HUMAN DEPRIVATION AND ITS DISPARITIES IN AFGHANISTAN WITH ITS REGIONS (2007–2018)

DOI: 10.61623/cpe.en.v1n1.a09

Juma Rasuli[1]
Dost Mohammad Anwari[2]
Mohammad Rasool Karimi[3]

Abstract

This research study utilizes a multidimensional poverty analysis approach to examine human deprivation and related regional inequalities in Afghanistan between 2007 and 2018. The study uses the Human Deprivation Index (HDepI), a metric developed based on the United Nations Development Program's Human Development Index methodology and the Alkire-Foster framework, to assess deprivation across three dimensions: health, education, and living standards. Data from the Global Data Lab, covering Afghanistan's eight regions, reveal a significant decline in the national HDepI from 83.9% in 2007 to 35.76% in 2018. The Southeastern regions (Ghazni, Paktia, Paktika and Khost) exhibited the most substantial decline (from 96.46 to 23.84), while the Eastern regions (Nangarhar, Kunar, Laghman and Nuristan) demonstrated the least significant decline (from 64.27 to 52.74). Regression analysis reveals differential impacts of health, education, and wealth on deprivation in different regions. The findings indicate that health and wealth have a significant impact on HDepI in the central regions, while all three dimensions contribute equally in the central highlands. In the Eastern regions, education and wealth exert a dominant influence, while health demonstrates a negligible impact. The Northern, Northeastern, Southern, Southeastern, and Western

1 Former Assistant Professor at Bamyan University, Afghanistan, and Current Visiting Professor at UEPB, Brazil. Contact: rasuli.juma@vistante.uepb.edu.br or juma.rasuli@gmail.com.

2 Former Assistant Professor at Bamyan University, Afghanistan, and MBA Scholar at Anadolu University, Turkey. Contact: dostma2019@gmail.com.

3 Assistant Professor at Bamyan University and PhD Scholar at Tehran University, Iran. Contact: mr.karimi07@gmail.com.

regions demonstrate significant coefficients, though the magnitudes of these coefficients vary. These findings underscore the necessity for region-specific and customized interventions to address systemic challenges, such as conflict and gender inequality, as well as health, education, and wealth inequalities, to sustain and augment progress in multidimensional poverty reduction in Afghanistan.

Keywords: Afghanistan. HDI. Disparities. Regions. Deprivation.

PRIVAÇÃO HUMANA E SUAS DISPARIDADES NO AFEGANISTÃO E EM SUAS REGIÕES (2007-2018)

Resumo

Este estudo adota uma abordagem de análise multidimensional da pobreza para examinar a privação humana e as desigualdades regionais associadas no Afeganistão no período de 2007 a 2018. Utiliza-se o Índice de Privação Humana (HDepI), desenvolvido com base na metodologia do Índice de Desenvolvimento Humano (IDH) do Programa das Nações Unidas para o Desenvolvimento (PNUD) e no método Alkire-Foster, para mensurar a privação em três dimensões fundamentais: saúde, educação e padrão de vida. Os dados extraídos do Global Data Lab, abrangendo as oito regiões do país, indicam uma redução expressiva no HDepI nacional, que caiu de 83,9% em 2007 para 35,76% em 2018. Entre as regiões, o Sudeste (Ghazni, Paktia, Paktika, Khost) apresentou a queda mais acentuada no índice, passando de 96,46 para 23,84, enquanto o Leste (Nangarhar, Kunar, Laghman, Nuristão) registrou uma redução menos acentuada, de 64,27 para 52,74. A análise de regressão revela impactos diferenciados da saúde, educação e riqueza sobre a privação em diferentes regiões. Os resultados indicam que a saúde e a riqueza têm um impacto significativo sobre o HDepI nas Regiões Centrais, enquanto as três dimensões contribuem igualmente no Planalto Central. Nas regiões do Leste, a educação e a riqueza exercem uma influência dominante, enquanto a saúde demonstra um impacto insignificante. As regiões Norte, Nordeste, Sul, Sudeste e Oeste demonstram coeficientes significativos, embora as magnitudes desses coeficientes sofram variações. Essas descobertas ressaltam a necessidade de intervenções personalizadas e específicas para cada região a fim de abordar desafios sistêmicos, como conflitos e desigualdade de gênero, bem como desigualdades de saúde, educação e riqueza, para sustentar e aumentar o progresso na redução multidimensional da pobreza no Afeganistão.

Palavras-chave: Afeganistão. IDH. Disparidades. Regiões. Privação.

PRIVACIONES HUMANAS Y SUS DISPARIDADES EN AFGANISTÁN Y SUS REGIONES (2007-2018)

Resumen

Este estudio de investigación utiliza un enfoque de análisis multidimensional de la pobreza para examinar la privación humana y las desigualdades regionales relacionadas en Afganistán entre 2007 y 2018. El estudio utiliza el Índice de Privación Humana (HDepI), una métrica desarrollada a partir de la metodología del Índice de Desarrollo Humano del Programa de las Naciones Unidas para el Desarrollo y el marco Alkire-Foster, para evaluar la privación en tres dimensiones: salud, educación y nivel de vida. Los datos del Global Data Lab, que abarcan las ocho regiones de Afganistán, revelan un descenso significativo del HDepI nacional, que pasó del 83,9 % en 2007 al 35,76 % en 2018. Las regiones del sudeste (Ghazni, Paktia, Paktika, Khost) registraron el descenso más sustancial (del 96,46 % al 23,84 %), mientras que las regiones del este (Nangarhar, Kunar, Laghman, Nuristán) mostraron el descenso menos significativo (del 64,27 % al 52,74 %). El análisis de regresión revela los diferentes impactos de la salud, la educación y la riqueza en la privación en las distintas regiones. Los resultados indican que la salud y la riqueza tienen un impacto significativo en el HDepI en las regiones centrales, mientras que las tres dimensiones contribuyen por igual en las tierras altas centrales. En las regiones orientales, la educación y la riqueza ejercen una influencia dominante, mientras que la salud tiene un impacto insignificante. Las regiones del norte, noreste, sur, sureste y oeste muestran coeficientes significativos, aunque la magnitud de estos coeficientes varía. Estos resultados subrayan la necesidad de intervenciones específicas y adaptadas a cada región para abordar los retos sistémicos, como los conflictos y la desigualdad de género, así como las desigualdades en materia de salud, educación y riqueza, con el fin de mantener y aumentar los avances en la reducción de la pobreza multidimensional en Afganistán.

Palabras clave: Afganistán. IDH. Disparidades. Regiones. Privación.

