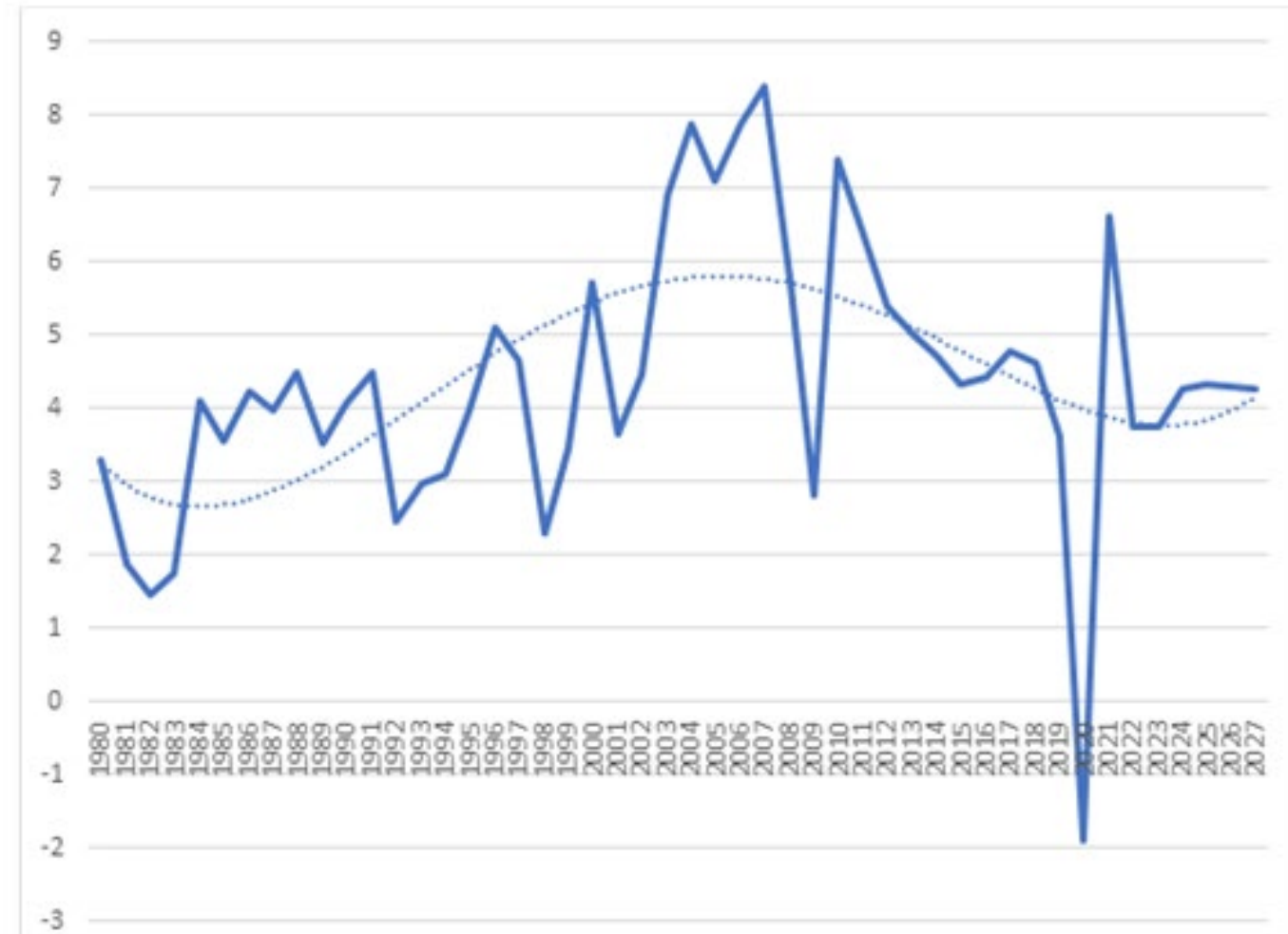


Data Analysis for Global Challenges

ANDREAS ANTONIADES

GDP growth dynamics between MDGs and SDGs
(GDP annual %, constant prices)



Overview

Focusing on key socioenvironmental challenges, this module offers a hands-on introduction to basic data analysis for students averse to numbers, data and statistics. The approach taken is skills-oriented. Along with a better grasp of sustainability transition challenges, you will gain a solid understanding of what relevant data/datasets are available and how to access and work with them. If you think that 'numbers/data/datasets are not for me', but you feel this is an important skill to have for your future career, do take this module! The module is NOT an introduction to statistics, and NO knowledge of statistics is required or will be pursued.

