Observing Correlation between GDP per Capita and Malnourishment in Regions of the World

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Summary

We gathered data of malnutrition factors from the regions around the world and GDP per Capita for these regions. Our malnutrition factors include the percentages of severe wasting, wasting, overweight, stunting, and underweight of children aged 0-59 months for the regions. Once we gathered all our data, we performed simple linear regression and created a line of best fit to see how GDP per capita correlates as it increases with the five variables per region.

Summary

- Observing the graphs, we saw that GDP per capita is negatively correlated with stunting, wasting, severe wasting and underweight in all the regions except for South Asia.
- Overweight is negatively correlated with GDP per capita in Sub-Saharan Africa and Middle East and North Africa, while overweight is positively correlated with GDP per capita in all of the other regions.
- Europe and Central Asia's severe wasting variable rises minisculely with GDP per capita and South Asia's severe wasting rises with GDP per capita. Though we see a positive correlation, we believe that increasing GDP per capita will work towards decreasing the percentages as it will allow more money to be spend on nutrient rich food items.
- Increasing the GDP will allow changes in policy, better education, adopting new advancements in technology, and even allow funding towards improving Earth's climate to help reduce the negative effects that comes from climate change.

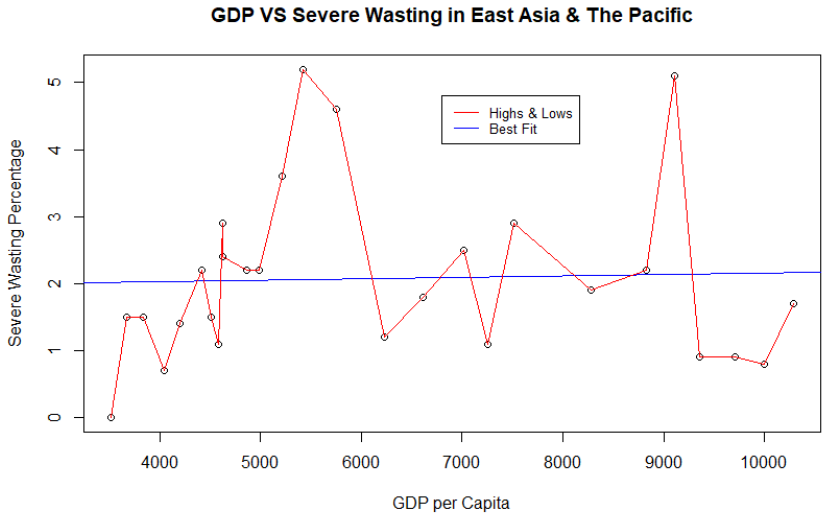
Objective

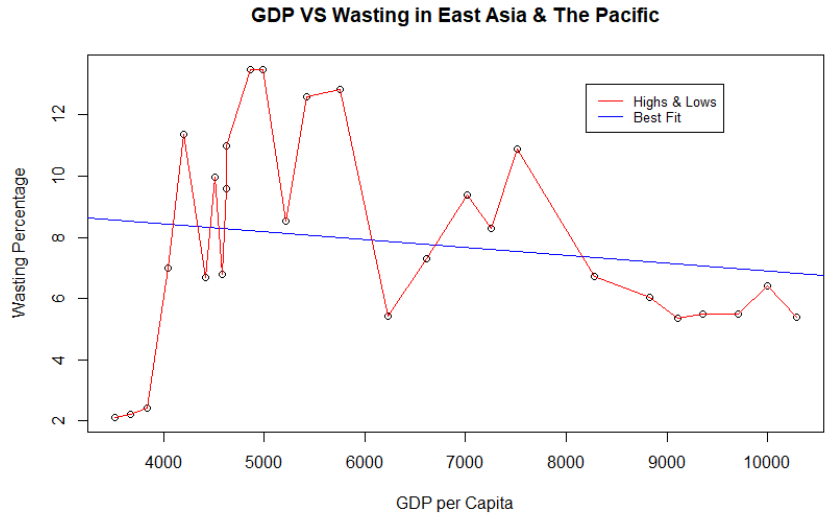
- The truth is that there is enough food to feed all 7.6+ billion people living today; the hidden issue has to do with poor farmland to grow food and economic reasons such as food being expensive.
- Uneven distribution of wealth and nature itself are the contributions to the main factors of this crisis.
- Our objective is to see if the percentages of stunting, overweight, underweight, wasting and severe wasting of children aged 0–59 months for the countries in these regions are correlated with the average GDP per capita for the countries in these regions and if they are, what measure can be taken to increase the GDP per capita to decrease malnourishment problems in the countries in these regions.

