Economic Growth

Luis Francisco Gomez Lopez

2023-01-10 17:18:04

Contents

Please Read Me

- Check the message **Welcome greeting** published in the News Bulletin Board.
- Dear student please edit your profile uploading a photo where your face is clearly visible.
- The purpose of the virtual meetings is to answer questions and not to make a summary of the study material.
- This presentation is based on (Cardenas 2020, chap. 3)

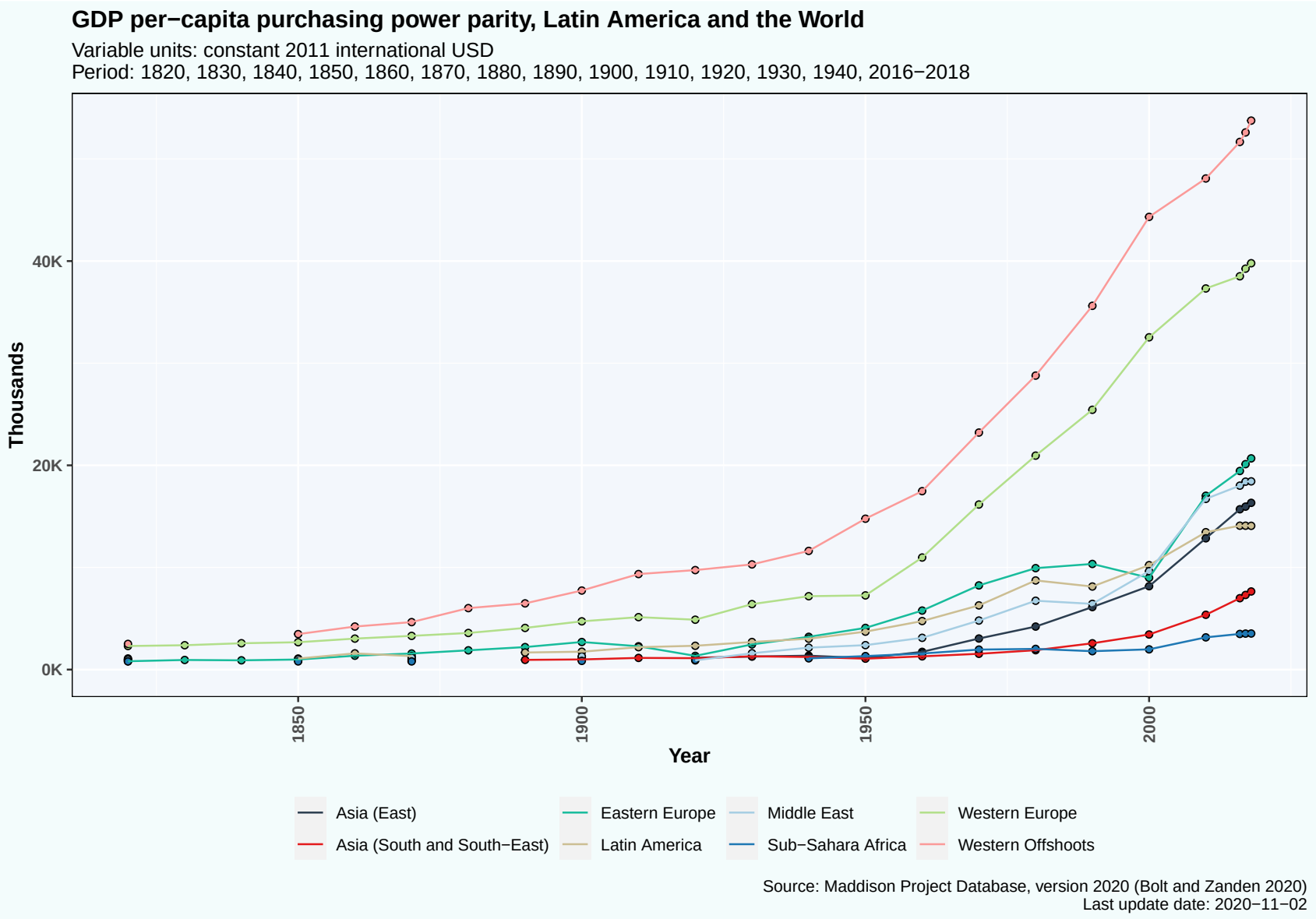
Purpose

Analyze the determinants of economic growth

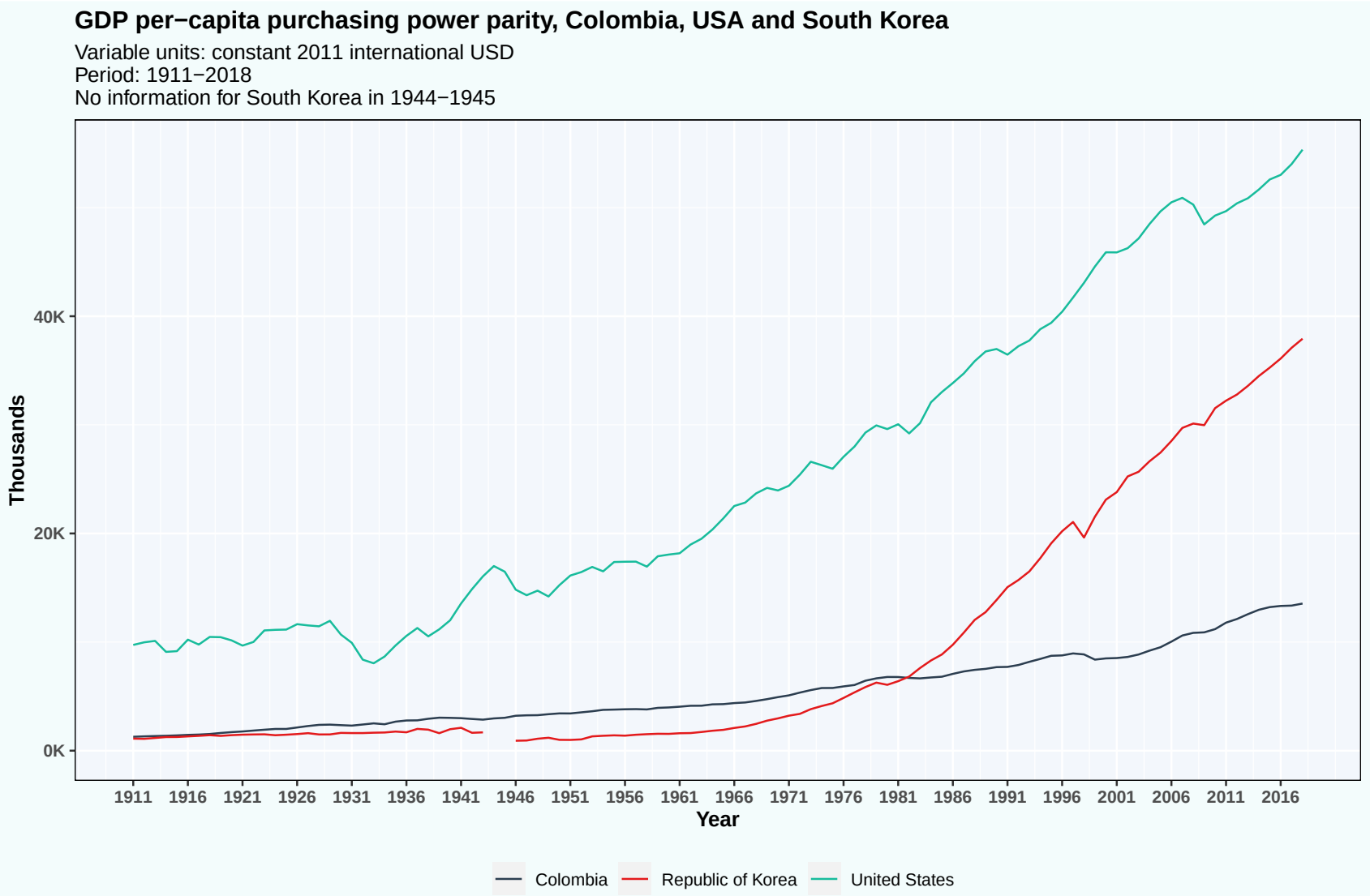
What is economic growth?

