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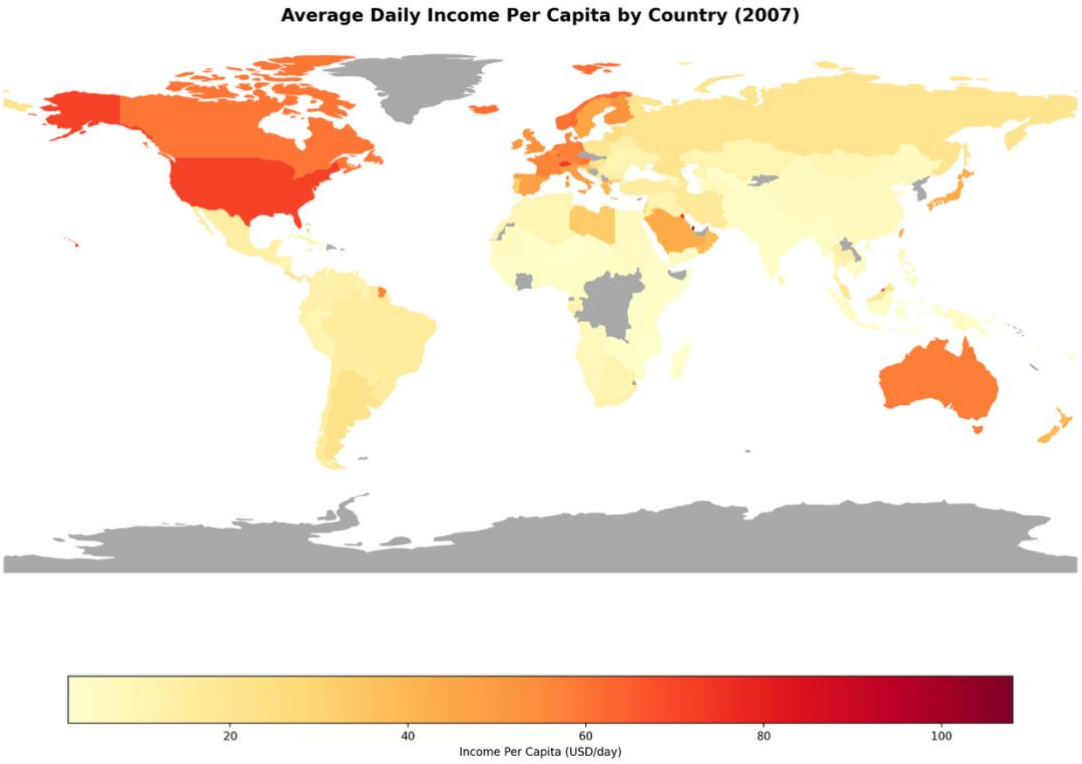
STUDY INTO MATH SCORES AND INCOME PER CAPITA ACROSS THE GLOBE

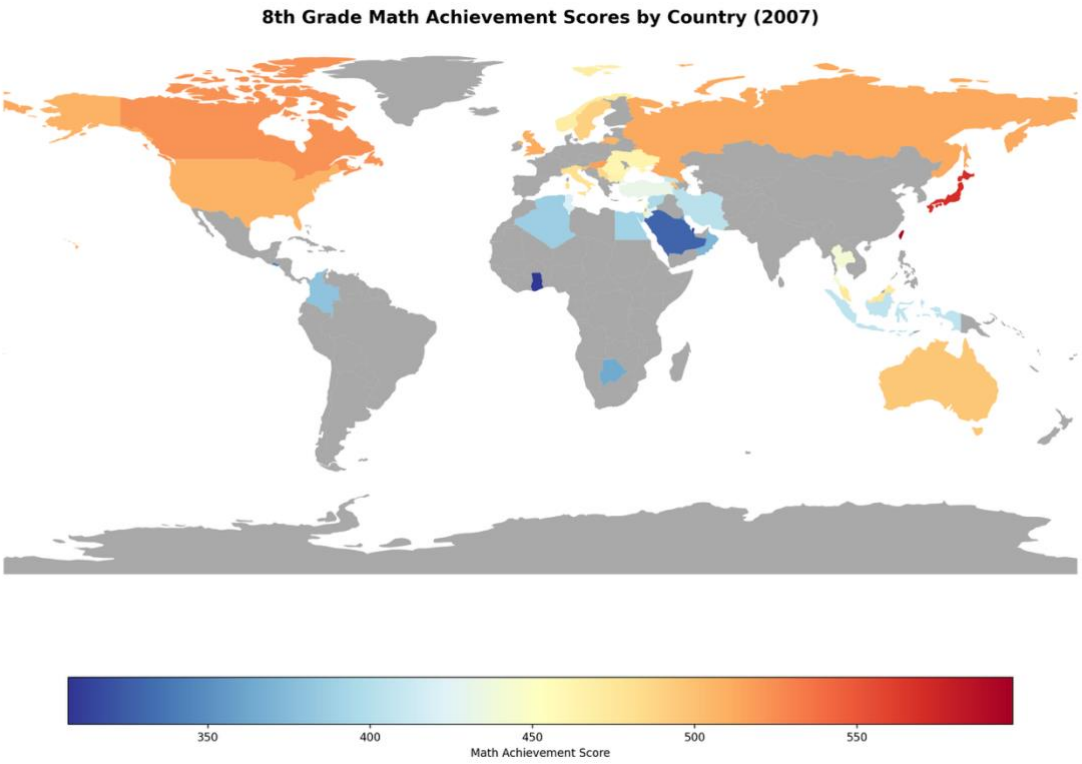
Overview:

The analysis reveals a weak positive correlation (r = 0.227) between average daily income and 8th grade math achievement. However, this relationship is not statistically significant (p = 0.1285 > 0.05), meaning we cannot confidently conclude that higher income directly leads to better math performance.

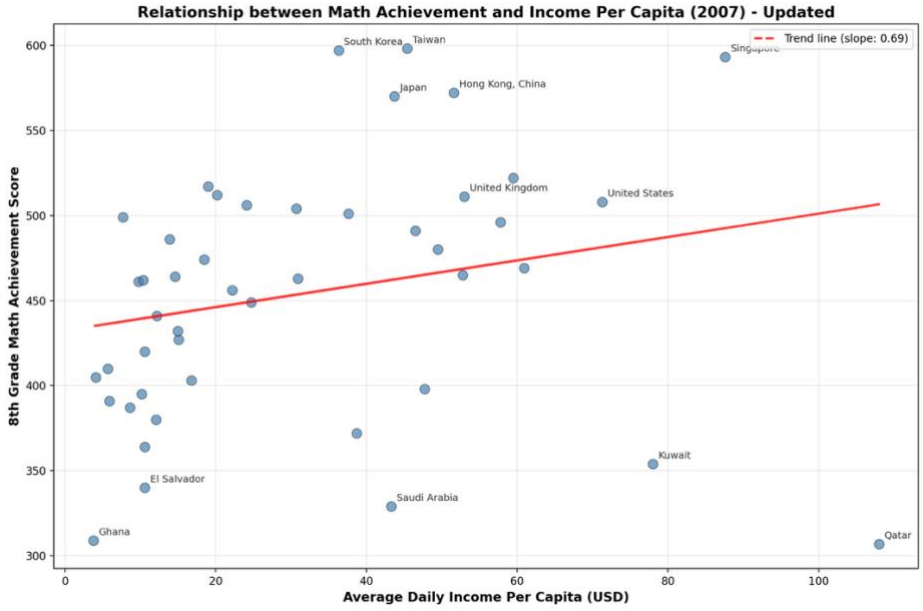
Income per Capita:



8th Grade Math Scores:



Merged Data, into scatter plot graph:



Key Findings

1. Economic Resources Are Not Deterministic While there is a slight tendency for wealthier countries to perform better in mathematics, the relationship is far from predictable. Countries can achieve high educational outcomes across a wide range of income levels, suggesting that how resources are used matters more than the absolute amount available.

2. Regional and Cultural Patterns The data reveals strong regional clustering, particularly among East Asian countries (Hong Kong, Japan, South Korea, Singapore, Taiwan) that consistently achieve top math scores regardless of their varying income levels. This suggests that cultural attitudes toward education, teaching methodologies, and educational policies may be more influential than economic factors.

3. Resource Efficiency Varies Dramatically Some countries achieve exceptional educational outcomes with moderate economic resources, while others with substantial wealth show disappointing results. Qatar exemplifies this paradox with the highest income per capita ($108/day) but among the lowest math achievement scores (307 points).

4. Income Thresholds vs. Optimization The weak correlation suggests there may be a threshold effect where basic economic needs must be met for educational systems to function, but beyond that point, additional wealth provides diminishing returns unless accompanied by effective educational policies and practices.

Conclusion

This analysis demonstrates that educational success is primarily driven by non-economic factors such as:

- Quality of educational policies and curriculum design
- Teacher training and pedagogical approaches
- Cultural values regarding education and academic achievement
- Institutional effectiveness and governance
- Social support systems for learning

The findings challenge simplistic assumptions that economic development automatically leads to better educational outcomes. Instead, they suggest that targeted investments in education, combined with effective policies and cultural support for learning, can produce strong results even in countries with moderate economic resources.

Policy Recommendation: Rather than focusing solely on economic growth as a pathway to educational improvement, countries should prioritize evidence-based educational reforms, teacher development, and creating cultures that value academic achievement. The most successful educational systems appear to be those that optimize their use of available resources rather than simply having the most resources available.

My Reflections:

I found this week markedly different to last, primarily as I have no data background. I initially wanted to explore how math scores might correlate to earnings later in life, but due to my lack of data training, I picked the wrong data sets to analyse this hypothesis. However, the ai then put me on the path for a new analysis for the data I had given it – namely how GDP might affect educational results. I found this very useful. However, I was struck the AI's ability to 'fill in the blanks' of a potentially unworkable data set…potentially dangerous?