Introduction

Most studies on poverty concentrate on the concept of income. Similarly, economic growth and development studies place significance on income. However, poverty is a multidimensional concept, and growth and development are also multifaceted approaches. Consequently, research on these topics should also be multidimensional. Studies on human development and deprivation have introduced novel approaches to measuring and analyzing poverty and development with the aid of multidimensional concepts.

The human condition is the subject of study in the field of human development, with the capability approach representing a key analytical framework. To effectively evaluate the actual progress made in human development, the United Nations employs an inequality-adjusted Human Development Index. For policy, absolute poverty is defined as a condition marked by severe deprivation of basic human needs, including food, safe drinking water, sanitation facilities, health, shelter, education, and information. The concept of poverty is not solely contingent on income; it is also influenced by the availability of social services (United Nations 1995). Prof. Amartya Sen and Dr. Mahbubul Haq were instrumental in pioneering this innovation, which transformed the concept of human development. In 1990, the United Nations Development Program (UNDP) introduced the Human Development Index (HDI) as a means of measuring the level of development in every nation or region. The index is based on three dimensions: access to quality education, a long and healthy life, and access to a decent standard of living (UNDP 2011).

Human deprivation is defined as the absence of fundamental needs and services that are indispensable for achieving a satisfactory quality of life. This concept encompasses not only financial poverty, defined as the absence of financial resources, but also deficiencies in critical domains such as health, education, and living standards (UNDP and OPHI 2024). The consequences of such deprivations are profound, as individuals encounter significant challenges in achieving their full potential and maintaining a dignified quality of life. Deprivation indices exhibit considerable variation across different countries. Individuals classified as poor in South Asia are more likely to experience deficiencies in nutrition, cooking fuel, sanitation, and housing, whereas those classified as poor in Sub-Saharan Africa are more likely to experience these same deficiencies, in addition to deficiencies in drinking water and electricity (UNDP 2022). In Afghanistan, there is considerable variation in human development and its associated disparities across different regions.

This is due to a complex interplay of factors, including health, education, and lifestyle conditions.

The 2024 Global Multidimensional Poverty Index (MPI) report indicates a considerable increase in multidimensional poverty in Afghanistan. Specifically, between 2015/2016 and 2022/2023, the poverty rate increased by more than 5 percentage points. By 2022/2023, approximately two-thirds of the Afghan population (64.9%) was living in acute multidimensional poverty, indicating a severe deprivation in at least one-third of the weighted MPI indicators (UNDP and OPHI 2024).

Afghanistan is one of the least developed and poorest countries in the world. Historical evidence indicates that it is one of the most vulnerable nations in South and Central Asia. The country's economic, social, and political systems have frequently been undermined by internal conflict and external interference from neighboring countries, as well as from powerful countries such as the United Kingdom, Russia, and the United States in collaboration with allied partners. Over four decades of conflict in Afghanistan, nearly 6.1 million Afghans have been at risk of various diseases and illnesses due to a lack of essential resources, including adequate medical care, food, and safe drinking water.

The prevalence of unemployment and poverty, especially in rural areas, constitutes a significant challenge to the government's capacity to pursue its developmental objectives. The economic and political systems that were in place during the period between 2001 and 2021, unfortunately, In August 2021, the government collapsed, even before the departure of the foreign forces from the country (Safi 2024). In a global ranking of 170 countries, Afghanistan is placed 170th for the inclusion, justice, and security of women. In December 2022, the government issued a series of alarming decrees that effectively barred women from pursuing higher education and engaging in employment with nongovernmental organizations (NGOs), including the International Rescue Committee.

This paper examines regional disparities in human deprivation in Afghanistan between 2007 and 2018. The study focuses on three aspects of deprivation: living standard, health, and education. The standard of living is determined by wealth, health by life expectancy, and education by expected school enrollment and mean school enrollment. The objective of this study is to construct an index of human disparities and to examine the relationship between wealth, health, and education and human deprivation in different regions of Afghanistan. The UNDP human development index methodology was employed to construct the human deprivation index, and multiple

regression was utilized to examine the relationship between the indicators and applied Panel system with SPSS software.

Literature Review

The CPRC Report 2004 has revealed that in the UK, individuals and communities experiencing persistent poverty are more likely to face a complex set of interrelated deprivations across multiple domains (CPRC 2004). These individuals and communities have been simultaneously confronted with challenges about health, income, and education. (Sahn and Younger 2007) and (Das *et al.* 2022) The researchers discovered that poverty was not declining to a significant extent in the majority of African countries. They also proposed that additional factors, such as health and education, should be considered in analyses of deprivation. Furthermore, their findings in India revealed a notable correlation between the aforementioned dimensions across different regions. (Gustav Ranis 2004), It is important to examine the extent to which households are willing to allocate a significant portion of their post-tax income towards the purchase of items that directly contribute to the advancement of human development in underprivileged countries. This includes essentials such as food, clean drinking water, healthcare, and education.

It would be beneficial to examine other potential indicators of capability deprivation, rather than solely focusing on child mortality rates (UNDP 2006a). As indicated in the report, the loss of each child results in millions of additional instances of illness or school absence (Doubeni *et al.* 2012). A correlation has been identified between mortality risk and the consumption of red and processed meat, which is in addition to the numerous other known risk factors for mortality. Furthermore, it has been suggested that the biological mechanisms may underlie this specific meat mortality rate, rather than being a consequence of neighborhood factors, (Drèze and Khera 2012). The identification of problem areas varies depending on the specific focus of the analysis, with rural poverty, child mortality, and female literacy being illustrative examples. To illustrate, the state of Madhya Pradesh exhibits elevated mortality rates, yet its younger age groups demonstrate commendable literacy levels (Åström *et al.* 2018). A notable reduction in mortality rates associated with coronary heart disease was observed in Sweden between 1988 and 2012. The child mortality rate serves as a particularly robust indicator of capability deprivation. The report underscores the fact that the death of a child can precipitate a cascading effect, resulting in millions more falling ill

or being compelled to miss school. Therefore, child survival is an invaluable indicator of human well-being (UNDP 2006b).

In the Bertram-Hümmer and Baliki (2014) investigation, the researchers begin their inquiry with the premise that visible wealth will play a more significant role than income in an individual's perception of deprivation. The researchers thus examine the relationship between three variables: deprivation, invisible wealth, and income, as well as perceived subjective deprivation. The researchers identify a significant role for visible wealth in perceived deprivation, which indicates that its impact is predominantly more pronounced than the conventional measure of deprivation in income, and Rahman (2015) presents findings indicating that a significant degree of deprivation exists among uneducated workers with substantial property holdings, particularly those who are low-paid and employed on a casual basis. Deprivation is more prevalent among female workers than male workers, and it has also been demonstrated that inter-manufacturing workers are more deprived than the others. The most significant factors in reducing the deprivation of workers are food and expenditure. The analysis concludes that households deprived of good housing conditions and basic facilities and amenities essential for healthy and productive manpower tend to be insufficiently endowed with assets (Ansary and Das 2018).

