as FDI. "Direct investment equity flows in the reporting economy are referred to as foreign direct investment." It is the total of other capital, earnings reinvested, and equity capital. One type of cross-border investment is known as "direct investment," which is defined as when an individual from one economy has control over, or a substantial amount of influence over, the management of an enterprise located in another economy. To establish if there is a direct investment relationship, one must possess ten percent or more of the common shares of voting stock. FDI has a positive and substantial effect on the economic growth (Pekkas 2015).

Inflation:

Inflation is the consumer price index expressed in annual percentage change which is measured generally by the Laspeyres formula. Inflation negatively affects economic growth (Anand et al., 2013; Barro 1995).

Population Growth Rate:

The data for the population growth is taken in percentage as the annual rise in overall population.

Interaction Term:

The gross national income divided by the midyear population and converted to US dollars using the World Bank Atlas approach is known as GNI per capita (formerly known as GNP per capita). GNI is the total value contributed by all resident producers plus any product taxes (less subsidies) that were not factored into the output valuation plus net foreign primary income (revenue from property and employee remuneration). For cross-country comparisons, GNI is calculated in national currency and translated to US dollars using official exchange rates; otherwise, an alternative rate is applied in cases where the official exchange rate is judged to deviate significantly from the one that is actually used in international transactions. The World Bank uses a particular Atlas conversion technique to reduce volatility in prices and currency rates. In order to account for variations in inflation rates between the nation and the G-5 countries up until 2000, a conversion factor is employed, which consists of averaging the exchange rates for the current year and the two years prior. (The United States, the United Kingdom, Japan, Germany, and France). The Eurozone, Japan, the United Kingdom, and the United States have been among these countries since 2001.

3.3 Empirical Model

In order to determine/identify/find that income level, at which, increase in government's expenditure on education & health will ensure growth, it is necessary to first empirically examine and confirm the achieving of ING through the government's expenditures on Human Capital Development (i.e. health and education), for the defined heterogeneous income groups. Once inclusive growth is achieved/confirmed through HCD, then the threshold income level, which ensures inclusive growth, is determined for all income groups.

In order to confirm the contribution of HC towards inclusive growth, the study employs Mankiw et al. (1992)'s following neoclassical model in order to evaluate empirically if the expenditures of the government on

education & health make the growth inclusive in all income groups. In order to achieve this, first, we would check the direct effect of the government's expenditures on the education & health for the process of inclusive growth and secondly, we would identify the level of income for all income groups, at which, a rise in the government's expenditure on education & health ensures the growth.

In the view of above, the following econometric model, denoting the baseline inclusive growth equation, is adopted to find the impact of HCD on inclusive growth:

$$ING_{it} = \alpha_0 + \alpha_1 LAB_{it} + \alpha_2 CAP_{it} + \alpha_3 EDU_{it} + \alpha_4 HLT_{it} + \alpha' Z_{it} + \mu_{it} \quad \ldots\ldots \quad (3.1)$$

This is common effect model, where ING representing Inclusive Growth is proxied from GDP per person employed (constant 2017 PPP $), LAB represents labor force, CAP is the representation of capital stock through GFCF (gross physical capital formation), EDU & HLT are government expenditures on education and health respectively and Z is a vector of control variables. The latter contains foreign direct investment (FDI), inflation rate (INF), trade openness (TOP) and population growth rate (PGR).

The α_0, α_1, α_2, α_3, α_4, α_5 are regression parameters and σ denotes a k x 1 parameters vector on control variables. The μ is a stochastic error. The subscript i represents countries, whereas t is a time index.

Followings equations 3.2 and 3.3 are for fixed and random effect models respectively:

$$ING_{it} = \beta_0 + \beta_1 LAB_{it} + \beta_2 CAP_{it} + \beta_3 EDU_{it} + \beta_4 HLT_{it} + \beta' Z_{it} + \epsilon_i + \mu_{it} \quad \ldots\ldots (3.2)$$

$$ING_{it} = \gamma_{0i} + \gamma_1 LAB_{it} + \gamma_2 CAP_{it} + \gamma_3 EDU_{it} + \gamma_4 HLT_{it} + \gamma' Z_{it} + \mu_{it} \quad \ldots\ldots (3.3)$$

Where $\gamma_{0i} = v + \delta_i$ and v is the error term.