Indicative learning objectives

- You will learn how to access, download and use large datasets to support or develop research ideas, projects and findings.
- You will learn how to work with and analyse large textual data (most likely we'll use the Qualitative Analysis Software Nvivo).
- You will analyse key challenges to sustainability transition by utilizing different types of data
- You will practice working with data visualizations. (a) to identify patterns in, and draw insights from, complex data and (b) to communicate effectively research findings to different audiences
- You can tailor the module content to your interests by choosing to focus on specific countries, regions, or groups of countries (e.g. high-income, fragile & conflict affected, HIPC etc), as well as on specific sustainability transition challenges (e.g. poverty, education, conflict & war, biodiversity etc)

For instance, we will review indicators/data used in several SDGs, and you can choose to focus on and use the data/datasets that are closer to your interests (e.g. economic, social, political, environmental etc). We will also reflect on the use of proxy indicators to measure key sustainability dynamics.

For instance, how to analyze a newly published government report; compare the anti-green policies rhetoric in Germany and the US; or compare the framing of climate change in Indian and Chinese newspapers.

For instance, how data on natural disasters, climate change vulnerability and preparedness, economic growth, financial stress, protests, deforestation and biodiversity can be combined to assess sustainability challenges in specific countries.

Themes & Skills

| GROUP A | INDICATIVE THEMES TO BE COVERED |
|----------------|--|
| Theme 1 | Socio-environmental effects of economic crises, including the recent polycrisis global shocks |
| Theme 2 | Sustainability Transition in the Unsustainable Growth Vicious Cycle: financial stress => unsustainable growth policies => environmental crisis => financial stress |
| Theme 3 | Multidimensional Poverty and social–ecological interdependencies of sustainable development |
| Theme 4 | Measuring the Sustainable Development Goals |
| GROUP B | INDICATIVE SKILLS-DEVELOPMENT |
| 1 | Datasets: where to find the data you want, how to download them, and how to manually perform basic data organisation and analysis tasks at Excel |
| 2 | How to think about and use proxy indicators to measure socio-environmental phenomena; how to examine the relationship between different phenomena |
| 3 | How to use Qualitative Analysis Tools/Software in your research (NVivo) |
| 4 | How to interpret tables that report statistical results, in articles relevant to your interests |
| 5 | How to use data visualisation (i.e. use charts, graphs, tables, maps etc) to understand your data and/or communicate effectively your research findings |

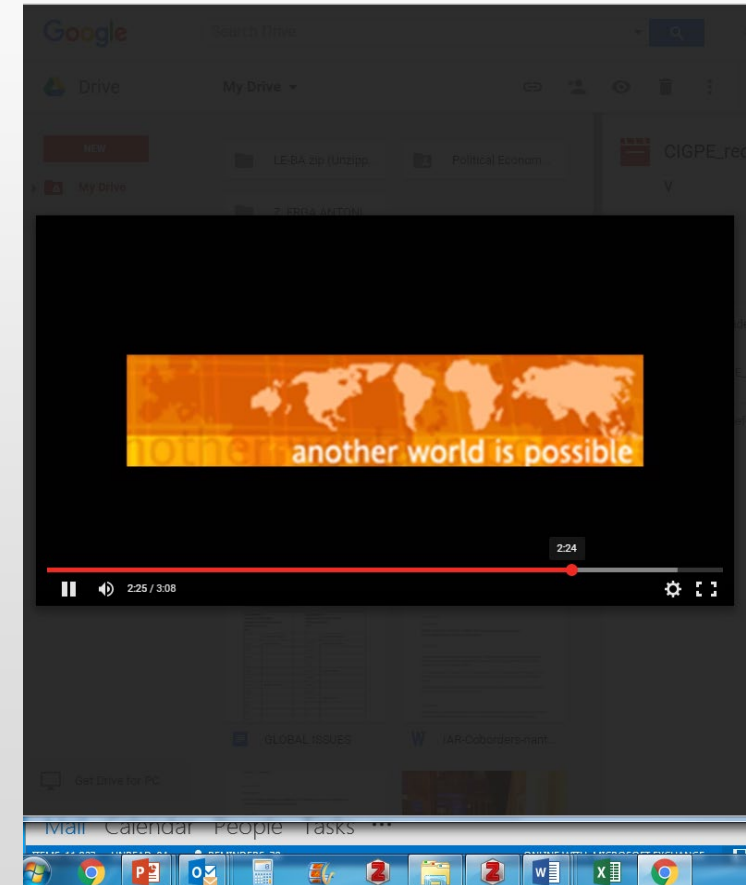
Teaching Method

There will be ten three-hour workshops. The main method of teaching will be task-based. In most workshops, participants, guided and supported by the module convenor, will work on specific data-related hands-on tasks individually and/or in groups. Many workshops may take place in a PC lab.

