THE GC WEALTH PROJECT
STONE CENTER
ON SOCIO-ECONOMIC INEQUALITY

The GC Wealth Project

Data Warehouse v.1.2 - Documentation

December 2024

Salvatore Morelli
Twisha Asher
Frincasco Di Biase
Franziska Disslbacher
Ignacio Flores
Luca Giangregorio
Adam Rego Johnson
Max Longmuir
Giacomo Rella
Manuel Schechtl
Francesca Subioli
Matteo Targa

Authorship Note. This documentation file is the result of a collaborative effort supervised by Salvatore Morelli, the director of the GC Wealth Project, who conceived and designed the overall research project. Different subgroups were responsible for specific sections within the documentation and the appendices. Ignacio Flores was responsible for the overall data warehouse architecture and description, including the section and appendix about Supplementary Variables. Matteo Targa oversaw the Wealth Inequality Trends section, including the appendix tables documenting the treatment and classification of each data source. Max Longmuir (with the support of Giacomo Rella) led the Wealth Topography section, including the appendix tables outlining the composition rules and methodological choices for each source in the database. Francesca Subioli and Luca Giangregorio (with the support of Twisha Asher and Manuel Schechtl) jointly oversaw the Estate, Inheritance, and Gift Taxes section, including the classification of concepts used in the database and the corresponding appendix section. Adam Rego Johnson took charge of the data source classification and citation reference organization.

Acknowledgements, from GC Wealth Project Director Salvatore Morelli

The project was launched in June 2023 after approximately five years of development. This version of the data warehouse is launched in the Fall 2024. Many individuals contributed to varying degrees, during multiple stages, and to different sections of the project. First, the project would not exist without the continuous, reliable, and professional support of the Stone Center, including its director Janet Gornick, and the staff, Carolyn Fisher, Mei-Ling Israel, Jennifer Kitses, Veronica Ordaz, and Saraya McPherson. I also acknowledge the support from the Law Department of the University of Roma Tre, including the current director Antonio Carratta, as well as the admin staff Giuseppina Santilli and Federico Melograno. The communication support from Ylenia Sina is also acknowledged.

A number of people provided valuable feedback on a number of aspects during the early stages of the project. I particular, I am grateful to Facundo Alvaredo, Charlotte Bartels, Yonatan Berman, Miles Corak, Philipp Erfurth, Josep Espasa Reig, Giacomo Gabbuti, Janet Gornick, Demetrio Guzzardi, Elena Granaglia, Joe Hasell, Roberto Iacono, Rama Dasi Mariani, Branko Milanovic, Teresa Munzi, Jorg Neugschwender, Brian Nolan, Juan Palomino, Piotr Paradowski, Alberto Pozzolo, Antonio Scialà, and Philippe Van Kerm.

Regarding the Wealth Topography database, I acknowledge the instrumental initial contribution by Gonçalo Costa in conceptualizing the database and initiating the first systematic data-gathering effort. Giacomo Rella then oversaw the development of the Wealth Topography database under its current form. Max Longmuir followed in taking the lead. Both carried out various essential tasks, including conceptualization, designing the current data architecture, the national accounting mapping, the automation of data gathering, and the design of the detailed metadata complementing the database. I would also like to thank Ana Rojas Silvero for providing valuable assistance in gathering and classifying raw sources on household balance sheets. My thanks also go to Marco Ranaldi, Yaoqi Lin, and Pranabes Probeshika Dutta for their support with the initial data gathering.

The initial collaborative work of Frincasco Di Biase and Ercio Muñoz, proved instrumental in gathering the available data series for the Wealth Inequality Trends section. Franziska Disslbacher took an oversight role of the Wealth Inequality Trends database in 2022 and part of 2023, making possible a first database automation process.

In 2023 Matteo Targa took over Franziska's role and identified methods to automatically detect problems within the data series. Furthermore, together with Ignacio and Franziska, Matteo enabled the estimation of wealth inequality trends series using cross-national survey databases. Finally, Matteo has also taken the lead in the management, update, expansion, and streamlining process of the inequality trends database. The development of methodological tables to supplement the inequality trends series was carried out by me, with meticulous assistance from Francesco Di Biase, Franziska Disslbacher, and Matteo Targa throughout the process, which was instrumental in deriving the final tables in their current form. I am also very grateful to Tony Shorrocks for sharing Credit Suisse data.

Adam Rego Johnson played a pivotal role in creating compilation standards and manuals, as well as providing invaluable work in editing, proofreading, and classifying the tables. He also played a fundamental role in systematizing and classifying references, including within the Digital Library of Research on Wealth Inequality and the Data Sources Library. The initial work conducted by Carolyn Fisher, Ian Haberman, Twisha Asher, and subsequent contributions by Franziska Disslbacher, were important in finalizing the conceptual structure of the methodological tables, as well as providing content for specific sources.

Regarding the Estate, Inheritance, and Gift (EIG) Taxes section, I would like to acknowledge the dedicated work of Twisha Asher, who collected and classified tax policy parameters and researched corporate reports, official statistics, tax legislation documents, and research papers. She also played a crucial role in supporting the conceptualization and documentation of the current structure of the EIG database. I would also like to acknowledge important contributions by Manuel Schechtl, who assumed the oversight role on the development of the EIG database from Dec 2022 through July 2024. Jointly with Twisha Asher and Ignacio Flores, Manuel Schechtl also helped clarify the code to assemble the database and streamline the data collection process. Twisha Asher, alongside with Manuel Schechtl, also supervised a number of excellent research assistants who worked on different aspects of the project: Mei Li, Nolan Lyons, Yue Pan, Alex Parton, Sarah Russo, Jack Shea, and Tsu Zhu. Francesca Subioli and Luca Giangregorio joined Manuel's work in supervising the

development of the tax section in early and late 2023, respectively. Both have identified bottlenecks in the coding structure, fully restructured the EIG database using a new and more effective architecture, and planned part of the development of future database expansion. Moreover, they supervised the excellent research assistance of Martino Kuntze, Ali Jehanzaib, and Ghulam Shabir who helped systematize the information contained in relevant sources and helped debug the data entry process for the EIGT section. Ignacio Flores played a crucial role in overseeing the overall architecture of the data warehouse. His work allowed for the integration of various components, resulting in a cohesive and well-structured data warehouse.

Special thanks to Mark Sheppard who helped to create the GC Wealth Project logo, the thumbnails, and visual banners for the website in the months leading up to the launch of the website. The project also relied on the expertise of external consultants. Toni Johnson provided invaluable support as director of communication in the early phase of the project. We extend thanks to Marcelo Agudo for his editing work, and to Robert Breen for his assistance with Tableau. We would like to acknowledge Rodica Ceslov and Connie Colvin for their support as project managers during earlier, separate phases of the project. Finally, we are grateful to the Lovelytics team for their assistance in the initial design of the Tableau dashboard and for their contribution to the website development.

Contents

Section 1

The GC Wealth Project

The GC Wealth Project, a central project of the Graduate Center's Stone Center on Socio-Economic Inequality, is a multi-year effort aimed at expanding and consolidating access to the most up-to-date research and information on wealth, wealth inequalities, and wealth transfers and related tax policies across countries and over time.

The GC Wealth Project website — first launched in June 2023 — is organized around two main components: a data warehouse of gathered and novel data that can be visualized in a variety of ways through the interactive dashboard, and a Digital Library of Research on Wealth Inequality. Both are designed to provide researchers, policymakers, journalists, and others interested in wealth and wealth taxation with open, unlimited access to an array of high-quality information and resources.

All of the data, including the tailored visualizations that users can create using the interactive dashboard, can be exported.

1.1 The Data Warehouse

The data warehouse includes four databases, which correspond to the four sections of the dashboard:

1. Wealth Topography
2. Wealth Inequality Trends
3. Estate, Inheritance, and Gift Taxes
4. Inheritance Trends: coming soon.

To create and populate the sections of our data warehouse, we drew on a large array of data sources. The sections were filled by assembling secondary sources, extracting policy data, and/or querying and working directly with primary microdatasets.

The sources are all listed in our Data Sources Library.

The data warehouse is also complemented with full metadata descriptive information. The metadata provide detailed information on sources of data, longer descriptions of variables and the concepts used, procedures of aggregation and estimation, bibliography links, and complementary information.

All data files, metadata, supplementary variables, and documentation are available in our GitHub repository.

1.2 The Four Main Sections of the Warehouse

1) The Wealth Topography section includes cross-country data that capture, at the aggregate level, the evolution of household portfolios of assets and debt. Assets are metaphorically represented as "mountains and hills," while debts are visualized as "seas" of debt. The data come from national accounts, household surveys, and a range of research projects and reports.

   These data offer a unique view of aggregate household balance sheets. Country-specific portfolios are shaped by, and reflect, national characteristics, including demographic trends, inflation and interest rate dynamics, features of financial and credit markets, the relative importance of stock exchanges versus banking systems, the strength of asset management industries, and the preferential tax treatment of assets, as well as the preferences of households and the generosity of pensions systems.

2) The Wealth Inequality Trends section presents a large comprehensive compilation of cross-national time-series data on wealth inequality. This section contains wealth inequality indicators (such as top shares and Gini coefficients) for many countries, as estimated in the existing literature and as derived from existing micro data sources. These data are accompanied by Methodological Tables that provide systematic assessments of the underlying concepts, methods, and sources for the estimation of wealth inequality trends.

   This section provides access to, and detailed information about, wealth inequality across countries and over time. To date, there is no comprehensive database that offers "off the shelf" indicators

on wealth inequality levels and trends for a variety of different sources. Estimates of wealth distributions are much less settled than those of income distributions, and there is substantial controversy about how wealth inequality has evolved in recent years. A core value-added of this section is that users have access to detailed information about the values provided and methodological information that will help them to navigate the inevitable complexity. Users can also exploit our classification of data types, source types, and unit of analysis to guide the choice of the most suitable indicator for their purpose.

3) The Estate, Inheritance, and Gift Taxes section contains a comprehensive database on the evolution of estate, inheritance, and gift (EIG) taxation, both across countries and (forthcoming) across the U.S. states. This section focuses on the taxation of wealth transfers, that is, transfers from one household or individual to another, either when the donor is living (inter vivos gifts) or at the time of the donor's death (bequests). When assessing taxes, we distinguish among three types of taxes: those levied on estates (on the total amount bequeathed), on inheritances (on amounts received by individual recipients), and on gifts (given by living donors). The EIG sections contain information on statutory tax schedules, marginal tax rates, top marginal rates, exemption thresholds, and tax revenues. Information on effective taxation is also derived and presented.

   Understanding how governments tax these transfers is essential because bequests, inheritances, and inter vivos gifts are crucial economic resources for households and because their scale has increased substantially in recent decades relative to total national income. Very little work has been done to analyze how patterns of wealth transfer taxation affect the extent of these transfers across countries and across households within countries. This systematic compilation of tax data will provide researchers a crucial tool for scholarship and policy analysis focused on the behavioral effects of wealth taxes.

4) The Inheritance Trends section, forthcoming later in 2023, will present cross-country estimates of annual flows of wealth left at death as well as gifts from living donors. The included estimates will be taken from existing works in the literature or derived using a variety of approaches drawing on national accounts data and survey data, as well as estate, inheritance, and gifts tax records.

1.3 The Digital Library of Research on Wealth Inequality

The Digital Library of Research on Wealth Inequality is a large, comprehensive, searchable database that includes abstracts and (when possible) full texts of important, innovative, and high-quality articles, chapters, and books focused on wealth inequality. The library is updated regularly and categorizes the included literature into eight subsections. Complete reference information is available in the BibTeX format, as are abstracts and (when possible) full texts.

1.4 How to Cite Our Data Source

If you are using the GC Wealth Project data in a report, monograph, paper, book, book chapter, journal article, dissertation, etc., include the citation in your bibliography as follows:

Morelli, Salvatore, Twisha Asher, Frincasco Di Biase, Franziska Disslbacher, Ignacio Flores, Luca Giangregorio, Adam Rego Johnson, Max Longmuir, Giacomo Rella, Manuel Schechtl, Francesca Subioli, and Matteo Targa, GC Wealth Project Data v.1.2, [year], accessed via http://wealthproject.gc.cuny.edu, on [date].

1.5 The Stone Center on Socio-Economic Inequality

The GC Wealth Project is a component of the James M. and Cathleen D. Stone Center on Socio-Economic Inequality, a research center housed at the Graduate Center of the City University of New York (CUNY).

The Stone Center conducts and promotes quantitative research using inequality as a lens on society, the economy, and politics. The faculty, postdoctoral scholars, and students working within the Stone Center share a commitment to scholarship that is data-driven, interdisciplinary, oriented toward policy and institutional change, and that addresses questions about inequality throughout the world.

The Stone Center's core functions include:

- Researching the causes, nature, and consequences of socio-economic inequality, with a specific mandate to expand research and research capacity related to wealth inequality;
- Training and teaching emerging inequality scholars at The Graduate Center/CUNY across a number of academic disciplines;
- Participating in discussions and debates on inequality through public programs and collaboration with journalists;
- Engaging in special programs and projects, such as the Inequality by the Numbers workshop, the Lee Rainwater Lecture Series, the Stone Center Working Paper Series, and an ever-expanding compilation of research spotlights (briefs), scholar interviews, and blog postings;
- Housing the U.S. Office of LIS, the renowned cross-national data center based in Luxembourg.

The Stone Center was created in 2016 with a generous gift from the James M. and Cathleen D. Stone Foundation.

Section 2

General Warehouse Structure

This section provides a comprehensive overview of the general structure of the data warehouse of the GC Wealth Project.

The data warehouse is organized in long format with a total of nine columns.

First of all, important information codifying the nature of the variable listed in the warehouse is stored in the column named *varcode*, and this is detailed in its own subsection below. Two additional columns store values related to each *varcode*. On the one hand, the column *value* stores numerical values like amounts in nominal currency, indices, shares, or rates. On the other hand.

There are five additional columns providing geographical and temporal information, population of reference, and sources (*GEO, GEO_long, year, percentile, source*). The *GEO* column refers to 2-character ISO codes for countries, while the *GEO_long* column refers to their full name. The *year* column is an integer variable, while the *percentile* column defines the population to which each observation corresponds. This is a string variable that takes values such as "p0p100" when observations refer to the whole population, as mostly happens with the Wealth Topography dashboard. Other percentiles, as appear in the Wealth Inequality Trends section, can be defined using values between 0 and 100. For instance, the top 0.1% share of the population would be referred to as "p99.9p100". The source column contains information about the identifier of the specific source of the data.

Table 2.1: Warehouse Columns

GEO	GEO_long	year	percentile	varcode	value	source	longname	note	last_update

Finally, the variable *longname* is a string variable providing a description in plain language of each observation. . This is defined automatically by an algorithm that draws all labels from our codebook/dictionary file (named dictionary.xlsx), available in our GitHub repository.

Importantly, the data warehouse is also available in a more detailed version, which contains a long list of descriptive metadata information. The complete warehouse is *warehouse_meta*. Metadata include information such as comments on the methodology used to compile the data, and any limitations or caveats associated with the data, as well as detailed information about the definition of our variables, units of analysis, and full spelling of the sources of data, including links to full curated bibliographic citation details. The metadata version is essential for researchers and analysts who require a deeper understanding of the underlying data and its quality. It is available for download alongside the warehouse and can also be accessed through our website and repository.

2.1 The varcode

The *varcode* column allows users to identify the variable and concept at hand. It is also designed to indicate information about the specific warehouse section and sector, as well as section-specific information. Each *varcode* variable has a pre-determined structure, and consists of five main components: Section, Sector, Variable Type, Concept, and Section-Specific info.

$$\underbrace{A}_{Section} - \underbrace{BB}_{Sector} - \underbrace{CCC}_{VariableType} - \underbrace{DDDDD}_{Concept} - \underbrace{ZZ}_{Section-Specific}$$

The first 1-digit component, Section, defines the broad section in which the variable belongs, such as the Wealth Inequality Trends or the Wealth Topography section.

The 2-digit Sector component provides additional granularity, such as the specific institutional sector being measured, e.g., the Household sector including the Non-Profit Institutions Serving Households.

The 3-digit Variable Type component denotes the type of variable being measured, e.g., the Gini coefficient, Top or Bottom shares, a tax threshold or aggregate wealth.

The 6-digit Concept component provides more detailed information about the variable being measured, such as the specific metric being used, while the 2-digit Section-Specific component can be used to further characterize the variable within a particular section of the warehouse (e.g., in the context of the Estate, Inheritance, and Gift Taxes section, each variable will be associated to a particular tax bracket if necessary).

Table 2.2: Section codes

code	label
x	Estate, Inheritance, and Gift Taxes
t	Wealth Inequality Trends
p	Wealth Topography

2.2 Supplementary Variables

To facilitate broader use and comparability of the general warehouse data, a set of additional supplementary variables covering various is provided to complement the data warehouse. These additional variables are available on our GitHub repository and stored in a downloadable file named "supplementary_var". This file contains all the supplementary information, and it is structured in a wide format i.e., all additional variables displayed in columns, with each row uniquely identified by geographical classification and year (i.e. *GEO* and *year*). Therefore, these supplementary variables can easily be merged with the warehouse data using *GEO* and *year* as identifiers. Currently, the supplementary variables are included from a list of external data sources, such as the World Inequality Database, World Bank, Comparative Political Data Set and Parliaments and Government Database.

The supplementary variables downloaded from the World Inequality Database – downloaded on July 16th, 2024 – allows users to carry out various transformations of the data. In particular, data can be used to implement inflation adjustments, currency conversion rates, or to include population estimates (such as per capita or per adult), and macroeconomic values (such variables as % of GDP or % of National Income), and are intended to enhance users' capacity for insightful comparisons and analysis.

To improve comparability with other institutional data, we provide the official country denomination adopted by the World Bank, along with their income groups classification updated as of July 1, 2024 [186] and available since 1987 - low, lower-middle, upper-middle, high income. We also include the regional classification: East Asia & Pacific, Europe & Central Asia, Latin America & Caribbean, Middle East & North Africa, North America, South Asia, Sub-Saharan Africa. For additional details about the income group classification, please visit the "Knowledge Base" page of the World Bank.

Lastly, to foster interdisciplinary use of our data and stimulate research across the entire spectrum of social sciences, we introduce a new variable that captures the political orientation of the government in charge each year. This variable categorizes governments based on their political orientation (hegemony of right-wing, dominance of right-wing, balance between left and right parties, dominance of left, hegemony of left), by combining two primary sources concerning the political spectrum and election results [8, 34], both widely

used in the European Journal of Political Research.

The definition of the political orientation adopted in these two main sources is based on the government composition. Following Armingeon et al. [8] (Comparative Political Data Set, 1960-2022), the cabinet composition takes different values depending on the ratio of the party seats in parliament over the total parliamentary seats of all governing parties. For example, there will be a "dominance of social-democratic and other left parties" if the seat share of all social-democratic and left governing parties exceeds 66.67% of the total parliamentary seats of all governing parties. Conversely, there is a "hegemony of right-wing (and centre) parties" when no left-wing parties participate in the cabinet. The definitions of left and right in Armingeon et al. [8] and Döring and Manow [34] (ParlGov Database) follow the political science literature and are detailed in their specific documentation. Due to distinctive nature of the United States political spectrum and history, its political cycle is typically identified using "Democrat" and "Republican".

Combining both sources we are able to cover 38 countries over almost the whole XX century, with the exception of the eastern-Europe countries entering the sample after the 1989.

Table A.1 in Appendix A below provides a summary of the supplementary variables employed in the project. For more comprehensive information on the construction of these variables, please consult their original documentation.

Section 3

Wealth Topography Section

3.1 Introduction to the Wealth Topography Section

The Wealth Topography section includes cross-country data that capture, at the aggregate level, the evolution of household portfolios of assets and debt. Assets are metaphorically represented as "mountains and hills," while debts are visualized as "seas" of debt. The data come from national accounts, household surveys, and a range of research projects and reports.

These data offer a unique view of aggregate household balance sheets. Country-specific portfolios are shaped by, and reflect, national characteristics, including demographic trends, inflation and interest rate dynamics, features of financial and credit markets, the relative importance of stock exchanges versus banking systems, the strength of asset management industries, and the preferential tax treatment of assets, as well as the preferences of households and the generosity of pensions systems.

This chapter introduces the reader to the categories of the Wealth Topography database and the construction of each concept. We refer the interested reader to the Technical Documentation of the Wealth Topography for all information related the treatment of each source of data as well as the country-specific data coverage.

3.2 The `varcode` in the Wealth Topography Section

As described in the general warehouse structure section, for each country-source pair, the `varcode` is a string that identifies a unique time-series by means of five elements. The first element of the `varcode` is a 1-digit

code that identifies the Section of the GC Wealth Project, which for the case of Wealth Topography takes the value `p`. Hence, `varcode` takes the following form:

$$\underbrace{p}_{\text{Section}} - \underbrace{BB}_{\text{Sector}} - \underbrace{CCC}_{\text{Variable Type}} - \underbrace{DDDDDD}_{\text{Concept}} - \underbrace{ZZ}_{\text{Section Specific}}$$

3.2.1 `Sector`

The second element of the `varcode` identifies the sector to which the time-series refers. The Wealth Topography database reports aggregate wealth and the composition of assets and liabilities of three institutional sectors: Households, NPISH (non-profit institutions serving households), and Households & NPISH sectors.[1] The classification of institutional sectors used in the Wealth Topography database (and in the GC Wealth Project more in in general) mirrors the classification used by the System of National Accounts 2008 (SNA2008, hereafter) and its European counterpart, the European System of Accounts 2010 (ESA2010. hereafter). The institutional sectors are reported in Table 3.1, where the column "Code" reports the sector identifier used in the `varcode` while the column "Description" reports a detailed, non-technical, description of each sector.

Table 3.1: Wealth Topography: Sector

Code	Sector	Description
hs	Households	The household sector gathers together all individuals or group of individuals who live together, who pool their income and wealth, and make joint economic decisions (e.g., consumption). The household sector is one of the institutional sectors constituting the national economy.
hn	Households & NPISH	The households and NPISH sector (non-profit institutions serving households) gathers together households (all individuals or group of individuals who live together, who pool their income and wealth, and make joint economic decisions) and non-profit organizations that primarily provide services to households (such as charities, religious institutions, and social clubs). The household and NPISH sector is one of the institutional sectors constituting the national economy.