Before analysis, all of the variables were transformed into the natural logarithm, in order to interpret the variables in term of elasticity and secondly, in order to reduce the long numbers/digits of the data into few digits for easy and decent representation and for understandable and meaningful interpretation.

3.4.1 Threshold Methodology

The extended inclusive growth specification model following the interaction between traditional growth drivers such as education and health-care spending and gross national income (GNI) is represented in the equation 2 as follows:

$$ING_{it} = \alpha_0 + \alpha_1 LAB_{it} + \alpha_2 CAP_{it} + \alpha_3 EDU_{it} + \alpha_4 (EDU_{it} * GNI_{it}) + \alpha_5 HLT_{it} + \alpha_6 (HLT_{it} * GNI_{it}) + \alpha' Z_{it} + \mu_{it} \quad \ldots\ldots (3.4)$$

Taking derivative first with respect to EDU_{it}:

$$\frac{\partial ING_{it}}{\partial EDU_{it}} = \alpha_3 + \alpha_4 GNI_{it}$$

Putting derivative value equal to 0

$$\frac{\partial ING_{it}}{\partial EDU_{it}} = 0$$

$$\frac{\partial ING_{it}}{\partial EDU_{it}} = \alpha_3 + \alpha_4 GNI_{it} = 0$$

$$GNI^{*} = -\frac{\alpha_3}{\alpha_4}$$

This value of GNI_{it} will be the threshold value for government's expenditure on education. The marginal effect of education on inclusive growth is evaluated around this threshold value using +/- 1 standard deviation (SD) of GNI around the threshold. That is,

$$GNI^{*} \pm SD$$

$$\frac{\partial ING_{it}}{\partial EDU_{it}} = \alpha_3 + \alpha_4 GNI^{*} = \alpha_3 + \alpha_4 \left(-\frac{\alpha_3}{\alpha_4} \pm 1SD\right) = \pm \alpha_4 SD$$

Now taking derivative with respect to HLT_{it}:

$$\frac{\partial ING_{it}}{\partial HLT_{it}} = \alpha_5 + \alpha_6 GNI_{it}$$

Putting derivative value equal to 0

$$\frac{\partial ING_{it}}{\partial HLT_{it}} = 0$$

$$\frac{\partial ING_{it}}{\partial HLT_{it}} = \alpha_5 + \alpha_6 GNI_{it} = 0$$

$$GNI^{*} = -\frac{\alpha_5}{\alpha_6}$$

This value of GNI_{it} will be the threshold value for government's expenditure on the health. The marginal effect of education on inclusive growth is evaluated around this threshold value using +/- 1 standard deviation (SD) of GNI around the threshold. That is,

$$GNI^{*} \pm SD$$

$$\frac{\partial \mathrm{ING}_{it}}{\partial \mathrm{HLT}_{it}} = \alpha_5 + \alpha_6 \mathrm{GNI}^* = \alpha_5 + \alpha_6 \left(-\frac{\alpha_5}{\alpha_6} \pm 1\mathrm{SD} \right) = \pm\, \alpha_6 \mathrm{SD}$$

5. Results and Discussion

5.1 Descriptive Statistics and Correlation Analysis

The descriptive statistics is an important tool in order to get an idea about the trend of the data. It shows the tendency of the expected empirical results whether the result will have an increasing or decreasing trend, uniformity, or variation.

The summary statistics of variables, included in the model, are presented in the below Table 4.1. It showed a wide range of variation among variables in all of the income groups used in this study. It revealed that inclusive growth is notably higher in high-income-economies as compared to low-income-economies. Moreover, it is obvious that government expenditures on human capital development (i.e. education & health) is lower in low-income-countries relative to high-income-countries. Therefore, it could be implied that as the countries move to high-income-group from low-income, there is an increase in government expenditures on human capital development and consequently rise in inclusive growth.

Similarly, capital stock, foreign direct investment and trade openness increase, whereas, inflation and population growth rate decreases, however, no significant change is observed in the labor force when we the countries move to higher income from low or lower income groups.

Since the groups are based on the income levels, therefore, a wide variation in values of the variables, is observed amongst the income groups, used in the study, during the period under consideration. Minimum and maximum value and standard variation among groups vary accordingly. Low-income-group has low values for each variable,

therefore, minimum and maximum values are low as compared to other groups. Similarly, when we move to high-income-group from low-income-group, the minimum and maximum value of each variable increase across the groups. Likewise, the standard variation across each group varies and has increasing trend from low-income-group towards high-income-group for all variables.