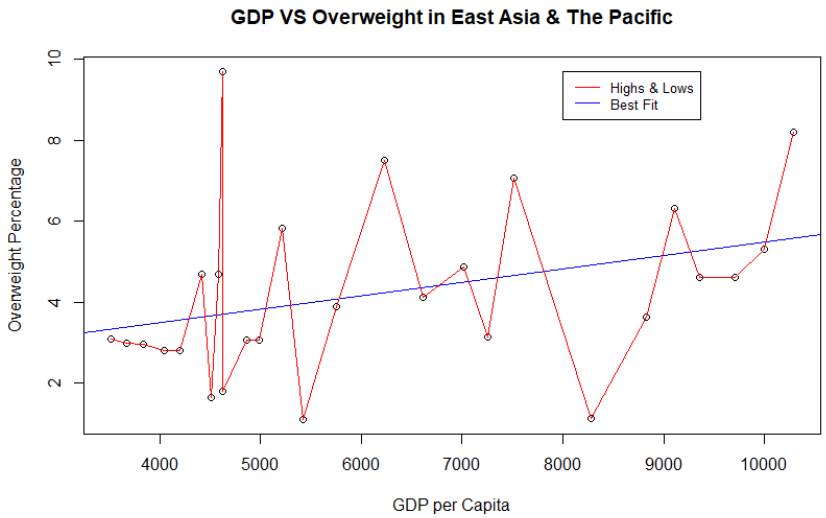
Methodology

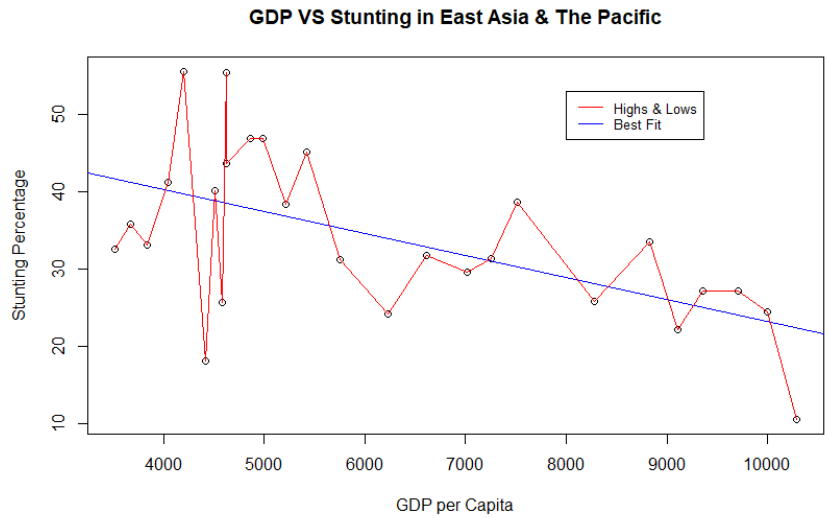
- We gathered data from The Joint Malnutrition dataset about the percentages of stunting, overweight, underweight, wasting and severe wasting of children aged 0–59 months for countries in regions around the world and gathered data from a dataset that includes the GDP per capita for those regions.
- We related the values from these two datasets with each other by using "years" as a relating variable (Roser, Max).
- We then did simple linear regression to plot these datasets, created a line graph to show the highs and lows of GDP per capita with respect to the variables we had, i.e stunting, severe wasting, wasting, overweight and underweight.
- We also included a line of best fit into these graphs to show if there is a correlation between GDP and these variables and to also see if the correlation is positive or negative. If there is a correlation and if the correlation is positive or negative, we can hypothesize what measures need to be taken so that malnourishment can be reduced.

Result For East Asia

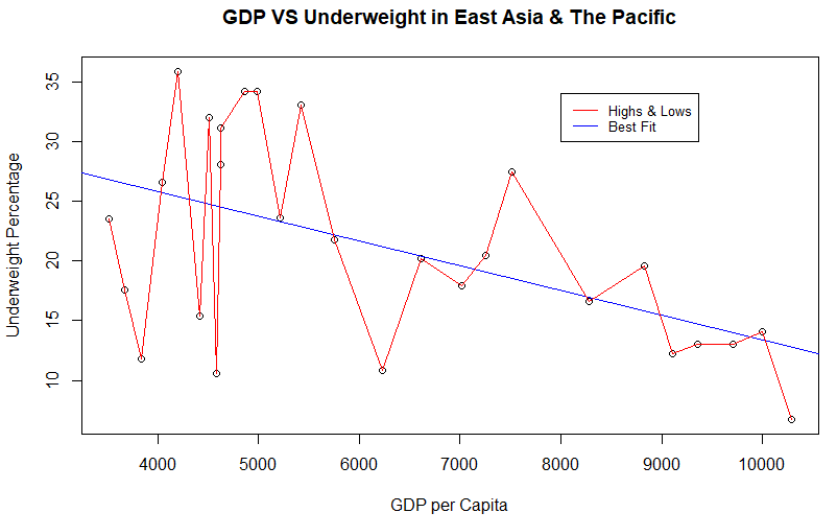






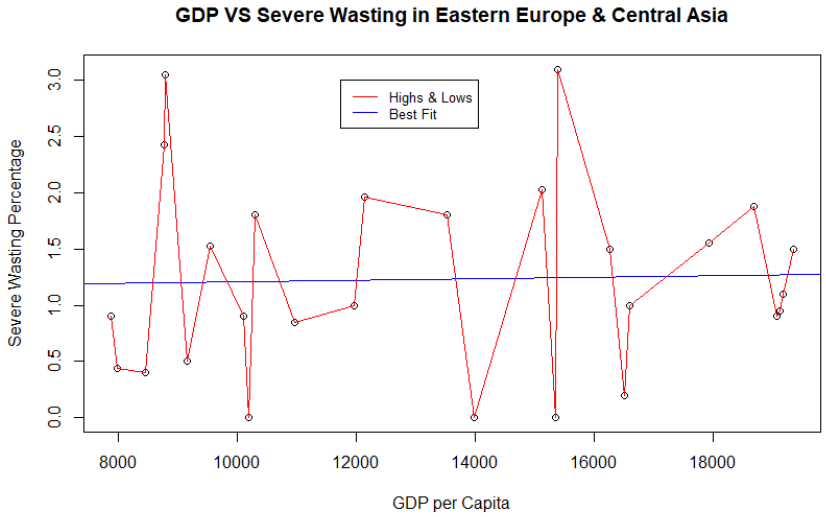


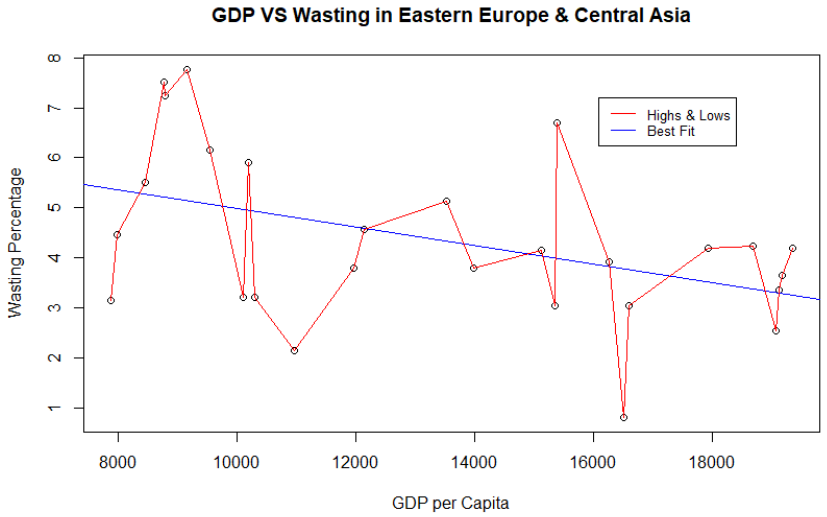
Result For East Asia continued...