[1] Other institutional sectors (non-financial corporations sector, financial corporations sector, general government sector, and the rest of the world) are not currently included in the database.

np	NPISH	The NPISH (non-profit institutions serving households) sector gathers together non-profit organizations that primarily provide services to households. This includes organizations such as charities, religious institutions, and social clubs. The NPISH sector is one of the institutional sectors constituting the national economy.

3.2.2 `Variable Type`: Consolidation

The third element of the `varcode` identifies the `Variable Type` which, in the Wealth Topography database, coincides with the consolidation status. The Wealth Topography reports outstanding levels of assets and liabilities and net wealth for the institutional sectors considered. In the SNA2008, outstanding levels or stocks for a given sector are obtained by aggregating the accounts of the units of the sector, and the aggregation process can differ according to the treatment of transactions within the sector. Within-sector transactions can be consolidated or non-consolidated accounts. Consolidation refers to the practice of eliminating any transaction between units or sub-sectors within the same sector. In this case, any remaining transaction is a transaction with other institutional sectors of the economy. For example, in a consolidated financial account, a loan between two households within the household sector would be eliminated, and the remaining loans would reflect transactions with other sectors of the economy (e.g., the rest of the world, the government sector, the non-financial corporations sector, or the financial corporations sector). In contrast, in a non-consolidated account, such an elimination is not carried out and the aggregation across units within the same sector includes all types of transactions, regardless of the counterpart. In this case, a loan between two households within the households sector would be counted as both an asset and a liability. In practice, most statistical agencies publish only non-consolidated accounts because the construction of consolidated accounts requires knowing the sender and the recipient of all transactions.

Table 3.2 reports under the column "Code" the consolidation status identifier used in the `varcode` of the Wealth Topography database while the column "Description" reports a detailed, non-technical description. If a source in the Wealth Topography database does not provide any information about the consolidation status, we classify them simply as "Aggregate".

Table 3.2: Wealth Topography: Variable Type

Code	Consolidation status	Description
agc	Aggregate (Consolidated)	Aggregate value for a given institutional sector for which transactions that occur between units within the same sector are eliminated.

agn	Aggregate (Non-consolidated)	Aggregate value for a given institutional sector for which transactions that occur between units within the same sector are not eliminated. This may result in double-counting of assets and liabilities
agg	Aggregate	Aggregate value for a given institutional sector. The value is reported without knowing whether transactions that occur between units within the same sector are eliminated or kept during the aggregation.

3.2.3 `Concept`

The fourth element of the `varcode` identifies the `Concept`. In the Wealth Topography database, a concept is a macro-category of the balance sheet, computed by aggregating different asset and liability classes. The construction of such concepts and the aggregation procedure are explained in Section 3.3. The concepts and the corresponding identifiers used in the `varcode` of the Wealth Topography database, together with a detailed description, are reported in Table 3.3.

Table 3.3: Wealth Topography: Concept

Code	Concept	Description
netwea	Net Wealth	Net wealth is the sum of all tangible assets (real estate properties and land, valuables, plants, machineries, equipment, etc.) and intangible assets (stocks, bonds, balances of current, saving, and investment accounts, private pension and life insurance funds, etc.) minus the sum of all debts and liabilities (mortgages, loans, and credit card debt).
nnhass	Financial Assets & Fixed Capital of Personal Businesses	Sum of all financial assets (such as stocks, shares or equities in corporations and quasi-corporations, corporate and government bonds, mutual funds, cash, current, savings and investment accounts, time deposits or certificates of deposit (CDs), accumulated balance in private pension funds, cash or reserve value of life insurance funds, etc.) and the fixed capital stock of small personal businesses of producer households (such as plants, machinery, equipment, inventories, software, and goodwill).
fliabi	Debt	Debts, or liabilities, are financial obligations that generally result from borrowing. For households, the most common form of debt is the mortgage, a loan taken out by an individual or a household to purchase a home or other real estate properties. Other forms of debt include credit card debts, auto loans, and student loans.

facdbl	Cash, Deposits, Bonds & Loans	Cash can be held in the form of banknotes, coins, or digital currency. Bonds represent a loan made by households to a corporation or government entity and provide a fixed return to the investor in the form of interest payments. Deposits include both current accounts (available on demand) and savings accounts (generally interest-bearing instruments with limited withdrawal). Loans are the money lent to individuals or households for which they owe the principal and interest to the creditors.
faeqfd	Stocks, Business Equities & Fund Shares	Stocks (or shares) and business equities are securities representing the ownership in a corporation or quasi-corporation and entitling the holder to a portion of the company's profits. Fund shares represent the participation in mutual or investment funds which are investment vehicles that pool together money from multiple investors to purchase a portfolio of securities such as stocks, bonds, or other assets.
falipe	Pensions & Life Insurance	Private pension assets refer to funds that are set aside by an individual (or an employer) to provide income during retirement (excluding public pension and social security schemes). Pension assets can take the form of defined benefit plans (retirement income benefits are fixed) or defined contribution plans (retirement income benefits are dependent on contributions). Life insurance assets refer to the cash value or reserve value of a life insurance policy (where the policyholder pays premiums in exchange for a death benefit that is paid out to their beneficiaries upon their death).
nfabus	Fixed Capital of Personal Businesses	Fixed capital of small personal businesses represents the non-financial assets that are used by a small personal business to produce goods or services and to support the ongoing operations of the business. This category includes both tangible assets (such as plants, machineries, equipment, inventories, valuables) and intangible assets (such as software and goodwill).
nfahou	Housing & Land	Housing identifies the value of residential buildings or structures that are owned by households (may include single-family homes, apartments, condominiums, and other types of housing). Land assets include agricultural land, residential land, commercial land, and industrial land. The value of land on which housing is constructed is instead typically included in the value of housing assets.
offsho	Total Financial Offhore Wealth	Offshore financial wealth refers to the equities, bonds, mutual fund shares, and associated bank deposits owned by households in banks outside of their country of residency.
nfadur	Consumer Durable Goods	A durable good is a consumption good that can deliver useful services to a consumer through repeated use over an extended period of time

We use a stylized balance sheet to show the relationship between the concepts in Table 3.3. The balance sheet is organized into two panels: Assets, and Liabilities and Net Wealth. We also report illustrative values for each concept. Among assets, "Housing & Land" and "Financial Assets & Fixed Capital of Personal Businesses" are the two main concepts. The concept "Financial Assets & Fixed Capital of Personal Businesses", in turn, equals the sum of the following concepts: "Fixed Capital of Personal Businesses", "Cash, Deposits, Bonds & Loans", "Stocks, Business Equities & Fund Shares", and "Pensions & Life Insurance". We also include additional concepts "Offshore Financial Wealth" and "Consumer Durable Goods". The concept "Debt" constitutes the liability side of the balance sheet. Finally, the concept "Net Wealth" is the balancing item and it equals the difference between total assets ("Housing & Land" and "Financial Assets & Fixed Capital of Personal Businesses") and "Debt". Note that we follow the standard definition of net wealth and, therefore, do not include offshore financial wealth or consumer durable goods in the net wealth definition. That is why we separate the two concepts in the right panel of the balance sheet.

Assets		Liabilities and Net Worth	
Housing & Land	1510	Debt	695
Financial Assets & Fixed Capital of Personal Business	3518		
Fixed Capital of Personal Businesses	26		
Cash, Deposits, Bonds & Loans	684		
Stocks, Business Equities & Fund Shares	1550		
Pensions & Life Insurance	1258	Net Wealth	4333
Offshore Financial Wealth	241		
Consumer Durables	278	Net Wealth incl. Offshore Wealth and Consumer Durable Goods	4852

Figure 3.1: Wealth Topography: Balance Sheet Example

3.2.4 `Section-Specific`: Recording of Financial Position

The fifth element of the `varcode` is a `Section-Specific` string which, in the Wealth Topography databse, corresponds to the financial position of each concepts. Financial assets may be recorded gross or net of all liabilities, at a given point in time. Similarly, debt securities can appear both as assets or as liabilities. To distinguish between the financial position of each concept, the Wealth Topography distinguishes between three types of financial position: gross assets (`ga`), net assets (`na`), and liabilities (`lb`). When this classification is not possible, the financial position is not applicable (`_`). Table 3.4 provides a taxonomy of financial positions together with a non-technical description for each.

Table 3.4: Wealth Topography: Section-Specific

Code	Financial position	Description
ga	Gross Assets	Gross assets are the total value of all assets before subtracting the value of debts and liabilities.
na	Net Assets	Net assets are the total value of all assets after subtracting the value of debts and liabilities.
lb	Liabilities	Liabilities are financial obligations or debts that an individual, company, or organization owes to another party.
___	Not Applicable	Not Applicable

3.3 Construction of the Wealth Topography Database

We now give a brief and stylized description of the process underlying the construction of the Wealth Topography database. In its most stylized version, this process involves three steps (synthesized in the flow chart):

1. Identify and download raw data for each source.
2. Map every raw source into national accounting concepts using the Wealth Topography Conceptual Grid.
3. Create Wealth Topography macro-category ('concept') by aggregating the variables from each source (transformed following step 2) using the Wealth Topography Composition Rules.

We now provide a detailed explanation of all steps put in place to construct the Wealth Topography database.

3.3.1 Identify and Download Raw Data for Each Source

The starting point is the identification of raw data on balance sheets from various sources, such as national accounts, household surveys, and a range of research projects and reports. Once the sources have been identified and the raw data downloaded, we proceed to their classification. Raw data sources included in the Wealth Topography database can be classified in three macro groups:

1. Raw data sources published by central banks and national statistical institutes that use the SNA2008/ESA2010 framework to organize and disseminate the data. We refer to these raw data sources simply as cross-national official statistics.

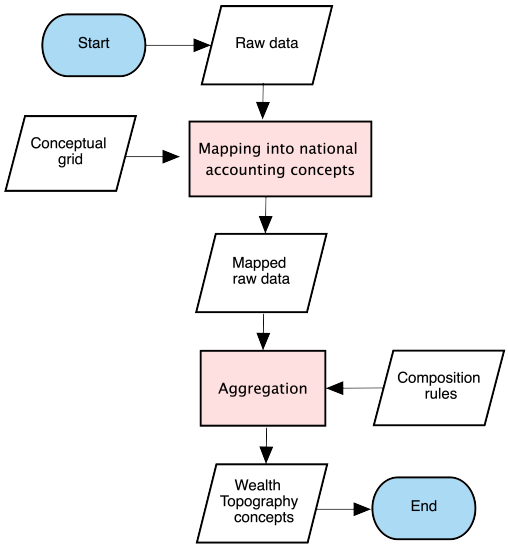

Figure 3.2: Wealth Topography: Flow Chart

2. Raw data sources published by central banks and national statistical institutes that use variants of the SNA2008/ESA2010 framework or other frameworks to organize and disseminate the data. We refer to these raw data sources as cross-national official statistics that use variants of SNA2008/ESA2010 framework.

3. Raw data sources contained in surveys and academic papers or published by central banks and research institutes that use frameworks different from the SNA2008/ESA2010 framework to organize and disseminate the data. We refer to these data sources as cross-national official survey data or cross-national academic research that do not use the SNA2008/ESA2010 framework.

3.3.2 Map Raw Data into National Accounting Concepts

Once raw data have been obtained and classified, we harmonize them using the Wealth Topography Conceptual Grid, or simply "the grid". The grid, inspired by National Accounts, is a table that assigns an alphanumeric identifier to each item or instrument of the balance sheet.[2] An extract of the grid can be seen in Table 3.5. Under the column "Code", we report the code that identifies each item of the balance sheet (e.g., AN111 stands for Dwellings). The code consists of two elements (letters and numbers) and a special character for the case of financial assets and liabilities. The alphabetic part of the code identifies whether a specific balance sheet component falls in the category of non-financial assets (AN), financial assets (A_AF),

[2]For the original table used in ESA2010 @ESA2010, see Section 'IV.3: Balance sheets: Closing balance sheet' in 'Table 24.6 — Full sequence of accounts for households' of the European System of National Accounts accessed via https://ec.europa.eu/eurostat/esa2010/.

or liabilities (L__AF). Numbers, instead, identify the class of assets and liabilities to which the instrument belongs.

Equipped with the grid, we can map each raw source into national accounting concepts with the aim of obtaining harmonized data on net wealth, assets, and liabilities that can be compared across countries and sources. According to the type of raw data source, we distinguish between two types of mapping:

- Automatic mapping (for cross-national official statistics). For raw data sources published by central banks and national statistical institutes that use the SNA2008/ESA2010 framework to organize and disseminate the data, the mapping of raw data into national accounting concepts is straightforward.
- Conceptual or manual mapping (for cross-national official statistics that use variants of SNA2008/ESA2010 framework). For raw data sources published by central banks and national statistical institutes that use variants of the SNA2008/ESA2010 framework or other frameworks to organize and disseminate the data, the mapping of raw data into national accounting concepts is not straightforward. Therefore, we manually map each series from the raw data source to elements of the grid. The mapping is conceptual and based on our reading of source-specific documentation. All source-specific manual mapping tables are reported in Appendix B.4.

For cross-national official survey data or cross-national academic research that do not use the SNA2008/ESA2010 framework, we build source-specific grids to help cross-walking from raw data to the national accounting concepts in Table 3.5. For completeness, we report the source-specific grids together with source-specific documentation in Appendix B.4. We followed the SNA2008/ESA2010 definition for consumer durable goods, and created a framework for offshore financial wealth, which is analogous to the financial wealth definition.

Table 3.5: Wealth Topography: Conceptual Grid

Code	Description	Financial position
AN	Produced and non-produced non-financial assets	ga
AN1	Produced non-financial assets	ga
AN11	Fixed assets by type of assets	ga
AN111	Dwellings	ga
…	…	…
…	…	…
A__AF	Financial assets	ga

A_AF1	Monetary gold and SDRs	ga
A_AF11	Monetary gold	ga
A_AF12	SDRs	ga
A_AF2	Currency and deposits	ga
A_AF21	Currency	ga
...	...	...
L_AF	Liabilities	lb
...	...	...
L_AF3	Debt securities	lb
L_AF31	Short-term debt securities	lb
L_AF32	Long-term debt securities	lb
L_AF4	Loans	lb
L_AF41	Short-term loans	lb
L_AF42	Long-term loans	lb
...	...	...
A_AXF	Financial assets held offshore	ga
XDHHCE	Consumer durables	ga

3.3.3 Create Wealth Topography Concepts Using Our Composition Rules

For raw sources classified as cross-national official statistics (independently of whether the SNA2008/ESA2010 framework is used), the mapping yields harmonized series on net wealth, assets, and liabilities. The next step is to aggregate these harmonized raw data into the macro-categories (`concept`) of the Wealth Topography database. Aggregation is carried out through the general composition rules in Table 3.6.

It is worth nothing that, in practice, we use an extended set of composition rules relative to those displayed in Table 3.6. This happens because different data sources provide different levels of aggregation for the sub-components of the balance sheet. For example, the `concept` "Stocks, Business Equity & Fund Shares" can be computed by aggregating different variables. On the one hand, for some data sources, the `concept` "Stocks, Business Equity & Fund Shares" is set equal to "Equity and investment fund shares (A_AF5)". On the other hand, when the aggregate variable is missing, we obtain "Stocks, Business Equity & Fund Shares" by summing up "Equity (A_AF51)" and "Investment fund shares/units (A_AF52)". We always provide a detailed account of which composition rule has been used to construct a data point in the Wealth Topography database in the metadata section of the warehouse file or graphs available to users through the website of the GC Wealth Project. All source-specific composition rules used in the Wealth Topography database are

reported in the source-specific documentation in Appendix B.4.

Finally, for raw data sources classified as cross-national official survey data or cross-national academic research that do not use the SNA2008/ESA2010 framework, we consider ad-hoc source-specific composition rules. In this case, raw data sources are not harmonized by mapping them into national accounting concepts using the grid. Rather, based on our reading of source-specific documentations, the aggregation of this raw data type uses macro-categories that are coherent and comparable to those obtained from cross-national official statistics. We provide a detailed treatment of these sources in Appendix B.4.

3.4 Additional Information on the Wealth Topography Section

For any additional information about the Wealth Topography databse the reader can refer to Appendix B which includes a list of all sources covered by the Wealth Topography database, an extensive treatment of the composition rules, and detailed source-specific documentations.

Table 3.6: Wealth Topography: General Composition Rule

Code	Concept	Composition rule using codes	Composition rule
netwea	Net Wealth	(AN1) + (AN2) + (A_AF) - (L_AF)	(Produced non-financial assets) + (Non-produced non-financial assets) + (Financial assets) - (Liabilities)
nnhass	Financial Assets & Fixed Capital of Personal Businesses	(AN1) + (AN2) + (A_AF) - (AN111) - (AN112) - (AN21111) + (AN1123)	(Produced non-financial assets) + (Non-produced non-financial assets) + (Financial assets) - (Dwellings) - (Other buildings and structures) - (Land underlying dwellings) + (Land improvements)
fliabi	Debt	(L_AF3) + (L_AF4) + (L_AF5) + (L_AF6)	(Debt securities, liab.) + (Loans, liab.) + (Equity and investment fund shares, liab.) + (Insurance, pension and standardized guarantee schemes, liab.)
facdbl	Cash, Deposits, Bonds & Loans	(A_AF2) + (A_AF3) + (A_AF4)	(Currency and deposits) + (Debt securities) + (Loans)
faeqfd	Stocks, Business Equities & Fund Shares	(A_AF5)	(Equity and investment fund shares)
falipe	Pensions & Life Insurance	(A_AF6)	(Insurance, pension and standardized guarantee schemes)
nfabus	Fixed Capital of Personal Businesses	(AN1) + (AN2) - (AN111) - (AN112) - (AN21111) + (AN1123)	(Produced non-financial assets) + (Non-produced non-financial assets) - (Dwellings) - (Other buildings and structures) - (Land underlying dwellings) + (Land improvements)
nfahou	Housing & Land	(AN111) + (AN112) - (AN1123) + (AN21111)	(Dwellings) + (Other buildings and structures) - (Land improvements) + (Land underlying dwellings)
offsho	Offshore Financial Wealth	(A_AXF)	(Financial assets held offshore)
nfadur	Consumer Durable Goods	(XDHHCE)	(Consumer durables)

Section 4

Wealth Inequality Trends

4.1 Introduction to the Wealth Inequality Trends Section

The Wealth Inequality Trends section presents a large comprehensive compilation of cross-national time-series data on wealth inequality. This section contains wealth inequality indicators (such as top shares and Gini coefficients) for many countries, as estimated in the existing literature and as derived from existing micro data sources. These data are accompanied by Methodological Tables that provide systematic assessments of the underlying concepts, methods, and sources for the estimation of wealth inequality trends.

This section provides access to, and detailed information about, wealth inequality across countries and over time. To date, there is no comprehensive database that offers off the shelf indicators on wealth inequality levels and trends for a variety of different sources. Estimates of wealth distributions are much less settled than those of income distributions, and there is substantial controversy about how wealth inequality has evolved in recent years. A core value-added of this section is that users have access to detailed information about the values provided and methodological information that will help them to navigate the inevitable complexity. Users can also exploit our classification of data types, source types, and units of analysis to guide the choice of the most suitable indicator for their purpose.

4.2 The Structure of the Wealth Inequality Trends Section

In the Wealth Inequality Trends database, each estimate of wealth inequality (`value`) is uniquely identified by the combination of the reference country indexed by a two-digit identifier (`GEO`) and the country name

Table 4.1: Introducing the GC Wealth Inequality Trends Database - Snippet

source	GEO	GEO_long	year	varcode	percentile	value
HFCS_ineq	AT	Austria	2010	t-hs-dsh-netwea-ho	p0p50	2.914097
HFCS_ineq	AT	Austria	2010	t-hs-dsh-netwea-ho	p50p90	36.830425
HFCS_ineq	AT	Austria	2010	t-hs-dsh-netwea-ho	p80p100	76.060036
HFCS_ineq	AT	Austria	2010	t-hs-dsh-netwea-ho	p90p100	60.255478
HFCS_ineq	AT	Austria	2010	t-hs-dsh-netwea-ho	p95p100	46.644115
HFCS_ineq	AT	Austria	2010	t-hs-dsh-netwea-ho	p99p100	22.143763

(`GEO_long`), the reference year (`year`), the data source (`source`), the `varcode`, and a `percentile`.

Table 4.1 provides a small extract from the Wealth Inequality Trends database. This table displays data sourced from the HFCS for Austria in the year 2010. The series reported in the `value` column correspond to an inequality indicator (`varcode`) calculated across various percentiles (`percentile`). Specifically, the `varcode` column provides details about the unit of analysis and the type of wealth inequality measure, while the `percentile` column indicates which segment of the distribution the estimate pertains to. The subsequent sections elaborate on the variables `varcode` and `percentile`

4.3 The `varcode` in the Wealth Inequality Trends Section

`varcode` In the Wealth Inequality Trends section, three of the five elements of `varcode` are fixed across the entire database. The constant elements are the first, indexing the dashboard, the second, indexing the sector, and the fourth, describing the wealth concept. Only the `Variable Type` and the `Section-Specific` parts of the `varcode` vary within a source and across sources.

$$\underbrace{t}_{\text{Section}} - \underbrace{hs}_{\text{Sector}} - \underbrace{CCC}_{\text{Variable Type}} - \underbrace{netwea}_{\text{Concept}} - \underbrace{ZZ}_{\text{Section-Specific}}$$

4.3.1 `Section`: Wealth Inequality Trends

`Section` The first element of the varcode identifies the *section*, which always equals *t*, i.e. our code for the Wealth Inequality Trends database.