Mishra and Ray (2013) examine the phenomenon of multidimensional deprivation in India, and its findings indicate a reduction in this phenomenon over the specified period. However, this decline was not uniform, occurring at different rates between the reform and post-reform periods and exhibiting disparities between urban and rural areas. Even though rural areas exhibited improvements throughout the entire period, the pace of improvement in urban areas decelerated markedly, even though there was a slight decline in certain aspects.

The purpose of Dubey (2009) in India was to examine the disparities between different states in the country concerning consumption, inequality, and the incidence of poverty indicators. The aforementioned indicators provide a comprehensive overview of the general well-being of the given community, as they are influenced by a multitude of policy and economic variables. Notwithstanding these limitations, the global MPI continues to serve as a robust and illuminating instrument for elucidating the multifaceted and complex nature of poverty and furnishing data that is pivotal for its alleviation (Alkire and Jahan 2018).

It was observed in Farjānī et al. (2002) that there is a discrepancy in the capacity of countries to translate income into human development, which is

defined as their "human development efficiency." This is irrespective of the specific income level and proximity to the "human development frontier." Canada, Costa Rica, Sri Lanka, and China represent a subset of countries that collectively constitute the "human development efficiency frontier." Furthermore, Jamaica and Chile are situated near the frontier, whereas Arab countries, despite their elevated income levels, exhibit a considerable deviation from the frontier. The evidence suggests that they have been ineffective in translating their financial resources and income into human development. A study conducted by MPI in India revealed that, although multidimensional poverty has decreased considerably over the past decade, this decline has been regressive. This phenomenon can be attributed to the regressivity inherent in the observed decline in various deprivation indicators (Das et al. 2022).

Poverty is a principal indicator of social and economic well-being. Despite the limitations of World Bank field teams in accessing the country, they have concluded that poverty began to rise again from 2008 onwards and that poverty levels have continued to rise in recent years. The ongoing influx of refugees and internally displaced persons into urban areas with higher costs of living and limited employment opportunities has almost certainly contributed to an exacerbation of the problem. For a significant proportion of the Afghan population, meeting basic human needs and securing employment represent significant challenges (Cordesman 2019).

As indicated in the CIA report, a significant proportion of the population continues to experience deficiencies in essential services, including housing, clean water, electricity, medical care, and employment opportunities. The country's economic growth is hindered by a multitude of factors, the most prominent of which include corruption, insecurity, weak governance, a lack of infrastructure, and the Afghan government's inability to extend the rule of law to all regions of the country. The standard of living in Afghanistan is among the lowest in the world (Cordesman and Hwang 2020).

Research Methodology

Most poverty studies focus solely on the concept of income, a dimension that also holds significant weight in analyses of economic growth and development. However, poverty is inherently a multidimensional phenomenon, just as growth and development involve multiple interconnected sectors. As such, these issues require a multidimensional analytical approach. Human development and human deprivation studies have opened new perspectives

for measuring and analyzing poverty and development beyond income alone. This study contributes to enriching useful knowledge about human deprivation, which analyzes poverty in a multidimensional way.

Data and Study Area: This study uses data from the Global Data Lab, in which Afghanistan is divided into eight regions, all of which have been selected for analysis in this study, and the study period covers 2007 to 2018.

The regions studied are as follows:

Central Region: Kabul, Maidan Wardak, Kapisa, Logar, Parwan, Panjshir

Central Highlands: Bamyan, Daikundi

East: Nangarhar, Kunar, Laghman, Nuristan

North: Samangan, Sar-e Pol, Balkh, Jowzjan, Faryab

Northeast: Baghlan, Takhar, Badakhshan, Kunduz

South: Uruzgan, Helmand, Zabul, Nimruz, Kandahar

Southeast: Ghazni, Paktia, Paktika, Khost

West: Ghor, Herat, Badghis, Farah

***Research Variables*:**

Independent Variables: they are are the Health index and sub-indexes, Education index and sub-indexes, and Living Standard index and sub-indexes.

Dependent Variable: it is Human Deprivation Index (HDepI) ti which is equal to 1/3 (Health index) ti + 1/3 (Education) ti + 1/3 (Living Standard) ti.

Equal weights have been given to poverty, health, and education variables to construct the Human Deprivation Index. Interpolation and extrapolation statistical tools have been used to find annual data.

The HDepI uses information from 10 indicators that are categorized in three dimensions: health, education, and living standards, and which identify each person as deprived depending upon the joint achievements of household members (Alkire & Jahan 2018).

Table 1. The dimensions, indicators, weights, and calculation of the independent variables are as follows according to the new global MPI

Dimensions of poverty	Indicator	Deprived of and formula for calculating	Weight
Health	Child mortality	Any child has died in the family in the five years preceding the survey (As% %).	1/3

Education	Years of schooling	No household member aged 10 years or older has completed six years of schooling (100%- %YEARS of schooling at edge 12-14 – Region).	1/6
	School attendance	Any school-aged child is not attending school up to the age at which he/she would complete class 8(100%-%Educational-attendance-child 15-17).	1/6
Wealth	Electricity	The household has no electricity(100%-%Electricity).	1/9
	Assets	The household does not own more than one of these assets: radio, TV, telephone, computer, animal cart, bicycle, motorbike, or refrigerator, and does not own a car or truck (100%-Asset).	1/9
	International-Wealth-Index-(IWI)—Region	(100%-%International-Wealth-Index-(IWI) – Region).	1/9

Source: Alkire and Jahan 2018.

Calculating the Human Deprivation Index (HDepI)

The Human Deprivation Index (HDepI) is a composite measure designed to assess deprivation across three key dimensions: health, education, and living standards. Each dimension is equally weighted to reflect its importance in determining overall human deprivation (Alkire and Jahan, 2018).

Formula for HDepI

The HDepI is calculated using the following formula:

$$HDepIti=1/3(Health\ indexti) + 1/3(Education\ indexti) + 1/3(Living\ Standard\ indexti)$$

Where:

Health index: represents the health dimension for period (t) and individual (i).

Education index: represents the education dimension for period (t) and individual (I).

Living Standard $index_{ti}$: represents the living standards dimension for period (t) and individual (i).

Dimensions and Indicators

The HDepI uses information from 10 indicators categorized into three dimensions:

Health

Child Mortality: Any child has died in the family in the five years preceding the survey (as a percentage).

Education

Years of Schooling: No household member aged 10 years or older has completed six years of schooling. In this research, we define this variable as the percentage of family members aged 12-14 who have completed less than six years of schooling. In Afghanistan, children typically start school at age 7 or older.