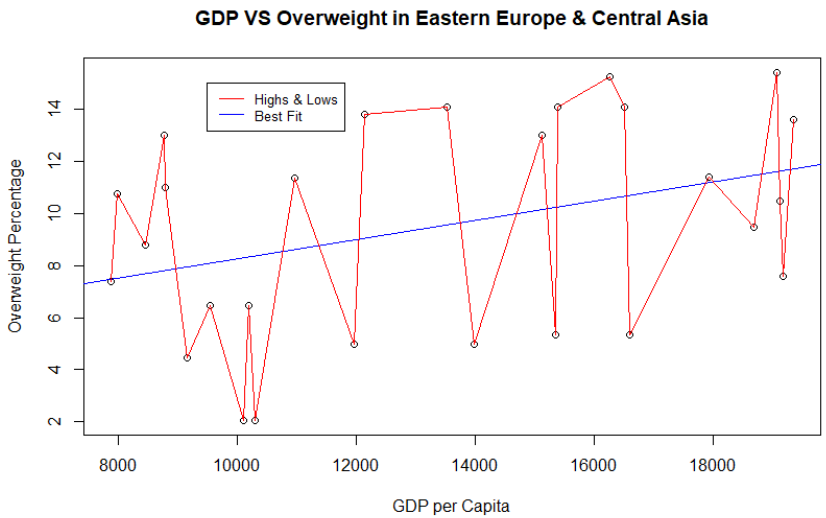


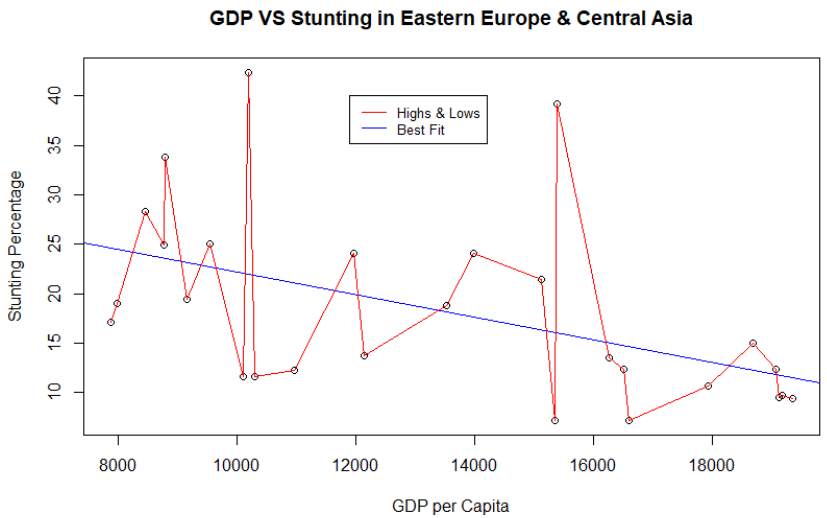
GDP per capita correlation negative with all variables except overweight These problems exist: Climate-related disasters, natural disasters impacting food security and nutrition through reduced food production, limited or poor access to safe food and water, sanitation and hygiene. Implementions: Strategies to minimize the destruction that climate related disasters bring increasing the GDP per capita working on sanitation improvements and expansions across the region UNICEF is currently engaged in a program in this region to help 30 million and children and 5 million pregnant women and breastfeeding mothers.

