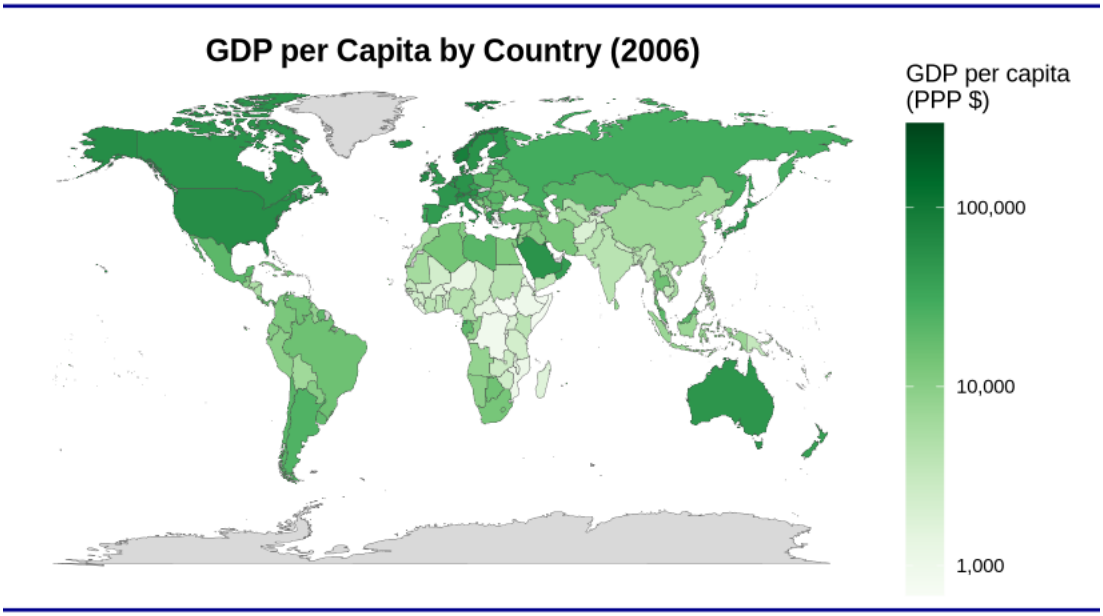
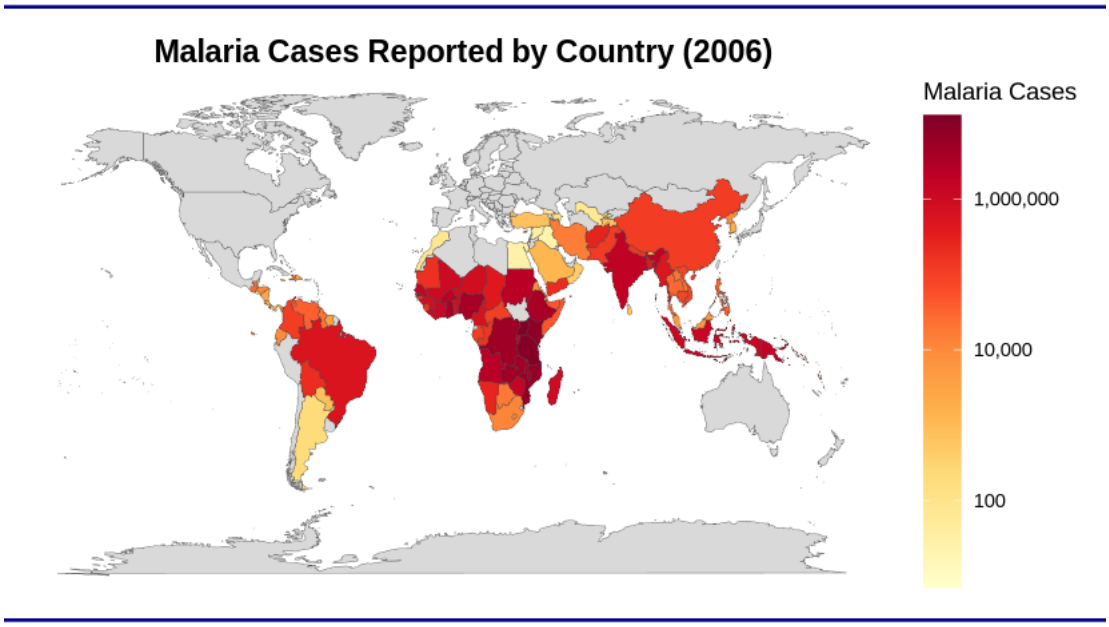
Malaria cases and GDP globally:
A Visual Analysis