School Attendance: Any school-aged child who is not attending school up to the age at which they would complete class 8. We define this variable as the percentage of families with children aged 15-17 who did not attend school until that age

Living Standards

Electricity: The household has no electricity.

Assets: The household does not own more than one of these assets: radio, TV, telephone, computer, animal cart, bicycle, motorbike, or refrigerator, and does not own a car or truck.

International Wealth Index (IWI): The household's wealth status as measured by the International Wealth Index.

Weighting of Indicators

Each dimension and its respective indicators are assigned specific weights to calculate the overall index:

Health: 1/3

Education: 1/3 (divided equally between Years of Schooling and School Attendance, each receiving 1/6)

Living Standards: 1/3 (divided equally among Electricity, Assets, and IWI, each receiving (1/9)

Research Econometrics Methodology

This study applies the Alkire and Jahan (2018) framework for analyzing human deprivation and includes three Human Development indices, which highlight social deprivations in essential human lives in contrast to income poverty. This is one of its strengths because it captures the idea of poverty by indicating the distribution of deprivations, and it is also used in monitoring and comparing achievements in poverty alleviation strategies and in reviewing economic and social results. This made it extremely flexible and versatile as it can easily accommodate different types of data and can handle as many dimensions as needed. As for the third aspect, it is also important to point out that indicators and criteria should be selected for each dimension about economic profiles in each country, and information accessibility.

In this study, the methodology used to calculate human deprivation is Alkire and Jahan's (2018) multidimensional poverty approach, which employs the Human Development Index (HDI). However, due to the type of analysis that employed secondary data, only Alkire and Jahan's formula dimensions were utilized, while allocating equal weights to every dimension. After that, a decision on the weights of each sub-index, which is reflected in the table above, was made as well.

This enables one to make a more extensive analysis of the extent of human deprivation at play, bearing in mind several aspects of the human developmental cycle as well as aspects of human seclusion. The soundness of this methodology with equal weights for the dimensions, as well as the assignment of weights to those sub-indices depending on the availability of data, is going to make the method appropriate for assessing human deprivation within this study.

OLS regression analysis has been used to analyze the relationship between the human Deprivation Index and health, life standard, and education.

The OLS regression analysis model is as follows:

$y = \alpha + \beta_1 X1i + \beta_2 X2i + \beta_3 X3i + ei$

Where:

y is the Human Deprivation Index,

α is a constant,

X1ij is the health dimension of human deprivation in year i.

X2 ij is the education dimension of human deprivation in year i,

X3 ij is the living standards dimension in the i year,

B1, β2 and β3 are coefficients, and

e_1 is the error term.

The error term e_1 is assumed to have a normal distribution with zero mean, constant variance, and zero correlation with the explanatory variables.

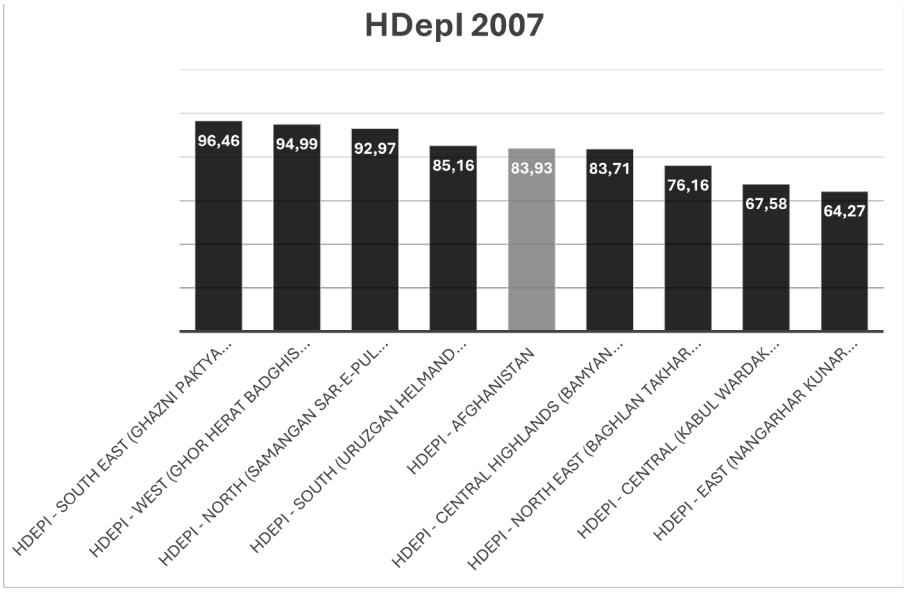
Empirical Analysis

Disparities Analysis of the Human Deprivation Index in Different Regions of Afghanistan (2007-2018)

According to the graph below, the Human Deprivation Index has decreased in all regions of Afghanistan from 2007 to 2018. This decrease indicates an improvement in living conditions and a reduction in deprivation in these regions. The Southeastern regions (Ghazni, Paktia, Paktika and Khost) experienced the largest decrease in the Human Deprivation Index, from 96.46 in 2007 to 23.84 in 2018. Similarly, the central regions and the central highlands have seen significant changes. The Eastern regions (Nangarhar, Kunar, Laghman and Nuristan) have seen the smallest decrease in the Human Deprivation Index, from 64.27 in 2007 to 52.74 in 2018.

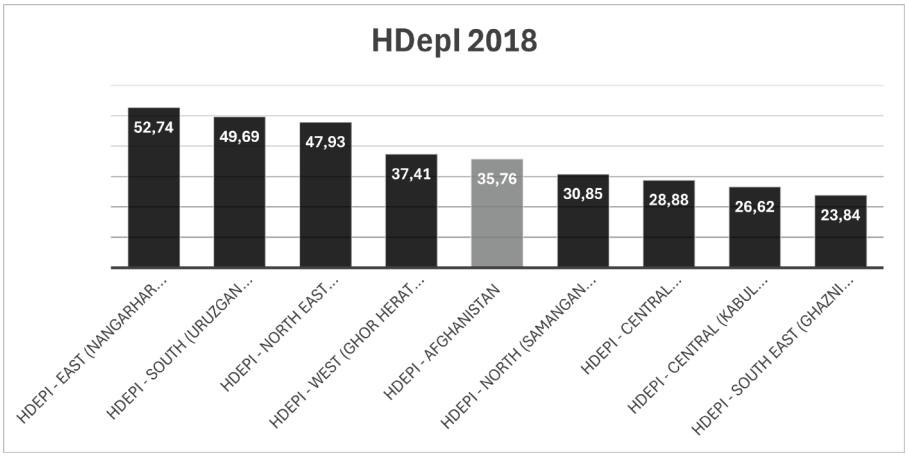
Overall, Afghanistan's Human Deprivation Index decreased from 83.9 percent in 2007 to 35.76 percent in 2018. This analysis shows that all regions of Afghanistan experienced a decrease in the Human Deprivation Index from 2007 to 2018. These results can help policymakers focus on improving living conditions and reducing deprivation to further improve the Human Deprivation Index.