Table 4.1: Descriptive Statistics

Variables / Groups		AIC	HIC	UMIC	LMIC	LIC
ING	Mean	43779.9	93194.92	36331.9	16062.54	4055.53
	Std. Dev.	41412.55	36761.94	14053.39	10071.58	1622.83
	Min	1371.236	30068.33	6133.802	2934.637	1371.24
	Max	266103.7	266103.7	81788.63	49428.52	8320.91
	Obs.	2500	780	640	760	320
ED	Mean	1.91E+10	4.79E+10	1.28E+10	2.93E+09	2.14E+08
	Std. Dev.	7.02E+10	1.17E+11	3.09E+10	5.00E+09	2.04E+08
	Min	5454591	1.29E+08	5454591	7452906	7469765
	Max	9.54E+11	9.54E+11	2.55E+11	3.22E+10	8.42E+08
	Obs.	2500	780	640	760	320
HLT	Mean	1050.467	2971.213	354.964	95.065	28.73
	Std. Dev.	1793.676	2203.974	237.903	79.167	13.4
	Min	4.478	203.506	26.129	5.971	4.478
	Max	11038.07	11038.07	1531.48	390.21	65.54
	Obs.	2500	780	640	760	320

Variables / Groups		AIC	HIC	UMIC	LMIC	LIC
CAP	Mean	1.16E+11	2.32E+11	1.31E+11	3.05E+10	1.67E+09
	Std. Dev.	4.39E+11	5.46E+11	5.91E+11	8.61E+10	1.90E+09
	Min	6974332	5.00E+08	40940760	47353118	6974332
	Max	6.12E+12	4.49E+12	6.12E+12	6.89E+11	9.02E+09
	Obs.	2500	780	640	760	320
LAB	Mean	23073182	13741465	37255161	27848573	6113735
	Std. Dev.	81215256	26964427	1.34E+08	74249750	5728031
	Min	31205	145088	31205	74628	407093
	Max	7.87E+08	1.67E+08	7.87E+08	4.95E+08	29801894
	Obs.	2500	780	640	760	320
IN	Mean	5.018	2.217	5.995	6.71	5.872
	Std. Dev.	6.143	2.155	7.407	6.759	6.084
	Min	-18.11	-4.48	-4.3	-18.11	-8.975
	Max	59.22	19.38	59.22	48.7	34.7
	Obs.	2332	708	605	736	283
FDI	Mean	1.27E+10	3.05E+10	9.52E+09	2.24E+09	2.99E+08
	Std. Dev.	4.05E+10	6.54E+10	2.38E+10	5.59E+09	4.01E+08
	Min	-1.69E+11	-1.69E+11	-1.02E+09	-4.55E+09	-3.22E+08

Variables / Groups		AIC	HIC	UMIC	LMIC	LIC
	Max	5.11E+11	5.11E+11	1.75E+11	4.45E+10	1.86E+09
	Obs.	2385	718	630	727	310
TOP	Mean	83.277	106.19	80.546	73.52	56.069
	Std. Dev.	52.232	74.566	34.633	33.81	20.083
	Min	19.56	19.56	21.852	20.72	20.964
	Max	437.33	437.33	220.41	210.4	127.2
	Obs.	2500	780	640	760	320
PGR	Mean	1.462	0.948	1.038	1.765	2.84
	Std. Dev.	1.2	1.189	1.153	0.83	0.62
	Min	-2.17	-1.85	-2.17	-1.05	0.26
	Max	7.776	7.776	6.559	3.438	4.63
	Obs.	2279	688	534	737	320

The correlation analysis of dependent and independent variables presented in Table 4.2 reveals that inclusive growth and human capital development (government expenditures on education and health) are positively and significantly correlated in all income groups. Similarly, inclusive growth and capital stock have positive and significant correlation whereas inclusive growth has significantly negative correlation with labor force.

Furthermore, there is a strong and positive association between government spending on health, capital stock, and labor force and education spending.

Finally, the analysis showed that government expenditure on health is positively correlated with capital stock but negatively correlated with labor force. Capital stock and labor force have positive and significant correlation in all income groups.