Table 4.2: Wealth Inequality Trends: Variable Type

Code	Label	Description
dsh	Share of Total Net Wealth	The share of total net wealth refers to the percentage of the overall net wealth that individuals, household, or group owns. Net wealth is the value of assets (such as property, investments, and savings) minus any liabilities (such as debts or loans). For example, if the total net wealth of a country is €10,000 billion and a group's net wealth is €2,000 billion, their share of total net wealth would be 20%.
gin	Gini Coefficient	The Gini coefficient is a statistic that summarizes the overall distribution of income or wealth that is commonly published by statistical agencies. The coefficient ranges from 0 (perfect equality) to 100 (maximum inequality). A Gini coefficient of G per cent means that, if we take any 2 households from the population at random, the expected difference is 2G per cent of the mean. So that a rise in the Gini coefficient from 30 to 40 per cent implies that the expected difference (in wealth for instance) has gone up from 60 to 80 per cent of the average wealth.
avg	Average Wealth	Average wealth refers to the total value of assets (such as property, savings, investments, and other financial assets) owned by a group of individuals or households divided by the total number of individuals or households in that group.
thr	Threshold	A threshold represents a minimum or maximum value that must be met or exceeded, for instance, the minimum value of net wealth that is needed for an individual to belong to the group of the richest 1% of adults, or the maximum value of net wealth that is needed for an individual to belong to the group of the poorest 50% of adults.

4.3.2 `Sector`: Household Sector

`Sector` The second element of the varcode identifies the *sector*, which is set to *hs*, i.e., our code for the household sector.

4.3.3 `Variable Type`: Category of Wealth Inequality Measure

`Variable Type` The third element of the `varcode` identifies the broad type of inequality measure, which is either a Gini coefficient, a distributional share, a threshold, or an average. Table 4.2 provides the permitted strings of the `Variable Type` within the `varcode` in the Inequality Trends database, together with a label and a description. Note that data on monetary averages and threholds are always shown in national currency, in nominal term with no adjustment to inflation. The supplementary variables could be used to transform all moneatry values into other currencies and to adjust for inflation dynamics.

Table 4.3: Wealth Inequality Trends: Section-Specific

Code	Label	Description
ia	Individuals - Adults	Estimates of wealth inequality refer to the distribution across individual holders (depending on the source, at least 15, 16, 18, or 20 years old). In rare cases, this label also refers to individuals assumed to be holding the equivalized wealth of the household. The equivalence scale used in most cases is the "modified OECD scale,", which gives a weight of 1 to the first adult, of 0.5 to each additional adult, and of 0.3 to each child. This means that total wealth of a family of 2 adults and 2 children is divided by 2.1. In other rare cases, it refers to the distribution across all individuals, irrespective of their age.
es	Individuals - Adults (equal split)	Total wealth of the household is divided equally between the two adult partners. Adults are generally defined as individuals at least 18 or 20 years old. This category could also include cases in which total wealth of the household is divided equally among all members of the household.
tu	Tax Units	Data on wealth holding refer to a group of individuals who are subject to the same tax laws (tax unit). In most cases, a tax unit is composed of one or more people who file a tax return together, such as a married couple filing jointly or a family filing as dependents on a parent's tax return.
ho	Households	Data on wealth holding refer to a household, defined as a group of people who live together in the same dwelling unit. The members of a household may be related by blood, marriage, or adoption, or they may be unrelated individuals who have chosen to live together for other reasons.

4.3.4 `Concept`: Net Wealth

`Concept` The fourth element of the `varcode`, `Concept`, is always set to *netwea*, i.e., our code for net wealth. It is important to note, however, that the definition of net wealth may vary across different sources. The extensive *`Methodological Table`* offers detailed definitions for each source, explaining how different asset classes have been treated and valued.

4.3.5 `Section-Specific`: Unit of Analysis

`Section-Specific` In the Wealth Inequality Trends database, the section-specific part of the `varcode` refers to the unit of analysis of the wealth inequality indicator. The databases distinguishes four types of units of analysis: individual adults (`ia`), individual adults with equal split (`es`), tax units (`tu`), and households (`ho`). The list of permitted strings and a short description is provided in Table 4.3.

4.4 The `percentile` variable in the Wealth Inequality Trends Section

In addition to the `varcode`, values are indexed by the `percentile` variable. This variable identifies the reference segment of the wealth distribution for each wealth inequality indicator. In particular it specifies the lower-bound and the upper-bound percentiles delimiting the reference group. For the share of wealth held by the richest 1%, for instance, the `percentile` variable corresponds to *p99p100*. If the index refers to the overall population, as in the case of the overall net wealth or the GIni index, the `percentile' varialbe corresponds to *p0p100*. We provide a selection of permitted percentiles in Table \ref{tab:percentiles_tab}; the full list can be found in the`dictionary.xlsx‘.

Table 4.4: Wealth Inequality Trends: Selected Percentiles

Code	Label	Description
p0p10	Poorest 10%	Group representing the bottom decile (10%) of the wealth distribution, meaning that 90% of the population would have higher wealth levels in comparison.
p0p100	Overall Population	Everyone in the reference population
p90p99	Next 9% (90th-99th Percentiles)	Group with wealth level higher than the top decile but not high enough to enter the group of the richest 1 % in the population
p99.999p100	Richest 0.001%	Group representing the richest 0.001% of the wealth distribution
p99p100	Richest 1%	Group representing the top percentile (1%) of the wealth distribution, meaning that 99% of the population would have lower wealth levels in comparison.

4.5 Construction of the Wealth Inequality Trends Section

The procedure used to construct the Wealth Inequality Trends database is outlined in Figure 4.1. First, we identify the relevant sources and obtain the raw data. Second, we transform and harmonize the raw data to fit our standards in terms of format and structure. Third, we run a set of tests and append the source-specific estimates to the database. Concurrently, we develop and write a detailed **Methodological Table**.

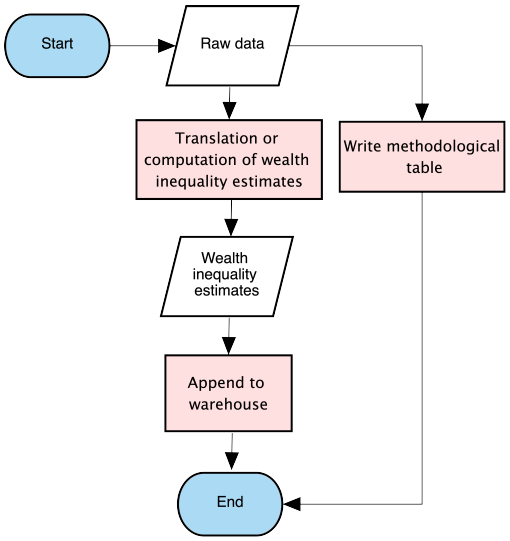

Figure 4.1: Wealth Inequality Trends Workflow

4.5.1 Step 1: Identification and Classilfication of Sources

The starting point is the identification of relevant data on wealth inequality estimates. These estimates can originate from different *types* of sources, like academic, government, and corporate research, as well as cross-national research and official statistics. Table 4.5 provides an overview of the permitted types of source.

Table 4.5: Wealth Inequality Trends: Source Types

Label	Description
Cross-national official statistics	Cross-national data from official institutions, such as national accounts from central banks.
Cross-national official survey data	Cross-national survey data from official institutions, such as household finance surveys from national statistical offices.

Cross-national corporate research	Cross-national research published by corporate entities, such as private consultancy firms.
Cross-national academic research	Cross-national research published by academic institutions, such as an academic journal article.
Cross-national government research	Cross-national research published by government institutions, such as government-commissioned reports.
Official statistics	Data from official institutions, such as national accounts from a country's central bank.
Official survey data	Survey data from official institutions, such as household finance surveys from a country's national statistical office.
Corporate research	Research published by corporate entities, such as private consultancy firms.
Academic research	Research published by academic institutions, such as an academic journal article.
Government research	Research published by government institutions, such as government-commissioned reports.
Government legislation	The actual text of public legislation.
Government legislative info	Texts published by government institutions that provide descriptive information about public legislation, such as a government website explaining tax clauses.
Government documents	Other texts published by government institutions, such as tax documents, forms, or descriptive reports.

Each relevant source estimates inequality indicators using various types of data, such as wealth surveys, administrative data, and national accounts. We therefore track these differences by categorizing each source according to the data types used, as detailed in the taxonomy listed in Table 4.6.

As the data type classification is source-specific, the exercise of assigning a type to each source turns out to be less precise for cross-national sources, as we do not differentiate across countries specificities within the same source. For instance, in the case of the Luxembourg Wealth Study Database [115] and the OECD Wealth Distribution Database [125], we classify the data type as *Wealth survey*. However, data for one country, Norway, does not come from a wealth survey but from various administrative sources. Similarly, we classify the World Inequality Database [187] as a *Mix of sources and methods* to reflect the variety of data sources and

Table 4.6: Data Type

Label	Description
Wealth survey	The series has been estimated using only wealth survey data.
Wealth survey (with adjustments)	The series has been estimated from wealth survey data that has been adjusted, especially at the top. Adjustment methods comprise rich-list based adjustment als well as pure reweighting methods.
Wealth survey and national accounts	The series has been estimated using wealth survey data that has been brought into alignment with macroeconomic balance sheets.
Rich list	The series has been estimated using only rich list data points.
Capital income tax data, wealth survey, and national accounts	The series has been estimated via a capitalization approach that uses data on income due to the ownership of wealth (capital income), supported by survey data, and the series aligns with macroeconomic balance sheets.
Capital income tax data, other sources, and national accounts	The series has been estimated via a capitalization approach that uses data on income due to the ownership of wealth (capital income), additional data other than household survey data, and the series aligns with macroeconomic balance sheets.
Inheritance/estate tax-based	The series has been estimated via a mortality-multiplier approach using inheritance and/or estate tax data.
Inheritance/estate tax data, wealth survey, and national accounts	The series has been estimated via a mortality-multiplier approach using inheritance and/or estate tax data, supported by survey data, and the corresponding aggregates align with macroeconomic balance sheets.
Wealth tax/register-based	The series has been estimated from wealth tax data or register data on wealth.
Wealth tax/register data and estate tax data	The series has been estimated from wealth tax data or register data on wealth used in conjunction with estate/inheritance tax data.
Wealth tax/register data, other sources, and national accounts	The series has been estimated from wealth tax data or register data on wealth in conjunction with additional sources other than estate/inheritance tax data, and it has been brought into alignment with macroeconomic balance sheets.
Mix of sources and methods	Any series that rely substantively on a combination of sources and methods and that cannot be listed under any of the other classifications.

estimation methods underlying this source. All these details features in the source-specific **Methodological Table**.

Eventually, once the relevant source is identified and correctly classified, we acquire the raw data. For the Luxembourg Wealth Study Database [115] and the Household Finance and Consumption Survey [84], we produce our own estimates starting from micro data. For all other sources, we use the raw data as published.

4.5.2 Step 2: Transformation and Harmonization of Raw Data

The published raw data may come in various shapes or formats, including .pdf documents, and .xlsx or .csv files.Therefore, we need to process this information and harmonize the source-specific series to conform to the warehouse standards. This involves assigning each data point (`value`) with relevant information, including its data source (`source`), reference year (`year`), country code (`GEO`, `GEO_long`), type of inequality indicator (`varcode`), and the percentiles of the distribution it represents (`percentile`). This procedure ensures a consistent data structure across all sources.

If feasible, we derive additional indicators from the available data. For example, if a source provides estimates for the wealth share of the richest 1% (p99p100) and the wealth share of the richest 10% (p90p100), we calculate the wealth share of the Next 9% (90th–99th percentiles) based on these estimates.

It is important to note that when a source provides multiple estimates for the same inequality series, we select only one of these values, typically the benchmark estimate as defined in the underlying research paper or database. In future releases of the GC Wealth Project, we aim to explore the within-source variation of wealth inequality estimates by incorporating the full range of estimates that reflect different methodological assumptions.

#Finally, the current version of the Wealth Inequality Trends database of the GC Wealth Project does not publish fully imputed estimates of wealth inequality. We define an estimate as fully imputed if no wealth distribution data was used in the estimation of wealth inequality indicators for a specific country. The information on the distribution of wealth is allowed to derive directly from micro-level data and from databases that publish wealth inequality measures estimated based on micro data. This definition of fully imputed implies that we still publish time series even though wealth distribution data has been used only in one or selected years. It has implications for a handful of sources, such as the Credit Suisse [28] data as well as the World Inequality Database [187] that we discuss in the Appendix (Section C.3 to this documentation).

4.5.3 Step 3: Testing and Appending

After making sure the acquired, derived, and estimated wealth inequality indicators follow our formatting standards, we run a set of consistency checks and tests before we append them to the Wealth Inequality Trends database.

4.6 Methodological Tables

The **Methodological Tables** summarize for each source, among other things: the type of data used, where the work sources its data, the unit of analysis, the methods of estimation, how different assets are valued, how specific types of assets are treated, any adjustments made to the data, important underlying assumptions, and more. We provide a brief description of the content of the **Methodological Tables** in Table 4.7.

Table 4.7: Methodological Tables - Content Description

Field name	Field description
Legend	The name of the source.
Period covered and data points	The range from the first to last year included in the series published in the warehouse; the precise years and/or quarters for which data points are available; the total number of years and/or quarters containing data points.
Data type	A categorization of the data type(s) used in the series published in the warehouse.
Inequality indicators	The precise inequality measures covered in the series. See the description of the varcode (vartype) for more information on these measures.
Data sources used in the research	A list of all data sources used in the estimation of wealth inequality and the year(s) they provide data for. Note that not all of these data sources are necessarily relevant to the specific series we publish in the database. Full citation information for these sources is not typically included in the references section, and should instead be located from the source itself.
Unit of analysis	The unit of analysis of the series published in the warehouse. See the description of the varcode (dashboard-specific) for details.
Definition of wealth	The precise definition of wealth underlying the wealth inequality estimates provided by the source.
Method of estimation	A brief summary of the estimation method of the series published in the warehouse.
Method of estimation (detailed)	A more detailed explanation (when applicable) of the estimation method of the series published in the warehouse.
Valuation of assets	How specific assets and liabilities have been valuated.

Treatment of private pensions	Whether any private pensions are included in the wealth definition, and if applicable, how they have been valuated.
Treatment of public pensions	Whether any public pensions are included in the wealth definition, and if applicable, how they have been valuated.
Treatment of life insurance	Whether any life insurance benefits are included in the wealth definition, and if applicable, how they have been valuated.
Treatment of household and personal goods (e.g., vehicles, boats, aircraft, jewelry, antiques, works of art, collections)	Whether any valuables and consumer goods are included in the definition of wealth, and if applicable, how they have been valuated.
Treatment of foreign wealth holdings	Whether any assets held abroad are included in the wealth definition, and if applicable, how they have been valuated.
Treatment of debt	Which types of liabilities are included in the wealth definition, and if applicable, how they have been valuated.
Adjustments to data	An explanation of any significant adjustments made to the raw data.
Distributional estimates aligned with national account aggregates	Whether the wealth estimate has been brought into alignment with the reference country's national accounts wealth aggregates.
Total population estimate and source	The manner and source of the reference population estimate underlying the series.
Total wealth estimate and source	The manner and source of the aggregate wealth estimate underlying the series.
References	A bibliography for the sources cited parenthetically in the table's analysis (i.e., not necessarily those listed in the data sources used in the research section). Any important references that are called out by title in the analysis (such as appendices, data files, or a working paper version of the source) are listed first, with their reference information and any downloadable files being available at their hyperlinked entry in the Data Sources Library.

4.7 Additional Information on the Wealth Inequality Trends Section

For additional information about the Wealth Inequality Trends section, we refer the reader the to the Appendix of this Documentation, where we provide a list of all sources included in the Wealth Inequality Trends database, country-specific information on the coverage of the Wealth Inequality Trends database, and additional information on the precise treatment of selected sources.

Section 5

Estate, Inheritances, and Gift Taxes (EIG)

5.1 Introduction to the Estate, Inheritances, and Gift Taxes Section

The Estate, Inheritance, and Gift Tax (EIG) section of the GC Wealth Project provides a comprehensive data collection on wealth transfer taxes across countries and over time. The EIG section compiles tax policy information as well as tax revenue data. The section contains information about these taxes for over 160 countries, in some instances dating back as far as the 18th century. The EIG section codifies and harmonizes information on common features, such as top tax rates among closest relatives, personal tax exemptions, or full tax schedules. The section also provides revenue statistics for EIG taxes from OECD Revenue Statistics from 1965 onward. Information is obtained from academic, government, and corporate research, government legislation and legislative information, as well as cross-national research and official statistics. This chapter introduces the reader to the data structure of the EIG section, as well as the general interpretation and construction of each concept.

5.2 Data Structure and Interpretation

Downloaded data is provided in long format. All information in the data is sorted by a country's two-letter ISO code (`GEO`), or its full name (`GEO_long`) and `year`. The combination of `GEO-year` and `varcode` identifies univocally the value corresponding to a given information specified by the varcode for **that** GEO-year (see Table 5.4 for an example).

5.2.1 General assumption

To enhance cross-country comparability and simplify possible over-complexities, we assume that taxes are paid on a monetary transfer to one adult child upon the death of a decedent, assuming no additional circumstantial deductions, reliefs, or credits apply unless otherwise specified in the Note variable[1]. Moreover, in the main variables we do not take into account any additional mitigating factors – like higher exemptions or lower rates for minors or disabled children, while citing those in the notes. Assuming that there is only one heir is crucial in those cases in which an inheritance tax is levied, but the exemption is based on the entire estate (e.g. in Japan); if there is only one heir, an exemption on the inheritance quota is equivalent to an exemption on the entire estate.

There are cases in which wealth transfers are taxed through taxes different from proper EIG taxes (e.g. through the personal income tax); in these cases, we report that there is no EIG tax for the relevant wealth transfer – i.e. status = 0 – and specify in the note that the wealth transfer is taxed through a different type of tax (if available, we specify which type of tax). For example, since 2014 the gift tax in Czech Republic is included in the personal income tax. Therefore, the gift tax status equals 0, and the Note variable reports the corresponding additional details.

In the cases in which a gift tax applies on a life-time basis at the death of the donor (e.g. in the US), or is levied only on donations occurred in a specific range of years before the death of donor (e.g. in the UK and in South Corea), we report that a gift tax is levied and we treat it as a traditional gift tax, while specifying in the Note how the taxation is regulated.

Since tax reforms can be approved any time in a year, we follow the general rule of applying the reform from the year in which it is approved. However, if the law clearly specifies the starting date, then we follow the timing established by law. For example, Sweden unified inheritance and gift tax was abolished in 2004, but the law clarifies it applies to transfer after 31 December 2004 and death-transfers after 17 December 2004; therefore, the database reports no tax for Sweden from 2005 onwards.

[1] When relevant, we use the rates for the statutory shares (e.g., Luxembourg)

In the new data warehouse version 2.0, also includes sub-national information. Currently, only information about the US states is included but additional subnational data for other countries will be available in future releases. For the US states, while the status variable is related to each single state, all the other main variables (e.g., top marginal tax rate, exemption threshold) are reported considering the interaction between state and federal-level taxation (details in section 5.3). It follows that if some States (e.g., Alabama, Arizona, South Carolina) do not leavy any EIG tax, then they have a corresponding status 0 (No) in the data, but reporting the positive federal top marginal tax rate and exemption threshold.

When a country-level EIG tax is not levied, but there are different regional tax schemes (e.g., Belgium, Switzerland, Brazil, and Canada), we report the national/federal information and detail in the Note if a subnational taxation is enforced and possible other information about the regional taxation rules.

5.2.2 The `varcode` in the Estate, Inheritance, and Gift Taxes Section

As described in the general warehouse structure section, the `varcode` uniquely identifies each value in the EIG section using five elements: the section, the sector, the type, the concept, and a bracket id. Hence, the `varcode` takes the following form:

$$\underbrace{x}_{\text{Section}} - \underbrace{BB}_{\text{Sector}} - \underbrace{CCC}_{\text{Variable Type}} - \underbrace{DDDDDD}_{\text{Concept}} - \underbrace{ZZ}_{\text{Section Specific}}$$

The first element is a 1-digit code that identifies the section of the GC Wealth Project, which for the case of the Estate, Inheritance, and Gift Taxes takes the value x. The sector element – BB – indicates the type of tax and the group of individuals on which the tax is levied. The following three digits – CCC - refer to the nature of the variable, while the six digits DDDDDD represent the concept of interest. The last two digits – ZZ – allow to identify each specific tax bracket, when applicable.

5.2.3 `Sector`: type of tax and affected groups

The EIG sector is identified by a combination of two informative letters. The first letter indicates the type of tax: `e` stands for estate, `i` for inheritance, and `g` for gift tax. When there is insufficient information to distinguish the type of EIG tax (in case of imprecise historical sources and/or status imputation from OECD revenues), we use `t` as the first letter as *trasfer* to indicate a generic transfer tax. The second letter denotes the population group on which the tax is levied: `e` for everyone (indicating the tax affects everyone regardless of kinship) or `c` for children (meaning the tax is levied on the children of the donor/decedent).

When no specific information is not available, the second letter is `u` i.e., unknown. Lastly, to refer to EIG tax information that does not belong to any specific sector (e.g., revenues or currency), we use `g` as second letter for *general*.

Table 5.1 summarizes the sector combinations.

Table 5.1: EIG: Sector

Code	Label	Description
tg	EIG Tax, general government level	The tax revenue information refers to estate, inheritance or gift tax for the general government sector.
gg	Gift Tax, general government level	The tax revenue information refers to gift tax for the general government sector.
tu	EIG Tax, applies to unknown	The status refers to a general estate, inheritance or gift tax, and the population group to which the tax is applied is not known from the sources available.
te	EIG Tax, applies to everybody	Estate, inheritance or gift tax levied on anyone regardless of the degree of kinship or relationship to the deceased/donor.
ec	Estate Tax for Children	Estate tax levied on children of the donor/decedent. The group also includes grandchildren, parents and grandparents, unless otherwise stated in the note.
ee	Estate Tax for Everybody	Estate tax levied on anyone regardless of the degree of kinship or relationship to the deceased/donor. This sector is used also if the estate tax is not levied.
ic	Inheritance Tax for Children	Inheritance tax levied on children of the donor/decedent. The group also includes grandchildren, parents and grandparents, unless otherwise stated in the note.
ie	Inheritance Tax for Everybody	Inheritance tax levied on anyone regardless of the degree of kinship or relationship to the deceased/donor. This sector is used also if the inheritance tax is not levied.
gc	Gift Tax for Children	Gift tax levied on children of the donor/decedent. The group also includes grandchildren, parents and grandparents, unless otherwise stated in the note.
ge	Gift Tax for Everybody	Gift tax levied on on anyone regardless of the degree of kinship or relationship to the deceased/donor. This sector is used also if the gift tax is not levied.

5.2.4 Variable Type

Six types of variables are used within the EIG section. These are described in Table 5.2.