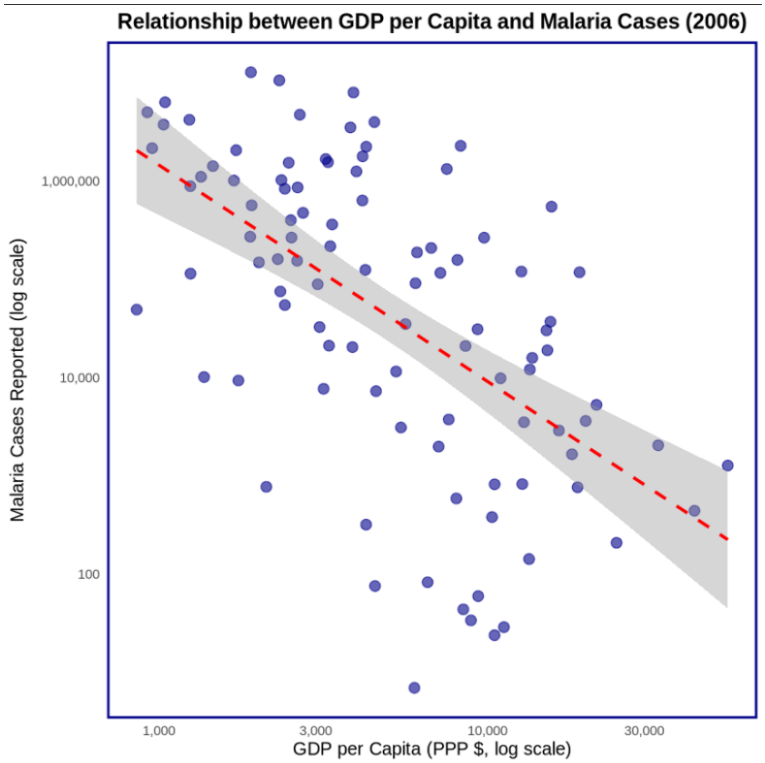
Background: Malaria and Economic Development



GDP (Gross Domestic Product) per capita measures the average economic output per person in a country, adjusted for purchasing power parity (PPP) to account for cost-of-living differences across nations. It serves as a key indicator of a country's economic development and living standards, reflecting the resources available for healthcare, infrastructure, education, and disease prevention programs. Understanding the relationship between GDP per capita and malaria prevalence is crucial for global health policy, as it highlights how economic development and disease control are deeply interconnected challenges that must be addressed together.



Malaria remains one of the world's most devastating infectious diseases, affecting over 200 million people annually and causing hundreds of thousands of deaths, primarily among children under five in tropical and subtropical regions. The disease is transmitted by infected mosquitoes and creates a significant burden on healthcare systems, reduces workforce productivity, and perpetuates cycles of poverty in affected communities. Beyond its immediate health impacts, malaria hinders economic growth by limiting educational attainment (due to school absences), reducing labor force participation, and diverting scarce resources toward treatment rather than development.



Summary

There is a clear inverse relationship between economic development and malaria burden across countries in 2006.

The GDP per capita map shows wealth concentrated in North America, Western Europe, Australia, and parts of East Asia (darker green), while lower-income nations appear in lighter green, predominantly across sub-Saharan Africa and South Asia. In stark contrast, the malaria cases map displays the highest disease burden (darker red/orange) precisely in these lower-income regions, particularly sub-Saharan Africa, which bears most global malaria cases. India and parts of Southeast Asia also show significant malaria prevalence.

The scatterplot quantifies this geographic pattern, demonstrating a strong negative correlation ($r = -0.578$, $p < 0.001$) where countries with higher GDP per capita consistently report fewer malaria cases. ***This relationship suggests that wealthier nations possess better healthcare infrastructure, disease prevention programs, and access to treatment, while poorer countries face a dual challenge***: limited resources to combat malaria and the economic burden that the disease itself imposes on productivity and development, potentially creating a self-reinforcing cycle of poverty and disease.

Reflection

Nice exercise, it was easy following the guide, Julius is great as a tool (see how it creates the code, brings some memories of my very beginner coding experience). My most important learning point today is that these tools can create great outputs without coding experience.

I would have liked to have these instructions earlier and dedicate a bit more of time to play with it.

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Made on 25.1.26, as an exercise for Graph Course