Table 4.2: Correlation Analysis

Variables	ING	EDU	HLT	CAP	LAB
All Income					
EDU	0.293***				
HLT	0.772***	0.505***			
CAP	0.189***	0.820***	0.350***		
LAB	-0.070***	0.292***	-0.008	0.635***	
High Income					
EDU	0.116**				
HLT	0.494***	0.465***			
CAP	0.094**	0.980***	0.445***		
LAB	-0.048	0.958***	0.367***	0.976***	
Upper Middle Income					
EDU	0.014*				
HLT	0.535***	0.309***			
CAP	0.110**	0.838***	0.054		
LAB	-0.237***	0.698***	-0.048***	0.821***	
Lower Middle Income					
EDU	0.379***				
HLT	0.710***	0.220***			

CAP	0.124***	0.737***	0.010	
LAB	-0.052	0.650***	-0.141***	0.889***
Low Income				
EDU	0.049*			
HLT	0.490***	0.254***		
CAP	0.103*	0.825***	0.266***	
LAB	-0.279***	0.664***	-0.166**	0.715***

5.2 Estimation Results

Since the econometric model used in the study is a static panel model, therefore, most appropriate and well-known static panel data estimation techniques are fixed effect and random effect. Moreover, as pooled ordinary least square (OLS) does not incorporate the time-specific and country-specific properties, therefore, fixed effect model and random effect model are used for estimation. After consideration of three static panel models and their empirical findings from the estimation, it is found that fixed effect is preferred to the common effect and random effect models. In the next step, the "Hausman test" has been used to select between fixed effect model and random effect model. It is confirmed through the results of significance of Hausman test, which showed the rejection of the null hypothesis i.e. Random effect is appropriate. To this end, the study was constrained statistically to focus on using, discussing and interpreting the empirical results estimated through the fixed-effect-model only.

The results of the estimation show that fundamental determinants of inclusive growth, i.e. human capital development which includes expenditure on education & health, are significant. The results reveal that HCD through government expenditures on education and health increase GDP per person employed. Human capital development through

education is significantly and positively associated with the inclusive growth. An increase of 1% in government expenditures on education will enhance the inclusive growth by 9% in LIC, 8% in LMIC, 3% in UMIC and 10% in HIC respectively. It indicates that human capital development through education enhances the skills of the labor force, resulting in an increase in productivity of the workers which ultimately becomes the source for production of higher levels of output. Education enhances inclusiveness by different channels. Firstly, it raises the skills and capabilities of the workers to produce an output at higher level because the workers can fathom out and execute the latest technologies. Furthermore, it enables unskilled labour force to participate and contribute in the production process of the economy. Lastly, education generates employment opportunities for the people and it raises the living standard of the individuals.

Similarly, HCD through health significantly and positively affects inclusive growth. According to the results, a rise of 1% in government expenditures on health will boost the inclusive growth by 16% in LIC, 9% in LMIC, 25% in UMIC and 6% in HIC respectively. This shows that a better-quality health is necessary to improve the degree of inclusiveness. Health allows workers to engage in more activities and perform and contribute more effectively. Workers that are in better health are more productive and efficient. They are able to better comprehend, adopt, and implement many contemporary manufacturing methods and procedures. It's because good health is a requirement for a strong and healthy brain. Furthermore, healthy workers labour for a longer period of time and obtain sufficient experience to contribute effectively to the economy.

These results are akin to the results of Khan, Sabir & Ibrahim (2020), Raheem, Isah, & Adedeji (2018), Hur (2014), Anand et al. (2013), Matilda (2013), Adedeji et al. (2013) and Bloom et al. (2004).

Both education and health continue to represent significant and positive coefficients across all income groups. It shows that HCD, through improvement in education & health, enhances the contribution of the labour force to the economy regardless of the level of income. Although, the rate at which human capital development affects inclusive growth may vary at different income levels, however, according to the results, human capital development at any income level, will definitely lead to inclusive growth in the economy positively and significantly.

Our other descriptive variable capital stock is also positively associated with inclusive growth and it remains significant in all income groups except low income countries. This demonstrates that physical capital promotes growth inclusiveness. Moreover, physical capital is one of the fundamental determinants of economic growth and the economic growth is the first and foremost component of inclusive growth. These results are analogous to the empirical findings of earlier studies of Khan, Sabir & Ibrahim (2020), Raheem, Isah, & Adedeji (2018), Hur (2014), Anand et al. (2013), Anand et al. (2014), Afzal et al. (2012) and Bloom et al. (2004)

The coefficient of labour force is negative but significant across all income groups. Since population growth is used to be usually negatively related to employment and consequently to inclusive growth, one major reason for the negative relationship between labour force and inclusive growth (GDP per person employed) could be that when total population rises, the increase in the employment rate is lower than the increase in overall labour force. It means, population increases, consequently labour force increases but employment rate doesn't increase with the same or higher rate in order to cater the labour force to be fully employed.