Result For Eastern Europe and Central Asia

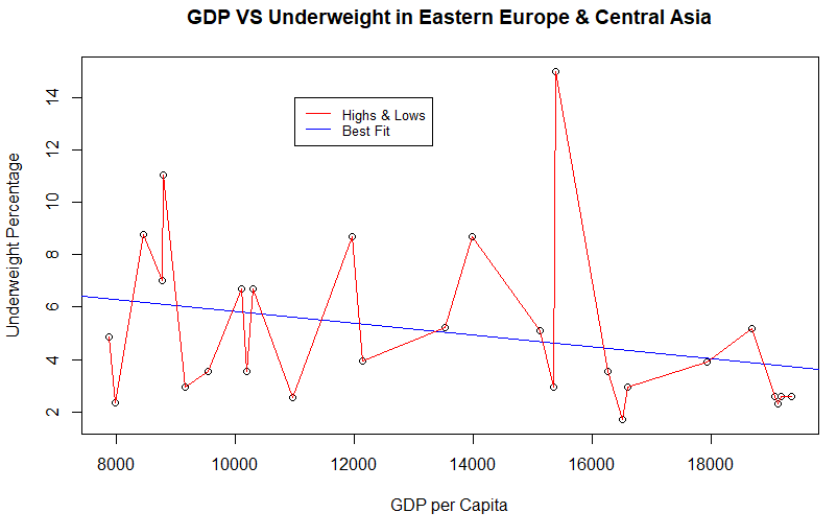






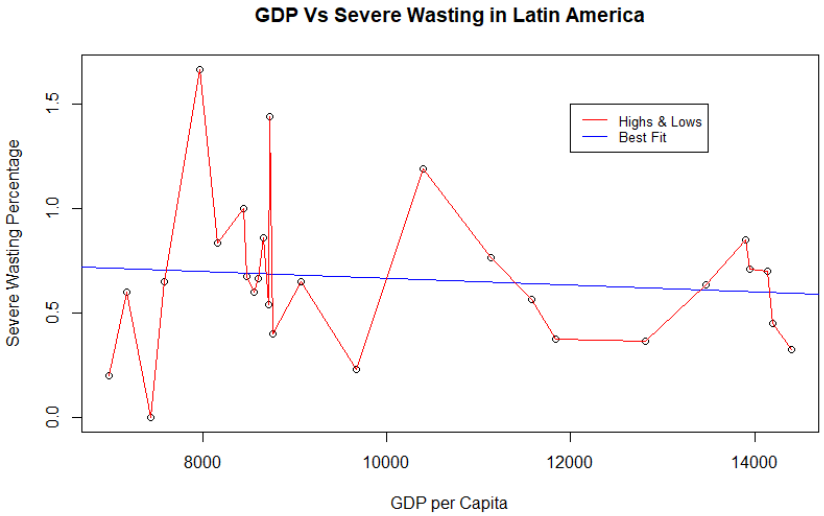


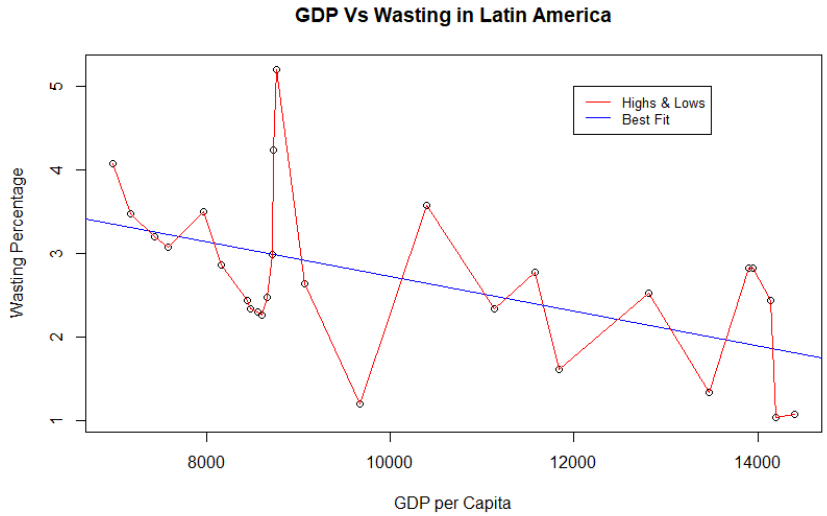
Result For Eastern Europe and Central Asia continued...

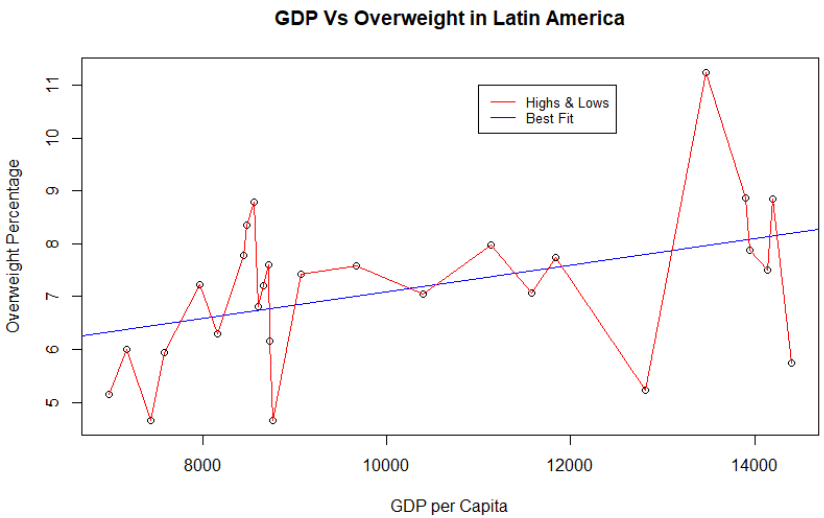


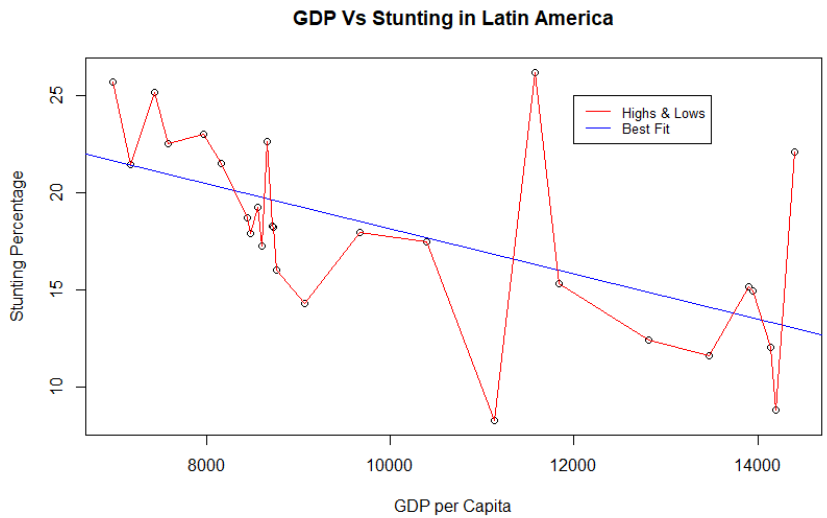
Variables excluding overweight are negatively correlated with GDP per capita. Overweight is positively correlated with GDP. Problems: A disconnect between agricultural policies contemporary nutritional challenges exists which does not help these countries improve their hunger problem and climate change affects the region as well. Implementations: increasing the GDP per capita so thatkey ministries such as health, agriculture, education, social affairs and economic development and infrastructure can work towards decreasing malnutrition. Addressing system degradation and working at the landscape scale is essential as healthy and diverse systems are more productive, providing higher agricultural yields and more resilience towards natural hazards and climate change.

