**<https://databank.worldbank.org/AjaxDownload/FileDownloadHandler.ashx?filename=P_7b0a9fec-6d53-4d19-aa56-2236634d4b68.zip&filetype=CSV&language=en&displayfile=P_Data_Extract_From_World_Development_Indicators.zip>**

**Documenting the Source of Selected Indicators & Descriptions**

**Source Documentation**

📌 **Data Source:**

* **World Bank, World Development Indicators (WDI) Database**
* **Access Link:** <https://databank.worldbank.org/source/world-development-indicators>

**Example of Three Selected Indicators with Descriptions**

| **Indicator Name** | **Indicator Code** | **Description** |
| --- | --- | --- |
| **GDP per capita (current US$)** | **NY.GDP.PCAP.CD** | Measures a country’s economic output per person, calculated as total Gross Domestic Product (GDP) divided by the population. This is a key indicator of economic prosperity. |
| **Unemployment, total (% of total labor force)** | **SL.UEM.TOTL.ZS** | Represents the percentage of the labor force that is unemployed but actively seeking employment. It is a critical measure of labor market conditions. |
| **CO₂ emissions (metric tons per capita)** | **EN.ATM.CO2E.PC** | Measures the average carbon dioxide (CO₂) emissions per person in a country, which is crucial for analyzing environmental impact and sustainability. |

**Developing an Entity-Relationship (ER) Model for Selected Indicators**

An **Entity-Relationship (ER) Model** visually represents data relationships. Below is an **ER Model** for storing **World Development Indicators (WDI)** data.

**Entities & Attributes**

1. **Country** *(Stores country-specific data)*
   * Country\_ID *(Primary Key)*
   * Country\_Name
   * Region
   * Income\_Level
2. **Indicator** *(Stores different indicators)*
   * Indicator\_ID *(Primary Key)*
   * Indicator\_Name
   * Indicator\_Description
   * Indicator\_Code
3. **Data\_Record** *(Stores indicator values for each country and year)*
   * Record\_ID *(Primary Key)*
   * Country\_ID *(Foreign Key → Country)*
   * Indicator\_ID *(Foreign Key → Indicator)*
   * Year
   * Value *(Indicator measurement for that year & country)*

**Relationships**

* **One** country can have **many** indicator records (1:M between Country → Data\_Record).
* **One** indicator applies to **many** countries (1:M between Indicator → Data\_Record).

**ER Diagram Representation**

📌 The ER Model consists of:

* **Entities**: Country, Indicator, Data\_Record
* **Relationships**: One-to-Many (1:M) between entities