- Economic growth can be define as an increase in the quantity and quality of products that a society produces and consumes (Roser 2013)
- The definition of economic growth is straightforward but this concept is extremely difficult to measure (Roser 2013)
- Economists often measure economic growth as an increase in Gross Domestic Product per capita by applying inflation adjustments. Furthermore, if international comparisons are necessary also purchase power parity (PPP) adjustments are applied (Roser 2013)
- From the long-term perspective of social history economic growth is a recent phenomena (Roser 2013) & (Bolt and Zanden 2020)

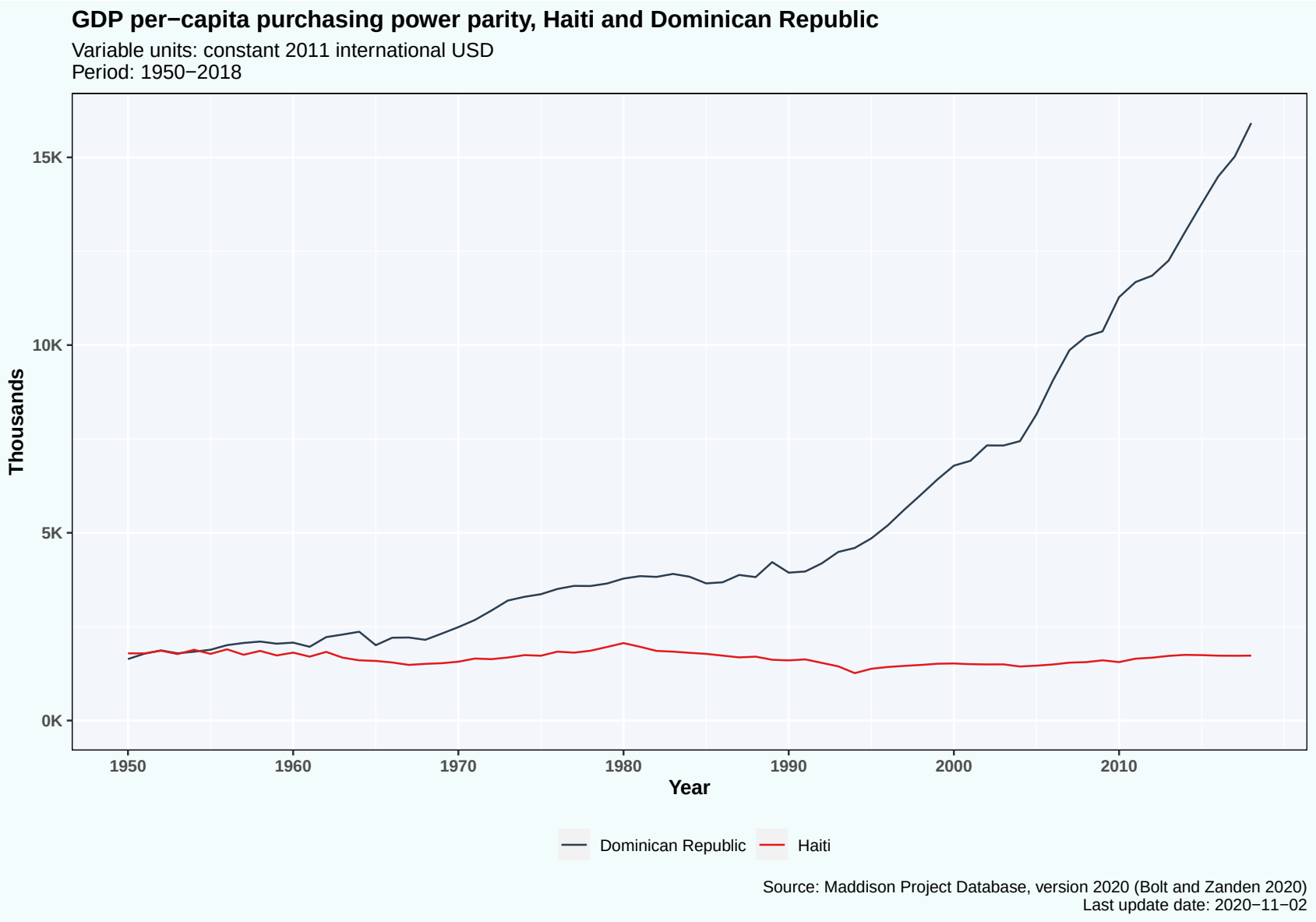
Economic growth from a long-term perspective