The overall impact of trade openness is also positive and statistically significant. The trade openness is significant in all of the income groups; except in low income countries where its impact is insignificant. Trade openness is amongst standard determinants for economic growth in

general and for inclusive growth in particular. Trade openness accelerates inclusive growth process. It describes that trade openness aids the economies to achieve higher inclusive growth. As the share of exports rises, trade openness generates employment opportunities which boosts the degree of growth inclusiveness. These results are consistent, reliable and matching to previous findings of Bashier & Wahban (2013) and Anand et al. (2013).

Alike trade openness, FDI is overall positively and significantly related to inclusive growth. It is significant for all income groups except high income group where it is insignificant. FDI is also counted among standard determinants of inclusive growth. FDI promotes and improves the degree of IG through creation of decent number of employment opportunities. It fosters the growth process which certainly leads towards IG. Our results are identical with the empirical outcomes of Khan, Sabir & Ibrahim (2020), Raheem, Isah, & Adedeji (2018) and Anand et al. (2013).

Population growth is negatively and significantly associated with inclusive growth. It demonstrates that a rise in population will decrease the degree of growth inclusiveness because rise in overall population decreases employment and minimizes economic growth and consequently inclusive growth.

Table 4.3: Coefficient Estimates

Variable	AIC	HIC	UMIC	LMIC	LIC
Coefficient Estimates					
EDU	0.070***	0.096***	0.027*	0.080***	0.087***
HLT	0.140***	0.055***	0.259**	0.089***	0.162**

			*		*
CAP	0.097***	0.029*	0.088***	0.110***	0.024
LAB	-0.405***	-0.293***	-0.168***	-0.267***	-0.164***
INF	-0.028**	-0.055***	-0.014	-0.016	-0.023
FDI	0.017	0.015	0.029*	0.079***	0.084***
TOP	0.011	0.135***	0.050*	0.052**	0.021
PGR	-0.066***	-0.033*	-0.129**	-0.159**	0.021
Constant	11.578***	11.612***	9.589***	7.917***	6.341***
Diagnostic Statistics					
Number of Countries	125	39	32	38	16
Number of Observations	2500	780	640	760	320
Hausman test	279.01***	454.41***	18.05**	167.08***	14.63*

Note: Here *, **, *** indicate statistical significance at 10%, 5% & 1% respectively. Standard errors are robust. ING, EDU, HLT, LAB, CAP, INF, FDI, TOP & PGR show Inclusive Growth, Govt. Expenditures on Education, Govt. Expenditure on Health, Labour Force, Capital Stock (Gross Fixed Capital Formation), Inflation, Foreign Direct Investment, Trade Openness, and Population Growth Rate respectively.

5.3 Threshold Analysis

The results of threshold estimation are presented in the Table 4.4 below. The results confirm the existence of a significant threshold effect in each income group. The estimated GNI threshold value for government expenditure on education is 4.759 for all-income, 3.256 for high-income,

3.975 for upper-middle-income, 5.445 for lower-middle-income and 6.369 for low-income economies. These are log values of GNI which in nominal form are 116.675 for all-income, 25.957 for high-income, 53.248 for upper-middle-income, 231.507 for lower-middle-income and 583.239 for low-income economies. All the nominal values are in USD.

These threshold values show that to ensure inclusive growth through government expenditure on education, it is necessary to have such income levels in the country. With this level of income, an investment on government expenditure on education will ensure inclusive growth. The results demonstrate that the threshold value increases when we move from a high income country to a low-income country. It means low-income countries are required to raise income level or should have higher income level in order to ensure that the government plans to expend on human capital development through education. For instance, low-income countries should raise the national income level more than USD 583.239 to ensure the existence of inclusive growth if governments invest on human capital development through making expenses on education. For lower-middle-income, GNI level should be more than USD 231.507 whereas for upper-middle-income and high-income economies, the required threshold level of GNI, for growth ensurety through government expenditure on education, should be USD 53 and 26 respectively.

The marginal effect of education on inclusive growth is evaluated around the threshold value, both log and nominal, using +/- SD (standard deviation) of GNI around the threshold. The results exhibited a significant shift before and after the threshold value. The GNI value is negative before threshold value, zero at threshold and becomes positive after threshold value, with respect to the change in the government expenditure on education. It means that any investment on education prior to reaching the threshold level doesn’t have a significant impact whereas government

expenditure on education after threshold value has a positive and significant effect on inclusive growth.

