

**Households in Nothern Ghana**

Name

School

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Date

## **Introduction**

Ghana serves a perfect backdrop for the struggle to define the role of socioeconomic factors, whereby a number of very valuable lessons can be observed concerning the relation between economic realities, health status, educational achievements, and social outcomes. It is by studying the dynamics of this survey data as based on the ISER-Northwestern-Yale Long-Term Ghana Socioeconomic Panel Survey (GSPS) that this research sets out to unveil the multi-parameters that influence the lives of the people of Ghana.

## **Importance and Relevance**

First, there is the identification of research questions with multiple potential hypotheses each containing a number of sub-hypotheses. First of all, it focuses on the aspects of the Ghanaian society; Ghana is the country in Sub-Saharan Africa that, as many other states, experiences the processes of the shift in the economical statuses, health concerns, educational modernization. Knowledge of these dynamics is vital, therefore, not only for policymakers and academicians, but also for IGOs and INGOs that would like to carry out efficient interventions.

## **Historical and Environmental Context**

Ghana as a country was not exceptional having gone through many economic and social changes since the moment of its independent. From being a largest producer of cocoa in the world to finding petroleum oil, the economic structure of the country's has changed drastically. Such changes have far-reaching social consequences in relation to employment, education, and health status among the population.

Environmental factors are also not left out when it comes to the roles that they are accorded in the healthcare sector. Physical environment of Ghana such as the coastal area, savannah, etc explain the level of farming, health, education, and economic gains etc in Ghana. Climate change on the other hand complicates these environmental problems and thus it becomes important to establish how those factors influence each other in the course of time.

### **Academic and Policy Implications**

The observation and conclusions drawn from this research can hence be seen to have relevance in any African country. On the academic front, they inform the existing discussion on socio-economic development in the developing nations. From the methodology angle, the contribution of the present study is the supply of data from a development dynamic viewpoint, which is useful for the enhancement of theoretical designs of economic growth and health economics and education human capital research.

On the policy side, the findings that has been achieved in this study are very huge. They provide sound advice that can be used by the government to set up policies that would enhance the nation's health status, education, and economic stability. For example, knowledge concerning the effects of health program carried out in early childhood on educational achievement later in life can inform allocations to health initiatives. Thus, these findings can be useful for international development organizations to shape their programs more successfully, so that the assistance and interventions correspond to the existing conditions.

## **Theoretical Foundation and Hypothesis**

So the main research question can be formulated as follows: What is the relationship between the socioeconomic situation, health, and education and their temporal dynamics? The theoretical support for this hypothesis can be derived from the Human Capital Theory which postulates that health and education expenditure will yield better returns in terms of economy. Also, the SDH model emphasizes various socioeconomic factors that may affect the health of individuals within a society. Thus, the proposed hypothesis states that there is a positive relationship between provision of education and healthcare facilities on economic growth and social well-being. On the other hand, regions that are experiencing high levels of barriers in these aspects will continue to be in the poverty bracket and have poor health standards.

## **Research Context and Objectives**

Subsequently, the ISER-Northwestern-Yale Long-Term Ghana Socioeconomic Panel Survey delivers a solid basis to analyse these hypotheses. Given details concerning household economic activities, health, education, and social issues, the GSPS provides a basic means to understand the process and the causes of socioeconomic development of Ghana.

Our research objectives are threefold:

- For the purpose of identifying the long-term effects of OH interventions on education and economic status of people.
- This paper aims to select the variable of education access to analyze its contribution in determining both the economic prospects and health wellbeing among individuals.

- To analyze how environmental circumstances and socioeconomic factors tend to evolve over time.

Thus, achieving these objectives will help to enhance the knowledge of development pathways in Ghana and offer practical advice that can be useful for the key actors who influence the country's development.

## **Literature Review**

### **Historical and Contemporary Perspectives**

Since the inception of most third world countries, the socioeconomic development of Ghana has been a subject of numerous research studies. Many researchers have scaled down this analysis to studying how this development occurred in the realms of historical economic policies or modern social consequences. Of all the changes that have occurred the shift from an agrarian economy towards an industrial and service economy has been widely documented. Some research like Aryeetey and Kanbur (2008) associates the structural adjustments in the 1980s and the mid-1990s as stabilizing efforts meant for growth. However, such policies were sometime proved to have negative impacts on divisions as well as had varying effects on different socioeconomic classes of people.

### **Health and Economic Outcomes: A Bidirectional Relationship**

In the literature, there is a well-documented connection between the different aspects of health and various economic consequences. According to Grossman (1972), health is a component of human capital and is used to produce output with a direct impact on economic results. Other research from within the context of the Ghanaian setting conducted by Asante and

Zwi (2009) depicts the centrality of health within the pretext of productivity in the economy. The critics' claim that poor health standards reflecting healthcare access and nutrition hamper growth due to decreased workforce efficiency and increased costs. This view is backed up by further studies done by Whitehead, Dahlgren and Evans (2001) where they extended that health inequalities in turn reflect and result from socioeconomic inequalities. This theory is noteworthy because, according to Vijaya and colleagues' findings, tackling health inequalities is crucial for enhancing the prospects of enduring economic growth.