Result for Latin America and The Caribbeans

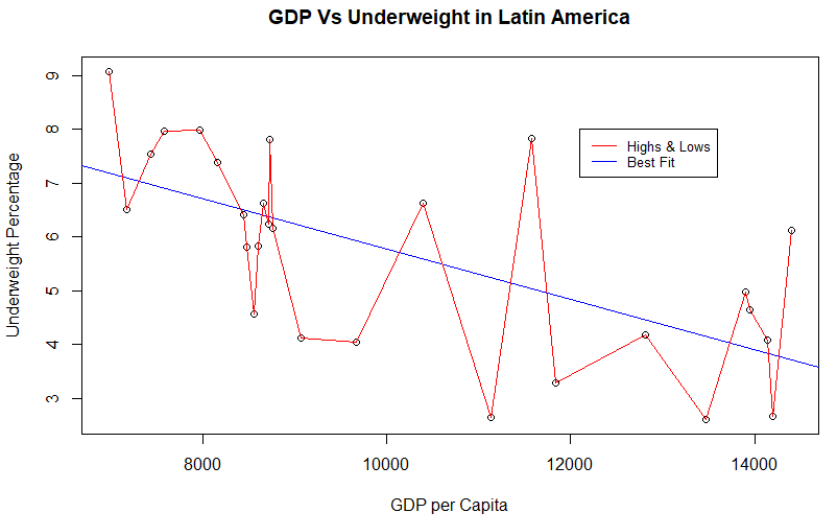






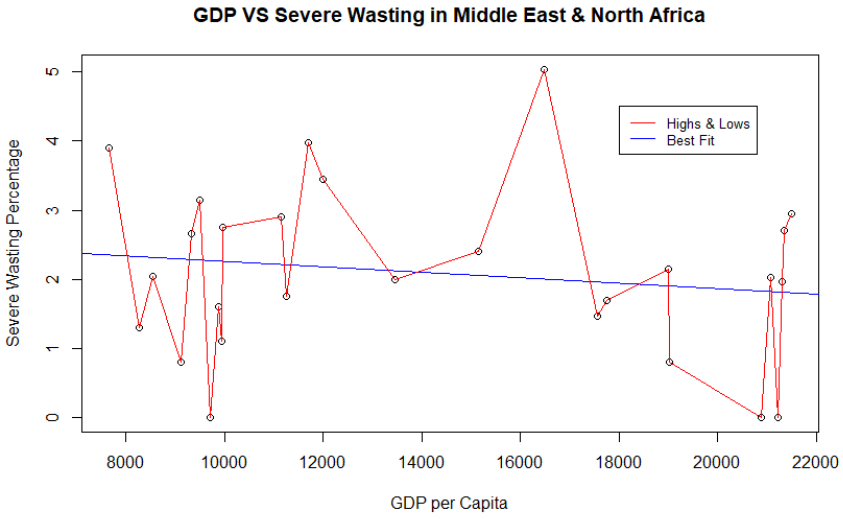


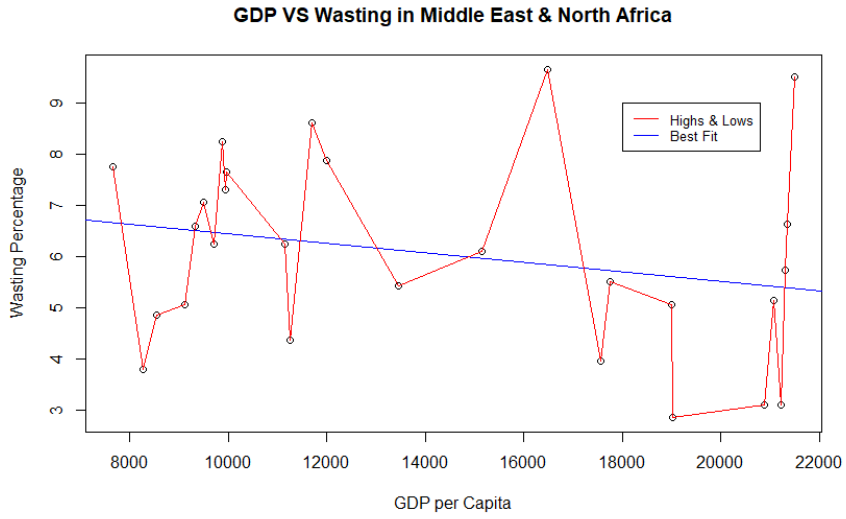
Result for Latin America and The Caribbeans continued...

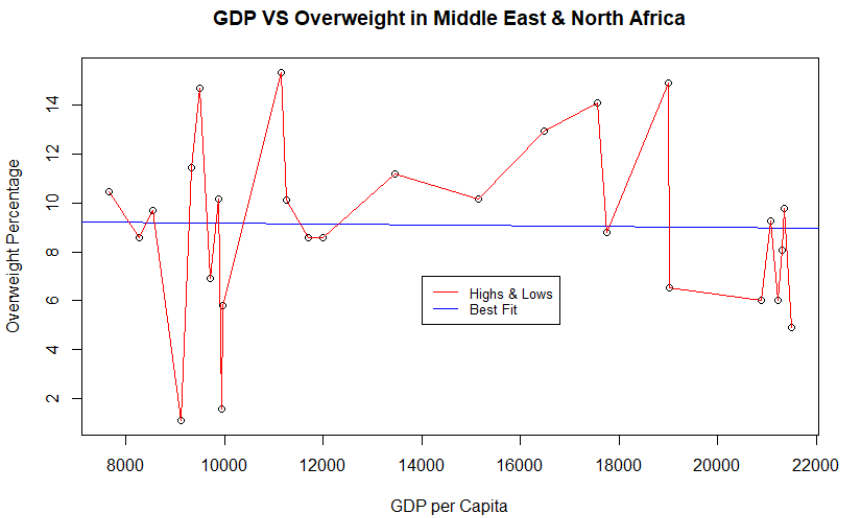


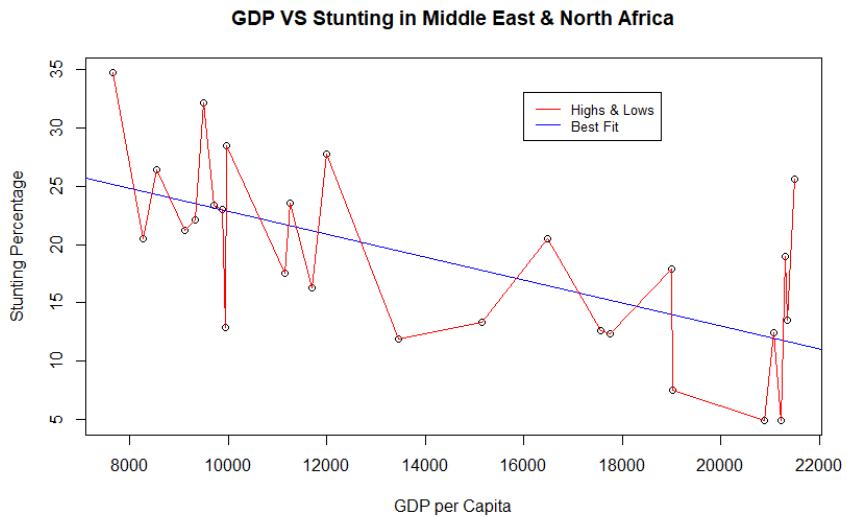
Variables
besides overweight are negatively correlated this graph and overweight is positively correlated with GDP per capita The Problem: Increased number of overweight or obese children. Undernutrition rates in the region vary widely. Implementation: Focusing on nutrient rich foods and relying on a diet that provides sufficient energy is crucial in reducing the percentage of malnutrition. Increasing the GDP per capita, though negatively correlated in the graphs, can actually help lower this percentage. More GDP per capita gives more money to be spent so that the money can be spent on actual nutrient rich foods.

