



Educational Access and Economic Mobility in the Americas

(Spoiler: It's complicated!)



Why is Education Important?

- Education as a driver of individual and national development.
- Education's impact on economic growth and well-being.
- The need to understand this relationship for informed policy.



Our Million Dollar Question (or, you know, just a research question)

- How does educational access, measured by primary school enrollment, influence economic mobility, measured by GDP per capita, across the Americas?



Content

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Data Sources

Source: World Bank Open Dataset

Primary School Enrollment (% gross) [2]

- 1970-2023
- CSV

GDP per capita (current US\$) [3]

- 1960-2023
- CSV

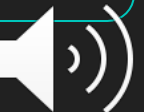
Data Source	World Development Indicators				
Last Updated	16/12/2024				
Country Name	Country Code	Indicator Name	Indicator Code	1970	1971
Aruba	ABW	School enroll	SE.PRM.ENRR		
Africa Easter	AFE	School enroll	SE.PRM.ENR	59.6303101	59.7743301
Afghanistan	AFG	School enroll	SE.PRM.ENR	33.4200096	34.3313408
Africa Weste	AFW	School enroll	SE.PRM.ENR	43.1883202	44.8060188
Angola	AGO	School enroll	SE.PRM.ENRR		59.0612411
Albania	ALB	School enroll	SE.PRM.ENRR		
Andorra	AND	School enroll	SE.PRM.ENRR		
Arab World	ARB	School enroll	SE.PRM.ENR	66.118103	66.1768417
United Arab E	ARE	School enroll	SE.PRM.ENRR		61.6533089

Source	World Development Indicators				
Last Updated	16/12/2024				
Country Name	Country Code	Indicator Name	Indicator Code	1960	1961
Aruba	ABW	GDP per capi	NY.GDP.PCAP.CD		
aster	AFE	GDP per capi	NY.GDP.PCA	186.132432	186.947182
stan	AFG	GDP per capi	NY.GDP.PCAP.CD		
/este	AFW	GDP per capi	NY.GDP.PCA	121.938353	127.452629
	AGO	GDP per capi	NY.GDP.PCAP.CD		
	ALB	GDP per capi	NY.GDP.PCAP.CD		
	AND	GDP per capi	NY.GDP.PCAP.CD		
orld	ARB	GDP per capi	NY.GDP.PCAP.CD	212.889661	210.805414
rab E	ARE	GDP per capi	NY.GDP.PCAP.CD		



Data Pipeline

- Python
- Key libraries: pandas, geopandas, matplotlib, requests.
- Data is cleaned, transformed, and prepared



Pipeline output

- No missing value
- Filled with mean
- No irrelevant features
- Data structure:
 - Temporal data (years), categorical data (Country Name and Code) and continuous data for our variables of interest
 - We created two new variables: Enrollment_Mean and GDP_Mean which represent means across all the years of our variables.