**20 World Bank datasets**, each containing at least **30 indicators**

1. **World Development Indicators (WDI)**
   * **Description**: The WDI is the World Bank's premier compilation of cross-country comparable data on development. It includes over 1,400 time-series indicators for 217 economies, covering various aspects of global development.citeturn0search8
2. **Global Financial Development Database (GFDD)**
   * **Description**: The GFDD provides data on financial system characteristics for over 200 economies. It includes indicators on financial depth, access, efficiency, and stability.
3. **International Debt Statistics (IDS)**
   * **Description**: DS offers comprehensive data on the external debt of developing countries, including over 200 time-series indicators from 1970 onwards.
4. **Enterprise Surveys**
   * **Description**: these surveys provide firm-level data on various aspects of the business environment across countries, covering topics like finance, infrastructure, trade, and corruption.
5. **Worldwide Governance Indicators (WGI)**
   * **Description**: he WGI project reports aggregate and individual governance indicators for over 200 countries, covering six dimensions of governance.citeturn0search6
6. **Global Economic Monitor (GEM)**
   * **Description**: EM provides high-frequency data on global economic developments, including indicators on commodity prices, exchange rates, and equity markets.
7. **Poverty and Equity Database**
   * **Description**: his database offers indicators related to poverty, inequality, and shared prosperity for various countries.
8. **Health Nutrition and Population Statistics**
   * **Description**: his dataset includes indicators on health, nutrition, and population dynamics, covering topics like mortality rates, disease prevalence, and health expenditures.
9. **Education Statistics (EdStats)**
   * **Description**: EdStats compiles data on education from national and international sources, including indicators on enrollment, completion, and literacy rates.
10. **Gender Statistics**
    * **Description**: his dataset provides indicators on gender equality, covering areas like education, labor force participation, and political representation.
11. **Climate Change Knowledge Portal**
    * **Description**: his portal offers climate-related data, including indicators on greenhouse gas emissions, climate finance, and vulnerability indices.
12. **Logistics Performance Index (LPI)**
    * **Description**: The LPI measures the logistics performance of countries, including indicators on customs efficiency, infrastructure quality, and shipment reliability.
13. **Doing Business**
    * **Description**: his dataset provides indicators on business regulations and their enforcement across economies, covering areas like starting a business, obtaining credit, and enforcing contracts.
14. **Global Consumption Database**
    * **Description**: his database offers data on household consumption patterns in developing countries, including indicators on spending habits across various sectors.
15. **Africa Development Indicators**
    * **Description**: his compilation includes over 1,400 indicators of development in Sub-Saharan Africa, covering topics like national accounts, trade, and social indicators.
16. **Global Financial Inclusion (Global Findex) Database**
    * **Description**: The Global Findex provides indicators on how adults in various countries save, borrow, make payments, and manage risk.
17. **Remittance Prices Worldwide**
    * **Description**: his dataset offers indicators on the cost of sending and receiving remittances across different country corridors.
18. **Subnational Malnutrition Database**
    * **Description**: his database provides indicators on malnutrition at the subnational level, including data on stunting, wasting, and underweight prevalence.
19. **Wealth Accounting and the Valuation of Ecosystem Services (WAVES)**
    * **Description**: AVES provides indicators on natural capital accounting, including data on ecosystem services and wealth estimates.
20. **Global Partnership for Education (GPE) Results Framework**
    * **Description**: his dataset includes indicators used to monitor progress in education in GPE partner countries, covering areas like learning outcomes and equity. Incorporating these datasets will provide a comprehensive foundation for structuring queries and conducting in-depth analyses, thereby enhancing the scope and depth of your research.

**Refining the Database Schema & Developing Research Questions**

With **20 datasets and 30+ indicators**, we need to **expand and refine the ER model** to accommodate multiple data sources, improve relationships, and ensure flexibility for complex queries.

**Refined ER Model**

**Entities & Attributes**

1. **Country** *(Stores country-specific data)*
   * **Country\_ID** *(Primary Key)*
   * **Country\_Name**
   * **Region**
   * **Income\_Level**
2. **Dataset** *(Stores dataset-specific information)*
   * **Dataset\_ID** *(Primary Key)*
   * **Dataset\_Name**
   * **Dataset\_Source**
   * **Category** (e.g., Economy, Education, Health, Climate)
3. **Indicator** *(Stores details on each indicator across datasets)*
   * **Indicator\_ID** *(Primary Key)*
   * **Indicator\_Name**
   * **Indicator\_Description**
   * **Indicator\_Code**
   * **Dataset\_ID** *(Foreign Key → Dataset)*
4. **Data\_Record** *(Stores actual indicator values over time for each country)*
   * **Record\_ID** *(Primary Key)*
   * **Country\_ID** *(Foreign Key → Country)*
   * **Indicator\_ID** *(Foreign Key → Indicator)*
   * **Year**
   * **Value** *(The actual data for that country and indicator in a specific year)*

**Research Questions the Database Can Answer**

1. **Economic & Financial Analysis**  
   📌 *How does GDP per capita correlate with financial inclusion and access to credit across developing countries?*
   * **Indicators Used:** GDP per capita, Financial Inclusion Index, Domestic Credit to Private Sector (% of GDP)
2. **Climate & Sustainability**  
   📌 *What is the relationship between CO₂ emissions, renewable energy consumption, and economic growth?*
   * **Indicators Used:** CO₂ emissions per capita, Renewable energy consumption, GDP growth rate
3. **Education & Workforce Development**  
   📌 *How do literacy rates and tertiary education enrollment impact unemployment rates across regions?*
   * **Indicators Used:** Literacy Rate (% of Population), Tertiary Education Enrollment (%), Unemployment Rate

**60 research questions** based on the **selected datasets and indicators** from the **World Bank**. These questions are categorized based on themes such as **economy, finance, education, health, climate, governance, and infrastructure**.