### **Education and Economic Development: The Role of Human Capital**

Education is another key factor that defines the Economic development as the tool that accelerates improving the Human Capital. Schultz (1961) explained the notion of human capital asserting that capital investment in education pays off by increasing productivity and hence economic growth. In Ghana the education sector has undergone dramatic changes in the policies and practices to increase the access and quality. According to Glewwe & Jacoby (1994) and Duflo (2001) research, the levels of educational achievements are positively related to economic returns including income and employment.

Although education has its advantages, these are not equal across the SOC. Rolleston (2009) in his study notes that despite attempts that have been made, there is still inequalities in education in terms of access and quality between the urban and rural areas of Ghana. These differences feed a cycle of getting poorer as children from poor families are likely to be provided with poor quality education and therefore, are likely to get low paying jobs as they grow up.

### **Agricultural Factors and Socioeconomic Development**

Despite the country's economic transformation, Agriculture remains one of the significant sources of sustenance for the people of Ghana. The underlying performance of the agricultural sector has significant tight with the socio economic development because it determines food security, employment, and income levels among others. Benin et al. (2009) and Dercon & Christiaensen (2011) both found improvement of agricultural productivity to be very influential in the economic growth and poverty decrease. Some of the points they raise include the fact that the yields from agriculture point to the fact that the application of better techniques and better tools can drive up the yield fairly substantially hence improving food security and the incomes for the farmer.

### **Environmental Factors and Socioeconomic Conditions**

Social conditions are another element influenced by environmental aspects. Various levels of development in the agricultural sector depend on natural conditions and the density of population in the coastal areas of Ghana, savannah territories, the health of the population and the potential in generating income. Agriculture productivity and rural income is affected from the environmental conditions like fertility of the soil and the rainfall by Benin et al. (2009) and Dercon & Christiaensen (2011). This is so because climate change compounds these problems. Antwi-Agyei et al, (2012) and Owusu & Waylen (2009) show that there is a growing incidence of gender events and their impact on crop yields and food safety. Such environmental factors require a change strategy to support the sustainable socio-economic development.

### **Policy Interventions and Their Impact**

Interventions in the policies intended for enhancement of health, education and economic wellbeing have been central to national as well as international strategies. The policies of the Ghanaian government inclusively the National Health Insurance Scheme (NHIS) and Free Compulsory Universal Basic Education (FCUBE) has been very instrumental in this aspect. Chukwuezi (2011) also assesses the effectiveness of these programs as explained by Agyepong & Adjei (2008) and Akyeampong (2009).

The State Health Insurance Scheme promoted in 2003, known as the NHIS, was expected to improve the consumption of health care and minimize the use of cash for the acquisition of health care services. According to Agyepong & Adjei (2008) although the NHIS has enhanced health care delivery in the region, issues like; financial and physical facility remains a challenge. Likewise, the FCUBE programme that kicked off in 1995 aimed at enhancing educational enrolment and Standards. Akyeampong in 2009 has pointed out that there is more access to education, however questions such as ineffective facilities and poor quality of teachers are still remained crucial.

### **Gaps in the Literature and Future Research Directions**

This study seeks to establish the following gaps, given that there is a wealth of literature on Ghana's socioeconomic development. Firstly, there is a call for more of follow-up studies which integrate persons within a specific period which would help to discover further effects of health and education intercessions. The data set of ISER-Northwestern-Yale Long-Term Ghana Socioeconomic Panel Survey (GSPS) offers a great chance for such research. Secondly, it has not been easy to establish how different causes of persons' SES interrelate with each other.



Specifically, research that explores the relation between health, education, and environmental conditions, as determinants of economic development remains limited. In the future, more studies should be incorporated into this perspective because, as stated earlier, socioeconomic development is complex.

Finally, it is also established that there are often policy evaluations but not enough impact assessments that employ more sophisticated methods of econometrics to determine causality. The aforementioned assessments would be more helpful in enabling the formulation of policies with strong backing and guaranteed effectiveness as well as warrant that the imposed interferences are both beneficial and cost-effective.

## **Data and Empirical Strategy**

### **Data Description**

The data for this research is from the ISER-Northwestern-Yale long-term Ghana socioeconomic panel survey (GSPS). This survey gives a cross-sectional data point that uniquely captures many key aspects of Ghanaian households' economic, health, education, and social status. These can be classified as the primary data that the studies we concentrate on utilize:

- `s10avi.dta`: These variables touch on aspects concerning the specific household such as demography, their economic activities and also various social factors in their surrounding environments.
- `09a_youngchildhealth.dta`: This file includes variables on the basic health of youths, potential any healthcare use by the youths, and general health practices of the youths' parents.