Table 5.2: EIG: Variable Type

Code	Label	Description
rat	Rate	In general, a rate is expressed as a percentage. For instance, the marginal inheritance tax rate is the amount of tax that is paid on an additional dollar of inheritance received. It represents the rate at which a person's tax liability increases as their inheritance increases. The concept can also be applied to the saving rate which refers to the percentage of disposable income that is saved or not spent on consumption.
rto	Ratio	A ratio describes the relationship between two quantities and is expressed as the quotient of one quantity divided by another. For example, if a country's total private net wealth is €10,000 billion and its total national income is €2,000 billion, the ratio of private wealth to national income is 5 to 1, as total private wealth is five times the amount of national income.
thr	Threshold	A threshold represents a minimum or maximum value that must be met or exceeded, for instance, the minimum value of net wealth that is needed for an individual to belong to the group of the richest 1% of adults, or the maximum value of net wealth that is needed for an individual to belong to the group of the poorest 50% of adults.
cat	Categorical Variable	A categorical variable represents data that can be divided into groups or categories.
tot	Total	It represents the total value of a variable. For instance, total population, or total revenue raised from the inheritance tax.
per	Period	Numeric values that refer to a period (year, month, quarter).

5.2.5 `Concept`: Variables

The next six letters indicating `Concept` encode the specific variables for this section (see Table 5.3 for details). These variables can refer to the status of a tax - whether it is levied or not -, the characteristics of the tax (progressivity, top rate, exemption, full tax schedule), and the associated tax revenue information.

5.2.5.1 Tax status, and bracket-invariant concepts

The database contains six bracket-invariant information, namely the status (`status`), the first year (`firsty`), the type of tax (`typtax`), the exemption threshold (`exempt`), the top marginal rate (`toprat`), and the top marginal rate lower bound (`toplbo`).

The binary variable `status` is used to indicate whether a country or region levies the transfer tax specified in the first digit of the sector code (estate, inheritance, or gift). Status can take either value 1 (Yes) or 0 (No).

Countries for which no data is available other than the tax revenue from the OECD are marked as not having an estate, inheritance, or gift tax if the OECD revenue statistics report zero revenues. These cases are marked as "Inferred from OECD" in their Source variable.

When possible, the data further include a variable indicating the first year for which the wealth transfer tax has been levied in a country or region (`firsty`). When the first year is available for a country, the series for that country starts from that year – the information for the preceding years can therefore be inferred.

Among the bracket-invariant information, we introduce a new variable `typtax` to facilitate the users in recognizing whether a tax is lump-sum, flat, progressive, or progressive by brackets. The definition is based considering the number of brackets with positive marginal rates. If we do not observe the full schedule but a specific country-source clarifies the nature of tax under assessment i.e., flat, or progressive, we are able to fill the variable.

Tax exemptions (`exempt`) can vary in complexity and detail, and countries differ in how they offer reductions to the final tax bill (exemptions, deductions, rebates, credits, etc.). Unless differently specified, the exemption is considered as a reduction of the tax base. In case the exemption has a different nature (e.g., tax credit as in the case of US), the exemption variable and the tax schedule are adjusted accordingly and details of the adjustments are reported in the Note variable of metadata. If a tax is levied, but there is no exemption, the variable exempt takes value zero. It may also happen that the tax is levied, but it exists a full exemption; in this case, `exempt` will take value -997 (_and_over). The exemption is expressed in the Local Currency Units reported in WID in 2023.

The last two tax concepts invariant to brackets are the top rate (`toprat`) – the marginal tax rate on the last bracket - (`toprat`) and the lower bound threshold above which the top rate for the specified tax applies (`toplbo`). When a tax exists, `toprat` typically takes positive values, unless a full exemption exists (zero `toprat`). On the contrary, it takes value zero when tax is not levied. The same logic applies to the `toplbo`. The top rate lower bound is expressed in the Local Currency Units reported in WID in 2023.

5.2.5.2 Tax revenues

Tax revenues correspond to the 4300 (EIG) and 4320 (gift) series of tax revenues from the OECD Revenue Statistics Database of the Organisation for Economic Co-operation and Development (OECD) (downloaded March 22, 2024). Revenues are reported in three different concepts: `revenu`, for the EIG tax revenues in local currency units; `prorev` stands for EIG tax revenues in percentage of total tax revenues; `revgdp` for the EIG tax revenues in percentage of GDP. Revenues information are available since 1965 on for most of the included countries.

5.2.5.3 Tax schedules

When the full tax schedule is available, it is identified by a set of tax brackets. These are a combination of three concepts: adjusted lower bound (`adjlbo`), adjusted upper bound (`adjbo`), and adjusted marginal rates (`adjmrt`). Therefore, each bracket identifies the amount of transfer above the `adjlbo` and below the `adjbo` to which the `adjmrt` applies.

Each bracket corresponds to a single GEO-year-varcode combination and is identified by the last two digits of the varcode.

Unless the tax is proportional, the schedules are typically cumulative in structure, such that the rate in a bracket that corresponds to a wealth transfer value only applies to the proportion of the transfer that is greater than the highest amount in the previous bracket. That is, if the transfer amount excesses the previous tax bracket by one currency unit, the higher tax rate (of the following bracket) only applies to one currency unit. This structure of the tax schedule is summarized in the variable `typtax`.

We adjust the schedules to make them more comparable across countries. In particular, we modify the statutory schedule of each country to include the exemption as a first tax bracket with a zero marginal rate. Furthermore, we convert the bounds of the brackets to the most recent local currency units , and merge the brackets with the same marginal rate to obtain the effective number of brackets. It is important to note that if the country levies a tax but applies a full exemption for direct heirs, we then follow an “economic

effectiveness" principle and adjust the status and the corresponding tax schedule to be equivalent to a no-tax scenario.

In the case the exemption is a reduction of the tax base, the adjustment consists in a shift of the tax brackets equivalent to the amount of the exemption. Differently, when the exemption is a tax credit, the adjustment consists in setting the amount of the tax credit as the new lower bound of the first bracket of the tax schedule and reporting zero marginal rate below it.

For instance, consider the U.S. federal estate tax: the statutory schedule contains a progressive schedule, but because the tax credit is so high (nearly 13 million USD as of 2023), every bracket but the last is effectively within the tax credit range. Therefore (assuming no other deductions or credits apply), all amounts below (and many above) the last bracket would yield a final tax bill of zero. The result is a proportional tax rate that applies to relatively large estates of several million dollars[2].

All the concepts described above are summarized in the Table 5.3 here below.

[2]Note that this adjustment can affect also the variable `typtax`. For example, for the United States `typtax` is flat, although the statutory tax schedule is progressive

Table 5.3: Estate, Inheritance, and Gift Tax Variable Definitions

Code	Label	Description
revenu	Total Revenue from Tax	Total revenue from the specified tax at all government levels in local currency units.
prorev	Total Revenue from Tax as % of Total Tax Revenue	Total revenue from the specified tax at all government levels as a percentage of total tax revenue.
revgdp	Total Revenue from Tax as % of Gross Domestic Product	Total revenue from the specified tax at all government levels as a percentage of GDP.
adjlbo	Lower Bound for Exemption-adjusted Tax Bracket	The value of tax base over which the tax rate applies in local currency units, adjusted to include the exemption amount in the tax schedule as a zero rate bracket, if needed.
adjubo	Upper Bound for Exemption-adjusted Tax Bracket	The highest tax base value for which the tax rate applies in local currency units, adjusted to include the exemption amount in the tax schedule as a zero rate bracket, if needed. It takes value -997 (_and_over) for the highest bracket if the interval is open.
adjmrt	Marginal Rate for Exemption-adjusted Tax Bracket	The rate of taxation on tax base values between the bracket lower bound and the bracket upper bound, adjusted to include the exemption amount in the tax schedule as a zero rate bracket, if needed. It is reported as zero in case the tax is not levied and for the exemption bracket.
status	Tax Indicator	Whether or not the country levies the specified tax for the given year. It is encoded as a 0/1 indicator variable.
typtax	Type of Tax	The structure of the adjusted tax schedule, if applicable. The variable is encoded as follows: 1 lump-sum (fixed); 2 flat (proportional with a single rate applied to all tax base); 3 progressive (proportional with tax rates increasing with the tax base); 4 progressive by brackets (proportional with tax rates increasing with the tax base, with different portions of the tax base - brackets - taxed at different rates); -998 (_na) not applicable because the tax is not levied or there is full exemption. The type of tax is based on the number of positive tax rates included in the adjusted tax schedule.

5.2.6 `Section Specific`: Bracket Numbers

Finally, the last two letters in the `varcode` denote the section-specific variables, which for the EIG section refer to the tax bracket number when needed. Full tax schedule information will vary by tax bracket, while bracket-invariant information is reported for the bracket "00" as illustrated in the example in Table 5.5.

5.2.7 An illustrative example

An example is illustrated in Table 5.4. Here we report the case of the US in 2021 to better visualize that each combination of `GEO-year` and `varcode` identifies univocally the value corresponding to a given information specified by the `varcode` so that the users can access the value of each varcode. To further clarify, the value 1 in first row corresponds to the varcode `x-ec-cat-status-00` that indicates the status of the estate tax.

Table 5.4: Simplified Illustration of EIG Data in Long Format

GEO	GEO_long	year	percentile	varcode	value	source	longname	note	last_update
US	United States	2021	p0p100	x-ec-cat-status-00	1	EY2021b	Categorical Variable Tax Indicator, of the Estate Tax for Children sector (Non-Bracket Specific)	Since the US gift and estate tax are unified, gifts made during an individuals lifetime will reduce his or her estate tax exemption.	
US	United States	2021	p0p100	x-ec-cat-typtax-00	2	EY2021b	Categorical Variable Type of Tax, of the Estate Tax for Children sector (Non-Bracket Specific)	Since the US gift and estate tax are unified, gifts made during an individuals lifetime will reduce his or her estate tax exemption.	
US	United States	2021	p0p100	x-ec-rat-adjmrt-01	0	EY2021b	Rate Marginal Rate for Exemption-adjusted Tax Bracket, of the Estate Tax for Children sector (Bracket n 01)	Since the US gift and estate tax are unified, gifts made during an individuals lifetime will reduce his or her estate tax exemption.	
US	United States	2021	p0p100	x-ec-rat-adjmrt-02	40	EY2021b	Rate Marginal Rate for Exemption-adjusted Tax Bracket, of the Estate Tax for Children sector (Bracket n 02)	Since the US gift and estate tax are unified, gifts made during an individuals lifetime will reduce his or her estate tax exemption.	
US	United States	2021	p0p100	x-ec-rat-toprat-00	40	EY2021b	Rate Top Marginal Rate, of the Estate Tax for Children sector (Non-Bracket Specific)	Since the US gift and estate tax are unified, gifts made during an individuals lifetime will reduce his or her estate tax exemption.	
US	United States	2021	p0p100	x-ec-thr-adjlbo-01	0	EY2021b	Threshold Lower Bound for Exemption-adjusted Tax Bracket, of the Estate Tax for Children sector (Bracket n 01)	Since the US gift and estate tax are unified, gifts made during an individuals lifetime will reduce his or her estate tax exemption.	
US	United States	2021	p0p100	x-ec-thr-adjlbo-02	1.170000e+07	EY2021b	Threshold Lower Bound for Exemption-adjusted Tax Bracket, of the Estate Tax for Children sector (Bracket n 02)	Since the US gift and estate tax are unified, gifts made during an individuals lifetime will reduce his or her estate tax exemption.	

US	United States	2021	p0p100	x-ec-thr-adjubo-01	1.170000e+07	EY2021b	Threshold Upper Bound for Exemption-adjusted Tax Bracket, of the Estate Tax for Children sector (Bracket n 01)	Since the US gift and estate tax are unified, gifts made during an individuals lifetime will reduce his or her estate tax exemption.
US	United States	2021	p0p100	x-ec-thr-adjubo-02	-997	EY2021b	Threshold Upper Bound for Exemption-adjusted Tax Bracket, of the Estate Tax for Children sector (Bracket n 02)	Since the US gift and estate tax are unified, gifts made during an individuals lifetime will reduce his or her estate tax exemption.
US	United States	2021	p0p100	x-ec-thr-exempt-00	1.170000e+07	EY2021b	Threshold Exemption Threshold, of the Estate Tax for Children sector (Non-Bracket Specific)	Since the US gift and estate tax are unified, gifts made during an individuals lifetime will reduce his or her estate tax exemption.
US	United States	2021	p0p100	x-ec-thr-toplbo-00	1.170000e+07	EY2021b	Threshold Top Marginal Rate Applicable From, of the Estate Tax for Children sector (Non-Bracket Specific)	Since the US gift and estate tax are unified, gifts made during an individuals lifetime will reduce his or her estate tax exemption.
US	United States	2021	p0p100	x-tg-rto-prorev-00	0.56	OECD_Rev	Ratio Total Revenue from Tax as % of Total Tax Revenue, of the EIG Tax, general government level sector (Non-Bracket Specific)	NA
US	United States	2021	p0p100	x-tg-rto-revgdp-00	0.15	OECD_Rev	Ratio Total Revenue from Tax as % of Gross Domestic Product, of the EIG Tax, general government level sector (Non-Bracket Specific)	NA
US	United States	2021	p0p100	x-tg-tot-revenu-00	3.471938e+10	OECD_Rev	Total Total Revenue from Tax, of the EIG Tax, general government level sector (Non-Bracket Specific)	NA

To ease the users' understanding on the use of the data, we also provide a wide format transformation of the example in the previous Table 5.4. The wide transformation is particularly helpful to better understand and visualize the tax schedule of each country-year.

Table 5.5: Simplified Illustration of a Tax Schedule

GEO	GEO_long	year	bracket	status	typtax	adjmrt	toprat	adjlbo	adjubo	exempt	toplbo	prorev	revgdp	revenu
US	United States	2021	0	1	2	NA	40	NA	NA	1.170000e+07	1.170000e+07	0.56	0.15	3.471938e+10
US	United States	2021	1	NA	NA	0	NA	0	1.170000e+07	NA	NA	NA	NA	NA
US	United States	2021	2	NA	NA	40	NA	1.170000e+07	-997	NA	NA	NA	NA	NA

In Table 5.5 we have the same information of the long format, but each column-title is the content of the `varcode`. In this case we have an estate tax with two brackets; the first bracket ranging between 0 and 11.7 million of dollars - the exemption level - with a corresponding 0 marginal tax rate. The second bracket ranges from one dollar above the exemption and over with a marginal tax rate of 40%, which represents the top marginal tax rate (toprat). Revenues information are available in the last three columns: prorev, revgdp, revenu. For example, the total revenues collected from the estate tax in 2021 is around 35 billion of dollars, corresponding to around 0.15% of the US GDP, or 0.56% of the total revenues collected by the US in 2021.

5.3 Regional Information

Compared to version 1.1, the current release introduces regional information for the United States i.e., state-specific tax schedules. However, also other countries have regional taxation schemes; while we do not include them in the warehouse, we report the information in the Note variable and highlight below the main relevant cases of regional schemes.

Belgium:

Compared to version 1.1 and according to the "General assumptions" (section 5.2.1), Belgium does not levy EIG taxes at national level since 1989 (Law of 16 June 1989 – YaleInheritance reference), but the three regions - Flemish, Walloon, Bruxelles-Capital – can set their own taxes. It follows that - compared to the version 1.1 data - the current version 1.2 displays a national EIG tax status equals to "0" (No) since 1989. Each region levies inheritance and gift taxes applying different rates. For example, taking the first child beneficiary as reference, the inheritance tax rate ranges between 3 and 30% in Bruxelles-Capital and Walloon regions; in Flemish region it ranges between 3 and 27%.

Brazil:

According to Carvalho Junior [31], and Tax Introduction Database [73], Brazil levies EIG taxes at state level since 1934. The act 27 of 1966 amended the tax law of 1965 (a Emenda Constitucional nº 18/1965) setting a federal level maximum top rate for gift and inheritances to 2%. This maximum top rate was raised in 1988 to 8%. Therefore, compared to the version 1.1 data, in version 1.2 Brazil displays a national EIG tax status always equals to "0" (No).

Bulgaria:

In Bulgaria, the Law 117 of December 10, 1997 established that inheritance and gift taxes are levied at municipality level. Therefore, there has been no national EIG taxation since 1998.

Spain:

EIG tax is a national tax, however there might be important differences between regions in terms of tax rates, reductions, and other benefits that significantly reduce the tax burden. Because of this, effective inheritance taxation is much higher under national law than under regional regimes. Furthermore, the autonomous regions of Navarre and Basque Country have a wide right to self-regulate gift and inheritance tax. Taxation in these regions is significantly different from the national Spanish tax laws. We report the information on national taxation, but we include in the Note some regional details (when available).

Switzerland:

In Switzerland, the cantons have an exclusive right to set their own gift and inheritance taxes. According to EY [43, 37], the canton tax system applies since 2006. However, from 1973 to 2005, the EIG tax revenues are gathered at regional and local level according to the OECD Revenue data [126]. Therefore, we assume that the taxation was at the canton level even before 2006. In practical terms, the status for the national EIG taxation has been set to "0" (No) since 1973.

United States:

As of the public release version 1.2, the data also include regional-level tax information for all U.S. states. Varcodes and variables for the regional level adhere to the database structure outlined above. In particular, GEO and GEO_long codes include the federal code/name (e.g., US/United States) followed by the state code/name (e.g., Illinois), separated by a comma.

We note some important conceptual differences for the interpretation of the regional information with respect to the national data. First, the tax status variable refers to the state-level, irrespective of federal taxes that also apply within state boundaries. Thus, if a given state indicates status = 0, the tax in the state can still

be subject to the federal estate tax, if it applies. On the contrary, adjusted tax schedule variables combine full tax schedule information of federal- and state-level taxes. That is, EIG taxes levied by the state can provide adjustments of the statutory schedule depending on interactions with the federal tax. Thus, our state-level adjusted schedules take the joint structure of taxes at both levels into account in order to arrive at tax exemptions, brackets, and marginal rates that are readily comparable across states within the U.S.

It may happen that a single US state applies an inheritance tax. Since the federal tax is an estate tax, the interaction of the two schemes requires the assumption that the inheritance is received by a single direct descendant without siblings. Lastly, state and federal tax interactions can lead to marginal tax structures with spikes within the tax bracket structure. Put differently, the highest tax rate in an adjusted schedule might be in a lower bracket and inheritances above that bracket will be subject to lower rates. In such cases, the top marginal tax rate still refers to the last bracket in the tax schedule rather than to the highest tax rate for consistency with the definition of the `toplbo` concept.

Appendix A

Supplementary Variables

Table A.1: Variables from wid.world

Variable	Short Name	Simple descrpition (original)
GEO3	Geographical unit	ISO3 code of the geographical unit
GEO_WB	Country name	Country name according to World Bank nomenclature
LCU_wid	Local currency unit	ISO4217 numeric code of the local currency units in which the monetary values are reported.
Region_WB	Country region	World Bank classification of the regional area of each country - East Asia & Pacific, Europe & Central Asia, Latin America & Caribbean, Middle East & North Africa, North America, South Asia, Sub-Saharan Africa
gov_party	Governing party	Political orientation of the government ranging from hegemony of right wing to hegemony of left wing. US are characterized by democrats vs republican.
income_group	Income group	World Bank classification of income group - high, medium-high, medium-low, low.
inyixx	National income price index	Price index that reflects the evolution of the price level for all new, domestically produced, final goods and services in the economy.

mgdpro	Gross domestic product	Gross domestic product is the total value of goods and services produced by the national economy.The national economy - in the national accounts sense - includes all domestic sectors, i.e. all entities that are resident of a given country (in the sense of their economic activity), whether they belong to the private sector, the corporate sector, the governement sector.
mnninc	National income	National income aims to measure the total income available to the residents of a given country. It is equal to the gross domestic product (the total value of goods and services produced on the territory of a given country during a given year), minus fixed capital used in production processes (e.g. replacement of obsolete machines or maintenance of roads) plus the net foreign income earned by residents in the rest of the world.
mpweal	Net private wealth	Net private wealth is the total value of non-financial and financial assets (housing, land, deposits, bonds, equities of corporations, etc.) held by private owners (households and foundations), minus their debts. The private sector - in the national accounts sense - includes the personal sector (households) and the non-profit sector (foundations, religious organizations, etc.). In certain countries, availables sources do not allow to decompose the wealth owned by each of these two sub-sectors, and we only provide total net private wealth.
nomgdp	Nominal GDP	Nominal GDP adjusted using the national income price index.
nomnni	Nominal national income	Nominal national income adjusted using the national income price index.
npopem	Employed population	Number of employed individuals.
npopul	Population	Number of individuals.
ntaxma	Number of tax units - married couples & single adults	Number of married couples and single adults as tax units.
xlceup	PPP conversion factor, LCU per EUR	PPP conversion factor of current local currency to current PPP EUR.

xlceux	Market exchange rate, LCU per EUR	Official exchange rate of the local currency to EUR.
xlcusp	PPP conversion factor, LCU per USD	PPP conversion factor of current local currency to current PPP USD.
xlcusx	Market exchange rate, LCU per USD	Official exchange rate of the local currency to USD.
xlcyup	PPP conversion factor, LCU per CNY	PPP conversion factor of current local currency to current PPP CNY.
xlcyux	Market exchange rate, LCU per CNY	Official exchange rate of the local currency to CNY.

Appendix B

Appendix to the Wealth Topography Section

B.1 Introduction

The Appendix of the Wealth Topography section of the GC Wealth Project provides additional information on the concepts included in the Wealth Topography and detailed source-specific documentation. In particular, this appendix provides:

- the full list of sources included in the Wealth Topography (Section B.2),
- the full conceptual grid used in the GC Wealth Project (Section B.3),
- source-specific detailed information on raw data source, all source-specific composition tables reporting all composition rules used to obtain the wealth concepts, and additional tables on conceptual and manual mapping (Section B.4).

B.2 Sources Included in the Wealth Topography Section

All data sources included in the current version of the Wealth Topography database are reported in Table B.1. In addition to the source name and bibliographic reference, the table reports the source type and the consultation date ("Download date"). All sources included in the Wealth Topography database can be distinguished according to types of national accounts:

- Balance Sheets contain holdings of non-financial assets (e.g., real estate assets or machinery), financial assets (e.g., deposits or equities), and liabilities (e.g., home mortgages) at a point in time.
- Financial Accounts contain holdings of financial assets (e.g., deposits or equities), and liabilities (e.g., home mortgages) at a point in time.