Result for Middle East and North Africa

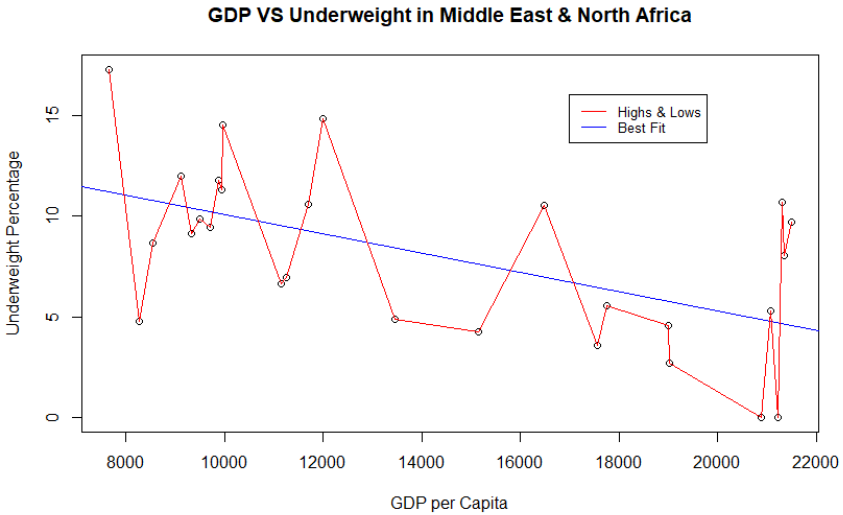






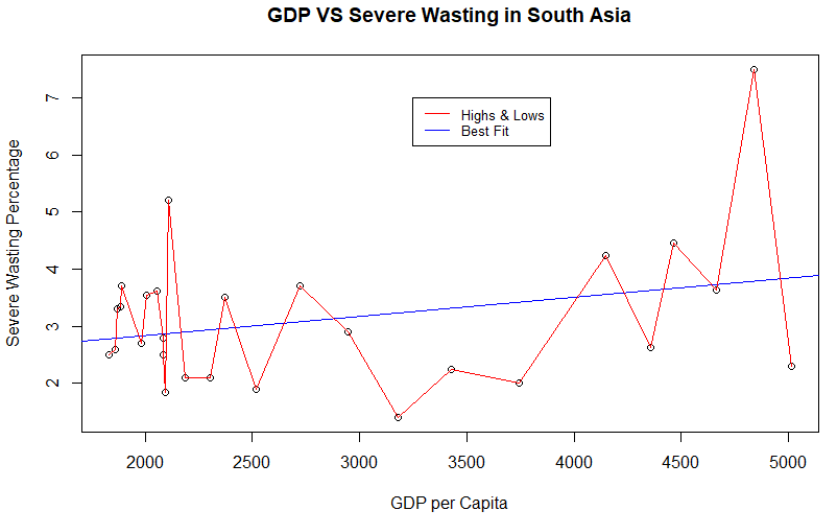


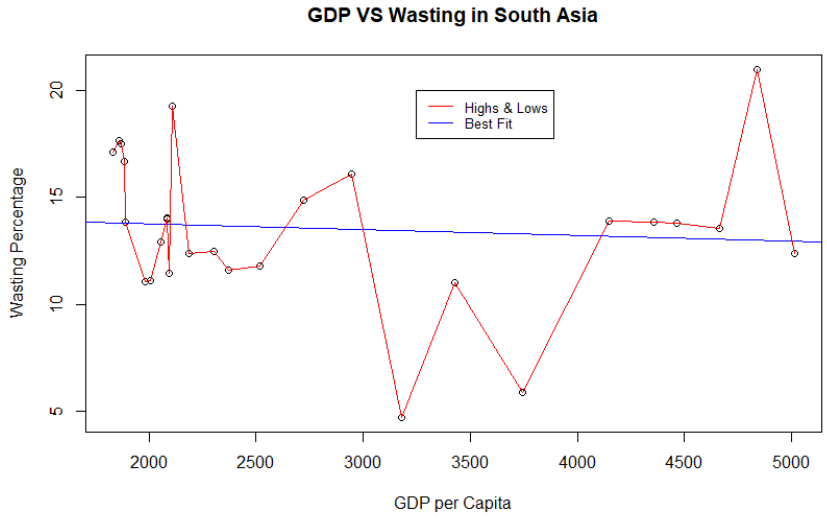
Result for Middle East and North Africa continued...

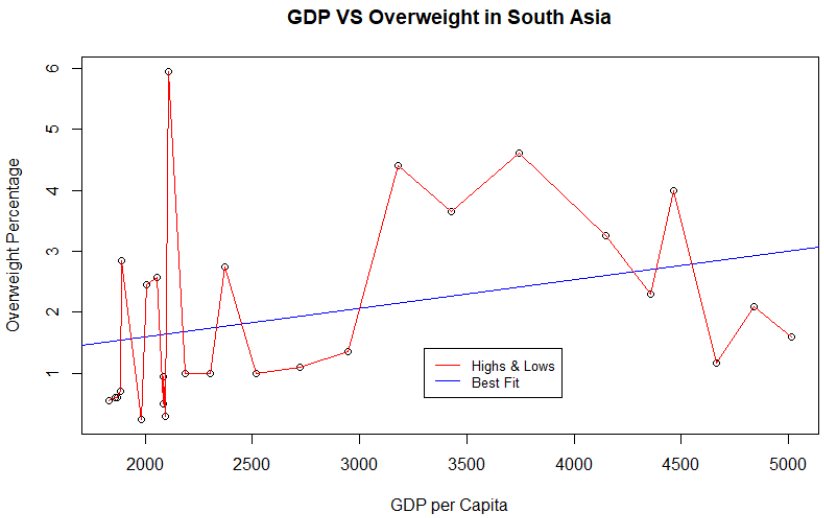


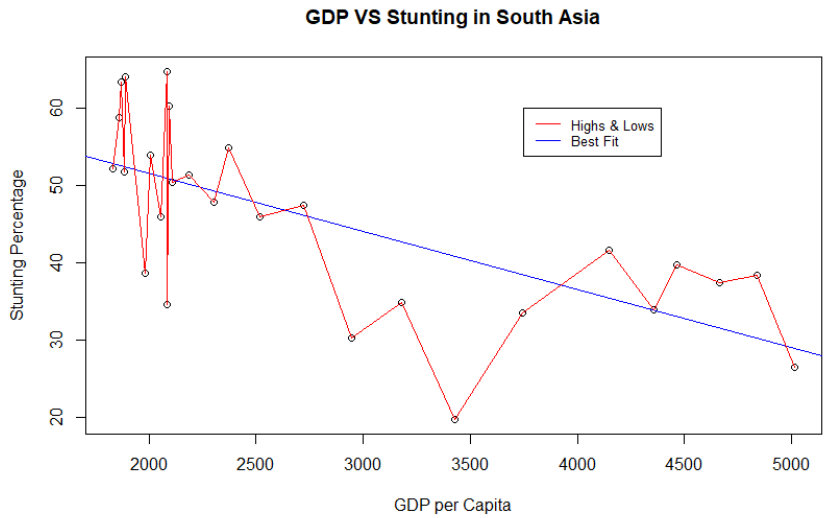
All variables are negatively correlated with GDP per capita. Ongoing conflicts have been affecting the nutrition status. The effects of persistent conflict include death and injuries, and deterioration of social, economic and health conditions in affected and neighboring countries Implementations: Increasing the GDP mainly and also working on other aspects. Introducing programs that educate mothers on properly feeding their young, organizations can provide foods in early childhood to suffering families and food systems for women and children. A major help for this region would be peace. The the countries that are suffering will have an out of the deterioration and can focus on rebuilding GDP which will lead to solving or working on national problems such as hunger.