Figure 1. HDepI 2007 in all regions in Afghanistan



Source: Research result.

Figure 2. HDepI 2018 in all regions in Afghanistan



Source: Research result.

Analysis of Human Deprivation Across Regions

Table 2. Descriptive Statistics

Region	HDepI Mean	Wealth Mean	Education Mean	Health Mean	N
Central	47.13	40.51	31.55	69.34	12
Central Highlands	56.06	44.44	30.56	47.39	12
East	58.51	63.55	46.48	65.50	12
North	61.98	48.28	41.07	96.58	12
North East	62.13	53.02	47.10	86.28	12
South	67.22	62.70	71.81	67.15	12
South East	59.28	50.91	42.05	84.88	12
West	66.13	52.70	48.68	97.03	12

Source: Research result.

Table 3. Model Summary

Region	R	R Square	Adjusted R Square	Std. Error of the Estimate
Central	1.000	1.000	1.000	0.0108
Central Highlands	1.000	1.000	1.000	0.0000003142
East	1.000	1.000	1.000	0.0125
North	1.000	1.000	1.000	0.0179
North East	1.000	1.000	1.000	0.0195
South	1.000	1.000	1.000	0.0071
South East	1.000	1.000	1.000	0.0102
West	1.000	1.000	1.000	0.0223

Source: Research result.

Table 4. ANOVA

Region	Sum of Squares	Df	Mean Square	F Value	Sig.
Central	1991.536	2	995.768	8576396.459	0.000
Central Highlands	3557.410	3	1185.803	-	0.000
East	156.618	2	78.309	503876.294	0.000
North	4572.974	2	2286.487	7107828.017	0.000
North East	954.005	2	477.002	1250375.822	0.000
South	1501.309	2	750.655	14873306.259	0.000
South East	6343.545	2	3171.772	30344562.959	0.000
West	3905.120	2	1952.560	3942400.861	0.000

Source: Research result.

Table 5. Coefficients

Region	Coefficient Wealth (Sig.)	Coefficient Education (Sig.)	Coefficient Health (Sig.)	Constant (Sig.)
Central	0.221 (0.000)	0.010 (0.957)	0.438 (0.000)	16.463 (0.013)
Central Highlands	0.333 (0.000)	0.333 (0.000)	0.333 (0.000)	2.902E-10 (1.000)
East	0.740 (0.000)	1.037 (0.000)	0.141 (0.308)	1.106 (0.913)
North	0.344 (0.000)	0.113 (0.000)	0.391 (0.000)	7.624 (0.000)
North East	0.279 (0.000)	1.142 (0.000)	0.376 (0.000)	-24.148 (0.002)
South	0.338 (0.000)	0.464 (0.000)	1.324 (0.000)	-42.853 (0.000)
South East	0.276 (0.000)	0.059 (0.000)	0.369 (0.000)	13.910 (0.000)
West	0.189 (0.000)	0.629 (0.019)	0.400 (0.000)	-3.316 (0.740)

Source: Research result.

Analysis of Human Deprivation Index in Central Regions of Afghanistan (Kabul, Wardak, Kapisa, Logar, Parwan, and Panjshir)

In this statistical and regression analysis of the central regions of Afghanistan (Kabul, Wardak, Kapisa, Logar, Parwan, and Panjshir), we initially examine the descriptive statistics. The mean Human Deprivation Index for the central regions (HDepI - Central) is 47.13, with a standard deviation of 13.46. Furthermore, the mean Wealth Index for the central regions (Wealth_Central) is 40.51, with a standard deviation of 8.93. About the field of education (Education_Central), the mean is 31.55, with a standard deviation of 0.71. In the domain of health (Health - Central), the mean is 69.34 with a standard deviation of 30.72.

The regression model shows a perfect fit, with R, R-squared, and adjusted R-squared all equal to 1.000, and a very low standard error, confirming that the model accurately explains variations in the Human Deprivation Index (HDepI). ANOVA results support the model's significance, with a high F-value and a p-value of 0.000. The constant value of 16.463 represents the baseline HDepI without any independent variables. Among the predictors, health and wealth have significant positive effects on HDepI, with coefficients of 0.438 and 0.221, respectively. In contrast, education has a minimal and statistically insignificant impact, with a coefficient of 0.010 and a high p-value, indicating it does not meaningfully influence HDepI in these regions.

In conclusion, the results of this analysis demonstrate that health and wealth have a significant and substantial impact on the Human Deprivation Index in the central regions of Afghanistan. Conversely, the impact of education on the Index is not significant. These findings can assist policymakers in prioritizing the improvement of health and wealth in their planning and decision-making processes, to enhance the Human Deprivation Index.

Analysis of Human Deprivation Index in the Central Highlands of Afghanistan (Bamyan and Daikundi)

In this statistical and regression analysis of the central highlands of Afghanistan (Bamyan and Daikundi), we initially examine the descriptive statistics. The mean Human Deprivation Index for the central highlands (HDepI - Central) is 56.06, with a standard deviation of 17.98. Furthermore, the mean Wealth Index for the central highlands (Wealth Central Highlands) is 44.44, with a standard deviation of 8.91. About the field of education, the

mean is 30.56, with a standard deviation of 0.45. In the domain of health (Health - Central Highlands), the mean is 47.39 with a standard deviation of 8.90.

The regression model demonstrates an exceptional fit, with R, R-squared, and adjusted R-squared values all at 1.000, and an extremely low standard error of 0.000000314222, indicating that the independent variables—wealth, education, and health—comprehensively explain the variations in the Human Deprivation Index (HDepI). ANOVA results further confirm the model's significance, with a sum of squares of 3557.410, degrees of freedom at 3, a mean square of 1185.803, an F-value of 8,576,396.459, and a significance level of 0.000. The model's constant is 0.000, suggesting that in the absence of all predictors, the HDepI would be zero. Each independent variable—wealth, education, and health—has an equal and statistically significant positive coefficient of 0.333, indicating that increases in any of these factors are associated with proportional increases in the HDepI within the Central Highlands.

The significance level (Sig.) for all coefficients is 0.000, indicating a high level of significance. In other words, all independent variables (wealth, education, and health) have a major impact on the Human Deprivation Index, and the regression model has successfully captured these effects.

In conclusion, the analysis demonstrates that wealth, education, and health exert a significant and equal impact on the Human Deprivation Index in the central highlands of Afghanistan. These findings can assist policymakers in prioritizing these sectors in their planning and decision-making processes, with the aim of improving the Human Deprivation Index by enhancing wealth, education, and health.