Students are expected to read at least two core texts (the required readings) before each workshop and prepare for the class tasks (specified in the canvas site). The exact structure and content of each workshop will be outlined during the first seminar.

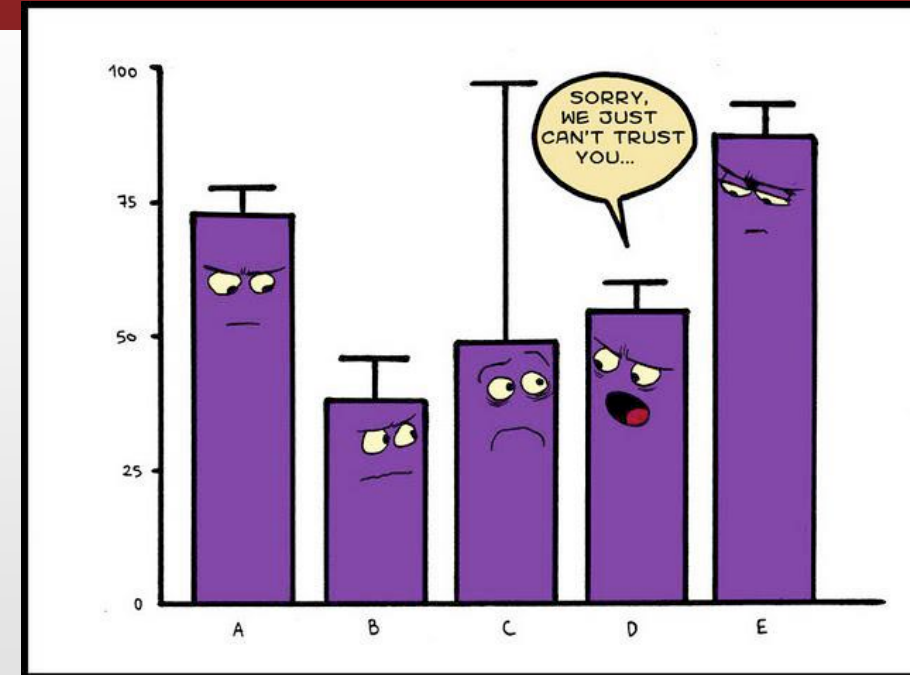
The module assessment structure allows for frequent feedback, thus facilitating constant improvement throughout the semester.

No specific background is required to join this class. The primary target group for this module is students who typically do not use data or graphs in their essays. In fact, the module is designed for students with no background in quantitative research methods. If you do have experience with quantitative research methods, please consult with the convenor before enrolling, as it may not be the best learning option for you.



Module Assessment

| Type | Weight | Submission deadline |
|---|--------|-----------------------|
| Group Presentation (10 min + 10 min q&a) | 20% | Various (week 4 - 10) |
| Project paper 1 (max. 1000 words) | 25% | Week 6 |
| Project paper 2 (max. 1000 words) | 25% | Week 9 |
| Project paper 3 (max. 1100 words) | 30% | Assessment Block |



"The idea is to not only grow our piece of the pie, but to expand into other nearby pastries."

Related readings

Indicative readings from the first weeks (subject to change)

- Antoniadou, A., Antonarakis, A.S., Kempf, I. (eds) *Financial Crises, Poverty and Environmental Sustainability: Challenges in the Context of the SDGs and Covid-19 Recovery*. Springer, Cham (read any of the following chapters: 8, 1, 3, 5).
- Richardson, K. et al. (2023). Earth beyond six of nine planetary boundaries. *Sci. Adv.* 9, eadh2458. DOI:10.1126/sciadv.adh2458.
- Reyers, B., Selig, E.R. (2020). Global targets that reveal the social–ecological interdependencies of sustainable development. *Nat Ecol Evol* 4, 1011–1019.
- Wackernagel, M. et al (2021). The importance of resource security for poverty eradication. *Nat Sustain* 4, 731–738. <https://doi.org/10.1038/s41893-021-00708-4>



Convenor details and contact info

Andreas Antoniadis is a Professor in Global Political Economy and Sustainability in the Department of International Relations. He is a qualitative social researcher with expertise in global debt dynamics, financial crises and sustainability, and theories of hegemony. One of his favourite questions is : ‘how have we been trapped in our own history?’ (one of his many debts).

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