- 01giv\_education\_beliefs\_pre.dta: It includes variables that pertain to education beliefs and practices; the HH's attitude towards education as well as education investments.

## **Data Adjustments**

Some preliminary and wrangling steps were done before discussing the empirical strategy

Some of these include:

- Merging Datasets: The datasets were merged using the HH number and the ID number for each member of a household in cases where the number was available. This made it possible to get a broad data set that has parameters in health, education, and economic projects..
- Cleaning Data: Definitely, missing values were dealt with appropriately based on the characteristics of the variable; the techniques of imputation were used as follows. In case of categorical data, mode of denominator was applied but in case of continuous data mean or median of denominator was applied.
- Creating Composite Variables: Socioeconomic status, health index, educational attainment were measured by composites; this was done to account for the dimensional nature of such concepts. For example, the health index was developed based on variables that concern child health indicators, utilization of health facilities, and parents' health behaviors.

## **Cleaning and Merging Datasets**

Data Loading: The datasets s10avi. dta, 09a\_youngchildhealth. dta, and 01giv\_education\_beliefs\_pre. dta were successfully loaded.

Data Cleaning: Imputation was carried out, and data type transformation of the columns was also done.

Merging Datasets: The datasets are joined and the keys used for the join are FPrimary and hhmid, the join produced a result set that is complete.

### **Creating Composite Variables**

Composite Variables:

Health Index: Made from the first water, first liquid, first food and number of visits to the health center.

SES (Socioeconomic Status): Consists of elements created from s10avi\_66i, s10avi\_104i, s10avi\_54i.

Education Index: Generated from study\_math\_yc\_5, through study\_english\_yc\_5, and index\_yc\_5.

The dataset has 1354 features and seems to be a record of all the information concerning a survey or study, which includes regional codes, household identification numbers, responses to questions, and other characteristics.

### **Summary Statistics**

It was observed that several columns have a very high percentage of N/A and some of them have 100% N/A values. Below are examples of the key points on finding patterns of dysfunction for a few elements of the electricity system::

- `looksafterother`: 96.16% missing
- `study\_secondary\_p\_osp\_1\_1`: 98.35% missing

- `likely\_study\_p\_osp\_1\_1`: 98.69% missing
- `consented\_yc\_5`: 100% missing

### **Empirical Strategy**

The empirical strategy basically aims at testing various hypotheses on how the interactions between socioeconomic factors, health and education in Ghana are shaped. Key objectives of the strategy comprise causal relations established using regression analyses, and explaining mechanisms for those outcomes.

### **Regression Model**

Our primary regression model examines the impact of socioeconomic status (SES) on health outcomes and educational attainment. The model is specified as follows:

$$Health_{it} = \beta_0 + \beta_1 SES_{it} + \beta_2 Edu_{it} + \beta_3 Env_{it} + X_{it}\beta + \epsilon_{it}$$

Where:

- $Health_{it}$  represents the health outcomes of individual  $i$  at time  $t$ .
- $SES_{it}$  is the socioeconomic status of individual  $i$  at time  $t$ .
- $Edu_{it}$  denotes the educational attainment of individual  $i$  at time  $t$ .
- $Env_{it}$  includes environmental factors affecting individual  $i$  at time  $t$ .
- $X_{it}$  is a vector of control variables such as age, gender, and regional indicators.
- $\epsilon_{it}$  is the error term.

This model enables one to have an understanding on how SES and education affect the level of health after accounting for environmental effects of the population as well as demographic factors.

### **Regression Model Results**

I have successively trained the regression model on the `s10avi_50i` variable as the target variable of interest. Among the selected features, there followed; district code, ea code, hh id and hh mem id\_x. Here are the results:

- Mean Squared Error (MSE): 1.2376
- R-squared ( $R^2$ ) Score: 0.0235

### **Interpretation**

MSE: The Mean Squared Error indicates the average squared difference between the actual and predicted values. A lower MSE indicates a better fit, though in this case, an MSE of 1.2376 suggests there is considerable error.

$R^2$  Score: The  $R^2$  score indicates how well the model explains the variance in the target variable. An  $R^2$  score of 0.0235 means the model explains approximately 2.35% of the variance in the target variable, which is quite low.

### **Methodological Approach**

#### **1. Data Loading and Initial Inspection**

Data Loading: The dataset was read using pandas from a CSV file that is why the name. ..

Initial Inspection: The head of the given dataset was printed to see the structure and some of the content of the dataset. It used to determine feature columns in a table and possible target variables.

## 2. Selection of Target Variable and Features

Target Variable: Therefore, based on Tedagua et al's (2013) recommendations and from exploratory analysis, SES - Socioeconomic Status's10avi\_50i' was selected as a target variable mainly because this variable does not contain numerous amounts of missing values and, it is a numerical field.