Analysis of Human Deprivation Index in Eastern Regions of Afghanistan (Nangarhar, Kunar, Laghman, and Nuristan)

In this statistical and regression analysis of the Eastern regions of Afghanistan (Nangarhar, Kunar, Laghman, and Nuristan), we first examine the descriptive statistics. The mean Human Deprivation Index for the Eastern regions (HDepI - East) is 58.51, with a standard deviation of 3.77. Furthermore, the mean Wealth Index for the Eastern regions (Wealth_East) is 63.55, with a standard deviation of 8.37. About the field of education (Education_East), the mean is 46.48, with a standard deviation of 3.75. In the domain of health (Health - East), the mean is 65.50 with a standard deviation of 0.80.

The regression model shows a perfect fit, with R, R-squared, and adjusted R-squared values all at 1.000 and a low standard error of 0.0125, indicating strong explanatory power. ANOVA results support the model's significance with a high F-value and a p-value of 0.000. The constant value is 1.106, suggesting that in the absence of education, health, and wealth, the Human Deprivation Index (HDepI) would be 1.106. Among the variables, education (coefficient = 1.037) and wealth (coefficient = 0.740) have significant positive effects on HDepI in the Eastern region. However, health (coefficient = 0.141) does not show a statistically significant impact.

The significance level (Sig.) for the coefficients representing education and wealth is 0.000, indicating a high level of significance. In other words, education and wealth have a significant impact on the Human Deprivation Index, and the regression model has successfully captured these effects. The coefficient for health, with a significance level of 0.308, indicates that the impact of health on the Human Deprivation Index is not statistically significant.

In conclusion, the results of this analysis demonstrate that education and wealth exert a significant and substantial influence on the Human Deprivation Index in the Eastern regions of Afghanistan, whereas the impact of health is not statistically significant. These findings can assist policymakers in prioritizing the improvement of education and wealth in their planning and decision-making processes, to enhance the Human Deprivation Index.

Analysis of Human Deprivation Index in Northern Regions of Afghanistan (Samangan, Sar-e Pol, Balkh, Jawzjan, and Faryab)

In this statistical and regression analysis of the Northern regions of Afghanistan (Samangan, Sar-e Pol, Balkh, Jawzjan, and Faryab), we initially examine the descriptive statistics. The mean Human Deprivation Index for the Northern regions (HDepI-North) is 61.98, with a standard deviation of 20.39. Furthermore, the mean Wealth Index for the Northern regions (Wealth_North) is 48.28 with a standard deviation of 17.54. About the field of education (Education_North), the mean is 41.07, with a standard deviation of 6.90. In the domain of health (Health - North), the mean is 96.58 with a standard deviation of 36.74.

The regression model summary indicates a perfect fit of the model, as evidenced by an R-value of 1.000 and an R-squared value of 1.000. Additionally, the adjusted R-squared value is 1.000, and the standard error of the estimate is 0.0179. These values demonstrate that the model has effectively elucidated

the variations in the Human Deprivation Index through the utilization of the independent variables.

In the ANOVA, the sum of squares is 4572.974, the degrees of freedom are 2, the mean square is 2286.487, the F value is 7107828.017, and the significance level is 0.000. These findings demonstrate that the regression model has effectively elucidated the underlying variations in the Human Deprivation Index.

The value of the constant in this model is 7.624. This value indicates that if all independent variables (Wealth, Health, and Education) are equal to zero, the Human Deprivation Index will be 7.624.

In the Northern region, wealth, health, and education all have a significant positive impact on the Human Deprivation Index. A one-unit increase in the wealth index raises deprivation by 0.344 units, while a one-unit rise in the health index increases it by 0.391 units. Similarly, education contributes 0.113 units per one-unit increase. All coefficients are statistically significant ($p = 0.000$), showing that the regression model effectively captures the influence of these variables on human deprivation.

The significance level (Sig.) for the coefficients of wealth, health and education is 0.000, which indicates high significance. In other words, wealth, health, and education have a significant impact on the human deprivation index, and the regression model has successfully captured these effects.

This analysis shows that wealth, health, and education have a significant and substantial impact on the Human Deprivation Index in the Northern regions of Afghanistan. These results can help policymakers focus on improving wealth, health, and education in their planning and decision-making to improve the Human Deprivation Index.

Analysis of Human Deprivation Index in Northeastern Regions of Afghanistan (Baghlan, Takhar, Badakhshan, and Kunduz)

In this statistical and regression analysis of the Northeastern regions of Afghanistan (Baghlan, Takhar, Badakhshan, and Kunduz), we initially examine the descriptive statistics. The mean Human Deprivation Index for the Northeastern regions (HDepI - North East) is 62.13, with a standard deviation of 9.31. Furthermore, the mean Wealth Index for the Northeastern regions (Wealth_North East) is 53.02 with a standard deviation of 7.80. About the field of education (Education_North East), the mean is 47.10, with a standard

deviation of 2.26. In the domain of health (Health - North East), the mean is 86.28 with a standard deviation of 17.88.

The regression model summary reveals that the R-squared value is 1.000, indicating a perfect fit of the model. Additionally, the adjusted R-squared value is 1.000, and the standard error of the estimate is 0.0195. These values demonstrate that the model has effectively elucidated the variations in the Human Deprivation Index through the utilization of the independent variables.

The ANOVA shows that the regression model significantly explains the variation in the Human Deprivation Index, with a high F-value of 1,250,375.822 and a significance level of 0.000. This confirms the model's effectiveness in capturing the influence of the independent variables.

The constant value is -24.148, indicating that without education, health, and wealth, the Human Deprivation Index would be negative. This reflects the baseline condition in the absence of these factors. In the Northeast region, education has a strong positive effect on deprivation, with a coefficient of 1.142. Health also contributes positively, with a coefficient of 0.376, and wealth follows with a coefficient of 0.279. All three variables are statistically significant, showing that increases in education, health, and wealth are associated with higher levels of human deprivation in this context.

The significance level (Sig.) for the education, health, and wealth coefficients is 0.000, indicating a high level of significance. In other words, the regression model has demonstrated that education, health, and wealth have a significant impact on the Human Deprivation Index.

In conclusion, the analysis demonstrates that education, health, and wealth have a significant and substantial impact on the Human Deprivation Index in the Northeastern regions of Afghanistan. These findings can assist policymakers in prioritizing the improvement of education, health, and wealth in their planning and decision-making processes, to enhance the Human Deprivation Index.