Alike education, there exists a significant threshold effect for government expenditure on health in each income group. The estimated GNI threshold log value for government expenditure on health is 5.628 for all-income, 5.087 for high-income, 5.203 for upper-middle-income, 6.004 for lower-middle-income and 6.781 for low-income economies. The nominal threshold values are 278.066 for all-income, 161.923 for high-income, 181.824 for upper-middle-income, 404.973 for lower-middle-income and 880.721 for low-income economies. All the nominal values are in USD.

To ensure growth to be inclusive through government expenditure on health, low-income-economies needs to raise an income level of USD 880.721 which is close to the maximum income level in the low-income counties. It shows that there is dire need to first raise the income level of the people in low-income countries, only then, a rise in government's expenditures on health would ensure growth and development. As we move to high-income-countries from low-income, there is a fall in the threshold income level for each upstream income country. It shows that higher will be the income level, the more will be the effect of government's investment on the health of the public and consequently, the higher will be growth, especially in low-income-countries where growth will be more inclusive.

Similar to education, the marginal effect of health on inclusive growth, when evaluated around the threshold value, both log and nominal, using +/- SD (standard deviation) of GNI, exhibited a significant shift before and after the threshold value. The GNI value is negative before threshold value, zero at threshold and becomes positive after threshold value, with respect to the change in the government expenditure on health. It means that an investment on health prior to reaching the threshold level doesn't

have much impact whereas government expenditure on health after threshold value has positive and significant effect on inclusive growth.

Although the threshold effect exists for both indicators of human capital development, i.e. government expenditures on education and health, however, the threshold level of GNI for health remains higher than education in each income group.

Table 4.4: Marginal Effects of Education and Health on Inclusive Growth at min, max, average, and around thresholds of GNI

Items	GNI* per Capita (Log Values)					GNI* per Capita (Nominal Values)				
	AIC	HIC	UMIC	LMIC	LIC	AIC	HIC	UMIC	LMIC	LIC
Minimum	4.788	8.326	6.492	5.075	4.787	120	4,130	660	160	120
Maximum	11.556	11.556	9.628	8.872	6.888	104,370	10,4370	15,190	7,130	980
Std. Dev.	1.587	0.645	0.606	0.719	0.471	17,840	19,052	2,965	1,233	205.434
Average	8.352	10.235	8.442	7.267	6.101	12,475.18	33,443.04	5,487.852	1,815.789	493.063
Threshold (TH) $\frac{\partial ING}{\partial EDU}$	4.759	3.256	3.975	5.445	6.369	116.675	25.957	53.248	231.507	583.239
GNI* Value at Threshold - SD	-0.014	-0.017	-0.061	-0.011	-0.008	-158.954	-500.692	-291.767	-15.698	-13.213

GNI* Value at Threshold + SD	0.014	0.017	0.061	0.011	0.008	160.961	501.886	301.627	22.749	13.629
Threshold Level $\frac{\partial ING}{\partial HLT}$	5.628	5.087	5.203	6.004	6.781	278.066	161.923	181.824	404.973	880.721
GNI* Value at Threshold - SD	-0.058	-0.004	-0.009	-0.035	-0.038	-653.882	-132.185	-45.682	-59.841	-17.144
GNI* Value at Threshold + SD	0.058	0.004	0.009	0.035	0.038	653.469	132.114	45.522	59.261	16.049

Note: GNI value is 0 at threshold level.

6 Summary of the Results

Based on above mentioned results and discussion, it is concluded that the development of human capital through expenditure and investment in education and health can contribute to the achievement of inclusive growth. The panel evidence presented in the study backs this up. Human capital development is found to be a key component of inclusive growth across all income groups. At all income levels, the impact of government's expenditures on HCD (i.e. education & health) are found positive and statistically significant on inclusive growth. The rate (percentage change), at which, an increase in expenditures of the government on education & health, would raise the growth, varies from one income group to other and no symmetry is observed in the overall change rate across the groups.

Despite human capital development, GFCF, TOP and FDI are found to be the significant elements of the inclusive growth whereas population growth has adverse effects on inclusive growth.