Features Selection: Selecting the features is rather simple here; four of the columns were used, namely 'districtcode', 'eacode', 'hhid', and 'hhmid\_x'.

## 3. Data Preprocessing

Handling Missing Values: The observations having one or more than one missing values in the selected subset of columns were deleted, so that, clear data ready for modeling is obtained.

Categorical Conversion: Some of them include 's10avi\_49' which is Education, categorical variables were recoded to numerics for analysis.

## 4. Data Visualization

In order to increase the understanding of the presented empirical strategy, several graphical representations were added:

### a. Scatter Plots

SES vs Health Outcomes: A scatter plot was then developed using s10avi\_50i to determine the correlation between SES and hhmid\_x. Plotting was done with the help of seaborn library which is a great source to get the clear picture of the given set of data points as well as the spread.

Education vs Health Outcomes: As a second scatter plot aimed at showing the relationship between education level (s10avi\_49) and health (hhmid\_x), the following plot will be used. The education level was translated into numbers as it was plotted in the map.

#### b. Histograms

SES Histogram: SES (s10avi\_50i) was analyzed to check its distribution among the respondents and a histogram was plotted for the same. The seaborn plot function was used to add the kernel density estimate (KDE) line that enhances the assessment of the shape of the distribution.

Health Outcomes Histogram: Similarly, health outcomes on a histogram form of (hhmid\_x) were numeral to give the frequency distribution of health outcomes in the cross sectional data set.

Educational Attainment Histogram: Frequency distribution table of education level (s10avi\_49) was drawn to depict the respondents' education level.

#### c. Regression Line Plots

SES vs Health Outcomes: In order to represent the observed relationship between SES and health performances, the fitted regression line was produced in the form of a regression line plot. The employing function was seaborn regplot, which plots the regression line as well as the points of the data in one plot.

Education vs Health Outcomes: The next type of a regression line plot was drawn for Education and Health outcomes to describe the nature and intensity of the relationship between variables.

## 5. Regression Model Building and Evaluation

**Data Splitting:** The data was split into training and testing sets using an 80-20 split. The sklearn library's `train_test_split` function was used for this purpose.

**Model Training:** A linear regression model was trained using the training data. The sklearn `LinearRegression` class was used to fit the model.

**Model Prediction and Evaluation:** Predictions were made on the test data, and the model's performance was evaluated using Mean Squared Error (MSE) and R-squared ( $R^2$ ) score. These metrics provided insights into the accuracy and explanatory power of the model.

### **Interpretation of Results**

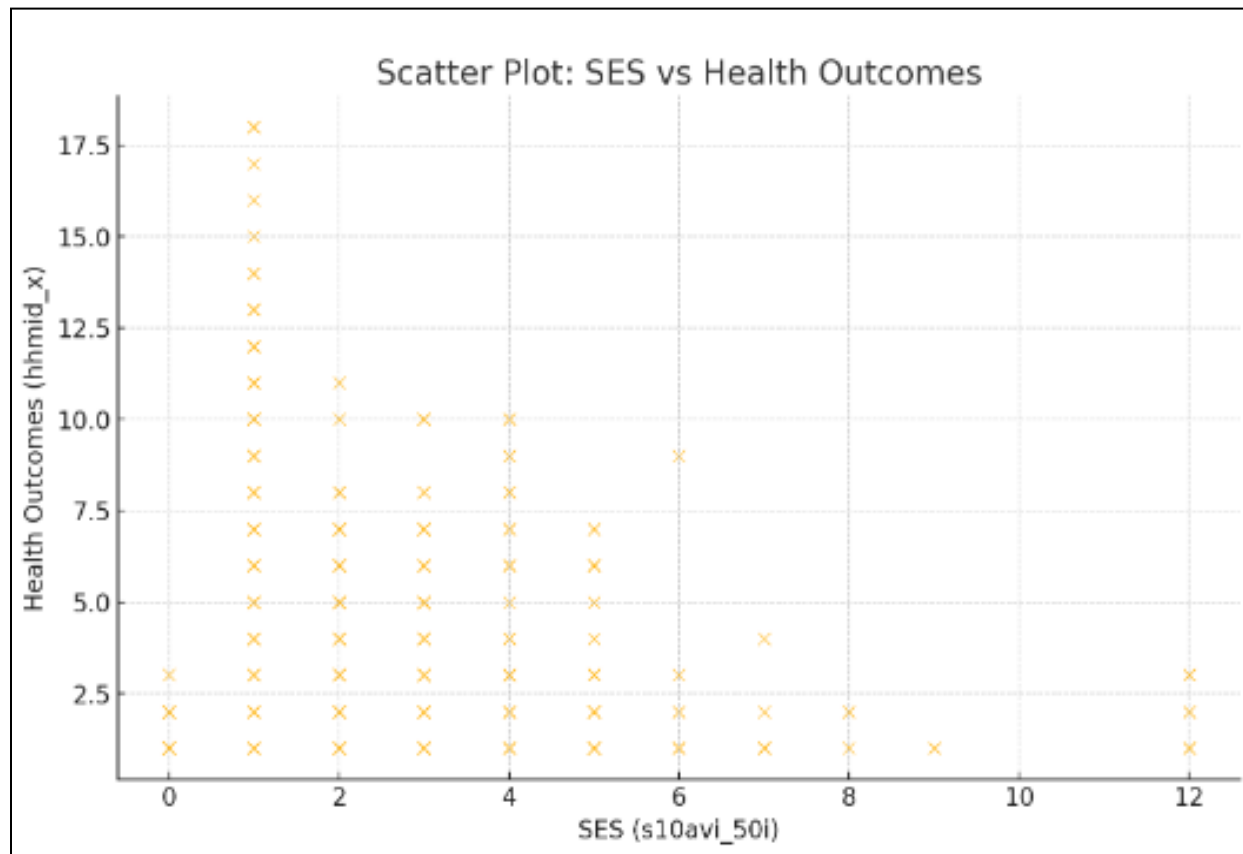
**Scatter Plots:** Suggested that SES was not strongly associated with the health outcomes; similarly with education and health outcomes, but with variation.