Analysis of Human Deprivation Index in Southern Regions of Afghanistan (Uruzgan, Helmand, Zabul, Nimroz, and Kandahar)

In this statistical and regression analysis of the Southern regions of Afghanistan (Uruzgan, Helmand, Zabul, Nimroz, and Kandahar), we initially examine the descriptive statistics. The mean Human Deprivation Index for the Southern regions (HDepI - South) is 67.22, with a standard deviation of 11.68. Furthermore, the mean Wealth Index for the Southern regions

(Wealth_South) is 62.70, with a standard deviation of 13.39. About the field of education (Education_South), the mean is 71.81, with a standard deviation of 16.26. In the domain of health (Health - South), the mean is 67.15 with a standard deviation of 5.41.

The regression model summary indicates a perfect fit of the model, as evidenced by an R-value of 1.000 and an R-squared value of 1.000. Additionally, the adjusted R-squared value is 1.000, and the standard error of the estimate is 0.0071. These values demonstrate that the model has effectively elucidated the variations in the Human Deprivation Index through the utilization of the independent variables.

In the ANOVA, the sum of squares is 1501.309, the degrees of freedom are 2, the mean square is 750.655, the F value is 14873306.259, and the significance level is 0.000. These results indicate that the regression model has significantly explained the variations in the Human Deprivation Index.

The constant value in this model is -42.853. This value indicates that in the absence of all independent variables (wealth and health), the Human Deprivation Index will be -42.853.

The variable designated as "Wealth" (in this case, "Wealth_South"): The coefficient for wealth is 0.338. This coefficient indicates that with an increase of one unit in the wealth index, the Human Deprivation Index increases by 0.338 units. This coefficient is statistically significant, indicating a positive and substantial impact of wealth on human deprivation in these regions.

The variable designated "Health-South" represents the state of health in the region. The coefficient for health is 1.324. This coefficient indicates that with an increase of one unit in the health index, the Human Deprivation Index increases by 1.324 units. This coefficient is statistically significant, indicating a positive and substantial impact of health on human deprivation in these regions.

The significance level (Sig.) for each variable is 0.000, indicating a high level of significance. In other words, education, wealth, and health have a significant impact on the Human Deprivation Index, and the regression model has successfully captured these effects.

In conclusion, the results of this analysis demonstrate that education, wealth, and health have a significant and substantial impact on the Human Deprivation Index in the Southern regions of Afghanistan. These findings can assist policymakers in prioritizing the enhancement of wealth and health in their planning and decision-making processes, thereby facilitating the improvement of the Human Deprivation Index.

Analysis of the Human Deprivation Index in Southeastern Regions of Afghanistan (Ghazni, Paktia, Paktika, and Khost)

In this statistical and regression analysis of the Southeastern regions of Afghanistan (Ghazni, Paktia, Paktika, and Khost), we first examine the descriptive statistics. The mean Human Deprivation Index (HDepI) for the Southeastern regions is 59.28, with a standard deviation of 24.01. Furthermore, the mean Wealth Index for the Southeastern regions (Wealth_South East) is 50.91, with a standard deviation of 10.69. About the field of education (Education_South East), the mean is 42.05, with a standard deviation of 4.26. In the domain of health (Health - South East), the mean is 84.88 with a standard deviation of 57.10.

The regression model summary reveals that the R-squared value is 1.000, indicating a perfect fit of the model. Additionally, the adjusted R-squared value is 1.000, and the standard error of the estimate is 0.0102. These values demonstrate that the model has effectively elucidated the variations in the Human Deprivation Index through the utilization of the independent variables.

In the ANOVA, the sum of squares is 6343.545, the degrees of freedom are 2, the mean square is 3171.772, the F value is 30344562.959, and the significance level is 0.000. These results indicate that the regression model has significantly explained the variations in the Human Deprivation Index.

The constant value in this model is 13.910. This value indicates that in the absence of all independent variables (wealth, health, and education), the Human Deprivation Index will be 13.910.

The variable designated as "Wealth" (Wealth_South East) is defined as follows: The coefficient for wealth is 0.276. This coefficient indicates that with an increase of one unit in the wealth index, the Human Deprivation Index increases by 0.276 units. This coefficient is statistically significant, indicating a positive and substantial impact of wealth on human deprivation in these regions.

The health coefficient for the South East region is 0.369. It indicates that with an increase of one unit in the health index, the Human Deprivation Index increases by 0.369 units. This coefficient is statistically significant, indicating a positive and substantial impact of health on human deprivation in these regions.

The coefficient for education in the South East region is 0.059. This coefficient indicates that with an increase of one unit in the education index, the Human Deprivation Index increases by 0.059 units. This coefficient

is statistically significant, indicating a positive and substantial impact of education on human deprivation in these regions.

The significance level (Sig.) for the wealth, health, and education coefficients is 0.000, indicating a high level of significance. In other words, the variables of wealth, health, and education have a significant impact on the Human Deprivation Index, and the regression model has successfully captured these effects.

In conclusion, the analysis demonstrates that wealth, health, and education exert a significant influence on the Human Deprivation Index in the Southeastern regions of Afghanistan. These findings can assist policymakers in prioritizing the improvement of wealth, health, and education in their planning and decision-making processes to enhance the Human Deprivation Index.

Analysis of the Human Deprivation Index in Western Regions of Afghanistan (Ghor, Herat, Badghis, and Farah)

In this statistical and regression analysis of the Western regions of Afghanistan (Ghor, Herat, Badghis, and Farah), we first examine the descriptive statistics. The mean Human Deprivation Index (HDepI) for the Western regions is 66.13, with a standard deviation of 18.84. Furthermore, the mean Wealth Index for the Western regions (Wealth_West) is 52.70, with a standard deviation of 10.67. About the field of education (Education_West), the mean is 48.68, with a standard deviation of 2.16. In the domain of health (Health - West), the mean is 97.03 with a standard deviation of 43.69.

The regression model summary indicates a perfect fit of the model, as evidenced by an R-value of 1.000 and an R-squared value of 1.000. Additionally, the adjusted R-squared value is 1.000, and the standard error of the estimate is 0.0223. These values demonstrate that the model has effectively elucidated the variations in the Human Deprivation Index through the utilization of the independent variables.

In the ANOVA, the sum of squares is 3905.120, the degrees of freedom are 2, the mean square is 1952.560, the F value is 3942400.861, and the significance level is 0.000. These findings demonstrate that the regression model has effectively elucidated the underlying variations in the Human Deprivation Index.

1. The constant represents the mean value of the dependent variable when all the independent variables are held constant at their mean values. The constant value in this model is -3.316. This value indicates that if all

independent variables (wealth, health, and education) are set to zero, the Human Deprivation Index will be -3.316.

2. Education (Education_West): The coefficient for education is 0.629. This indicates that with a one-unit increase in the education index, the Human Deprivation Index increases by 0.629 units. The coefficient is significant, indicating a positive and substantial impact of education on human deprivation in these regions.