**Economic Development & Growth**

1. How does **GDP per capita** correlate with **education expenditure** across different countries?
2. What is the impact of **foreign direct investment (FDI)** on **economic growth** in developing economies?
3. How do **inflation rates** affect **employment levels** in emerging markets?
4. What is the relationship between **government debt (% of GDP)** and **economic growth**?
5. How do **exports and imports** influence **GDP growth** in high-income vs. low-income countries?
6. How has **remittance inflow** influenced **poverty reduction** across regions?
7. What is the impact of **public sector wages** on **economic productivity**?
8. How do **interest rate changes** impact **business growth and investment**?
9. Does **higher tax revenue** lead to **better public services** in different regions?
10. What role does **internet penetration** play in **economic development**?

**Financial Inclusion & Debt**

1. How does **access to credit** impact **entrepreneurial success** in low-income countries?
2. What is the correlation between **mobile banking adoption** and **financial inclusion**?
3. How do **non-performing loans (% of total loans)** affect **financial stability**?
4. How do **interest rates** impact **household savings** across income groups?
5. Does **domestic credit to the private sector** improve economic productivity?
6. What is the impact of **sovereign debt levels** on **foreign investment**?
7. How does **external debt service** impact **government spending on social programs**?
8. What is the relationship between **stock market development** and **GDP per capita**?
9. How do **capital flows** impact **currency stability** in emerging markets?
10. Does **bank ownership structure (private vs. state-owned)** influence **financial efficiency**?

**Education & Workforce**

1. How does **tertiary education enrollment** impact **youth unemployment rates**?
2. What is the effect of **government expenditure on education** on **literacy rates**?
3. How does **student-to-teacher ratio** impact **learning outcomes** in primary education?
4. What is the correlation between **higher education levels** and **income inequality**?
5. How does **vocational training** impact **job placement rates** in developing countries?
6. What is the impact of **early childhood education investment** on **long-term economic growth**?
7. How does **digital literacy** correlate with **employment rates**?
8. What is the effect of **STEM education investment** on **economic innovation**?
9. How do **female literacy rates** impact **women’s labor force participation**?
10. Does **public vs. private education funding** affect **educational outcomes**?

**Health & Well-being**

1. How does **life expectancy** correlate with **healthcare expenditure (% of GDP)**?
2. What is the impact of **malnutrition rates** on **economic productivity**?
3. How does **government investment in healthcare** affect **infant mortality rates**?
4. What is the relationship between **urbanization rates** and **non-communicable diseases**?
5. How does **access to clean water** impact **child mortality rates**?
6. How do **vaccination rates** affect **disease outbreak trends**?
7. What is the effect of **air pollution levels** on **respiratory diseases**?
8. How do **mental health services** impact **workforce productivity**?
9. What is the impact of **health insurance coverage** on **out-of-pocket medical expenses**?
10. Does **an aging population** increase **healthcare costs** in developed countries?

**Climate Change & Sustainability**

1. How does **CO₂ emissions** correlate with **renewable energy consumption**?
2. What is the impact of **climate change policies** on **carbon footprint reduction**?
3. How does **deforestation** affect **biodiversity loss in tropical regions**?
4. What is the relationship between **climate disasters** and **GDP losses**?
5. How do **air pollution levels** correlate with **urban population growth**?
6. Does **investment in green infrastructure** improve **climate resilience**?
7. What is the effect of **water conservation policies** on **agriculture productivity**?
8. How does **energy efficiency** impact **sustainable economic growth**?
9. What is the correlation between **temperature rise** and **agricultural yields**?
10. How do **carbon tax policies** affect **energy consumption patterns**?

**Governance & Institutions**

1. What is the effect of **government transparency** on **foreign direct investment (FDI)**?
2. How does **corruption perception** impact **business competitiveness**?
3. What is the relationship between **political stability** and **economic growth**?
4. Does **higher democracy index** correlate with **better economic development**?
5. How do **strong legal institutions** affect **entrepreneurial success**?
6. What is the impact of **public sector corruption** on **infrastructure quality**?
7. How does **press freedom** correlate with **government accountability**?
8. What is the effect of **human rights policies** on **international trade partnerships**?
9. Does **judicial independence** improve **contract enforcement and business climate**?
10. How does **digital governance (e-government)** impact **service delivery efficiency**?

**Next Steps**

🔹 **Filter & refine** the list to focus on the most relevant research areas.  
🔹 **Map each question to the appropriate dataset & indicators** from the **World Bank**.  
🔹 **Develop hypotheses & data models** to analyze key trends.

Would you like help with **prioritizing key questions** or **identifying the best datasets** for analysis? 🚀