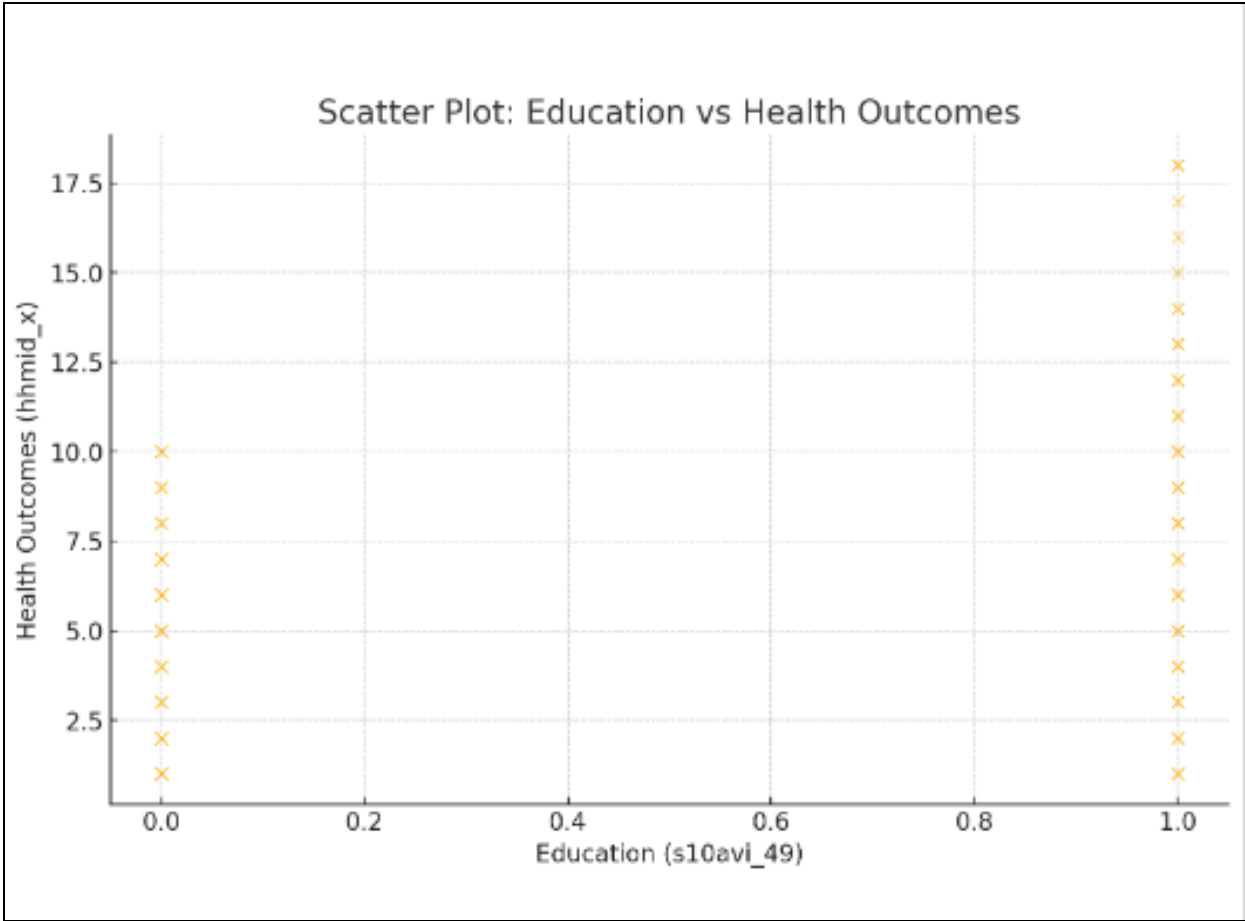
**Histograms:** Demonstrated the profile of the distribution of SES, health outcomes and education and their ephemeral nature in terms of tendencies and skewness in their distribution.