In other words, in the Wealth Topography databse, Financial Accounts are financial balance sheets in which only holdings of financial assets and liabilities are reported. In both cases, we report stocks or outstanding levels, that is holdings of assets and liabilities at the end of each accounting period (year). Outstanding levels reflect changes in transactions, nominal holding gains/losses, and other changes occurred throughout the year.

Table B.1: Sources in the Wealth Topography

Source	Source Type	Download Date
Atlas of the Offshore World [10]	Cross-national government research	July 18, 2024
Bank of Italy - Financial Accounts [13]	Cross-national official statistics	May 20, 2024
Bank of Italy & Istat - Balance Sheet [14]	Cross-national official statistics	May 20, 2024
Credit Suisse Global Wealth Report [28]	Cross-national corporate research	September 27, 2024
European Central Bank Non-EU - Financial Accounts [67]	Cross-national official statistics	May 30, 2024
European Central Bank EU - Financial Accounts [68]	Cross-national official statistics	May 30, 2024
Vellutini et al. (2019) [180]	Cross-national government research	July 18, 2024
Eurostat - Financial Accounts [69]	Cross-national official statistics	July 18, 2024
Federal Reserve Board B.101 - Balance Sheet [19]	Cross-national official statistics	May 30, 2024
Federal Reserve Board B.101.H - Balance Sheet [19]	Cross-national official statistics	May 30, 2024
Federal Reserve Board B.101.N - Balance Sheet [19]	Cross-national official statistics	May 30, 2024
Federal Reserve Board S.3.a (IMA) - Balance Sheet [19]	Cross-national official statistics	May 29, 2024
Household Finance and Consumption Survey - Balance Sheet [84]	Cross-national official survey data	July 22, 2024
Luxembourg Wealth Study Database - Balance Sheet [115]	Cross-national academic research	May 29, 2024
OECD - Financial Accounts [123]	Cross-national official statistics	July 18, 2024
World Inequality Database - Balance Sheet [187]	Cross-national academic research	June 5, 2024

B.3 Full Conceptual Grid

Once raw data have been obtained and classified, we harmonize them using the Wealth Topography Conceptual Grid, a table that assigns an alphanumeric identifier to each item or instrument of the balance sheet. The full grid is reported in Table B.2. Under the column `Code`, we report the code that identifies each item of the balance sheet (e.g., `AN111` stands for `Dwellings`). The code consists of two elements (letters and numbers), and, in the case of financial assets and liabilities, it also contains a special character. The alphabetic part of the code identifies whether a specific balance sheet component falls in the category of non-financial assets (`AN`), financial assets (`A_AF`) or liabilities (`L_AF`). The numeric part of the code identifies the class of assets and liabilities to which the instrument belongs.

Table B.2: Full GC Wealth Topography Conceptual Grid

na_code	Description	Financial position
AN	Produced and non-produced non-financial assets	ga
AN1	Produced non-financial assets	ga
AN11	Fixed assets by type of assets	ga
AN111	Dwellings	ga
AN112	Other buildings and structures	ga
AN1121	Buildings other than dwellings	ga
AN1122	Other structures	ga
AN1123	Land improvements	ga
AN113	Machinery and equipment	ga
AN1131	Transport equipment	ga
AN1132	ICT equipment	ga
AN1133	Other machinery and equipment	ga
AN114	Weapons systems	ga
AN115	Cultivated biological resources	ga
AN1151	Animal resources yielding repeat products	ga
AN1152	Tree, crop and plant resources yielding repeat products	ga
AN117	Intellectual property products	ga
AN1171	Research and development	ga

AN1172	Mineral exploration and evaluation	ga
AN1173	Computer software and databases	ga
AN11731	Computer software	ga
AN11732	Databases	ga
AN1174	Entertainment, literary or artistic originals	ga
AN1179	Other intellectual property products	ga
AN12	Inventories by type of inventory	ga
AN121	Materials and supplies	ga
AN122	Work-in-progress	ga
AN1221	Work-in-progress on cultivated biological assets	ga
AN1222	Other work-in-progress	ga
AN123	Finished goods	ga
AN124	Military inventories	ga
AN125	Goods for resale	ga
AN13	Valuables	ga
AN131	Precious metals and stones	ga
AN132	Antiques and other art objects	ga
AN133	Other valuables	ga
AN2	Non-produced non-financial assets	ga
AN21	Natural resources	ga
AN211	Land	ga
AN21111	Land underlying dwellings	ga
AN212	Mineral and energy reserves	ga
AN213	Non-cultivated biological resources	ga
AN214	Water resources	ga
AN215	Other natural resources	ga
AN2151	Radio spectra	ga
AN2159	Other	ga
AN22	Contracts, leases and licences	ga
AN221	Marketable operating leases	ga
AN222	Permissions to use natural resources	ga

AN223	Permissions to undertake specific activities	ga
AN224	Entitlement to future goods and services on an exclusive basis	ga
AN23	Purchases less sales of goodwill and marketing assets	ga
A_AF	Financial assets	ga
A_AF1	Monetary gold and SDRs	ga
A_AF11	Monetary gold	ga
A_AF12	SDRs	ga
A_AF2	Currency and deposits	ga
A_AF21	Currency	ga
A_AF22	Transferable deposits	ga
A_AF221	Inter-bank positions	ga
A_AF229	Other transferable deposits	ga
A_AF29	Other deposits	ga
A_AF3	Debt securities	ga
A_AF31	Short-term debt securities	ga
A_AF32	Long-term debt securities	ga
A_AF4	Loans	ga
A_AF41	Short-term loans	ga
A_AF42	Long-term loans	ga
A_AF5	Equity and investment fund shares	ga
A_AF51	Equity	ga
A_AF511	Listed shares	ga
A_AF512	Unlisted shares	ga
A_AF519	Other equity	ga
A_AF52	Investment fund shares/units	ga
A_AF521	Money market fund shares/units	ga
A_AF522	Non-MMF investment fund shares/units	ga
A_AF6	Insurance, pension and standardized guarantee schemes	ga
A_AF61	Non-life insurance technical provisions	ga
A_AF62	Life insurance and annuity entitlements	ga
A_AF63	Pension entitlements	ga

A_AF64	Claims of pension funds on pension managers	ga
A_AF65	Entitlements to non-pension benefits	ga
A_AF66	Provisions for calls under standardized guarantees	ga
A_AF7	Financial derivatives and employee stock options	ga
A_AF71	Financial derivatives	ga
A_AF711	Options	ga
A_AF712	Forwards	ga
A_AF72	Employee stock options	ga
A_AF8	Other accounts receivable/payable	ga
A_AF81	Trade credits and advances	ga
A_AF89	Other accounts receivable/payable	ga
L_AF	Liabilities	lb
L_AF1	Monetary gold and SDRs	lb
L_AF11	Monetary gold	lb
L_AF12	SDRs	lb
L_AF2	Currency and deposits	lb
L_AF21	Currency	lb
L_AF22	Transferable deposits	lb
L_AF221	Inter-bank positions	lb
L_AF229	Other transferable deposits	lb
L_AF29	Other deposits	lb
L_AF3	Debt securities	lb
L_AF31	Short-term debt securities	lb
L_AF32	Long-term debt securities	lb
L_AF4	Loans	lb
L_AF41	Short-term loans	lb
L_AF42	Long-term loans	lb
L_AF5	Equity and investment fund shares	lb
L_AF51	Equity	lb
L_AF511	Listed shares	lb
L_AF512	Unlisted shares	lb

L_AF519	Other equity	lb
L_AF52	Investment fund shares/units	lb
L_AF521	Money market fund shares/units	lb
L_AF522	Non-MMF investment fund shares/units	lb
L_AF6	Insurance, pension and standardized guarantee schemes	lb
L_AF61	Non-life insurance technical provisions	lb
L_AF62	Life insurance and annuity entitlements	lb
L_AF63	Pension entitlements	lb
L_AF64	Claims of pension funds on pension managers	lb
L_AF65	Entitlements to non-pension benefits	lb
L_AF66	Provisions for calls under standardized guarantees	lb
L_AF7	Financial derivatives and employee stock options	lb
L_AF71	Financial derivatives	lb
L_AF711	Options	lb
L_AF712	Forwards	lb
L_AF72	Employee stock options	lb
L_AF8	Other accounts receivable/payable	lb
L_AF81	Trade credits and advances	lb
L_AF89	Other accounts receivable/payable	lb
A_AXF	Financial assets held offshore	ga
XDHHCE	Consumer durables	ga

B.4 Source-Specific Documentation

This section provides source-specific detailed information on raw data source, all source-specific composition rules used to obtain the macro-categories of the Wealth Topography (`concept`), and additional tables on mapping. We recall that raw data sources included in the Wealth Topography database can be classified in three macro groups:

1. Raw data sources published by central banks and national statistical institutes that use the SNA2008/ESA2010 framework to organize and disseminate the data. We refer to this raw data sources

simply as cross-national official statistics.

2. Raw data sources published by central banks and national statistical institutes that use variants of the SNA2008/ESA2010 framework or other frameworks to organize and disseminate the data. We refer to these raw data sources as cross-national official statistics that use variants of SNA2008/ESA2010 framework.

3. Raw data sources contained in surveys and academic papers or published by central banks and research institutes that use frameworks different from the SNA2008/ESA2010 framework to organize and disseminate the data. We refer to these data sources as cross-national official survey data or cross-national academic research that do not use the SNA2008/ESA2010 framework.

When formulating the composition rules, we construct rules that can be applied to all years during which all sub-components of each concept can be observed. This formulation of composition rules allows us to preserve time consistency in the construction of concepts.

B.4.1 Bank of Italy - Financial Accounts (`BoI_FA`)

The Bank of Italy provides financial balance sheets of the Households and NPISH sector as parts of its quarterly financial accounts publication, so-called *Conti Finanziari* Bank of Italy [13]. While raw data are published at quarterly frequency, we use the end-year observation. Relative to the mapping procedure, this raw data source is classified as cross-national official statistics, that is mapping is automatic since the Bank of Italy organizes and disseminates raw data according to the SNA2008/ESA2010 guidelines. Table B.3 provides an overview of the general and source-specific composition rules used to compute the concepts. In the table, the column "Frequency" reports the number of source-sector-concept triples for which the corresponding composition rule is used.

B.4.2 Bank of Italy & ISTAT - Balance Sheet (`BoI_NA`)

The source Bank of Italy & ISTAT - Balance Sheet (`BoI_NA`) is based on the joint Bank of Italy and ISTAT estimates of wealth published as "The Wealth of Italy's Institutional Sectors" Bank of Italy and Istat [14]. This publication provides annual estimates of net wealth, assets, and liabilities of households and other institutional sectors, together with a cross-country comparison on the evolution of balance sheets. Relative to the mapping procedure, this raw data source is classified as cross-national official statistics, that is, mapping is automatic since the Bank of Italy organizes and disseminates raw data according to the SNA2008/ESA2010 guidelines.

Table B.4 provides an overview of the general and source-specific composition rules used to compute the concepts. In the table, the column "Frequency" reports the number of source-sector-concept triples for which the corresponding composition rule is used. For this source, we obtain "Net Wealth" (`netwea`) as the sum of "Financial Assets & Fixed Capital of Personal Businesses" (`nnhass`) and "Housing & Land" (`nfahou`), net of "Debt" (`fliabi`).

B.4.3 European Central Bank Non-EU - Financial Accounts (`ECB_IDCSA`)

The European Central Bank provides estimates of financial balance sheet for non-EU countries on its Statistical Data Warehouse. These data are included in the source European Central Bank Non-EU (`ECB_IDCSA`), which corresponds to the IDCS - Sector accounts in the International Data Cooperation Task Force Context European Central Bank [67]. The underlying database collects financial accounts (both flows and levels) for each institutional sector as publishes by Eurostat, OECD, and the United Nations. Data are originally published at both quarterly and annual frequency. This raw data source is classified as cross-national official statistics for which mapping is automatic since the European Central Bank organizes and disseminates raw data according to the SNA2008/ESA2010 guidelines. Table B.5 provides an overview of the general and source-specific composition rules used to compute the concepts. In the table, the column "Frequency" reports the number of source-sector-concept triples for which the corresponding composition rule is used.

B.4.4 European Central Bank EU - Financial Accounts (`ECB_QSA`)

The source European Central Bank EU (`ECB_QSA`) corresponds to the Quarterly Sector Accounts published by the European Central Bank on the Statistical Data Warehouse European Central Bank [68]. The Quarterly Sector Accounts provide quarterly estimates of outstanding levels of financial assets and liabilities for the European Union (EU) countries, together with a detailed breakdown of institutional sectors and financial instruments. The original frequency of data is quarterly but we retain the end-year observation. Relative to the mapping procedure, this raw data source is classified as cross-national official statistics for which mapping is automatic since the European Central Bank organizes and disseminates raw data according to the SNA2008/ESA2010 guidelines. Table B.6 provides an overview of the general and source-specific composition rules used to compute the concepts. In the table, the column "Frequency" reports the number of source-sector-concept triples for which the corresponding composition rule is used.

B.4.5 European Central Bank EU Distributional Wealth Accounts - Balance Sheet (ECB_DWA_topo)

The source European Central Bank EU Distributional Accounts (ECB_DWA_topo) are experimental statistics produced by the European System of Central Banks (ESCB). The complement macroeconomic sector accounts with distributional information for the household sector. The DWA links European Central Bank EU (ECB_QSA) data with Household Finance and Consumption Survey - Balance Sheet (HFCS_topo) with a view to providing an assessment of the distribution of household wealth that is consistent with the aggregates compiled in the sector accounts. Relative to the mapping procedure, this raw data source is classified as cross-national official statistics for which mapping is automatic since the European Central Bank organizes and disseminates raw data according to the SNA2008/ESA2010 guidelines. Table B.8 provides an overview of the general and source-specific composition rules used to compute the concepts. Housing wealth in the original source is provided in net values, therefore, we add housing loans to compile the gross aggregate.

B.4.6 Eurostat - Financial Accounts (Est)

The data source Eurostat - Financial Accounts (Est) corresponds to the Financial Flows and Stocks publication of Eurostat, the statistical office of the European Union Eurostat [69]. This data source reports financial assets held and the liabilities outstanding at the end of each year, for each institutional sector of the economy, according to the SNA2008/ESA2010 framework. Therefore, this is a cross-national official statistics source type for which mapping of raw data to national accounting concepts is automatic. Table B.7 provides an overview of the source-specific composition rules used to compute the concepts. In the table, the column "Frequency" reports the number of source-sector-concept triples for which the correspondent composition rule is used.

B.4.7 Federal Reserve Board B.101 - Balance Sheet (FED_B101)

The source Federal Reserve Board B.101 - Balance Sheet (FED_B101) corresponds to the table B.101: Balance Sheet of Households and Nonprofit Organizations published by the Federal Reserve Board in the Z.1 Financial Accounts of the United States Board of Governors of the Federal Reserve System [19]. The table covers the entire balance sheet of the households and nonprofit organizations sector. Relative to the mapping procedure, this raw data source is classified as cross-national official statistics that use variants of SNA2008/ESA2010 framework. Hence, we manually map each item from the raw data source into an item of the grid (see Table B.11 for the manual mapping). Table B.10 provides an overview of the general and source-specific

composition rules used to compute the concepts. In the table, the column "Frequency" reports the number of source-sector-concept triples for which the corresponding composition rule is used. For this source, we obtain "Net Wealth" (`netwea`) as the sum of "Financial Assets & Fixed Capital of Personal Businesses" (`nnhass`) and "Housing & Land" (`nfahou`), net of "Debt" (`fliabi`).

B.4.8 Federal Reserve Board B.101.H - Balance Sheet (`FED_B101h`)

The source Federal Reserve Board B.101.H - Balance Sheet (`FED_B101h`) corresponds to the table B.101.h: Balance Sheet of Households published by the Federal Reserve Board as supplementary table in the Z.1 Financial Accounts of the United States Board of Governors of the Federal Reserve System [19]. The table covers the entire balance sheet of the households and is obtained as a residual - that is by subtracting assets and liabilities of the nonprofit sector from the combined balance sheet of households and nonprofit organizations sector (table B.101). Relative to the mapping procedure, this raw data source is classified as cross-national official statistics that use variants of SNA2008/ESA2010 framework. Hence, we manually map each item from the raw data source into an item of the grid (see Table B.13 for the manual mapping). Table B.12 provides an overview of the general and source-specific composition rules used to compute the concepts. In the table, the column "Frequency" reports the number of source-sector-concept triples for which the corresponding composition rule is used. For this source, we obtain "Net Wealth" (`netwea`) as the sum of "Financial Assets & Fixed Capital of Personal Businesses" (`nnhass`) and "Housing & Land" (`nfahou`), net of "Debt" (`fliabi`).

B.4.9 Federal Reserve Board B.101.N - Balance Sheet (`FED_B101n`)

The source Federal Reserve Board B.101.N - Balance Sheet (`FED_B101n`) corresponds to the table B.101.n: Balance Sheet of Nonprofit Organizations published by the Federal Reserve Board as supplementary table in the Z.1 Financial Accounts of the United States Board of Governors of the Federal Reserve System [19]. The table covers the entire balance sheet of the nonprofit organizations sectors. Relative to the mapping procedure, this raw data source is classified as cross-national official statistics that use variants of SNA2008/ESA2010 framework. Hence, we manually map each item from the raw data source into an item of the grid (see Table B.15 for the manual mapping). Table B.14 provides an overview of the general and source-specific composition rules used to compute the concepts. In the table, the column "Frequency" reports the number of source-sector-concept triples for which the corresponding composition rule is used. For this source, we obtain "Net Wealth" (`netwea`) as the sum of "Financial Assets & Fixed Capital of Personal Businesses" (`nnhass`)

and “Housing & Land” (nfahou), net of “Debt” (fliabi).

B.4.10 Federal Reserve Board S.3.a (IMA) - Balance Sheet (FED_S3a_IMA)

The source Federal Reserve Board S.3.a (IMA) - Balance Sheet (FED_S3a_IMA) corresponds to the table S.3.a: Households and Nonprofit Institutions Serving Households published by the Federal Reserve Board in the Integrated Macroeconomic Accounts section of the Z.1 Financial Accounts of the United States Board of Governors of the Federal Reserve System [19]. The table covers the entire balance sheet of the households and nonprofit organizations sector but the underlying data source is different from that used to obtain table B.101. In fact, the Integrated Macroeconomic Accounts combine production, income and saving, and capital formation from the National Income and Product Accounts (NIPA) and financial transactions and asset revaluations from the Financial Accounts with changes in net wealth from the balance sheet (table B.101). Relative to the mapping procedure, this raw data source is classified as cross-national official statistics that use variants of SNA2008/ESA2010 framework. Hence, we manually map each item from the raw data source into an item of the grid (see Table B.16 for the manual mapping). Table B.16 provides an overview of the general and source-specific composition rules used to compute the concepts. In the table, the column “Frequency” reports the number of source-sector-concept triples for which the corresponding composition rule is used. For this source, we obtain “Net Wealth” (netwea) as the sum of “Financial Assets & Fixed Capital of Personal Businesses” (nnhass) and “Housing & Land” (nfahou), net of “Debt” (fliabi).

B.4.11 OECD - Financial Accounts (OECD_FA)

The source OECD - Financial Accounts (OECD_FA) corresponds to the OECD’s table Households’ Financial Assets and Liabilities (QASA_7HH table) which provides a detailed breakdown of households’ loans, investment funds shares, life insurance and annuity entitlements, and pension entitlements OECD [123]. This raw data source assembles various sources from central banks and national statistical institutes. This raw data source is classified as cross-national official statistics because the OECD organizes and disseminate data according to the SNA2008/ESA2010 framework. Therefore, mapping of raw data into national accounts concepts is automatic. Table B.18 provides an overview of the general and source-specific composition rules used to compute the concepts. In the table, the column “Frequency” reports the number of source-sector-concept triples for which the corresponding composition rule is used.

B.4.12 Luxembourg Wealth Study Database - Balance Sheet (`LWS_topo`)

The source Luxembourg Wealth Study Database - Balance Sheet (`LWS_topo`) is the Luxembourg Wealth Study Database which provides cross-national harmonized micro-data (household- and individual-level data) on assets, liabilities, and net wealth LIS [115]. Aggregate concepts are obtained multiplying household-level micro-data by the population weight and they are the average across five implicates (Rubin's Rule). The organization of assets and liabilities in the Luxembourg Wealth Study Database is not directly comparable to the GC Wealth Project conceptual grid. Therefore, this raw data source is classified as cross-national academic research that do not use the SNA2008/ESA2010 framework for which we introduce a source-specific conceptual grid (see Table B.20) and composition table (see Table B.19). In the composition table, the column "Frequency" reports the number of source-sector-concept triples for which the corresponding composition rule is used. For this specific source, "Net Wealth" (`netwea`) is obtained ex-post, that is by combining the available concepts of the Wealth Topography. More specifically, "Net Wealth" is computed as "Financial Assets & Fixed Capital of Personal Businesses" (`nnhass`) plus "Housing & Land" (`nfahou`) minus "Debt" (`fliabi`).

B.4.13 Household Finance and Consumption Survey - Balance Sheet (`HFCS_topo`)

The source Household Finance and Consumption Survey - Balance Sheet (`HFCS_topo`) corresponds to the Household Finance and Consumption Survey (HFCS), a collection of harmonized micro-data on households' balance sheets and consumption Household Finance and Consumption Network [84]. The HFCS is housed at the European Central Bank but the survey is conducted nationally, mostly by central banks. To obtain aggregate concepts from household-level data, we used household-level weights. Moreover, aggregate data reported in the Wealth Topography are an average across all five implicates (Rubin's Rule). The organization of assets and liabilities in the Household Finance and Consumption Survey is not directly comparable to the GC Wealth Project conceptual grid. Therefore, this raw data source is classified as cross-national official survey data that do not use the SNA2008/ESA2010 framework source for which we introduce a source-specific conceptual grid (see Table B.22) and composition table (see Table B.21). In the composition table, the column "Frequency" reports the number of source-sector-concept triples for which the corresponding composition rule is used.

