**GSERM: Analyzing Panel Data**

Dr. Christopher Zorn
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**World Development Indicators Data**

**Introduction**

For this course, we'll adopt data from the *World Development Indicators* (WDI) to illustrate key course models and concepts. The WDI are data collected on around 1,400 demographic, political, social, and economic indicators collected annually by the World Bank. Data are collected at the national level, for each of around 215 countries in the international system. The length of time ach variable is collected varies significantly; the longest series extend back to 1960, while others are only available for very recent years or at discrete time points. (The World Bank also gathers and publishes WDI data on regional groupings, but for our purposes we'll focus on data at the national level.) Detailed information on the WDI is available at the WDI website.

The WDI data is available for bulk download (and on-line analysis) at the World Bank's website. We'll be focusing on a subset of the whole WDI data, one containing roughly 35 variables. The code for obtaining and creating the WDI data for this course is available on the course Github repository, and makes use of the very useful `WDI` and `countrycode` packages, created by Vincent Arel-Bundock and his collaborators.

For our course, we'll be using a subset of the WDI data containing the following variables. Often, we will need to transform these variables for analysis (e.g., via a logrithmic transformation), but they are untransformed in the data here.

**Variable Descriptions**

- `ISO3` - The country's International Standards Organization (ISO) three-letter identification code (e.g., `CHE` for Switzerland).

- `Year` - The year that row of data applies to. The combination of `ISO3` and `Year` uniquely identifies every observation in the data.

- `Region` - The geographical region of the country. There are seven regions specified: East Asia & the Pacific, Europe & Central Asia, Latin America & the Caribbean, the Middle East & North Africa, North America, South Asia, and Sub-Saharan Africa.

- `country` - The name of the country (useful for labeling, etc.).

- `LandArea` - Land area (sq. km).

- `ArablePercent` Arable Land (percent of total land area).

- `Population` - Population.

- `PopGrowth` - Population Growth (percent).

- `RuralPopulation` - Rural Population (percent of total).

- `UrbanPopulation` - Urban Population (percent of total).

- `BirthRatePer1K` - Birth Rate (births per 1K people).

- `FertilityRate` - Fertility Rate (births per woman).

- `PrimarySchoolAge` - Primary school starting age (years).

- `LifeExpectancy` - Life Expectancy at birth (years).

- `AgeDepRatioOld` - Age Dependency Ratio (old), percent of the working age population.

- `CO2Emissions` - CO2 Emissions (metric tons per capita).

- `GDP` - GDP (constant 2010 $US).

- `GDPPerCapita` - GDP per capita (constant 2010 $US).

- `GDPPerCapGrowth` - GDP Per Capita Growth (percent annual).

- `Inflation` - Inflation (CPI, annual percent).

- `TotalTrade` - Total Trade (percent of GDP).

- `Exports` - Exports (percent of GDP).

- `Imports` - Imports (percent of GDP).

- `FDIIn` - Inward Foreign Direct Investment (FDI) (percent of GDP).

- `AgriEmployment` - Percent of total employment in agriculture.

- `NetAidReceived` - Net Official Development Aid Received (constant 2018 $US).

- `MobileCellSubscriptions` - Mobile / cellular subscriptions per 100 people.

- `NaturalResourceRents` - Total natural resource rents (percent of GDP).

- `MilitaryExpenditures` - Military expenditures (percent of GDP).

- `GovtExpenditures` - Government Expenditures (percent of GDP).

- `PublicEdExpend` - Public expenditure on education (percent of GDP).

- `PublicHealthExpend` - Public expenditure on health (percent of GDP).

- `HIVDeaths` - Deaths due to HIV/AIDS (UNAIDS estimate).

- `WomenBusLawIndex` - Women Business & the Law Index Score.

- `PaidParentalLeave` - Paid Parental Leave (0 = No, 1 = Yes).