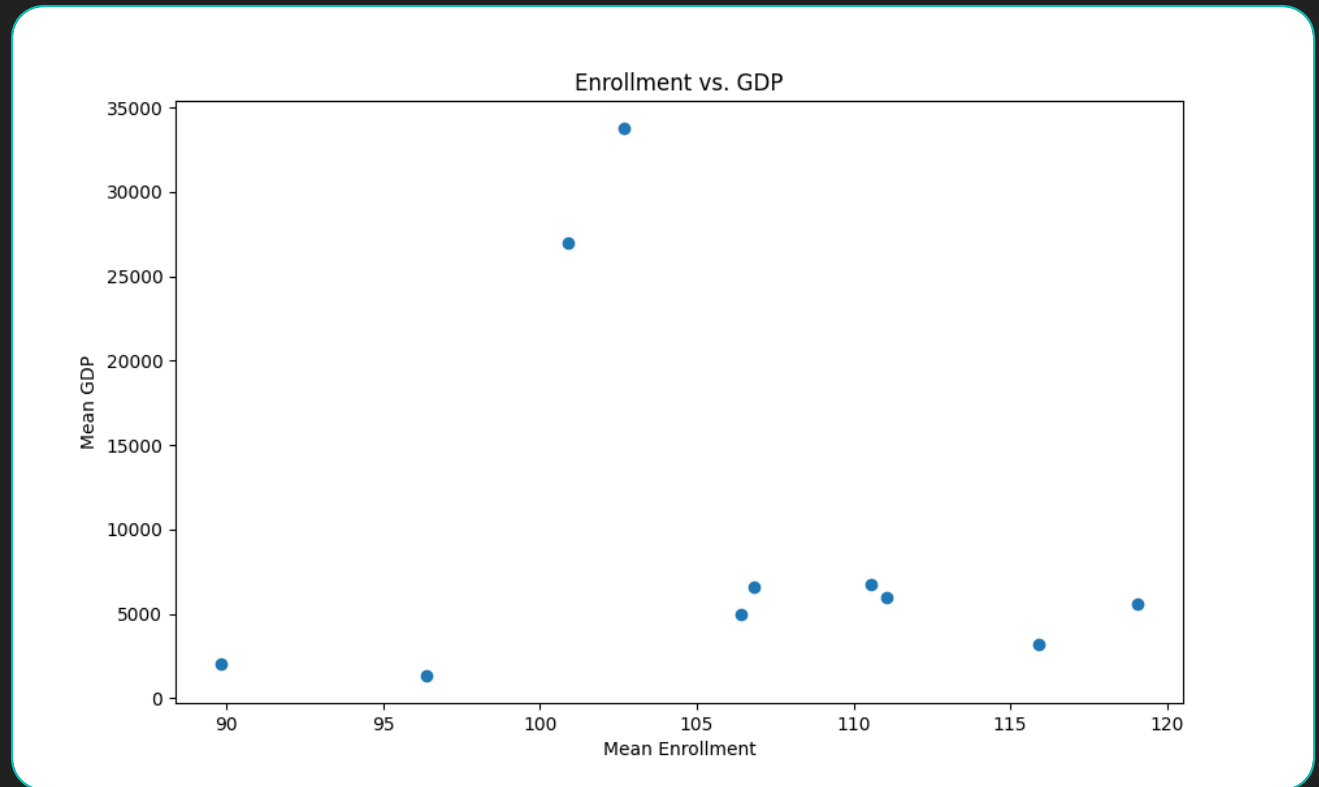
Methodology

- Mean primary school enrollment and GDP per capita
- Pearson correlation coefficient was used



Exploratory Data Analysis

- The data shows that there is no direct trend between the two variables.



Correlation Analysis

- The Pearson correlation is -0.11

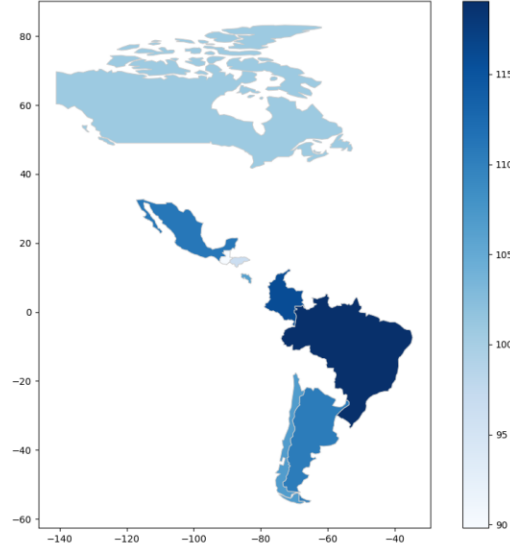


Findings

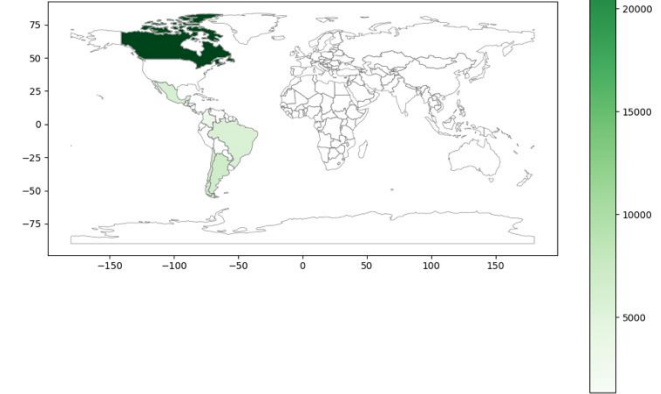
- A very weak negative correlation was found between mean primary school enrollment and GDP per capita.
- There is no indication that higher enrollment rates lead to higher economic output.
- Correlation does not imply causation.



Primary School Enrollment Rates in the Americas (1970-2023)



GDP Per Capita in the Americas (1970-2023)



Visualization

Choropleth maps were created to visually represent mean enrollment rates and GDP per capita



Limitations

- Mean imputation could introduce bias by not reflecting actual trends.
- Aggregated data may mask variations within countries.
- Differences in reporting practices can affect comparability.
- The analysis does not establish causality.
- Other relevant factors were not considered (political stability, type of education etc).



Further Research

- Explore higher education levels (secondary, tertiary).
- Investigate different geographical regions (e.g., specific countries or regions).
- Include other socioeconomic factors (political stability, inequality, social infrastructure).



THANK YOU



License and References

- Data licensed under Creative Commons Attribution 4.0 International (CC BY 4.0).
- [1] Photo by Monstera Production from Pexels: <https://www.pexels.com/photo/puzzled-woman-with-pen-studying-in-room-6237990/>
- [2] World Bank. School enrollment, primary (% gross), 2024. URL <https://databank.worldbank.org/reports.aspx?source=2&type=metadata&series=SE.PRM.ENRR>. World Bank Open Data.
- [3] World Bank. Gdp per capita (current us\$), 2024. URL <https://databank.worldbank.org/reports.aspx?source=2&type=metadata&series=NY.GDP.PCAP.CD>. World Bank Open Data.

