

2022 Annual Report

Policies and objectives

The objectives of CORE Economics Education (CORE) are: to promote the advancement of education in economics and related fields of study for public benefit and to raise public awareness, through the provision of teaching and learning materials and associated activities.

Activities for achieving objectives

During the 2022 financial period (1 October 2021 - 30 September 2022) CORE delivered and started production of new ebooks, created new online courses, introduced technological improvements to the content production process and expanded its user base. Part of CORE's activities continue to be delivered through The Stone Centre based in the Economics Department at University College London.

Main activities undertaken

During this period, CORE maintained its schedule of publishing new ebooks and translations of the existing ones. These continue to be freely available to anyone in the world with access to the internet. A major project of developing *The Economy 2.0* edition was started, as well as two additional ebooks: *The Economy After Covid (CORE-TEACH)* and *Understanding the Economy (UTE)*. CORE's first two online courses were released on FutureLearn and Coursera platforms. In addition, technological developments, such as figure automation and API (Application Programming Interface) will benefit both CORE, by automating certain manual processes during content production, and instructors, by enabling easier integration of CORE content into their learning management systems.

Achievements and performance

Publications

This reporting period saw the publication of *The Economy: A South Asian Perspective (TESA)*, an adaptation of *The Economy*. *TESA* uses the style, framing and content of the original introduction to economics ebook and introduces topics and features specific to South Asian and developing economies. Readers are introduced to topics such as colonialism, dual economy, different forms of work (such as unpaid and care work) and female labour force participation. In addition, the ebook features examples, curated data and links to supplementary material (such as newspaper articles) from the South Asia region.

We continued to expand the *CORE Insights*. These are designed as a self-contained educational resource, which provides additional teaching and learning resources linked to relevant conceptual treatments in CORE's ebooks and to current policy issues. They are planned to cover a wide range of topics. Like other CORE ebooks, they include interactive questions to test understanding (with feedback on correct and incorrect answers) and a variety of student learning activities including data exploration and visualisation, report writing, and suggestions for further research.

The newest edition to the collection was '*Public debt: threat or opportunity?*' authored by Barry Eichengreen (University of California, Berkeley) and Ugo Panizza (Graduate Institute, Geneva). This Insight introduces learners to public debt by presenting key definitions and explanations clarifying the meaning of 'public debt' and related concepts, deriving, step-by-step, an equation to analyse debt dynamics and foster better understanding of debt sustainability,

using historical examples and economic analysis to evaluate the economic and political challenges of public debt management in a post-COVID world.

In order to reach a wider audience and provide benefits to users who do not necessarily speak the English language, together with CORE affiliates we continue to publish new translations of *The Economy*: [A Economia](#) (in Portuguese; units 1-6 were published during this reporting period while the remainder will be released in 2023) and [Die Wirtschaft](#) (in German, units 1-6 were published while the remainder will be released in 2023). Translation of the *Economy, Society, and Public Policy* into Slovakian has also started, with the Unit 1 of [Ekonomika, spoločnosť a verejná politika](#) published.

A new experiment '[An excise tax in the apple market](#)' has been added to [Experiencing Economics](#), an ebook of experiments and games that instructors can run with their students online or in-the-classroom to help them learn economics through engaging in real-time decision-making. In this new experiment, students act as either suppliers or customers in a competitive market for apples. Three different scenarios are available:

- an apple market with no government intervention, representing a simple trading-pit experiment,
- the same apple market with a per-unit tax paid by sellers, and
- the same apple market with a per-unit tax paid by buyers rather than sellers.

The experiment will help students see how demand and supply functions are derived, and improve their understanding of the following concepts:

- market equilibrium,
- tax incidence, and
- deadweight loss.

The Economy 2.0

Following extensive consultation and feedback received from instructors, development of [The Economy 2.0](#) started. In January 2022 a production team was assembled, and authors began work on developing and writing their units. *The Economy 2.0* will be published in two volumes, Microeconomics as volume 1, to be published in May 2023, and Macroeconomics as volume 2, to be published in December 2023. The following is a list of units in both volumes:

The Economy – Microeconomics Actors, Institutions and Outcomes

1. Capitalist revolution: prosperity, inequality, and planetary limits
2. Technology, specialisation, and comparative advantage
3. Scarcity, work and choice
4. Social interactions: game theory and experiments
5. The rules of the game: how institutions distribute income and wealth
6. Owners, managers and employees
7. The firm and its customers: demand, costs and market power
8. Supply and demand: markets with many buyers and sellers
9. Lenders and Borrowers: wealth, time and interest rates
10. Misallocation markets, and policies: the societal effects of private decisions

The Economy - Macroeconomics Employment, Growth and Fluctuations

1. The supply side: unemployment, real wages, and inequality
2. Aggregate demand and the multiplier
3. Inflation, unemployment and the Phillips curve
4. Monetary and fiscal policy
5. Money, banks, and financial markets
6. Systemic instability: financial and environmental
7. Growth, technology and structural change
8. Creative destruction and the future of work
9. A century of growth, fluctuations and crises: applying the models
10. The government as an economic actor

Online courses

CORE's first, free online course [Measuring economic inequality in today's world](#) went live in November 2021 on the online educational platform FutureLearn. It introduces learners to economic, health, and education inequality, and to

quantitative tools to measure it. It is based on content from *Doing Economics* and *Economy, Society, and Public Policy (ESPP)*.