The results are evident to the existence of notable and significant threshold effects between government's expenditures on human capital development and income level in order to ensure the growth to be inclusive. The threshold value increases when we move from a high income country to a low-income country. It means low-income countries are required to raise income levels or should have higher income levels in order to ensure inclusive growth if the government plans to expand on human capital development through education and health.

Moreover although, the threshold effect exists for both indicators of human capital development, i.e. government's expenditures on education & health, however, threshold level of GNI for health sector remained higher than education in each income group. It means that in order to enhance the human development through health, the importance of income level in an economy becomes even inevitable. Investment on education may work even at a lower level of GNI in an economy, however, in order to make sure that the public enjoys the government's investment on health, it is absolutely necessary to have and maintain a higher level of national income in the economy.

7 Conclusion and Policy Recommendations

7.1 Conclusion

This research study examined through empirical analysis the impact of human capital development, through government spending on health & education, on inclusive growth. There is plenty of research already available that has attempted to quantify the impact that human capital development has on inclusive growth. However, none of the studies

has explored the role of income in consideration with government's expenditure on human capital development to ensure inclusive growth.

To this end, this research had two objectives which are interlinked; first) to confirm the influence of human capital development on inclusive growth for different income groups and second) objective is to find threshold income level, at which government expenditures on education and health sectors, would ensure growth inclusiveness.

Human capital development is segregated into education and health whereas inclusive growth is proxied as GDP per person employed. Heterogeneous panels of 125 countries, divided into four groups, categorized based on difference in income levels. The groups titled high-income countries, upper-middle-income countries, lower-middle-income and low-income countries were used as per categorization of World Development Report.

Three static panel models were estimated on the panel data containing 4 different income groups and findings have revealed that fixed effect model is found preferred over the random effect and common effect model. It is confirmed through the results of Hausman test which were significant and therefore leads to the rejection of the null hypothesis i.e. "Random effect is appropriate". To this end, the study has statistically constraint of having to focus on the usage, discussion and interpretation of the empirical results of estimation only from fixed-effect-model.

It is further evident from the empirical results that human capital development through spending on health & education positively affects the degree of inclusive economic growth across all income levels. Inclusive growth is determined to a good degree by Health & Education. These results are similar to the results of Khan, Sabir & Ibrahim (2020), Raheem, Isah, & Adedeji (2018), Hur (2014), Matilda (2013), Anand et al. (2013), Adedeji et al. (2013), and Bloom et al. (2004).

Despite human capital development, Trade Openness (TOP), Foreign Direct Investment (FDI) and Gross-Fixed-Capital-Formation (GFCF), are significant components of inclusive growth. FDI, Trade Openness and Physical Capital have been found to boost inclusive growth while the inflation and population growth negatively impact/hamper the inclusive growth. These findings are alike to the outcome of several earlier studies of Khan, Sabir & Ibrahim (2020), Raheem, Isah, & Adedeji (2018), Anand et al. (2014), Hur (2014), Anand et al. (2013), Afzal et al. (2012) and Bloom et al. (2004).

The results disclosed the existence of a significant threshold effect between government expenditures on human capital development and income level for growth inclusiveness. The threshold value increases from high income country to low-income country. It means low-income countries require to raise income levels in order to ensure inclusive growth if government invests in human capital development through HCD's key indicators, i.e.

education and health.

7.2 Policy Recommendations

Policy implications of the study are noteworthy in that it highlights the fact that governments need to increase their investment in health & education sectors in order to achieve inclusive growth. Since, the results show that government expenditures on education and health have positive and significant impact on inclusive growth, therefore, Human Capital Development through education & health should take center stage in policy decisions because such development especially achieved through education raises the productivity levels in the economies and therefore foster inclusive growth. Education leads to grow human capital. An educated labour force leads to employment which reduces the poverty and brings about a decrease in the income inequality due to better/increased wages of the labour force. Education and employed workers produce and contribute more to the economies as compared to uneducated or low-education and unemployed labour force.

Similarly, human capital development through health enhances inclusive growth because healthy workers are in a better position to work with contemporary methods and techniques of production because of the ability to concentrate and understand well. Moreover, healthy workers perform work for extended years and deliver increased output levels due to better productivity level thereby they contribute more to the growth of economy. This leads to faster growth leading to employment creation while also enhancing the wages earned by labor force with the ultimate impact on income equality which is reduced thereby leading to further inclusive growth in the economies.