The variable designated "Wealth (Wealth_West)" is defined as follows: The coefficient of wealth is 0.189. This coefficient indicates that with an increase of one unit in the wealth index, the Human Deprivation Index increases by 0.189 units. This coefficient is statistically significant, indicating a positive and substantial impact of wealth on human deprivation in these regions.

The significance level (Sig.) for the education, health, and wealth coefficients is 0.000, indicating a high level of significance. In other words, the regression model has demonstrated that education, health, and wealth have a significant impact on the Human Deprivation Index.

In conclusion, the results of this analysis demonstrate that education, health, and wealth have a significant impact on the Human Deprivation Index in the Western regions of Afghanistan. These findings can assist policymakers in prioritizing the improvement of education, health, and wealth in their planning and decision-making processes to enhance the Human Deprivation Index.

Conclusion

This study on Human Deprivation and Its Disparities in Afghanistan with its Regions (2007-2018) employs the Human Deprivation Index (HDI) to reveal significant regional variations in multidimensional poverty across Afghanistan's eight regions. Utilizing the Human Deprivation Index (HDepI), which was developed through the UNDP's Human Development Index methodology and the Alkire-Foster framework, the study demonstrates a decline in deprivation from 83.9% in 2007 to 35.76% in 2018. The Southeastern regions (Ghazni, Paktia, Paktika, Khost) exhibited the most significant decrease (96.46 to 23.84), while the Eastern regions (Nangarhar, Kunar, Laghman, Nuristan) demonstrated the least (64.27 to 52.74).

Regression analyses underscore the heterogeneous impacts of health, education, and wealth on deprivation. In the central regions, health (coefficient 0.438) and wealth (0.221) have been identified as significant contributors

to the HDepI, while education (0.010) is non-significant. Conversely, the central highlands exhibit an equal contribution from all three dimensions, with each dimension contributing 0.333 to the model. In contrast, Eastern regions exhibit a divergent pattern, with education (1.037) and wealth (0.740) assuming a dominant role, while health (0.141) demonstrates insignificance. The coefficients for the Northern, Northeastern, Southern, Southeastern, and Western regions are significant, with variations in the coefficients across regions.

The study's findings underscore the necessity for region-specific interventions, namely the improvement of health in the central and Southern regions, education in the Eastern and Northeastern regions, and wealth in the Southeastern and Western regions. Addressing systemic issues, such as conflict and gender inequality, is imperative to ensure the continuity of progress.

Bibliography

Alkire, Sabina, and Selim Jahan. "The New Global MPI 2018: Aligning with the Sustainable Development Goals." UNDP Human Development Report Office (HDRO), Occasional Paper, 2018. https://hdr.undp.org/system/files/documents/2018mpijahanalkire.pdf.

Ansary, R., and B. Das. "Regional Patterns of Deprivation in India: An Assessment Based on Household Characteristics, Basic Amenities and Asset Possession." *Social Change* 48, no. 3 (2018): 367–383. https://doi.org/10.1177/0049085718781663.

Åström, D. O., J. Sundquist, and K. Sundquist. "Differences in declining mortality rates due to coronary heart disease by neighbourhood deprivation." *Journal of Epidemiology and Community Health (1979-)* 72, no. 4 (2018): 314–318.

Bertram-HHmmer, V., and G. Baliki. "The Role of Visible Wealth for Deprivation." *SSRN Electronic Journal,* 2014. https://doi.org/10.2139/ssrn.2456139.

Cordesman, A. H. *Key Causes of Instability – Economics and "Poverty".* Center for Strategic and International Studies (CSIS), 2019, 239–270. http://www.jstor.org/stable/resrep22583.19.

Cordesman, A. H., and G. Hwang. *Afghanistan's Critical Economic Challenges*. Center for Strategic and International Studies (CSIS), 2020, 140–158. http://www.jstor.org/stable/resrep25320.10.

CPRC. *The Chronic Poverty Report 2004–05*. Institute for Development Policy & Management, 2024. https://media.odi.org/documents/1778.pdf.

Das, P., S. Ghosh, and B. Paria. "Multidimensional poverty in India: A study on regional disparities." *GeoJournal* 87, no. 5 (2022): 3987–4006. https://doi.org/10.1007/s10708-021-10483-6.

Doubeni, C. A., et al. "Socioeconomic status and the risk of colorectal cancer: An analysis of more than half a million adults in the National Institutes of Health-AARP Diet and Health Study." *Cancer* 118, no. 14 (2012): 3636–3644. https://doi.org/10.1002/cncr.26677.

Drèze, J., and R. Khera. "Regional Patterns of Human and Child Deprivation in India." *Economic and Political Weekly* 47, no. 39 (2012): 42–49.

Dubey, A. "Intra-State Disparities in Gujarat, Haryana, Kerala, Orissa and Punjab." *Economic and Political Weekly* 44, no. 26/27 (2009): 224–230.

Farjānī, N. *The Arab human development report 2002: Creating opportunities for future generations*. United Nations Development Programme & Arab Fund for Economic and Social Development, 2002.

Ranis, Gustav. "Human Development and Economic Growth." *Economic Growth Center,* Yale University, 2004. http://www.econ.yale.edu/~egcenter/.

Mishra, A., and R. Ray. "Multi-Dimensional Deprivation in India During and After the Reforms: Do the Household Expenditure and the Family Health Surveys Present Consistent Evidence?" *Social Indicators Research* 110, no. 2 (2013): 791–818.

Rahman, M. A. "Relative Deprivation and the Working Poor: An Empirical Analysis." *The Journal of Developing Areas* 49, no. 4 (2015): 379–389.

Safi, L. "Review of Afghanistan's development pattern from 2001 to 2021: A relative lack of sustainability, inclusiveness, and prosperity." *Journal of Social and Economic Development* 26, no. 1 (2024): 333–352. https://doi.org/10.1007/s40847-023-00268-7.

Sahn, D. E., and S. D. Younger. "Living Standards in Africa." *SSRN Electronic Journal,* 2007. https://doi.org/10.2139/ssrn.1008061.

UNDP (Ed.). *Beyond scarcity: Power, poverty and the global water crisis.* UNDP, 2006a.

UNDP (Ed.). *Beyond scarcity: Power, poverty and the global water crisis.* UNDP, 2006b.

UNDP. *Unpacking deprivation bundles to reduce multidimensional poverty [GLOBAL MULTIDIMENSIONAL POVERTY INDEX 2022].* 2022.

UNDP and OPHI. *Global Multidimensional Poverty Index 2024.* 2024.

United Nations. *The Copenhagen Declaration and Programme of Action: World Summit for Social Development.* United Nations, 1995.