B.4.14 World Inequality Database - Balance Sheet (WID_topo)

The source World Inequality Database - Balance Sheet (WID_topo) corresponds to the World Inequality Database (WID) World Inequality Database [187]. The concepts included in the Wealth Topography database are the WID aggregate wealth variables, converted in nominal values using the country-specific price deflator provided by WID. Among the WID estimates, we have included in the Wealth Topography database only countries with wealth data available for at least two asset group. Thus, our databse excludes those estimates of wealth aggregates that are heavily imputed with data available only for one asset group or for few asset sub-components. The organization of assets and liabilities in the World Inequality Database - Balance Sheet is not directly comparable to the GC Wealth Project conceptual grid. Therefore, this raw data source is classified as cross-national academic research that does not use the SNA2008/ESA2010 framework for which we introduce a source-specific conceptual grid (see Table B.24) and composition table (see Table B.24). In the composition table, the column "Frequency" reports the number of source-sector-concept triples for which the corresponding composition rule is used. For this source, "Net Wealth" (`netwea`) may be different from the sum of "Financial Assets & Fixed Capital of Personal Businesses" (`nnhass`) and "Housing & Land" (`nfahou`), net of "Debt" (`fliabi`) because of discrepancies present in the raw data source.

B.4.15 Atlas of the Offshore World - Financial Accounts (AOW)

The source Atlas of the Offshore World (AOW) is based on a research project by the EU Tax Observatory and Skatteforsk - Centre for Tax Research to inform the global debate around international tax evasion and avoidance. It offers up-to-date information about the dynamic of profit shifting by multinational companies and offshore wealth. Household offshore financial wealth refers to financial assets held by individuals outside of their residence country. To obtain offshore financial wealth, researchers exploit official statistics published by the Swiss central bank, the Bank for International Settlements, and systematic anomalies in the international investment positions of countries. In the table, the column "Frequency" reports the number of source-sector-concept triples for which the corresponding composition rule is used. As the information on offshore real estate is currently available for one year only, we do not include in the current version of the topography section.

B.4.16 European Commission Taxation Papers - Financial Accounts (ECOW)

The data source European Commission Taxation Papers (ECOW) corresponds to a research projected by Charles Vellutini, Georges Casamatta, Léa Bousquet, and Grzegorz Poniatowski. Household offshore finan-

cial wealth refers to financial assets held by individuals outside of their residence country. To obtain offshore financial wealth, researchers exploit systematic anomalies in the international investment positions of countries. In the table, the column "Frequency" reports the number of source-sector-concept triples for which the corresponding composition rule is used.

B.4.17 Credit Suisse Global Wealth Report - Balance Sheet (`CS_topo`)

The Credit Suisse Global Wealth Report (`CS_topo`) provides wealth estimates for various countries in the the period from 2000 to 2022 based on household balance sheets and surveys. We include a time series on aggreagte wealth information if the data quality is defined as fair or better, which results in a set of 51 countries. The data is primarily derived from national surveys and administrative records, with adjustments made to account for the upper tail of the wealth distribution using rich list data, such as Forbes' The World's Billionaires list. The organization of assets and liabilities in the Credit Suisse Global Wealth Report is not directly comparable to the GC Wealth Project conceptual grid. Therefore, this raw data source is classified as cross-national academic research that do not use the SNA2008/ESA2010 framework for which we introduce a source-specific conceptual grid (see Table B.20) and composition table (see Table B.19). In the composition table, the column "Frequency" reports the number of source-sector-concept triples for which the corresponding composition rule is used. For this specific source, "Net Wealth" (`netwea`) is obtained ex-post, that is by combining the available concepts of the Wealth Topography. More specifically, "Net Wealth" is computed as "Financial Assets & Fixed Capital of Personal Businesses" (`nnhass`) plus "Housing & Land" (`nfahou`) minus "Debt" (`fliabi`). We thank Prof. Anthony Shorrocks for providing the dataset for the GC Wealth Project.

Table B.3: Composition rules: Bank of Italy - Financial Accounts

Sector	Code	Concept	Composition rule using codes	Frequency
Households & NPISH	nnhass	Financial Assets & Fixed Capital of Personal Businesses	(A_AF)	1
Households & NPISH	fliabi	Debt	(L_AF41) + (L_AF42) + (L_AF6)	1
Households & NPISH	facdbl	Cash, Deposits, Bonds & Loans	(A_AF2BI2) + (A_AF29) + (A_AF31) + (A_AF32) + (A_AF41)	1
Households & NPISH	faeqfd	Stocks, Business Equities & Fund Shares	(A_AF51) + (A_AF52)	1
Households & NPISH	falipe	Pensions & Life Insurance	(A_AF6)	1

Table B.4: Composition rules: Bank of Italy and ISTAT - Balance Sheet

Sector	Code	Concept	Composition rule using codes	Frequency
Households & NPISH	netwea	Net Wealth	(Financial Assets & Fixed Capital of Personal Businesses) + (Housing & Land) - (Debt)	1
Households & NPISH	nnhass	Financial Assets & Fixed Capital of Personal Businesses	(AN1123) + (AN113) + (AN115) + (AN117) + (AN12) + (AN211) + (A_AF)	1
Households & NPISH	fliabi	Debt	(L_AF3) + (L_AF4) + (L_AF51) + (L_AF52) + (L_AF6) + (L_AF8)	1
Households & NPISH	facdbl	Cash, Deposits, Bonds & Loans	(A_AF2) + (A_AF3) + (A_AF4)	1
Households & NPISH	faeqfd	Stocks, Business Equities & Fund Shares	(A_AF51) + (A_AF52)	1
Households & NPISH	falipe	Pensions & Life Insurance	(A_AF6)	1
Households & NPISH	nfabus	Fixed Capital of Personal Businesses	(AN1123) + (AN113) + (AN115) + (AN117) + (AN12) + (AN211)	1
Households & NPISH	nfahou	Housing & Land	(AN111) + (AN1121) + (AN1122) - (AN1123)	1
Households & NPISH	nfadur	Durable Goods	(XDHHCE)	1

Table B.5: Composition rules: European Central Bank Non-EU - Financial Accounts

Sector	Code	Concept	Composition rule using codes	Frequency
Households & NPISH	nnhass	Financial Assets & Fixed Capital of Personal Businesses	(A_AF)	18
Households & NPISH	fliabi	Debt	(L_AF4)	2
Households & NPISH	fliabi	Debt	(L_AF4) + (L_AF5)	1
Households & NPISH	fliabi	Debt	(L_AF3) + (L_AF4)	1
Households & NPISH	fliabi	Debt	(L_AF3) + (L_AF4) + (L_AF5) + (L_AF6)	11
Households & NPISH	fliabi	Debt	(L_AF3) + (L_AF4) + (L_AF5)	3
Households & NPISH	facdbl	Cash, Deposits, Bonds & Loans	(A_AF2) + (A_AF3) + (A_AF4)	18
Households & NPISH	faeqfd	Stocks, Business Equities & Fund Shares	(A_AF5)	18
Households & NPISH	falipe	Pensions & Life Insurance	(A_AF6)	18

Households	nnhass	Financial Assets & Fixed Capital of Personal Businesses	(A_AF)	12
Households	fliabi	Debt	(L_AF3) + (L_AF4)	2
Households	fliabi	Debt	(L_AF4)	2
Households	fliabi	Debt	(L_AF4) + (L_AF5)	1
Households	fliabi	Debt	(L_AF3) + (L_AF4) + (L_AF5) + (L_AF6)	7
Households	facdbl	Cash, Deposits, Bonds & Loans	(A_AF2) + (A_AF3) + (A_AF4)	12
Households	faeqfd	Stocks, Business Equities & Fund Shares	(A_AF5)	12
Households	falipe	Pensions & Life Insurance	(A_AF6)	12
NPISH	nnhass	Financial Assets & Fixed Capital of Personal Businesses	(A_AF)	12
NPISH	fliabi	Debt	(L_AF4) + (L_AF5)	1
NPISH	fliabi	Debt	(L_AF3) + (L_AF4) + (L_AF5)	2
NPISH	fliabi	Debt	(L_AF3) + (L_AF4) + (L_AF5) + (L_AF6)	7
NPISH	fliabi	Debt	(L_AF4)	1
NPISH	fliabi	Debt	(L_AF3) + (L_AF4)	1
NPISH	facdbl	Cash, Deposits, Bonds & Loans	(A_AF2) + (A_AF3) + (A_AF4)	12
NPISH	faeqfd	Stocks, Business Equities & Fund Shares	(A_AF5)	12
NPISH	falipe	Pensions & Life Insurance	(A_AF6)	10

Table B.6: Composition rules: European Central Bank EU - Financial Accounts

Sector	Code	Concept	Composition rule using codes	Frequency
Households & NPISH	nnhass	Financial Assets & Fixed Capital of Personal Businesses	(A_AF)	28
Households & NPISH	fliabi	Debt	(L_AF3) + (L_AF4) + (L_AF5) + (L_AF6)	28
Households & NPISH	facdbl	Cash, Deposits, Bonds & Loans	(A_AF2) + (A_AF3) + (A_AF4)	28
Households & NPISH	faeqfd	Stocks, Business Equities & Fund Shares	(A_AF5)	28
Households & NPISH	falipe	Pensions & Life Insurance	(A_AF6)	28
Households	nnhass	Financial Assets & Fixed Capital of Personal Businesses	(A_AF)	28
Households	fliabi	Debt	(L_AF4)	1
Households	fliabi	Debt	(L_AF4) + (L_AF6)	27
Households	facdbl	Cash, Deposits, Bonds & Loans	(A_AF2) + (A_AF3) + (A_AF4)	27
Households	facdbl	Cash, Deposits, Bonds & Loans	(A_AF2) + (A_AF3)	1
Households	faeqfd	Stocks, Business Equities & Fund Shares	(A_AF5)	28
Households	falipe	Pensions & Life Insurance	(A_AF6)	28

NPISH	nnhass	Financial Assets & Fixed Capital of Personal Businesses	(A_AF)	28
NPISH	fliabi	Debt	(L_AF4) + (L_AF6)	1
NPISH	fliabi	Debt	(L_AF3) + (L_AF4) + (L_AF5) + (L_AF6)	26
NPISH	fliabi	Debt	(L_AF3) + (L_AF4) + (L_AF5)	1
NPISH	facdbl	Cash, Deposits, Bonds & Loans	(A_AF2) + (A_AF3)	1
NPISH	facdbl	Cash, Deposits, Bonds & Loans	(A_AF2) + (A_AF3) + (A_AF4)	27
NPISH	faeqfd	Stocks, Business Equities & Fund Shares	(A_AF5)	28
NPISH	falipe	Pensions & Life Insurance	(A_AF6)	28

Table B.7: Composition rules: Eurostat - Balance Sheet

Sector	Code	Concept	Composition rule using codes	Frequency
Households & NPISH	nnhass	Financial Assets & Fixed Capital of Personal Businesses	(A_AF)	37
Households & NPISH	fliabi	Debt	(L_AF4) + (L_AF5)	8
Households & NPISH	fliabi	Debt	(L_AF3) + (L_AF4) + (L_AF6)	1
Households & NPISH	fliabi	Debt	(L_AF4)	20
Households & NPISH	fliabi	Debt	(L_AF3) + (L_AF4)	4
Households & NPISH	fliabi	Debt	(L_AF4) + (L_AF6)	1
Households & NPISH	fliabi	Debt	(L_AF3) + (L_AF4) + (L_AF5) + (L_AF6)	3
Households & NPISH	facdbl	Cash, Deposits, Bonds & Loans	(A_AF2) + (A_AF3) + (A_AF4)	34
Households & NPISH	facdbl	Cash, Deposits, Bonds & Loans	(A_AF2) + (A_AF3)	3
Households & NPISH	faeqfd	Stocks, Business Equities & Fund Shares	(A_AF5)	37

Households & NPISH	falipe	Pensions & Life Insurance	(A_AF6)	37
Households	nnhass	Financial Assets & Fixed Capital of Personal Businesses	(A_AF)	36
Households	fliabi	Debt	(L_AF3) + (L_AF4) + (L_AF6)	2
Households	fliabi	Debt	(L_AF4)	30
Households	fliabi	Debt	(L_AF4) + (L_AF6)	2
Households	fliabi	Debt	(L_AF3) + (L_AF4)	2
Households	facdbl	Cash, Deposits, Bonds & Loans	(A_AF2) + (A_AF3) + (A_AF4)	32
Households	facdbl	Cash, Deposits, Bonds & Loans	(A_AF2) + (A_AF3)	4
Households	faeqfd	Stocks, Business Equities & Fund Shares	(A_AF5)	36
Households	falipe	Pensions & Life Insurance	(A_AF6)	36
NPISH	nnhass	Financial Assets & Fixed Capital of Personal Businesses	(A_AF)	36
NPISH	fliabi	Debt	(L_AF3) + (L_AF4) + (L_AF6)	1
NPISH	fliabi	Debt	(L_AF3) + (L_AF4) + (L_AF5) + (L_AF6)	1
NPISH	fliabi	Debt	(L_AF4)	22
NPISH	fliabi	Debt	(L_AF4) + (L_AF5)	8
NPISH	fliabi	Debt	(L_AF3) + (L_AF4) + (L_AF5)	2
NPISH	fliabi	Debt	(L_AF3) + (L_AF4)	2
NPISH	facdbl	Cash, Deposits, Bonds & Loans	(A_AF2) + (A_AF3)	13
NPISH	facdbl	Cash, Deposits, Bonds & Loans	(A_AF2)	2

NPISH	facdbl	Cash, Deposits, Bonds & Loans	(A_AF2) + (A_AF3) + (A_AF4)	21
NPISH	faeqfd	Stocks, Business Equities & Fund Shares	(A_AF5)	36
NPISH	falipe	Pensions & Life Insurance	(A_AF6)	13

Table B.8: Composition rules: European Central Bank EU - Balance Sheet

Sector	Code	Concept	Composition rule using codes	Frequency
Households	nnhass	Financial Assets & Fixed Capital of Personal Businesses	(ANUB) + (A_AF2M) + (A_AF3) + (A_AF52) + (A_AF511) + (A_AF51M) + (A_AF62)	20
Households	fliabi	Debt	(L_AF_NNA)	20
Households	facdbl	Cash, Deposits, Bonds & Loans	(A_AF2M) + (A_AF3)	20
Households	faeqfd	Stocks, Business Equities & Fund Shares	(A_AF52) + (A_AF511) + (A_AF51M)	20
Households	falipe	Pensions & Life Insurance	(A_AF62)	20
Households	netwea	Net Wealth	(NWA)	20
Households	nfahou	Housing & Land	(ANUN) + (L_AF4B)	20
Households	nfabus	Fixed Capital of Personal Businesses	(ANUB)	20

Table B.9: Composition rules: Eurostat - Financial Accounts

Sector	Code	Concept	Composition rule using codes	Frequency
Households & NPISH	nnhass	Financial Assets & Fixed Capital of Personal Businesses	(A_AF)	37
Households & NPISH	fliabi	Debt	(L_AF4) + (L_AF5)	8
Households & NPISH	fliabi	Debt	(L_AF3) + (L_AF4) + (L_AF6)	1
Households & NPISH	fliabi	Debt	(L_AF4)	20
Households & NPISH	fliabi	Debt	(L_AF3) + (L_AF4)	4
Households & NPISH	fliabi	Debt	(L_AF4) + (L_AF6)	1
Households & NPISH	fliabi	Debt	(L_AF3) + (L_AF4) + (L_AF5) + (L_AF6)	3
Households & NPISH	facdbl	Cash, Deposits, Bonds & Loans	(A_AF2) + (A_AF3) + (A_AF4)	34
Households & NPISH	facdbl	Cash, Deposits, Bonds & Loans	(A_AF2) + (A_AF3)	3
Households & NPISH	faeqfd	Stocks, Business Equities & Fund Shares	(A_AF5)	37

Households & NPISH	falipe	Pensions & Life Insurance	(A_AF6)	37
Households	nnhass	Financial Assets & Fixed Capital of Personal Businesses	(A_AF)	36
Households	fliabi	Debt	(L_AF3) + (L_AF4) + (L_AF6)	2
Households	fliabi	Debt	(L_AF4)	30
Households	fliabi	Debt	(L_AF4) + (L_AF6)	2
Households	fliabi	Debt	(L_AF3) + (L_AF4)	2
Households	facdbl	Cash, Deposits, Bonds & Loans	(A_AF2) + (A_AF3) + (A_AF4)	32
Households	facdbl	Cash, Deposits, Bonds & Loans	(A_AF2) + (A_AF3)	4
Households	faeqfd	Stocks, Business Equities & Fund Shares	(A_AF5)	36
Households	falipe	Pensions & Life Insurance	(A_AF6)	36
NPISH	nnhass	Financial Assets & Fixed Capital of Personal Businesses	(A_AF)	36
NPISH	fliabi	Debt	(L_AF3) + (L_AF4) + (L_AF6)	1
NPISH	fliabi	Debt	(L_AF3) + (L_AF4) + (L_AF5) + (L_AF6)	1
NPISH	fliabi	Debt	(L_AF4)	22
NPISH	fliabi	Debt	(L_AF4) + (L_AF5)	8
NPISH	fliabi	Debt	(L_AF3) + (L_AF4) + (L_AF5)	2
NPISH	fliabi	Debt	(L_AF3) + (L_AF4)	2
NPISH	facdbl	Cash, Deposits, Bonds & Loans	(A_AF2) + (A_AF3)	13
NPISH	facdbl	Cash, Deposits, Bonds & Loans	(A_AF2)	2

NPISH	facdbl	Cash, Deposits, Bonds & Loans	(A_AF2) + (A_AF3) + (A_AF4)	21
NPISH	faeqfd	Stocks, Business Equities & Fund Shares	(A_AF5)	36
NPISH	falipe	Pensions & Life Insurance	(A_AF6)	13

Table B.10: Composition rules: Federal Reserve Board B.101 - Balance Sheet

Sector	Code	Concept	Composition rule using codes	Frequency
Households & NPISH	netwea	Net Wealth	(Financial Assets & Fixed Capital of Personal Businesses) + (Housing & Land) - (Debt)	1
Households & NPISH	nnhass	Financial Assets & Fixed Capital of Personal Businesses	(AN) - (AN111) - (XDHHCE) + (A_AF)	1
Households & NPISH	fliabi	Debt	(L_AF3) + (L_AF4)	1
Households & NPISH	facdbl	Cash, Deposits, Bonds & Loans	(A_AF21) + (A_AF22) + (A_AF29) + (A_AF3) + (A_AF4)	1
Households & NPISH	faeqfd	Stocks, Business Equities & Fund Shares	(A_AF511) + (A_AF519) + (A_AF521) + (A_AF522)	1
Households & NPISH	falipe	Pensions & Life Insurance	(A_AF62) + (A_AF63)	1
Households & NPISH	nfabus	Fixed Capital of Personal Businesses	(AN) - (AN111) - (XDHHCE)	1
Households & NPISH	nfahou	Housing & Land	(AN111)	1
Households & NPISH	nfadur	Durable Goods	(XDHHCE)	1

Table B.11: Matching: Federal Reserve Board B.101 - Balance Sheet

Original label	Original identifier	Code
Nonfinancial Assets	LM152010005.A	AN
Real Estate At Market Value	LM155035005.A	AN111
Equipment, Current Cost Basis	LM165015205.A	AN113
Nonresidential Intellectual Property Products, Current Cost Basis	LM165013765.A	AN117
Total Financial Assets	FL154090005.A	A_AF
Checkable Deposits And Currency	FL153020005.A	A_AF21
Total Time And Savings Deposits	FL153030005.A	A_AF22
Private Foreign Deposits	LM153091003.A	A_AF29
Debt Securities	LM154022005.A	A_AF3
Loans	FL154023005.A	A_AF4
Corporate Equities	LM153064105.A	A_AF511
Proprietors' Equity In Noncorporate Business	LM152090205.A	A_AF519
Money Market Fund Shares	FL153034005.A	A_AF521
Mutual Fund Shares	LM153064205.A	A_AF522
Life Insurance Reserves	FL153040005.A	A_AF62
Pension Entitlements	FL153050005.A	A_AF63
Total Liabilities	FL154190005.A	L_AF
Municipal Securities	FL163162003.A	L_AF3
Loans	FL154123005.A	L_AF4
Deferred And Unpaid Life Insurance Premiums	FL543077073.A	L_AF62
Consumer Durable Goods, Current Cost Basis	LM155111005.A	XDHHCE

Table B.12: Composition rules: Federal Reserve Board B.101.H - Balance Sheet

Sector	Code	Concept	Composition rule using codes	Frequency
Households	netwea	Net Wealth	(Financial Assets & Fixed Capital of Personal Businesses) + (Housing & Land) - (Debt)	1
Households	nnhass	Financial Assets & Fixed Capital of Personal Businesses	(AN) - (AN111) - (XDHHCE) + (A_AF)	1
Households	fliabi	Debt	(L_AF4)	1
Households	facdbl	Cash, Deposits, Bonds & Loans	(A_AF21) + (A_AF22) + (A_AF3) + (A_AF4)	1
Households	faeqfd	Stocks, Business Equities & Fund Shares	(A_AF51) + (A_AF519) + (A_AF521)	1
Households	falipe	Pensions & Life Insurance	(A_AF62) + (A_AF63)	1
Households	nfabus	Fixed Capital of Personal Businesses	(AN) - (AN111) - (XDHHCE)	1
Households	nfahou	Housing & Land	(AN111)	1
Households	nfadur	Durable Goods	(XDHHCE)	1

Table B.13: Matching: Federal Reserve Board B.101.H - Balance Sheet

Original label	Original identifier	Code
Nonfinancial Assets	LM192010005.A	AN
Owner-Occupied Real Estate Including Vacant Land And Mobile Homes At Market Value	LM155035015.A	AN111
Total Financial Assets	FL194090005.A	A_AF
Checkable Deposits And Currency	FL193020005.A	A_AF21
Other Deposits Including Time And Savings Deposits	FL193030205.A	A_AF22
Debt Securities	LM194022005.A	A_AF3
Loans	FL194023005.A	A_AF4
Corporate Equities And Mutual Fund Shares	LM193064005.A	A_AF51
Proprietors' Equity In Noncorporate Business	LM152090205.A	A_AF519
Money Market Fund Shares	FL193034005.A	A_AF521
Life Insurance Reserves	FL153040005.A	A_AF62
Pension Entitlements	FL153050005.A	A_AF63
Total Liabilities	FL194190005.A	L_AF
Loans	FL194123005.A	L_AF4
Deferred And Unpaid Life Insurance Premiums	FL543077073.A	L_AF62
Consumer Durable Goods, Current Cost Basis	LM155111005.A	XDHHCE