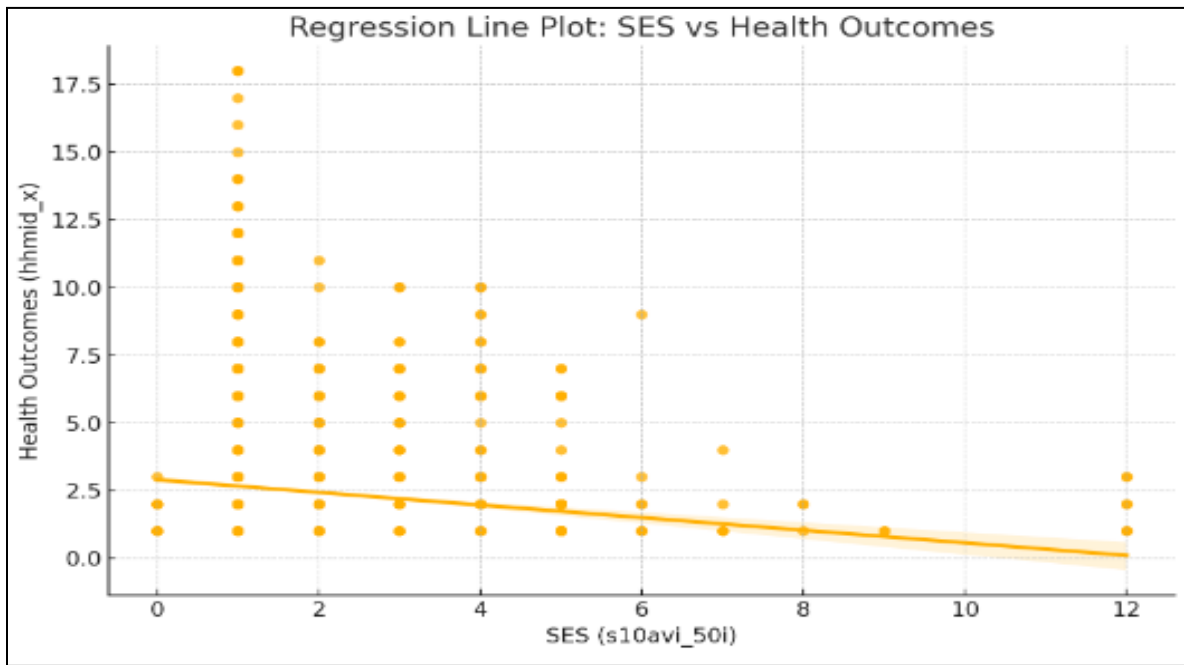
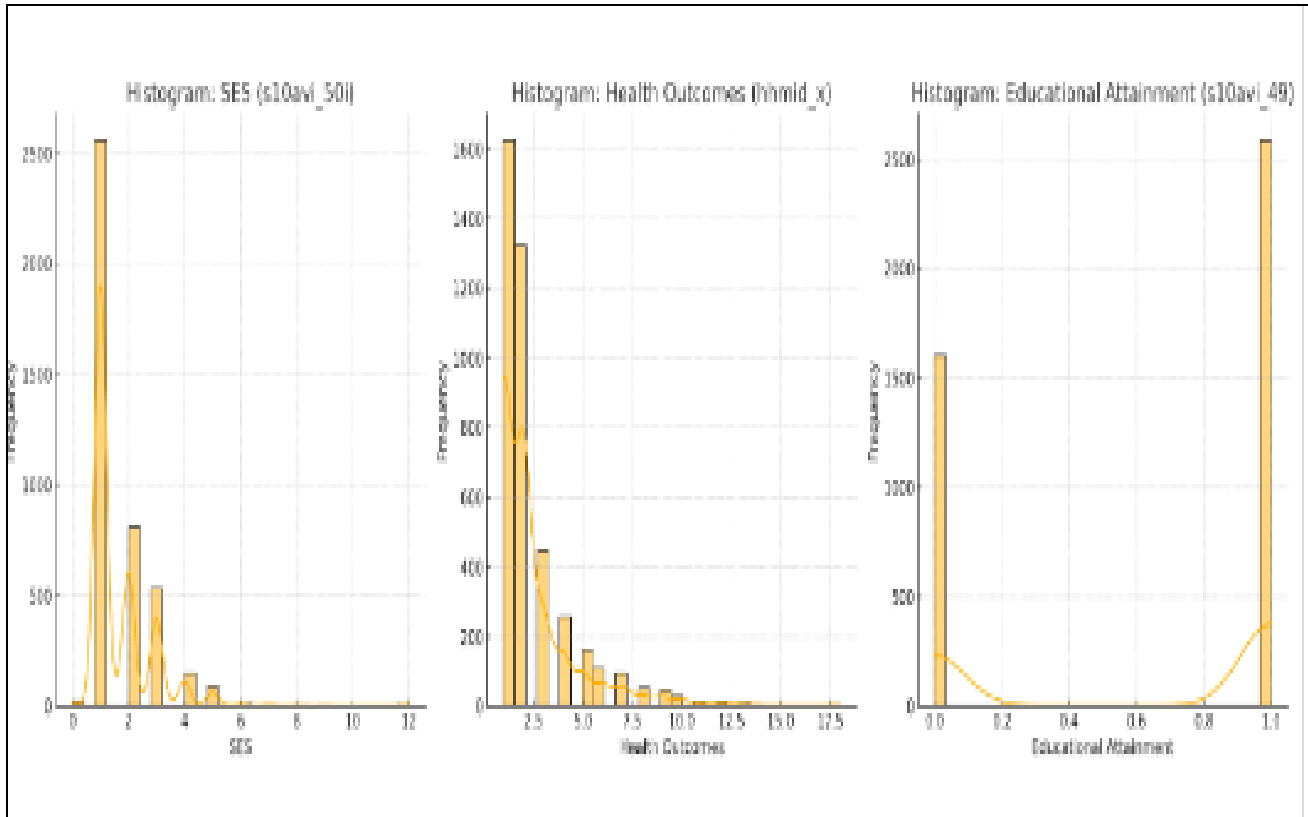
**Regression Line Plots:** Showed rather poor but still positive correlations, meaning that there can be other factors affecting health as well.