Created by CORE's Eileen Tipoe, who co-authored *Doing Economics* and *ESPP*, this online course provides learners with a historical overview of the evolution of economic inequality over the past millennium, and introduces them to quantitative tools to measure it with real-world data. The course also explores issues of inequality in health and education, and its measurement.

Learners can complete this course on their own, or as part of a CORE module they are studying, since it comes with many of CORE's usual teaching features, such as: data charts, content from *ESPP*, and summary questions with immediate feedback.

In May 2022 we released a free online course on the Coursera platform - [Doing Economics: Measuring climate change](#). This course gives students an opportunity to improve their data-handling skills in Excel by using real-world data on climate change. It also explores the consequences of climate change and how governments can address this issue.

Also created by Eileen Tipoe, this online course provides learners with an opportunity to improve their data-handling skills in Excel by using real-world data on climate change. Selected readings provide background information on the data those taking the course are working with. The course also explores the consequences of climate change and how governments can address this issue. Learners can complete this course on their own, or as part of a CORE module they are studying, since it comes with many of CORE's usual teaching features.

Other projects and activities

Stone Centre

In 2021 [The James M. and Cathleen D. Stone Foundation](#) made a donation to the University College London Department of Economics, to establish the [James M. and Cathleen D. Stone Centre on Wealth Concentration, Inequality and the Economy](#). The gift will support The CORE project at UCL and fund research and teaching.

The mission of the Centre is to advance research and teaching to provide a clear understanding of the causes of wealth inequality, and its economic and political consequences. The Centre makes education and research equal partners in the venture – it will provide a global hub for research and learning that will make wealth concentration and its impacts on innovation and sustainability central to an economics education. It will take a broad and fresh perspective, bringing new theory, evidence, methods and data to better understand the causes and consequences of concentrated material wealth and to devise policy interventions to mitigate the extent and adverse consequences.

CORE: The Economy After Covid (CORE-TEACH)

CORE was awarded a grant by the Ford Foundation for the 'CORE: The Economy After Covid' (CORE-TEACH) project. The project will produce a 6-unit ebook that will illuminate critical issues in the reconstruction of the global economy post-Covid and contribute to the debates around it and will be focused on a specific set of policy concerns that came to the fore in the pandemic. Whilst some of the policy issues will relate directly to the structural changes or lessons generated by the pandemic itself (e.g., labour markets and universal income schemes), others will relate to global crises that have matured in these same years (e.g., global warming, energy security). The project is directed by Oscar Landerretche (University of Chile); it started in August 2022 and will run until March 2024.

enCOREage project

CORE was awarded a grant by the Sloan Foundation for the enCOREage project to create a new course aimed at the US audience. Attention will be paid in particular to the needs of students at less well-resourced two- and four-year US institutions, in order to engage with students' lived experience of disappointment and inequality. It's a collaboration between the Center for the Study of the Behavioral and Social Sciences (CASBS), the Santa Fe Institute, [Honor Education](#), a new educational technology company creating faculty and student tools focused on equitable outcomes, and CORE. The project is also supported by the Hewlett Foundation grant.

The course will combine the new economics benchmark and proven pedagogy of the CORE project with a new learning-science-based platform created by Honor Education with features directly targeting under-performance in college in which the 'lecture' is not the primary delivery and engagement tool. The intention is that the course will be available to

students under inclusive access protocols. A second outcome will be the production of an independently funded open access CORE ebook: *Understanding the Economy (UTE)*.

The project started in September 2022, with the alpha version of the course ready for pilot institutions in the Fall 2023. By August 2024 we'll finalise the beta version of the course and the ebook, UTE.

Technological development

Figure automation

CORE's *The Economy* contains over 500 figures, which amount to over 1200 images (since interactive figures can contain multiple images). Of these figures, many are data-driven graphs that, previously, were created manually by a designer working in Adobe Illustrator. This process had a number of limitations, not least being prone to human error, could lead to confusion over the source of truth.

Electric Book Work (EBW), the developer of CORE's publishing platform, has created a system that automates the creation of data-driven figures. The system is made up of:

- an online central database for CORE's source data,
- R package containing scripts for figures,
- version-control system for tracking changes to figure files.

The main benefits of the new system, resulting in much quicker and cheaper production of future publications, are:

- we have a single source of truth for source data,
- we can update this data at any time (by uploading a new spreadsheet) and the figures can then be automatically updated,
- the graphs are data-driven and therefore visually accurate. Already, we have found a number of issues in the original, manually created figures that this data-driven system has fixed,
- we can rebuild hundreds of images within minutes,
- we can reuse data, the reference system, and figure scripts to automate charts for other CORE books, including translations.