Table B.14: Composition rules: Federal Reserve Board B.101.N - Balance Sheet

Sector	Code	Concept	Composition rule using codes	Frequency
NPISH	netwea	Net Wealth	(AN) + (A_AF) - (L_AF)	1
NPISH	nnhass	Financial Assets & Fixed Capital of Personal Businesses	(AN) - (AN111) + (A_AF)	1
NPISH	fliabi	Debt	(L_AF3) + (L_AF4)	1
NPISH	facdbl	Cash, Deposits, Bonds & Loans	(A_AF21) + (A_AF22) + (A_AF3) + (A_AF4)	1
NPISH	faeqfd	Stocks, Business Equities & Fund Shares	(A_AF5)	1
NPISH	nfabus	Fixed Capital of Personal Businesses	(AN) - (AN111)	1
NPISH	nfahou	Housing & Land	(AN111)	1

Table B.15: Matching: Federal Reserve Board B.101.N - Balance Sheet

Original label	Original identifier	Code
Nonfinancial Assets	FL162010005.A	AN
Real Estate At Market Value	FL165035005.A	AN111
Equipment, Current Cost Basis	FL165015205.A	AN113
Nonresidential Intellectual Property Products, Current Cost Basis	FL165013765.A	AN117
Total Financial Assets	FL164090005.A	A_AF
Cash And Non-Interest-Bearing Deposits	FL163020005.A	A_AF21
Other Deposits And Short-Term Investments	FL163030205.A	A_AF22
Debt Securities	LM164022005.A	A_AF3
Loans	FL164023005.A	A_AF4
Corporate Equities And Mutual Fund Shares	LM163064005.A	A_AF5
Money Market Fund Shares	FL163034003.A	A_AF521
Total Liabilities	FL164190005.A	L_AF
Municipal Securities	FL163162003.A	L_AF3
Loans	FL164123005.A	L_AF4

Table B.16: Composition rules: Federal Reserve Board S.3.a (IMA) - Balance Sheet

Sector	Code	Concept	Composition rule using codes	Frequency
Households & NPISH	netwea	Net Wealth	(Financial Assets & Fixed Capital of Personal Businesses) + (Housing & Land) - (Debt)	1
Households & NPISH	nnhass	Financial Assets & Fixed Capital of Personal Businesses	(AN) - (AN111) - (XDHHCE) + (A_AF)	1
Households & NPISH	fliabi	Debt	(L_AF3) + (L_AF4) + (L_AF6)	1
Households & NPISH	facdbl	Cash, Deposits, Bonds & Loans	(A_AF2) + (A_AF3) + (A_AF4)	1
Households & NPISH	faeqfd	Stocks, Business Equities & Fund Shares	(A_AF5)	1
Households & NPISH	falipe	Pensions & Life Insurance	(A_AF6)	1
Households & NPISH	nfabus	Fixed Capital of Personal Businesses	(AN) - (AN111) - (XDHHCE)	1
Households & NPISH	nfahou	Housing & Land	(AN111)	1
Households & NPISH	nfadur	Durable Goods	(XDHHCE)	1

Table B.17: Matching: Federal Reserve Board S.3.a (IMA) - Balance Sheet

Original label	Original identifier	Code
Nonfinancial Assets	LM152010005.A	AN
Real Estate At Market Value	LM155035005.A	AN111
Equipment, Current Cost Basis	LM165015205.A	AN113
Nonresidential Intellectual Property Products, Current Cost Basis	LM165013765.A	AN117
Total Financial Assets	FL154090005.A	A_AF
Total Currency And Deposits	FL154000005.A	A_AF2
Debt Securities	LM154022005.A	A_AF3
Loans	FL154023005.A	A_AF4
Loans, Excluding Mortgages	FL154041005.A	A_AF41
Total Mortgages	FL153065005.A	A_AF42
Equity And Investment Fund Shares	FL153081005.A	A_AF5
Corporate Equities	LM153064105.A	A_AF51
Proprietors' Equity In Noncorporate Business	LM152090205.A	A_AF519
Money Market Fund Shares	FL153034005.A	A_AF521
Mutual Fund Shares	LM153064205.A	A_AF522
Insurance, Pension And Standardized Guarantee Schemes	FL153052005.A	A_AF6
Life Insurance Reserves	FL153040005.A	A_AF62
Pension Entitlements	FL153050005.A	A_AF63
Other Accounts Receivable	FL163096005.A	A_AF8
Net Worth	FL152090005.A	B90
Total Liabilities	FL154190005.A	L_AF
Municipal Securities	FL163162003.A	L_AF3
Loans	FL154123005.A	L_AF4
Short-Term Loans	FL154141005.A	L_AF41
Total Mortgages	FL153165005.A	L_AF42
Deferred And Unpaid Life Insurance Premiums	FL543077073.A	L_AF6

Trade Payables	FL163170005.A	L_AF8
Consumer Durable Goods, Current Cost Basis	LM155111005.A	XDHHCE

Table B.18: Composition rules: OECD - Financial Accounts

Sector	Code	Concept	Composition rule using codes	Frequency
Households & NPISH	fliabi	Debt	(L_AF4)	34
Households & NPISH	faeqfd	Stocks, Business Equities & Fund Shares	(A_AF52)	34
Households & NPISH	falipe	Pensions & Life Insurance	(A_AF62) + (A_AF63)	28
Households	fliabi	Debt	(L_AF4)	27
Households	faeqfd	Stocks, Business Equities & Fund Shares	(A_AF52)	27
Households	falipe	Pensions & Life Insurance	(A_AF62) + (A_AF63)	27

Table B.19: Composition rules: Luxembourg Wealth Study Database - Balance Sheet

Sector	Code	Concept	Composition rule using codes	Frequency
Households	netwea	Net Wealth	(Financial Assets & Fixed Capital of Personal Businesses) + (Housing & Land) - (Debt)	16
Households	nnhass	Financial Assets & Fixed Capital of Personal Businesses	(haf)	4
Households	nnhass	Financial Assets & Fixed Capital of Personal Businesses	(haf) + (has) + 0.2 (hannb)	15
Households	fliabi	Debt	(hl)	19
Households	facdbl	Cash, Deposits, Bonds & Loans	(hafc) + (hafib)	16
Households	faeqfd	Stocks, Business Equities & Fund Shares	(hafis) + (hafii) + 0.8 (hannb)	15
Households	faeqfd	Stocks, Business Equities & Fund Shares	(hafis)	1
Households	falipe	Pensions & Life Insurance	(has)	4
Households	falipe	Pensions & Life Insurance	(hasi)	11
Households	nfabus	Fixed Capital of Personal Businesses	(hannb)	17
Households	nfahou	Housing & Land	(hanr)	19
Households	nfadur	Durable Goods	(hanncv)	16

Table B.20: Matching: Luxembourg Wealth Study Database - Balance Sheet

Original label	Original identifier
Total Assets	ha
Financial Assets (Excluding Pensions)	haf
Deposit Accounts And Cash	hafc
Bonds And Other Debt Securities	hafib
Investment Funds And Alternative Investments	hafii
Stocks And Other Equity	hafis
Non-Financial Assets	han
Business Equity	hannb
Vehicles	hanncv
Real Estate	hanr
Pension Assets And Other Long-Term Savings	has
Life Insurance And Voluntary Individual Pensions	hasi
Total Liabilities	hl
Consumer Goods	hannc

Table B.21: Composition rules: Household Finance and Consumption Survey - Balance Sheet

Sector	Code	Concept	Composition rule using codes	Frequency
Households	netwea	Net Wealth	(DA2100) + (DA1140) + (DA1131) + (DA1122) + (DA1110) + (DA1121) - (DL1000)	22
Households	nnhass	Financial Assets & Fixed Capital of Personal Businesses	(DA1131) + (DA1140) + (DA1121) + (DA2100)	22
Households	fliabi	Debt	(DL1000)	22
Households	facdbl	Cash, Deposits, Bonds & Loans	(DA2101) + (DA2103) + (DA2107)	22
Households	faeqfd	Stocks, Business Equities & Fund Shares	(DA2104) + (DA2105) + (DA2102) + (DA2106)	22
Households	falipe	Pensions & Life Insurance	(DA2109)	22
Households	nfabus	Fixed Capital of Personal Businesses	(DA1140) + (DA1131) + (DA1121)	22
Households	nfahou	Housing & Land	(DA1110) + (DA1122)	22
Households	nfadur	Durable Goods	(DA1130)	22

Table B.22: Matching: Household Finance and Consumption Survey - Balance Sheet

Original label	Original identifier
Value of household's main residence	DA1110
Value of other real estate property used for business activities	DA1121
Value of other real estate property not for business activities	DA1122
Value of household's vehicles	DA1130
Valuables	DA1131
Value of self-employment businesses	DA1140
Total financial assets (excl. public and occupational pension plans)	DA2100
Deposits	DA2101
Mutual funds, total	DA2102
Bonds	DA2103
Value of non self-employment private business	DA2104
Shares, publicly traded	DA2105
Managed accounts	DA2106
Money owed to households	DA2107
Voluntary pension/whole life insurance	DA2109
Total outstanding balance of household's liabilities	DL1000

Table B.23: Composition rules: World Inequality Database - Balance Sheet

Sector	Code	Concept	Composition rule using codes	Frequency
Households & NPISH	netwea	Net Wealth	(pweal)	71
Households & NPISH	nnhass	Financial Assets & Fixed Capital of Personal Businesses	(pwbus) + (pwfin)	18
Households & NPISH	fliabi	Debt	(pwdeb)	23
Households & NPISH	facdbl	Cash, Deposits, Bonds & Loans	(pwbol) + (pwcud)	16
Households & NPISH	faeqfd	Stocks, Business Equities & Fund Shares	(pweqi)	20
Households & NPISH	faeqfd	Stocks, Business Equities & Fund Shares	(pwequ)	2
Households & NPISH	falipe	Pensions & Life Insurance	(pwpen)	22
Households & NPISH	nfabus	Fixed Capital of Personal Businesses	(pwbus)	18
Households & NPISH	nfahou	Housing & Land	(pwhou)	20
Households	netwea	Net Wealth	(hweal)	71
Households	nnhass	Financial Assets & Fixed Capital of Personal Businesses	(hwbus) + (hwfin)	13
Households	fliabi	Debt	(hwdeb)	15
Households	facdbl	Cash, Deposits, Bonds & Loans	(hwbol) + (hwcud)	9

Households	faeqfd	Stocks, Business Equities & Fund Shares	(hweqi)	11
Households	faeqfd	Stocks, Business Equities & Fund Shares	(hwequ)	5
Households	falipe	Pensions & Life Insurance	(hwpen)	16
Households	nfabus	Fixed Capital of Personal Businesses	(hwbus)	13
Households	nfahou	Housing & Land	(hwhou)	14
NPISH	netwea	Net Wealth	(iweal)	12
NPISH	nnhass	Financial Assets & Fixed Capital of Personal Businesses	(iwbus) + (iwfin)	11
NPISH	fliabi	Debt	(iwdeb)	13
NPISH	facdbl	Cash, Deposits, Bonds & Loans	(iwbol) + (iwcud)	9
NPISH	faeqfd	Stocks, Business Equities & Fund Shares	(iweqi)	10
NPISH	faeqfd	Stocks, Business Equities & Fund Shares	(iwequ)	3
NPISH	falipe	Pensions & Life Insurance	(iwpen)	9
NPISH	nfabus	Fixed Capital of Personal Businesses	(iwbus)	11
NPISH	nfahou	Housing & Land	(iwhou)	10

Table B.24: Matching: World Inequality Database - Balance Sheet

Sector	Original label	Original identifier
Households & NPISH	Private agricultural land	pwagr
Households & NPISH	Private bonds & loans	pwbol
Households & NPISH	Private business assets	pwbus
Households & NPISH	Private currency & deposits	pwcud
Households & NPISH	Private debt	pwdeb
Households & NPISH	Private dwellings	pwdwe
Households & NPISH	Net private wealth	pweal
Households & NPISH	Private equities	pweqi
Households & NPISH	Private equity, fund shares & offshore wealth	pwequ
Households & NPISH	Private financial assets excluding currency & deposits	pwfie
Households & NPISH	Private financial assets	pwfin
Households & NPISH	Private housing assets	pwhou
Households & NPISH	Private land underlying dwellings	pwlan
Households & NPISH	Private natural capital	pwnat
Households & NPISH	Private non-financial assets	pwnfa
Households & NPISH	Other domestic private capital	pwodk
Households & NPISH	Private offshore wealth	pwoff
Households & NPISH	Private pension funds & life insurance	pwpen
Households	Personal agricultural land	hwagr
Households	Personal bonds & loans	hwbol
Households	Personal business and other non-financial assets	hwbus
Households	Personal currency & deposits	hwcud
Households	Personal debt	hwdeb
Households	Personal dwellings	hwdwe
Households	Net personal wealth	hweal
Households	Personal equities	hweqi
Households	Personal equity, fund shares & offshore wealth	hwequ
Households	Personal financial assets excluding currency & deposits	hwfie

Households	Personal financial assets	hwfin
Households	Personal housing assets	hwhou
Households	Personal land underlying dwellings	hwlan
Households	Personal natural capital	hwnat
Households	Personal non-financial assets	hwnfa
Households	Personal other domestic capital	hwodk
Households	Personal offshore wealth	hwoff
Households	Personal pension funds & life insurance	hwpen
NPISH	Non-profit agricultural land	iwagr
NPISH	Non-profit bonds & loans	iwbol
NPISH	Non-profit business and other non-financial assets	iwbus
NPISH	Non-profit currency & deposits	iwcud
NPISH	Non-profit debt	iwdeb
NPISH	Non-profit dwellings	iwdwe
NPISH	Net non-profit wealth	iweal
NPISH	Non-profit equities	iweqi
NPISH	Non-profit equity, fund shares & offshore wealth	iwequ
NPISH	Non-profit financial assets excluding cash	iwfie
NPISH	Non-profit financial assets	iwfin
NPISH	Non-profit housing assets	iwhou
NPISH	Non-profit land underlying dwellings	iwlan
NPISH	Non-profit natural capital	iwnat
NPISH	Non-profit non-financial assets	iwnfa
NPISH	Non-profit other domestic capital	iwodk
NPISH	Non-profit pension funds & life insurance	iwpen

Table B.25: Composition rules: Atlas of the Offshore World - Financial Accounts

Sector	Code	Concept	Composition rule using codes	Frequency

Households	offsho	Offshore Financial Wealth	A_AXF	156

Table B.26: Composition rules: European Commission Taxation Papers - Financial Accounts

Sector	Code	Concept	Composition rule using codes	Frequency
Households	offsho	Offshore Financial Wealth	A_AXF	28

Table B.27: Composition rules: Credit Suisse Global Wealth Report - Balance Sheet

Sector	Code	Concept	Composition rule using codes	Frequency
Households	netwea	Net Wealth	(Financial Assets & Fixed Capital of Personal Businesses) + (Housing & Land) - (Debt)	16
Households	nnhass	Financial Assets & Fixed Capital of Personal Businesses	(haf)	4
Households	nnhass	Financial Assets & Fixed Capital of Personal Businesses	(haf) + (has) + 0.2 (hannb)	15
Households	fliabi	Debt	(hl)	19
Households	facdbl	Cash, Deposits, Bonds & Loans	(hafc) + (hafib)	16
Households	faeqfd	Stocks, Business Equities & Fund Shares	(hafis) + (hafii) + 0.8 (hannb)	15
Households	faeqfd	Stocks, Business Equities & Fund Shares	(hafis)	1
Households	falipe	Pensions & Life Insurance	(has)	4
Households	falipe	Pensions & Life Insurance	(hasi)	11
Households	nfabus	Fixed Capital of Personal Businesses	(hannb)	17
Households	nfahou	Housing & Land	(hanr)	19
Households	nfadur	Durable Goods	(hanncv)	16

Table B.28: Matching: Credit Suisse Global Wealth Report - Balance Sheet

Original label	Original identifier
Total Assets	ha
Financial Assets (Excluding Pensions)	haf
Deposit Accounts And Cash	hafc
Bonds And Other Debt Securities	hafib
Investment Funds And Alternative Investments	hafii
Stocks And Other Equity	hafis
Non-Financial Assets	han
Business Equity	hannb
Vehicles	hanncv
Real Estate	hanr
Pension Assets And Other Long-Term Savings	has
Life Insurance And Voluntary Individual Pensions	hasi
Total Liabilities	hl
Consumer Goods	hannc

Appendix C

Appendix to the Wealth Inequality Trends Section

C.1 Introduction

The Appendix to the Wealth Inequality Trends section of the GC Wealth Project provides additional information on

- the full list of sources covered by the GC Wealth Project Wealth Inequality Trends database in Section C.2
- source-specific documentation and information on the precise estimation method for own estimates (Household Finance and Consumption Survey and Luxembourg Wealth Study Database),
- an explanation of the data inclusion criteria for sources that provide imputed wealth inequality estimates (Credit Suisse and the World Inequality Database) is available in Section C.3

C.2 Sources Included in the Wealth Inequality Trends Section

All data sources included in the current version of the Wealth Inequality section are reported in TableC.1. The table reports the code associated with each source (`Source`), including the proper citation, the source type (`Source Type`), and the final consultation date (`Date`). In the case of databases [125, 187], this is the

date on which we have downloaded the data. In the case of microdata [84, 115], this column specifies the publication vintages as well as the date on which we have computed the estimates. As for Credit Suisse [28], several reports with wealth inequality estimates referring to the same calendar year are available, so the date column specifies the precise publication years of the reports included in the Wealth Inequality Trends database. For details, we refer to the Methodological Table.

Table C.1: Sources in the Wealth Inequality Trends Section

Source	Source Type	Date
Acciari et al. (2024) [1]	Academic research	-
Advani et al. (2021) [2]	Academic research	-
Albers et al. (2022) [3]	Academic research	-
Alvaredo & Saez (2010) [6]	Academic research	-
Alvaredo et al. (2018) [5]	Academic research	-
Anand & Kumar (2022) [7]	Academic research	-
Assouad (2021) [9]	Academic research	-
Australian Bureau of Statistics (2022) [11]	Official survey data	-
Batty et al. (2019) [15]	Government research	-
Batty et al. (2022) [16]	Government research	-
Bharti (2018) [17]	Academic research	-
Blanchet & Martínez-Toledano (2023) [18]	Cross-national academic research	-
Brandolini et al. (2006) [20]	Government research	-
Bricker et al. (2016) [23]	Government research	-
Bricker et al. (2018) [21]	Government research	-
Bricker et al. (2021) [22]	Academic research	-
Cannari & D'Alessio (2018) [24]	Academic research	-
Catherine et al. (2021) [25]	Academic research	-
Chatterjee et al. (2022) [26]	Academic research	-
Credit Suisse Global Wealth Report [28]	Cross-national corporate research	Global Wealth Databooks 2023
Davies & Di Matteo (2021) [30]	Academic research	-
Dell et al. (2007) [32]	Academic research	-
Easton (1983) [36]	Corporate research	-
European Central Bank Distributional Wealth Accounts [66]	Cross-national official statistics	January 9, 2024

Frick et al. (2010) [71]	Academic research	-
Garbinti et al. (2021) [72]	Academic research	-
Household Finance and Consumption Survey (own estimates) [84]	Cross-national official survey data	Waves I - IV, as of December 1, 2023
Iacono & Palagi (2023) [86]	Academic research	-
Jacobs et al. (2021) [103]	Academic research	-
Jakobsen et al. (2020) [105]	Academic research	-
Katic & Leigh (2016) [107]	Academic research	-
Kim (2018) [109]	Academic research	-
Kitao & Yamada (2019) [110]	Academic research	-
Kopczuk & Saez (2004) [112]	Academic research	-
Kuhn et al. (2020) [113]	Academic research	-
Lundberg & Waldenström (2018) [116]	Academic research	-
Luxembourg Wealth Study Database (own estimates) [115]	Cross-national academic research	Waves IV - XII, as of July 07, 2024
Martínez-Toledano (2022) [120]	Academic research	-
Novokmet et al. (2018) [122]	Academic research	-
OECD Wealth Distribution Database [125]	Cross-national official statistics	September 9, 2022
Piketty & Yang (2022) [137]	Academic research	-
Piketty et al. (2006) [136]	Academic research	-
Piketty et al. (2019) [138]	Academic research	-
Roine & Waldenström (2009) [145]	Academic research	-
Roine & Waldenström (2015) [144]	Cross-national academic research	-
Saez & Zucman (2016) [149]	Academic research	-
Saez & Zucman (2019) [146]	Academic research	-
Saez & Zucman (2020a) [147]	Academic research	-
Saez & Zucman (2020b) [148]	Academic research	-
Salverda (2019) [150]	Academic research	-

Smith et al. (2020) [154]	Academic research	-
Smith et al. (2023) [155]	Academic research	-
Statistics Finland (2021) [158]	Official survey data	-
Statistics Netherlands (2023) [159]	Official survey data	-
Statistics Norway (2022) [160]	Official statistics	-
Statistics New Zealand (2022) [161]	Official survey data	-
Targa & Yang (2024) [162]	Academic research	-
Toussaint et al. (2022) [167]	Academic research	-
van Bavel & Frankema (2017) [179]	Academic research	-
von Fintel & Orthofer (2020) [181]	Academic research	-
Wolff (2017) [184]	Academic research	-
Wolff (2021) [185]	Academic research	-
World Inequality Database [187]	Cross-national academic research	April 23, 2024
Zucman (2019) [188]	Academic research	-

C.3 Source-Specific Documentation

For the Wealth Inequality Trends database of the GC Wealth Project, the **Methodological Tables** provide a detailed documentation of each `source`, thus the primary source-specific documentation is provided in these tables. In this appendix, we summarize the most important aspects for two types of sources: *i)* sources for which we estimated measures of wealth inequality based on microdata [84, 115], and *ii)* sources where we could not cover the full range of estimates available in the raw data of source, especially because data points provided by the source are fully imputed [28, 187].