Result for South Asia

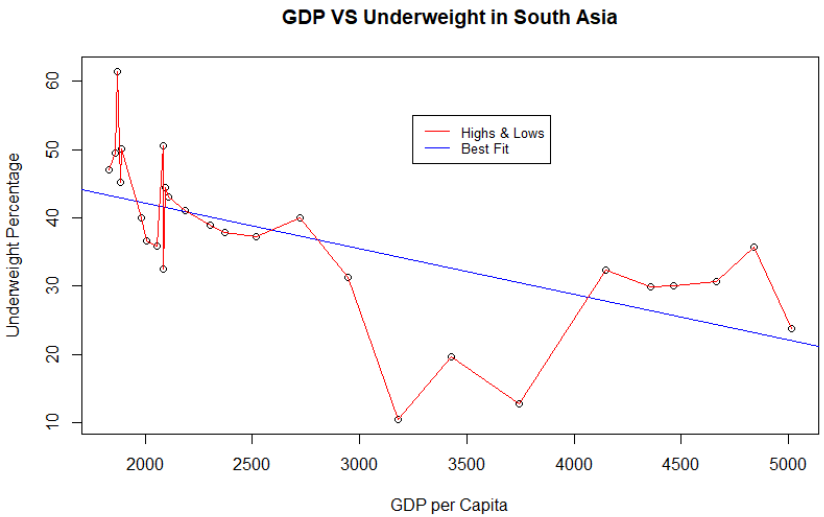








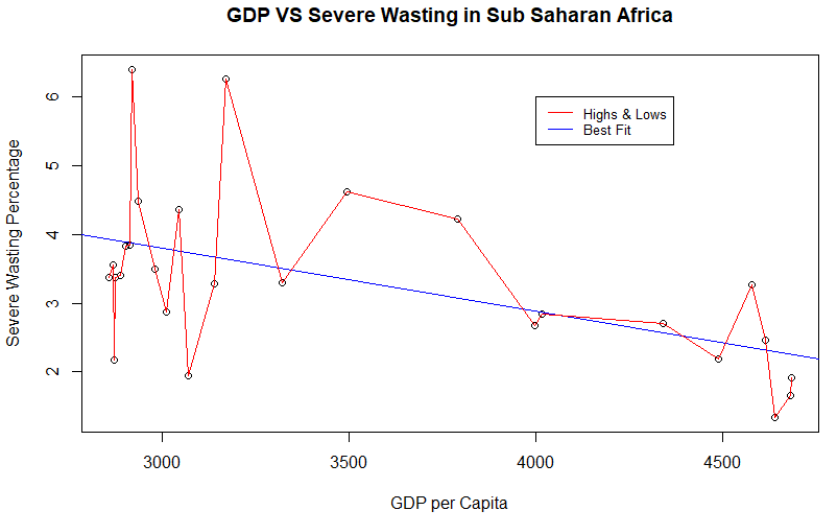
Result for South Asia continued...

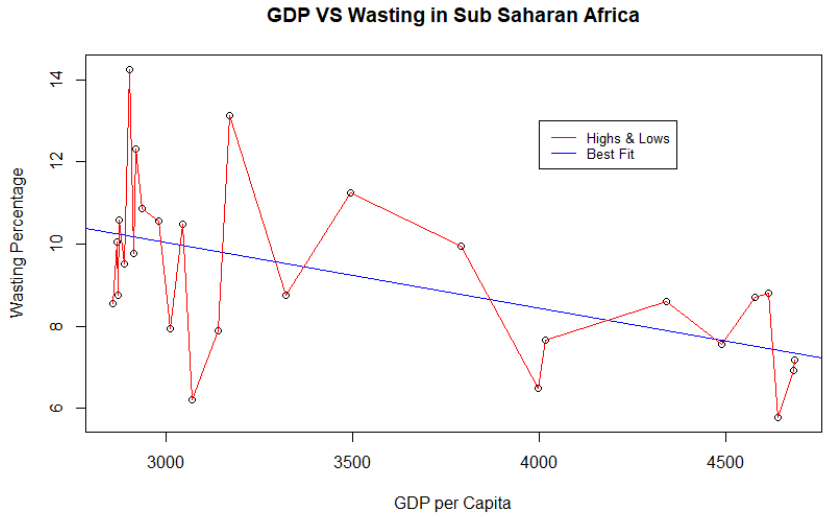


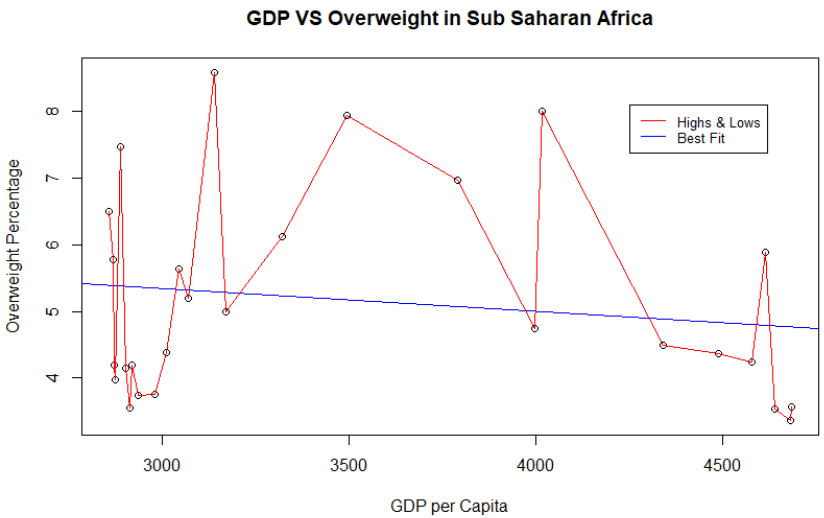
Percentage of severe wasting increases and the average wasting percentage only goes down slightly. Overweight percentage increases as GDP per capita increases while underweight and stunting decreases as GDP increases. The Problem: Governments in this region do not commit enough to improve food, water, sanitation, care and health services that can help improve nutrition outcomes amid disadvantaged populations.