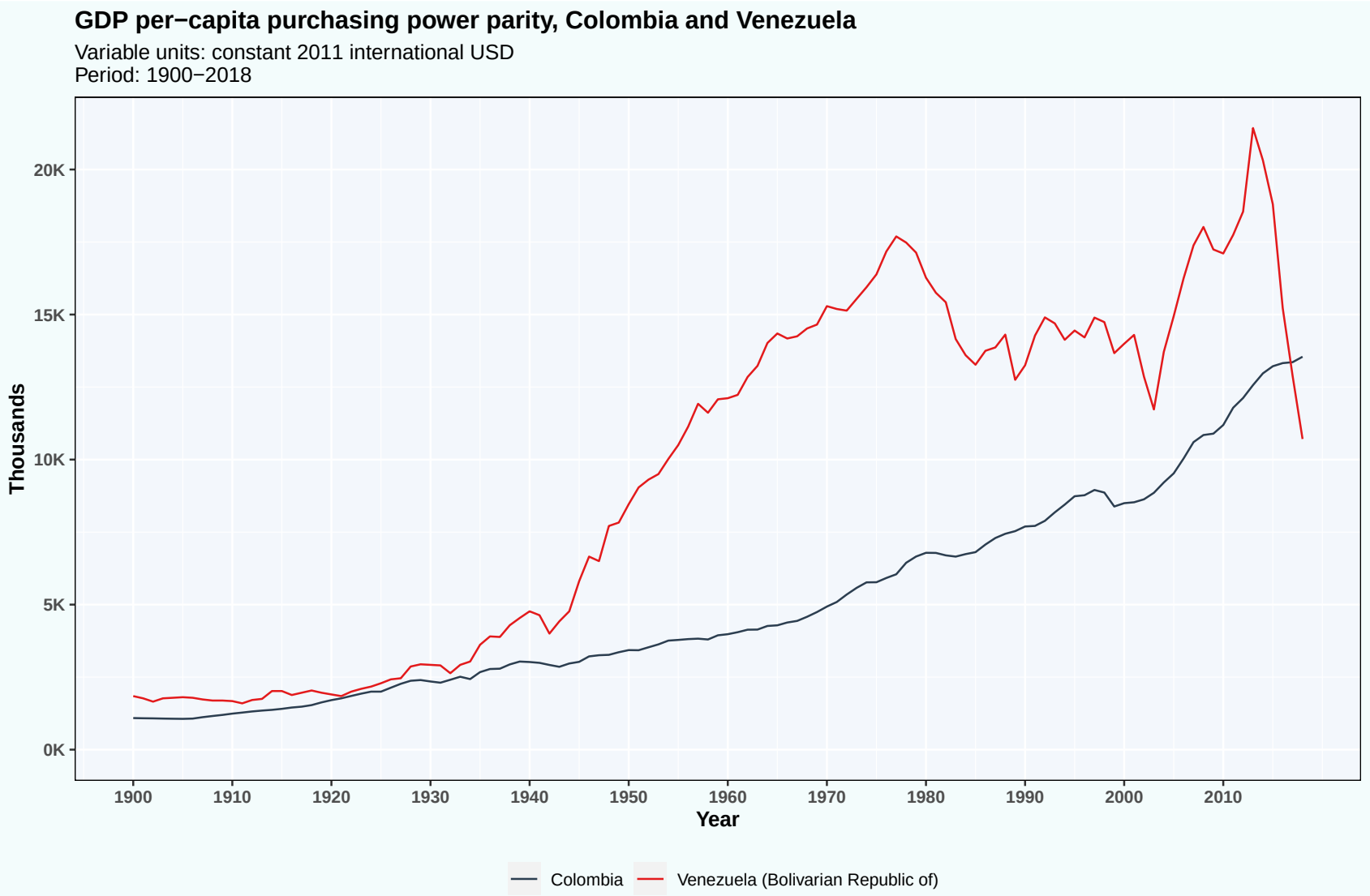
Economic growth paths



Economic growth paths

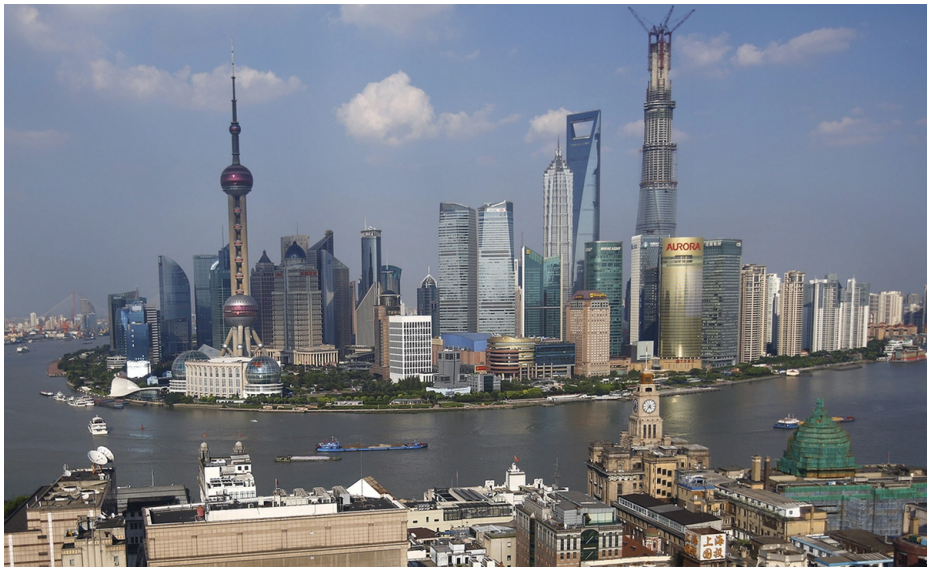


Economic growth paths



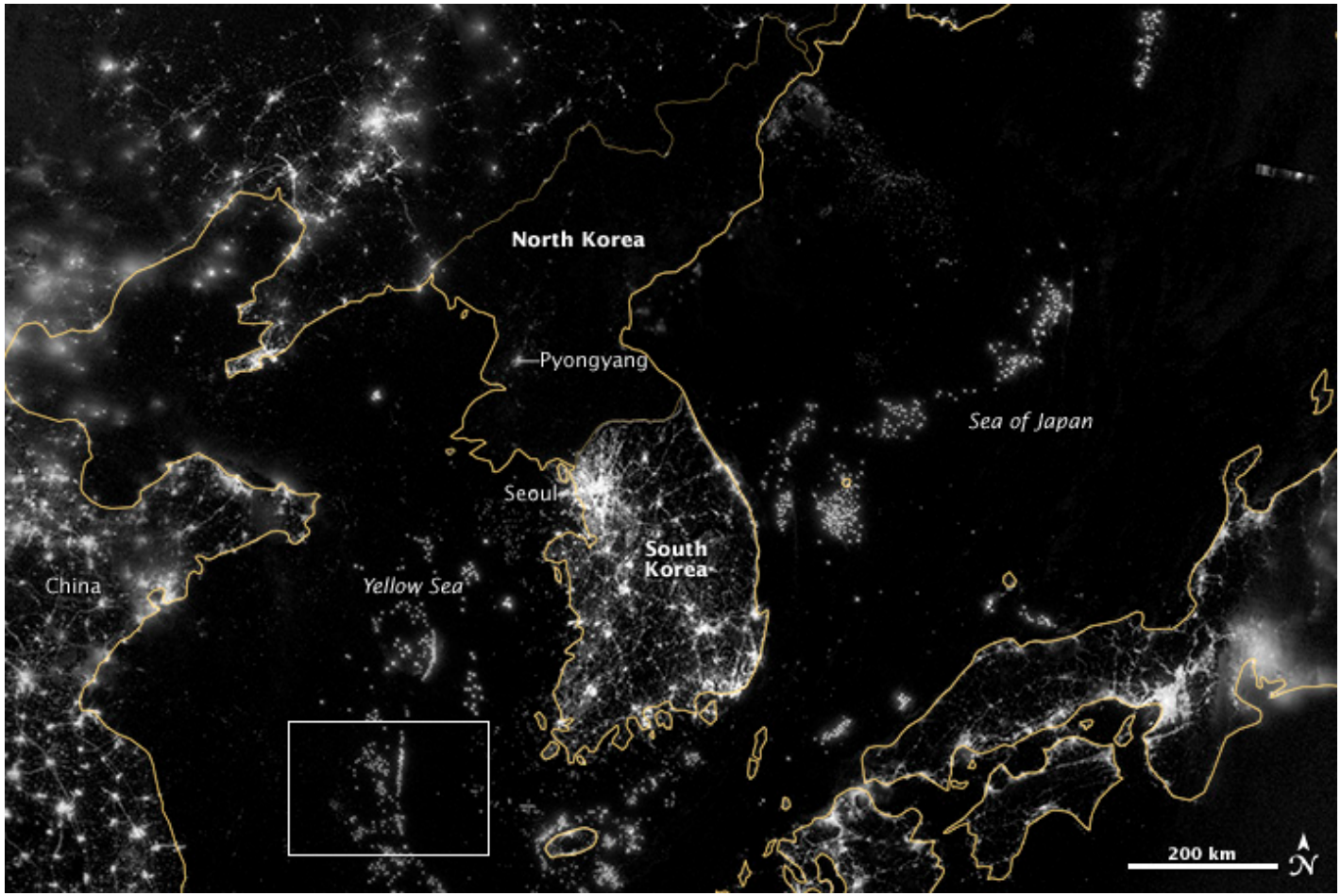
Economic growth in images

- Shanghai's financial district of Pudong: 1987 vs 2013 (Taylor 2013)



Economic growth in images

- Korean peninsula, nocturnal luminosity: September 24, 2012 (Observatory, Allen, and Simmon 2012)



Economic growth in images

- Google Earth Timelapse Dubai, UAE check out[1]:
  - https://youtu.be/pjM26oRIay0
- Explore about Timelapse at: https://earthengine.google.com/timelapse
  - Urban growth
    - Dalian, Liaoning, China
    - Las Vegas, Nevada, USA

[1] Timelapse is a global, zoomable video that lets you see how the Earth has changed over the past 32 years.

Inputs to obtain GDP

Gross domestic product is obtained by using the following inputs:

- Labor
  - Quantity of labor:
    - Employment[2]
    - Hours worked
  - Quality of Labor:
    - Employment by educational attainment
    - Compensation by educational attainment

[2] Includes individuals employed aged 15 years or over where this age range is necessary for international comparisons.