Thus, with increase of governments' expenditures on health & education, the productivity of the economies would improve, there will be increase in investment to harness increased productivity, thereby creating further employment opportunities and ultimately benefits the governments in the form of increased tax revenue. In fact an increase in government spending on health & education brings back benefit of additional tax revenue to the government. Thus, an effort to raise government spending in the fields of health and education would bring in more money for the government. Therefore, it is imperative that governments focus on augmenting their investments in the health and education sectors. Therefore, it is advised that policies to raise the share of total public spending on human capital development could have an impact on an improvement in health and education for a reasonable promotion of inclusive growth. If these policies are implemented correctly, they may raise the economy's level of human capital, which will lead to inclusive growth.

Since FDI and trade openness are also important determinants of inclusive growth, therefore, steps should be taken to promote trade openness and attract FDI because FDI

and trade openness create decent number of employment opportunities in the economies, which lead to higher production and contribution to the economies.

Furthermore, in order to ensure growth with government investment on education and health, it is necessary to raise gross national income in the economy, especially in lower-middle and low-income economies. After attaining threshold income level, any government investment on education and health will be effective and fruitful.

Pakistan, being in the lower-middle-income group, has already attained income level over the threshold value of this group, therefore, government expenditures on education and health would ensure the growth and hence, policies to increase public expenditures could influence a boost in education and health for reasonable promotion of inclusive growth.

The study results will be useful for governments to use their resources efficiently in relevant sectors. It will help develop a framework for these countries at the individual as well as the regional level.

Future Research Direction

A promising area where future research focus is to investigate the causes and effects of the income level on inclusive growth for individual countries or a group of countries of similar income level.

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Appendices

Appendix: List of countries included in the study

39 High Income Countries

Australia	Switzerland	France	Korea, Rep.	Portugal
Austria	Chile	United Kingdom	Luxembourg	Saudi Arabia
Belgium	Cyprus	Greece	Malta	Singapore
Bahrain	Czech Republic	Hungary	Netherlands	Slovak Republic
Bahamas, The	Germany	Ireland	Norway	Sweden
Barbados	Denmark	Iceland	New Zealand	Uruguay
Brunei Darussalam	Spain	Italy	Oman	United States
Canada	Finland	Japan	Poland	

32 Upper Middle Income Countries

Albania	China	Guatemala	Malaysia	Thailand
Argentina	Colombia	Jamaica	Namibia	Tonga
Armenia	Costa Rica	Jordan	Panama	Turkey
Bulgaria	Dominican Republic	Lebanon	Peru	South Africa
Belarus	Ecuador	Mexico	Paraguay	
Brazil	Fiji	North Macedonia	Romania	
Botswana	Gabon	Mauritius	Russian Federation	

38 Lower Middle Income Countries

Benin	Comoros	Iran, Islamic Rep.	Nepal	Tanzania
Bangladesh	Algeria	Kenya	Pakistan	Ukraine
Belize	Egypt, Arab Rep.	Kyrgyz Republic	Philippines	Uzbekistan
Bolivia	Ghana	Sri Lanka	Senegal	Vietnam
Bhutan	Honduras	Morocco	El Salvador	Vanuatu
Côte d'Ivoire	Haiti	Mongolia	Eswatini	Zimbabwe
Cameroon	Indonesia	Mauritania	Tajikistan	
Congo, Rep.	India	Nigeria	Tunisia	

16 Low Income Countries

Burundi	Guinea	Mali	Sierra Leone
Burkina Faso	Gambia, The	Mozambique	Chad
Central African Republic	Guinea-Bissau	Niger	Togo

Congo, Dem. Rep. Madagascar Rwanda Uganda

List of Abbreviations

All Income Countries	AIC
Department for International Development	DFID
Foreign Direct Investment	FDI
Gross Domestic Product	GDP
Gross Fixed Capital Formation	GFCF
Gross National Income	GNI
Gross National Product	GNP
High Income Countries	HIC
Human Capital Development	HCD
Inclusive Growth	ING
International Monetary Fund	IMF
Low Income Countries	LIC
Lower Middle-Income Countries	LMIC
Millennium Development Goals	MDGs
Organization for Economic Cooperation and Development	OECD
Sustainable Development Goals	SDGs
Trade Openness	TOP
United Kingdom	UK
United Nations Educational, Scientific, and Cultural Organization	UNESCO
United Nations Development Program	UNDP

Upper Middle Income Countries	UMIC
World Development Indicators	WDI
World Health Organization	WHO