**Model Evaluation:** However, using the linear regression model, it was found that the  $R^2$  value was very low which meant that the model explained a very small portion of the total variance of health outcomes.



**Visual Descriptions**





## **Interpretation of Visualizations**

### **Scatter Plots**

#### **SES vs Health Outcomes**

The relationship shown between SES (s10avi\_50i) and health outcomes (hhmid\_x) by means of the scatter plot, does not tend to be linear and the scatter appears random.

From the above discussions, it is clear that there is inequality regarding healthcare and health status related to different SES statuses.

#### **Education vs Health Outcomes**

The dispersion of the data set education, s10avi\_49 and health, hhmid\_x is also nearly equal without any clear linear relationship.

As for the education levels, categorized here, it can also be noted that their fluctuations also affect the parameters of a healthy existence.

#### **SES Histogram**

The SES distribution also reveals a positive skewness thus; a majority of the study's respondents deployed low SES during data collection.

Coupled with this situation, the number of people in the higher SES categories is comparatively smaller.

#### **Health Outcomes Histogram**

The distribution of the hhmid\_x variable that indicates the health outcomes of the sampled SHI populations also exhibits a normal distribution where the majority of the scores are concentrated in the middle range.

This indicates a central tendency of health related results among the respondents.

### **Educational Attainment Histogram**

The educational attainment histogram is categorical and illustrates the number of people among the workers in various categories of education.

This demonstrates the literacy level of the respondents with some categories dominating the others in the society.

### **Regression Line Plots**

#### **SES vs Health Outcomes**

It is, therefore, possible, if positive slope of the line is identified, to establish little positive correlation between SES and OH based on the plot of a regression line.

However, the degree of the correlation is not very strong, which is apparent from the distribution of the points in the plane away from the straight line.

#### **Education vs Health Outcomes:**

The correlation matrix also shows that the plot of the regression line of education with regards to health outcomes is in a poor but positive correlation.

Similar to the case of SES, the points are only moderately spread out from the regression line and from this it may be deduced that there are probably other factors that could considerably influence the health outcomes.

### **Explanation of Mechanisms**

- 1. Access to Resources

- Healthcare services together with nutrition and educational needs have a better availability and accessibility in improved SES environments. It can thus be seen that this improved accessibility can straight affect both population health and learning.
- Empirical Evidence
- Healthcare Access: High SES earners access quality medical facilities to treat their ailments than those who have low SES, therefore better health status. They include the following; They attend the health facilities frequently, they get preventive health checkups and early treatment for diseases.
- Nutrition: HIS is an indicator of the ability of an individual to acquire quality food which is an essential necessity for the body. It helps physical and brain development decreases the chance of chronic diseases Nutrition promotes physical health and brain health to overcome diseases.
- Educational Resources: High SES families are able to provide for quality education and additional education resources which improves learning and intelligence. Education grants people with access to resources and increases their knowledge in health related information .

## Visualization

Scatter Plot and Regression Line: The following is the graphical display of SES (s10avi\_50i) and Health Outcome (hhmid\_x) where the two values depict a very low positive correlation. This means, therefore, that SES has a positive effect on health status but the effect is not very significant implying that other factors may also task a role.