Inputs to obtain GDP

Gross domestic product is obtained by using the following inputs:

- Produced non-financial fixed assets[3]
  - Dwellings
  - Buildings other than dwellings
  - Other structures
  - Land improvements
  - Transport equipment
  - Information and Computer Technology (ICT) equipment
  - Other machinery and equipment
  - Weapons systems
  - Cultivated biological resources

[3] Other non-financial assets can be included but these are the ones that are usually measured. For more information check out (OECD 2009) and (OECD 2001)

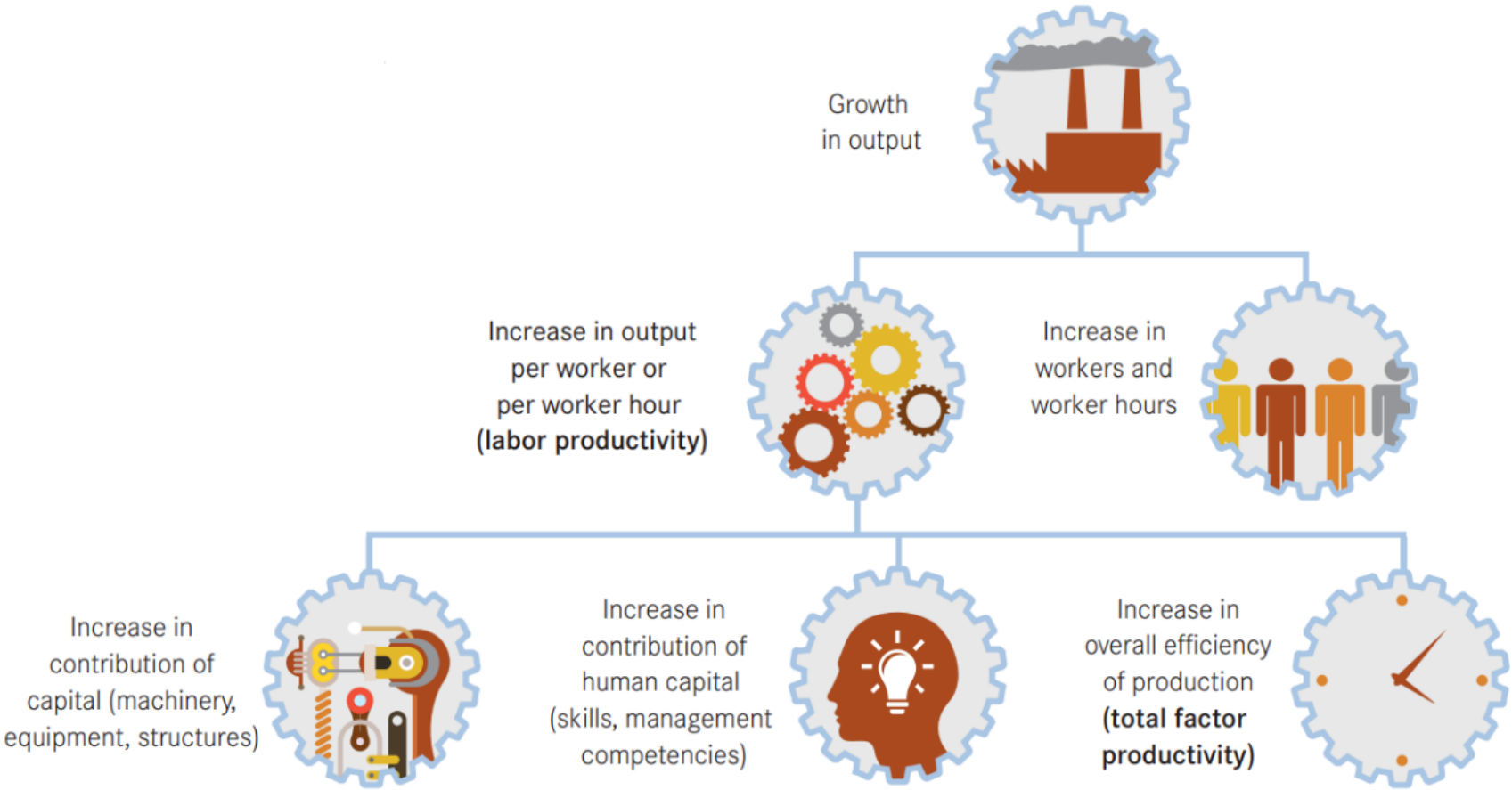
Inputs to obtain GDP

Other factors that affect the Gross Domestic Product different from labor and produced non-financial fixed assets