API (Application Programming Interface)

CORE ebooks contain valuable content which CORE authors, CORE developers, and CORE instructors could use in other contexts, such as in their learning management systems. This provides a major breakthrough for CORE in reducing the costs of adoption to instructors. Through an API we can provide this content as modular assets, which are always up to date with the latest versions, and which can be used for other purposes. Each asset is scraped from its source location (ebooks, core-econ.org, or Youtube, for example) and saved to the API. The API then provides an easy-to-use interface where users can choose from content collated per unit, per book, or as a single asset, filter or search for particular assets or asset formats and output them in the formats they need, e.g. for use in Canvas, Blackboard or Moodle learning management systems, LabXchange etc.

The first stage of the API, containing *The Economy* Test Bank, has been developed and is undergoing testing, with the release expected in early 2023. The second stage of the API is planned to be released by the end of 2023. Besides the Test Bank, it will allow multiple CORE assets to be served from various source locations to various endpoints, such as exercises, figures, videos, and glossaries.

Dynamic indexing

Most often included at the back of printed books, indexes provide a crafted map of a book's topics. They are useful in ways that text-search can't be. Previously, we've created indexes in the traditional way, relying on print PDFs to manually enter page numbers just before going to print. This process involved a professional indexer to read each page of the print PDF and catalogue concepts in an index with page numbers. And the index as a tool was only available for print book users. When we made updates to our books, the print PDF would reflow to accommodate changes to content, meaning the page numbers in the index were then out of date. Maintaining the index alongside bi-annual updates to the book was difficult.

Over the past year, EBW have developed a way to tag our source files containing the book content in a simple way, so that the index page numbers are automated. This means that when we make updates to our books, the page numbers in

the index at the back of the book simply regenerate and are always accurate. The added benefits of this are that we can now have indexes not only in print books but on the web, in apps, and in ebooks as well.

Assessing impact

CORE continued to expand its reach and increase the adoption of CORE's material in instruction. By the end of September 2022, there were 385 universities from 66 countries around the world using CORE in instruction on 568 courses. During this year there were 1.1 million unique visitors to the CORE website, with 35% of website visits from new visitors. CORE materials have been accessed from every country and territory in the world. The top ten countries where visitors come from are mostly those where CORE has been used the longest and those that rely on translations of *The Economy*: the first three countries for visitors are UK, USA and Spain, followed by France, South Africa, Italy, India, Australia, Finland and Mexico.

We estimate that **over 131,000 students a year** are being taught with CORE.

In 2014, four UK universities (University College London, University of Bristol, Birkbeck University of London, and King's College London) participated in piloting the beta units of *The Economy* ebook. Today, CORE's three ebooks are used in **48 universities in the UK**, out of a total of 60 that offer economics degrees. Just over half, including UCL, University of Oxford, and University of Bristol use *The Economy* as the main textbook on at least one course.

An evaluation study conducted at LaTrobe University in Australia (publication pending) found that the academic performance of students in later degree modules in all subjects was substantially better (17 percent higher) for students who took an introductory economics module based on CORE as compared to a principles text used before.

CORE's relevance to economics students

Since 2016, we have asked CORE instructors around the world to pose a simple question to their students on the first day of their classes: "What is the most pressing problem economists today should be addressing?". Their answers are then turned into word clouds, which shed light on what students think the discipline should prioritise. Exercises from previous years can be found [in this blog for 2018](#) and [this one for 2020](#). Throughout the six years, there is one consistent theme - inequality has always ranked at the students' top priority. The most recent exercise is showcased [in this 2022 blog](#) (not surprisingly, COVID-19 is a major concern, while climate change is becoming more prominent in students' answers). In the blog we also highlight all the ways CORE is responding to these concerns by developing content that can be introduced in the economics curriculum to teach students from the very first year of their undergraduate economics education.



Global world cloud 2016-22, which includes responses from 9,559 students from 55 universities in 18 countries

CORE had two major press mentions in this period:

- In a 8 October 2021 article about CORE in [The New Yorker](#), 'Is it time for a new economics curriculum?', Nick Romeo discusses how CORE's *The Economy* is presenting economics students with an updated curriculum, which teaches economics 'as if the last thirty years had happened'.
- In a piece in [The Christian Science Monitor](#) on a 9 November 2021, titled 'Economics 101: More college classes bring moral debates to the surface', CORE is showcased as an example of an economics textbook that moves away from the assumption of homo oeconomicus in favour of presenting people motivated by values such as fairness and reciprocity, in addition to self-interest. This approach provides students with awareness of the need to evaluate economic outcomes using criteria of fairness as well as of efficiency, and provides them with tools to do so. In this way, CORE is responding to "a growing sense that the standard economics curriculum, especially as taught in introductory courses, is not adequately preparing students to address these issues."