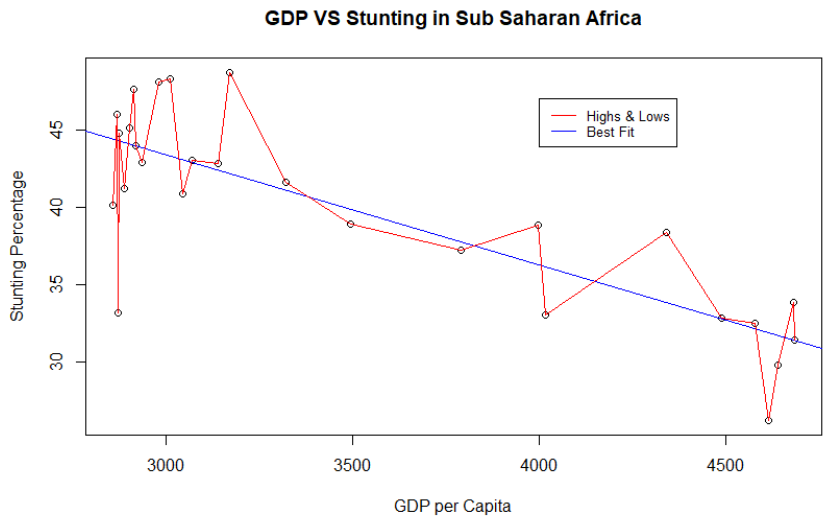
Implementation: Governments of countries in the South Asia region should carefully examine root causes of suffering in children. Strong governance that focuses on available employment and satisfactory income levels, can result in better overall health for citizens that are suffering in South Asian countries.

Result for Sub-Saharan Africa

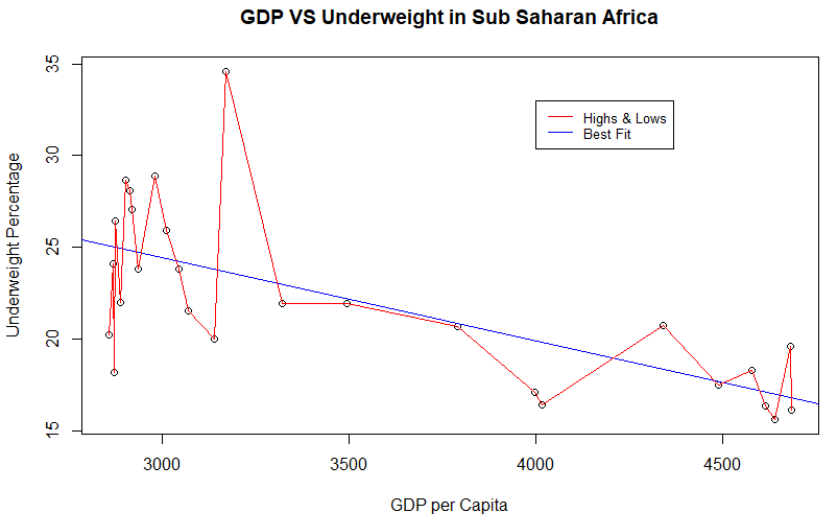








Result for Sub-Saharan Africa continued...



GDP per capita is negatively correlated with every variable
Problems:
Low mother's education, increasing child's age, sex of child (male) , wealth index, source of drinking water, low father's education and place of residence, low parent education inadequate dietary intake and an unhealthy environment. Implementations: Increasing GDP to make the government in these countries work towards increasing the education levels, educating parents to improve their child's dietary intake, introducing counselling sessions for mothers with the aim of improving feeding practices and maternal nutrition, improving the harsh and unsanitary conditions theses people live in, and agricultural sector.

Conclusion

- Sub-Saharan Africa: Since Sub Saharan Africa is labelled as low GDP per capita, low mother and father education, source of drinking water, and place of residence coincides with children malnourishment. If GDP were to increase, high maternal education translates to better health care utilization, and adopting modern medical practices. Higher paternal education with the help of GDP increase, can result in the parents choosing the right food, and getting food in general.
- East Asia & the Pacific: Restoring the destruction of agriculture Increasing GDP per capita such as working on tourism sector can increase food production and security.
- Latin America and the Caribbeans: Focusing on nutrient rich foods and relying on a diet that provides sufficient energy is crucial in reducing the percentage of overweight. Increasing the GDP per capita can actually help lower this percentage by implementing proper education.

- Europe and Central Asia: Lower household incomes tends to be associated with micronutrient deficiencies since cheaper foods have diets higher in fat and sugar. Increase in GDP per capita in this region, will work towards implementing coherent policy approach to food insecurity. A disconnect between agricultural policies contemporary nutritional challenges exists which does not help these countries improve their hunger problem.
- Middle East and North Africa: If GDP increases government can introduce programs that educate mothers on properly feeding their young, organizations can provide foods in early childhood to suffering families and food systems; which will alleviate their malnutrition issue.
- South Asia: Governments in this region do not commit enough to improve food, water, sanitation, care and health services that can help improve nutrition outcomes amid disadvantaged populations (Pswarayi-Riddihough, Idah Z). The governments need to focus on increasing their GDP per capita so that they could use the money to focus on these services.

In conclusion, the government has to fully commit to improving food, water, sanitation, care, and health services to amid disadvantaged populations; as well as the citizens of these regions have to make a conscious effort to change their "tastes and dietary choices" so that the "demand for better foods", remains consistent (TWB, 2018). Lastly, education is another important factor to solving the chronic malnutrition problem. Equipping individuals with the proper "information they need to make good food choices and adopt healthier behaviors will have a more lasting impact" (TWB, 2018). Malnutrition within these regions can be less severe in the future with the collaboration of the citizens, and more importantly the governments political will to increasing GDP.

Questions?

Citations

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