- These factors are not directly observable but are used in growth accounting to calculate **Total Factor Productivity/Multifactor productivity** as an approximation to technological change
  - Technological change is defined as changes in the Gross Domestic Product that are not due to changes in inputs

Growth accounting

- Labor productivity and total factor productivity (Vries and Azeez Erumban 2017, 21, fig. 3)



Growth accounting

- Methodology applied to Colombia for selected years

Measure	1990	2000	2010	2022
Growth of GDP, change in the natural log	4.08	2.88	4.40	6.39
Contribution of Labor Quantity to GDP growth	1.43	3.85	2.20	3.59
Contribution of Labor Quality to GDP growth	0.80	1.13	1.08	0.25
Contribution of Total Capital Services to GDP growth	1.20	0.14	2.47	1.88
Growth of Total Factor Productivity	0.66	-2.24	-1.35	0.68

Source: The Conference Board Total Economy Database - Growth Accounting and Total Factor Productivity, 1990-2021
Last update: 2022-06

Proximate and fundamental determinants of economic growth

- Proximate determinants
  - Increase in workers and worked hours
  - Increase in produced non-financial fixed assets
  - Increase in educational attainment, experience and skills (lifelong learning)
  - Increase in overall efficiency of production (total factor productivity)

Proximate and fundamental determinants of economic growth

- Fundamental determinants
  - Better institutions (Cárdenas Santamaría et al. 2013, chap. 4)
  - Integration into the global economy (Cárdenas Santamaría et al. 2013, chap. 5)
  - Geographical conditions

Acknowledgments

- To my family that supports me
- To the taxpayers of Colombia and the **UMNG students** who pay my salary
- To the **Business Science** and **R4DS Online Learning** communities where I learn **R**
- To the **R Core Team**, the creators of **RStudio IDE** and the authors and maintainers of the packages **tidyverse**, **knitr**, **janitor**, **kableExtra**, and **tinytex** for allowing me to access these tools without paying for a license
- To the **Linux kernel community** for allowing me the possibility to use some **Linux distributions** as my main **OS** without paying for a license

References I

Bolt, Jutta, and Jan Luiten van Zanden. 2020. "Maddison Project Database 2020." *University of Groningen*. https://www.rug.nl/ggdc/historicaldevelopment/maddison/releases/maddison-project-database-2020.

Cardenas, Mauricio. 2020. *Introducción a La Economía Colombiana*. 4th ed. Alfaomega.

Cárdenas Santamaría, Mauricio, Roberto Junguito, Camilo García, and María Fernanda Rosales. 2013. *Introducción a La Economía Colombiana*. Bogotá, Colombia: Alfaomega.

Observatory, NASA Earth, Jesse Allen Allen, and Robert Simmon. 2012. "Korea and the Yellow Sea." https://earthobservatory.nasa.gov/images/79796/korea-and-the-yellow-sea.

OECD. 2001. *Measuring Productivity - OECD Manual: Measurement of Aggregate and Industry-Level Productivity Growth*. OECD. https://doi.org/10.1787/9789264194519-en.

References II

———. 2009. *Measuring Capital - OECD Manual 2009: Second Edition*. OECD. https://doi.org/10.1787/9789264068476-en.

Roser, Max. 2013. "Economic Growth." *Our World in Data*, November. https://ourworldindata.org/economic-growth.

Taylor, Alan. 2013. "26 Years of Growth: Shanghai Then and Now - The Atlantic." https://www.theatlantic.com/photo/2013/08/26-years-of-growth-shanghai-then-and-now/100569/.

Vries, Klaas de, and Abdul Azeez Erumban. 2017. "Total Economy Database: A Detailed Guide to Its Sources and Methods." https://conference-board.org/data/economydatabase/total-economy-database-methodology.