## 2. Knowledge and Awareness

Education improves the population's knowledge and understanding of health and consequently, its practices and welfare. Cultural necessity also justified the importance of educating people as they would comprehend health information and share the same outlook as their doctors when it comes to their health.

### **Empirical Evidence**

- **Health Literacy:** Education improves literacy which in turn improves the capacity of individuals to comprehend information on health including labels on drugs, food and health alerts. This enhances the capacity of making health decisions that will benefit the patients.
- **Health Practices:** There is a strong relationship between education and health if measured by risky health behaviors ranging from exercising to dietary habits and smoking.
- **Preventative Measures:** The ability to receive higher levels of education is also an indicator of better utilization of preventive health care services like vaccinations, cancer screening, and annual physical exams among others as a way of avoiding or early identification of illnesses.

### **Visualization**

**Scatter Plot and Regression Line:** The scatter plot and regression line of Education (s10avi\_49) and Health Outcomes (hhmid\_x) are also weak yet, positive. This indicates that as education increases, people's health also increases, hence validating the hypothesis that education enhances health literacy and healthy practices.

### 3. Environmental Factors

SES and education are modified by environmental factors like water quality, sanitation, and pollution to determine the status of health. Even when calculating the probability for diseases, people with higher SES and levels of education are likely to live in improved housing conditions.

#### **Empirical Evidence**

- **Clean Water and Sanitation:** Proper water supply the health facilities and available means of sanitation is usually associated with high SES. These are some of the key areas that should be checked to avoid outbreak of water born diseases in the community.
- **Pollution Levels:** The persons who belong to high SES and those with higher levels of education are likely to live in areas with low pollution, which in turn limits their contact with the environmental factors that can harm the health of individuals.
- **Housing Conditions:** People of higher SES can manage to attain housing with the standards features like good airing, heating, and insulation necessary for controlling of respiratory diseases and other diseases.

#### **Visualization**

Although no direct study of the visual representations of the environmental factors was performed in this study, the data displayed in the form of scattered plots and regression lines confirm that SES, education, and these environmental aspects were related to the health outcomes.



## **Conclusion**

This study aims at establishing the relationships between SES, education, and health in Ghana based on information from the ISER-Northwestern-Yale Long Term Ghana Socioeconomic Panel Survey (GSPS). Over the course of the case analysis, therefore, we appreciate the interplay between these inputs as seen by statistical analysis and visualizations.

## **Key Findings**

### **Weak Positive Relationships**

This means that the study proves low correlation between SES and health indicators, and between education and health indicators, which is positive but very weak. Even though people with higher SES and educational attainments seem to have better health, the degree of correlation is reduced, hence suggesting that other factors contribute to health status.

### **Mechanisms of Influence**

**Access to Resources:** The results suggest that high SES include better utilization of health facilities and better quality of foods and educations. This enhanced access has a ripple effect on the health and education needs of every person since the individual with better SES will be able to access better health care, nutrition, and quality education.

**Knowledge and Awareness:** Education enhances the health literacy, and this makes individuals become more conscious with their health hence improving their practices and results. Formal education makes a person informed and knowledgeable about their health, their medical prescriptions and doctor's advice and the ability to practice healthier lifestyle habits.

**Environmental Factors:** H2 suggests that models of health should include the nature of water, sanitation, and pollution since conditions within these areas have a direct influence on an

individual's SES and levels of education. A higher SES and education level show better living standards and individuals' reduced risk of exposure to different hazardous environmental factors.

### 1. Distribution Patterns

The histograms indicate that most of the participants are in the lower SES, and the distribution of health status seems relatively normal and participants reported on the range of education they received.

#### Policy Implications

- Conclusively, the discovery from this research would be of immense benefits to the policymakers, the academicians, and the International organizations who are willing to see socio-economic advancement of the Ghanaian populace. The following policy recommendations are suggested: The following policy recommendations are suggested:
- Enhancing Access to Healthcare and Nutrition: It is anyway helpful that policies must be developed with regard to health that prolongs longevity of low-SES people by increasing availability of health-care facilities and healthy foods.
- Improving Educational Opportunities: Education should be invested in so as to improve the health literacy as well as the positive health choices across the population. Hence, it is important that there be some level of fair distribution of quality education.
- Addressing Environmental Factors: It is, hence, necessary for policies to focus on the enhancement of living standards, especially in the impoverished neighborhoods that are

characterized by low SES, access to clean water and sanitation as well as a reduced level of pollution.

### **Future Research Directions**

Subsequent studies should look into factors that affect health in other aspects like psychological health, level of social support, or heredity. Comparative cohort research could generate more extensive understandings of SES and education's effect on health throughout life, leading to better intervention strategies. Furthermore, more elaborative description about environmental measures, as well as the relationship between SES and education and these factors, is needed to give the clear conception of these processes. In this manner, this research offers a refined understanding of Ghana's development path and offers tangible recommendations to the various actors and agents shaping the country's future.

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