C.3.1 Household Finance and Consumption Survey (HFCS_ineq)

We have estimated wealth inequality using data waves one to four of the Household Finance and Consumption Survey [84]. As the HFCS is a mulitply imputed data set, we obtained all estimates by applying Rubin's Rule; that is, they are the mean of the estimates across the five implicates. Second, we have used the household level weights provided in the dataset for the estimations. Third, our estimates are based on the variable `dn3001`, which is net wealth at the household level. This definition does not encompass private or occupational pension wealth, while private pension wealth is included even if it is not (directly) marketable (at the same value). Fourth, the HFCS is an ex ante harmonized survey; it is coordinated by the European Central Bank but conducted by the national central banks of the Eurosystem, and all countries survey, in principle, the same concept of net wealth. There are, however, important differences in the precise survey methodologies across countries and the resulting quality of the data, especially in terms of the coverage of the upper tail and the valuation of assets. Thus, while the survey is conceptually harmonized, the country-specific survey designs differ substantially. Some countries use (external) administrative data of different types to attach values to single components of net wealth, especially Finland, Estonia, Ireland, Latvia, and Lithuania. While sampling in most countries includes some type of oversampling of the upper tail, others do not even attempt to counterbalance the higher non-response rate at the top (Austria, Netherlands, Malta, and Slovenia). For the countries with over-sampling strategies, the precise procedure varies and is based on either individual, household, or region-specific estimates of wealth or wealth correlates. In the latest wave, the effective oversampling rates of the top 5 percent ranges from -28% (Czech Republic) to 345% (Spain) in the last wave of the survey, according to Household Finance and Consumption Network [84]. Finally, we work with an identical definition of net wealth across countries that excludes all private and occupational pension wealth. This cross-country harmonized definition might hide important aspects in country comparisons in light of (statutory) differences in the (relative) importance of the first, second, and third tier of pensions

systems.

The HFCS reports wealth only at the household level, and, at the moment, our database only covers estimates of wealth inequality referring to the distribution among households.

C.3.2 Luxembourg Wealth Study (LWS_ineq)

The Luxembourg Wealth Study [115] provides cross-country harmonized microdata on household wealth and we employ waves Waves IV - XII of the data. Except for one country, Norway, the underlying original data has been obtained via surveys and is published by the Luxembourg Wealth Study via five implicates. We have obtained each as included in the Wealth Inequality Trends database thus as the average estimate across the five implicates. For Norway, a single data set is available, as, in contrast to all other countries, the original data is a sample of administrative data. Furthermore, we have used household-level weights in the computation of the wealth inequality measures.

Our preferred wealth definition is net wealth including private pension and life insurance plans (total real assets inclusive of consumer goods such as vehicles and other valuables, plus total financial assets, inclusive of long-term savings via life insurance and voluntary individual pensions plans, minus total liabilities; variable `anw`). We were able to implement this concept for the following countries: Austria, Canada, Chile, Estonia, Finland, Germany, Greece, Italy after 2000, Luxembourg, Spain, Slovakia, Slovenia, the United Kingdom, and the United States. For other countries, certain types of assets and liabilities are not available via the Luxembourg Wealth Study. Given the absence of data, the net wealth concept for the following countries does not include private pension plans: Australia, Denmark, Italy up to 2000, South Korea, South Africa, and Sweden (variable `dnw`). We accessed the Luxembourg Wealth Study to estimate the wealth inequality measures on July 07, 2024.

C.3.3 Word Inequality Database (WID_ineq)

The World Inequality Database [187] provides estimates of wealth inequality for most countries of the world. Among these estimates, we have selected those that are consistent with our principle of not being fully imputed wealth inequality data. Our database thus includes estimates that are based on either survey or administrative data on the distribution of wealth for at least one single year. In the case of the World Inequality Database [187], this still implies a very generous coverage, as, for many European countries with time-series data published on the World Inequality Database [187], the number years for which micro data

on the wealth distribution has been used is much smaller than the number of years for which the estimates derive from (backwards) extrapolation.

Furthermore, wealth inequality estimates are available for multiple units of analysis, including equal-split adults (or households). As the set of estimates referring to equal-split adults is the most complete among the sources that qualify for our database, we have chosen these estimates, while not reporting statistics referring to other units of analysis.

Table C.2 lists the countries covered by the GC Wealth Project Wealth Inequality Trends database and, for each country (`Country`), the primary origin of the estimates as published by WID (`Original Source`) and the data type according to our classification (`Data Type`) which suggests substantial methodological heterogeneity underlying World Inequality Database [187] estimates. We downloaded the data on April 23, 2024.

Table C.2: The selection of WID series available in the GC Wealth Project: notes on the primary source of data and their nature

Country	Original Source	Data Type
Austria	HFCS	Wealth survey and national accounts
Belgium	HFCS	Wealth survey and national accounts
China	Piketty et al. (2019)	Wealth survey (with adjustments)
Cyprus	HFCS	Wealth survey and national accounts
Croatia	HFCS	Wealth survey and national accounts
Denmark	Jakobsen et al. (2020); Survey-based estimates for Finland of Blanchet & Martínez-Toledano (2023) are adjusted to align with Jakobsen et al. (2020)	Wealth tax/register data, other sources, and national accounts
Estonia	HFCS	Wealth survey and national accounts
Finland	Blanchet & Martínez-Toledano (2023)	Wealth survey and national accounts
France	Garbinti et al. (2021)	Capital income tax data, wealth survey, and national accounts
Germany	Albers et al. (2022)	Wealth tax/register data, other sources, and national accounts
Greece	HFCS	Wealth survey and national accounts
Hungary	HFCS	Wealth survey and national accounts
India	Bharti (2018)	Wealth survey (with adjustments)
Ireland	HFCS	Wealth survey and national accounts
Italy	Acciari et al. (2022)	Inheritance/estate tax data, wealth survey and national accounts
Korea	Kim (2018)	Inheritance/estate tax-based.
Latvia	HFCS	Wealth survey and national accounts
Lithuania	HFCS	Wealth survey and national accounts
Luxembourg	HFCS	Wealth survey and national accounts

Malta	HFCS	Wealth survey and national accounts
Netherlands	Toussaint et al. (2022)	Wealth tax/register data, other sources, and national accounts
Norway	Iacono & Palagi (2021)	Wealth tax/register data, other sources, and national accounts
Poland	HFCS	Wealth survey and national accounts
Portugal	HFCS	Wealth survey and national accounts
Russia	Novokmet et al. (2018)	Wealth tax/register data, other sources, and national accounts
Slovakia	HFCS	Wealth survey and national accounts
Slovenia	HFCS	Wealth survey and national accounts
South Africa	Chatterjee et al. (2022)	Wealth tax/register data, other sources, and national accounts
Spain	Martínez-Toledano (2022)	Capital income tax data, other sources and national accounts
Switzerland	Foellmi & Martínez (2017), Blanchet & Martínez-Toledano (2023)	Wealth tax/register data, other sources, and national accounts
United Kingdom	Alvaredo et al. (2018); Wealth and Assets Survey 2006 - 2018 as utilized in Blanchet & Martínez-Toledano (2023)	Inheritance/estate tax data, wealth survey and national accounts
United States	Saez & Zucman (2016, 2020b)	Capital income tax data, wealth survey, and national accounts

C.3.4 Credit Suisse Global Wealth Report (CS_ineq)

Credit Suisse [28] provides estimates of household wealth holdings across 217 markets worldwide, with annual data available since 2000. The estimation process involves three main steps. In the first step, the aggregate level of wealth is established for each market. The preferred data source is household balance sheets (HBS) and/or financial balance sheets, which are currently available for 51 markets. For two additional markets, wealth levels are derived from household survey data. In markets lacking HBS or survey data, wealth estimates are imputed using cross-market regressions. In the second step, estimates of how wealth is distributed within each market are retrieved. Direct country-specific data on wealth distribution is available for only 40 markets. For all other markets, wealth distribution estimates are imputed based on income data. Finally, top-tail adjustments are made by relying on rich list data sources, which provide more accurate estimates of the wealth held by the ultra-wealthy.

Importantly, the GC Wealth Project Wealth Inequality Trends Database only includes time series where estimates are based on direct country-specific data sources, excluding all markets where no micro-level information on wealth is available and estimates are imputed using cross-market regressions. As a result, the included time series cover only a subset of the markets analyzed in the 2023 report.

Table C.3 summarizes the data sources and reference years used for estimating the time series for the subset of 40 countries with information on wealth distribution that has been included in the GC Wealth Project. For each country, we specify the source of the per capita wealth estimate in the `Original Source: Aggregate` column, distinguishing between countries with both financial and non-financial balance sheet information (F and non-F) and those where household balance sheets contain only information on financial assets and debts (F). Reference years are summarized in the column `Reference Years: Macrodata`. The column `Original Source: Distribution` provides information about the microdata source used for estimating the inequality indicators (i.e., Gini index, wealth shares, and thresholds). The column `Reference Years: Microdata` reports the reference year. We further include

Data from the 2023 wave was kindly provided by Professor Anthony Shorrocks. Monetary estimates (average net wealth and percentile thresholds) were converted from dollars (the reference unit in the 2023 Report) using country-specific exchange rates provided by the CS research team.

Table C.3: The selection of Credit Suisse series available in the GC Wealth Project: notes on the primary source of data and their nature

Country	Original Source: Aggregate	Reference Years: Macrodata	Original Source: Distribution	Reference Years: Microdata
Australia	F and nonF	2000-22 and 2000-22	Survey of Income and Housing; Australian Bureau of Statistics (2015)	2003/2005/2009/2011-2018
Austria	F	2000-22	Eurosystems Household Finance and Consumption Survey (HFCS microdata)	2010/2011
Belgium	F	2000-22	Eurosystem Household Finance and Consumption Survey (HFCS microdata)	2010/2011
Canada	F and nonF	2000-22 and 2000-22	Survey of Financial Security; Statistics Canada (microdata)	2005/2012/2016/2019
Chile	F and nonF	2007 and 2002-22	Encuesta Financiera de Hogares; Central Bank of Chile (microdata)	2007/2011
China	F and nonF	2000-15 and 2000-15	China Household Income Project; Knight, Li and Wan (2016)	2002/2013
Colombia	F	2000-22	Encuesta de Carga Financiera y Educación Financiera de los Hogares (IEFIC microdata)	2018
Cyprus	F	2004-22	Eurosystem Household Finance and Consumption Survey (HFCS)	2010
Denmark	F and nonF	2000-16 and 2000-22	Andersen et al. (2022)	2000-2012
Estonia	F	2004-22	Eurosystem Household Finance and Consumption Survey; OECD.Stat (n.d.)	2013/2017
Finland	F and nonF	2000-20 and 2000-22	Eurosystem Household Finance and Consumption Survey (HFCS microdata)	2004/2009/2010

France	F and nonF	2000-19 and 2000-22	Eurosystem Household Finance and Consumption Survey (HFCS microdata)	2009
Germany	F and nonF	2000-16 and 2000-22	Socio-Economic Panel (SOEP); Grabka and Westermeir (2014) and private communication	2003/2008/2013/2017/2018
Greece	F and nonF	2000-10 and 2000-22	Eurosystem Household Finance and Consumption Survey (HFCS microdata)	2009
Hungary	F and nonF	2000-12 and 2000-22	Eurosystem Household Finance and Consumption Survey; OECD.Stat (n.d.)	2014/2017
India	F and nonF	2002-12 and 2000-19	All-India Debt and Investment Survey (NSS 59th round); National Sample Survey Organization (2005) and Subramanian and Jayaraj (2008)	2002
Indonesia	F and nonF	2000	Indonesia Family Life Survey (microdata)	2014
Ireland	F	2002-22	Eurosystem Household Finance and Consumption Survey; Staunton (2015)	2013/2018
Italy	F and nonF	2000-20 and 2000-22	Survey of Household Income and Wealth (SHIW); Mazzaferro (2009)	2000/2002
Japan	F and nonF	2000-18 and 2000-22	National Survey of Family Income and Expenditure; Statistics Japan	2009
Korea	F and nonF	2000-18 and 2000-22	Survey of Household Finances; Korean Statistical Information Service; OECD.Stat (n.d.)	2011-2018
Latvia	F	2004-22	Eurosystem Household Finance and Consumption Survey; OECD.Stat (n.d.)	2014/2017
Lithuania	F	2004-22	Eurosystem Household Finance and Consumption Survey; OECD.Stat (n.d.)	2017

Luxembourg	F	2000-22	Eurosystem Household Finance and Consumption Survey (HFCS microdata)	2010/2011/2014/2018
Malta	F	2000-22	Eurosystem Household Finance and Consumption Survey (HFCS microdata)	2010
Mexico	F and nonF	2003-20 and 2008-22	Encuesta Nacional sobre las Finanzas de los Hogares (ENFIH microdata)	2019
Netherlands	F and nonF	2000-20 and 2000-22	Eurosystem Household Finance and Consumption Survey; OECD.Stat (n.d.)	2006-2020
New Zealand	F and nonF	2000-22	Household Saving Survey; Statistics New Zealand (2002)	2001
Norway	F	2000-22	Norwegian Income and Wealth Statistics for Households; Statistics Norway; OECD.Stat (n.d.)	2004/2010-2019
Poland	F	2000-22	Eurosystem Household Finance and Consumption Survey; OECD.Stat (n.d.)	2014/2016
Portugal	F	20003-22	Eurosystem Household Finance and Consumption Survey (HFCS microdata)	2010
Slovakia	F	2000-22	Eurosystem Household Finance and Consumption Survey (HFCS microdata)	2010
Slovenia	F	2004-22	Eurosystem Household Finance and Consumption Survey (HFCS microdata)	2010
Spain	F and nonF	2000-19 and 2000-22	Survey of Household Finances; Bank of Spain (microdata)	2008/2009/2011/2012/2014/2017/2018
Sweden	F and nonF	2000-20 and 2000-22	Wealth Survey (HINK); Statistics Sweden; Davies et al. (2011)	2002
Switzerland	F and nonF	2000-22 and 2000-22	Fluder and Jann (2014), updated in private correspondence	2003–2014

Thailand	F	2005	Socioeconomic Survey; Ariyapruchya et al. (2008)	2006
United Kingdom	F and nonF	2000-19 and 2000-22	British Household Panel Survey; ESRC; Sierminska et al. (2006)	2000
United States	F and nonF	2000-22 and 2000-22	Survey of Consumer Finances; Federal Reserve Board (microdata)	2001-2019
Uruguay	F and nonF	2013	Encuesta Financiera de Hogares Uruguayos (EFHU); Bank of Uruguay (microdata)	2013

Appendix D

Appendix to the Estate, Inheritances, and Gift Taxes (EIG) Section

D.1 Introduction

The Appendix of the Estate, Inheritances, and Gift Taxes (EIG) section of the GC Wealth Project provides additional information on the data creation and data validation processes and a detailed documentation of sources. In particular, this appendix provides:

- an explanation of data creation processes,
- the full list of sources included in the Estate, Inheritances, and Gift Tax section.

D.2 Data Creation Processes

Information on Estate, Inheritance, and Gift taxes is collected from three broadly different source categories: 1) Legal tax documents from public entities, 2) information on tax codes and schedules from third-party sources, and 3) tax revenue data typically from the OECD [126]. Depending on the source category, the information can be directly inserted into the Estate, Inheritance, and Gift Taxes database (as is the case with tax revenue information) or be subject to interpretation and harmonization procedures (as is the case with detailed information on tax schedules and rates).

We retrieve tax schedule information only where interpretation of tax rates and schedules is unambiguous For instance, information from documents that provide a full tax schedule—from personal exemptions to specific tax rates for each bracket as well as lower and upper bounds of every bracket—can be easily added to the database. Sometimes, however, sources provide only a broad range of the tax schedule (e.g., 10-30% inheritance tax). In such cases we make use of the information that is evident (e.g., lowest inheritance tax rate being 10%, top inheritance tax rate being 30%) but refrain from filling tax schedule variables because the information is insufficient to determine exemptions or brackets.

To ensure comparability of Estate, Inheritance, and Gift tax schedules and rates across countries and over time, the information is stratified by transfer category (e.g., gift or inheritance) and donor relationship (i.e., only direct children). Estate, Inheritance, and Gift tax information that does not fit into the harmonized set of variables is documented in country-year-specific notes that will be made available soon.

Information on EIG taxes is validated along two dimensions: 1) external consistency of collected data using additional sources (wherever possible), and 2) internal consistency of harmonized information. The former crucially depends on the availability of external sources, either from legal tax documents or third-party tax information. The latter is validated within the EIG data based on a set of conditions. For instance, some countries report a positive value of EIG tax revenue despite not levying any EIG tax. In these cases, country-years are checked individually, as revenue is sometimes collected from estates and bequests dating back several years.

For 15 countries (Austria, Belgium, Chile, Croatia, El Salvador, Finland, France, Germany, Ireland, Italy, Netherlands, New Zealand, Peru, Portugal, Venezuela), the sources report tax schedules in a historical national currency in place in a given year (for instance, German Mark in Germany prior to the introduction of the Euro). We convert those historical currency values to the current national currency by using the fixed conversion rate established at the time of currency exchange in each country. For Chile, Uzbekistan, and Zimbabwe, for which the sources report the tax schedule in a different currency (not a historical one), we use the market exchange rate to get the national currency. The table below reports the fixed conversion rates we applied. For the specific case of Zimbabwe, which adopted USD in 2009 without fixing a conversion rate, we convert the schedule using the market exchange rate between ZWE and USD.

Table D.1: Currency Fixed Conversion Rates for EIG Adjusted Tax Schedules

GEO	Historical Currency	Current Currency	Conversion Rate
AT	ATS	EUR	13.7603
AT	RM	EUR	19.5583
BE	BEF	EUR	40.3399
CL	CLE	CLP	1000
HR	HRK	EUR	7.5345
SV	SVC	USD	8.75
FI	FIM	EUR	5.94573
FR	FRF	EUR	6.55957
DE	DEM	EUR	1.95583
DE	PM	EUR	19792.9996
DE	RM	EUR	19.5583
IE	IEP	EUR	0.787564
IT	ITL	EUR	1936.27
NL	NLG	EUR	2.20371
NZ	NZP	NZD	0.5
PE	PES	PEN	1e+09
PE	PEI	PEN	1e+06
PT	PTE	EUR	200.482
VE	VEB	VES	1e+08
VE	VEF	VES	1e+05

D.3 Sources Included in the Estate, Inheritance, and Gift Taxes Section

All data sources included in the current version of the Estate, Inheritance, and Gift Tax section are reported in Table D.2.

Table D.2: Sources in the Estate, Inheritance, and Gift Tax Section

Source	Source Type
Australian Tax Office: Deceased Estates [12]	Government legislative info
CCH International Master Tax Guide (2009) [29]	Cross-national corporate research
Capital Acquisitions Tax Act, 1976 (Ireland) [96]	Government legislation
Capital Acquisitions Tax Historical Rates (Ireland) [128]	Government legislative info
Capital Acquisitions Tax Info (Ireland) [102]	Government legislative info
Capital Acquisitions Tax Rates (Ireland) [127]	Government legislative info
Capital Acquisitions Tax manuals (Ireland) [164]	Corporate research
Changes in the Revenue Act of 1940 [140]	Corporate research
Comparison of the Revenue Acts of 1932 and 1934 [85]	Government documents
Coordination of State and Federal Inheritance, Estate, and Gift Taxes (1961) [177]	Government research
Copenhagen Economics (2010) [27]	Cross-national government research
Davies & Di Matteo (2021) [30]	Academic research
Davies & Di Matteo (2021) [30]	Academic research
Deficit Reduction Act of 1984 (United States) [168]	Government legislation
Deloitte (2018) [33]	Corporate research
Drometer et al.(2018) [35]	Cross-national academic research
Easton (1983) [36]	Academic research
Easton (1983) [36]	Corporate research
Economic Recovery Tax Act of 1981 [169]	Government legislation

Ernst & Young 2006 Personal Tax Guide [43]	Cross-national corporate research
Ernst & Young 2007 Personal Tax Guide [44]	Cross-national corporate research
Ernst & Young 2008 Personal Tax Guide [39]	Cross-national corporate research
Ernst & Young 2009 Personal Tax Guide [40]	Cross-national corporate research
Ernst & Young 2010 Personal Tax Guide [41]	Cross-national corporate research
Ernst & Young 2011 Estate & Inheritance Tax Guide [37]	Cross-national corporate research
Ernst & Young 2011 Personal Tax Guide [42]	Cross-national corporate research
Ernst & Young 2012–13 Personal Tax Guide [62]	Cross-national corporate research
Ernst & Young 2013 Estate & Inheritance Tax Guide [38]	Cross-national corporate research
Ernst & Young 2013–14 Personal Tax Guide [63]	Cross-national corporate research
Ernst & Young 2014 Estate & Inheritance Tax Guide [45]	Cross-national corporate research
Ernst & Young 2014–15 Personal Tax Guide [64]	Cross-national corporate research
Ernst & Young 2015 Estate & Inheritance Tax Guide [46]	Cross-national corporate research
Ernst & Young 2015–16 Personal Tax Guide [65]	Cross-national corporate research
Ernst & Young 2016 Estate & Inheritance Tax Guide [47]	Cross-national corporate research
Ernst & Young 2016–17 Personal Tax Guide [55]	Cross-national corporate research
Ernst & Young 2017 Estate & Inheritance Tax Guide [48]	Cross-national corporate research
Ernst & Young 2017–18 Personal Tax Guide [56]	Cross-national corporate research
Ernst & Young 2018 Estate & Inheritance Tax Guide [49]	Cross-national corporate research
Ernst & Young 2018–19 Personal Tax Guide [57]	Cross-national corporate research
Ernst & Young 2019 Estate & Inheritance Tax Guide [50]	Cross-national corporate research
Ernst & Young 2019–20 Personal Tax Guide [58]	Cross-national corporate research

Ernst & Young 2020 Estate & Inheritance Tax Guide [51]	Cross-national corporate research
Ernst & Young 2020–21 Personal Tax Guide [59]	Cross-national corporate research
Ernst & Young 2021 Estate & Inheritance Tax Guide [52]	Cross-national corporate research
Ernst & Young 2021–22 Personal Tax Guide [60]	Cross-national corporate research
Ernst & Young 2022 Estate & Inheritance Tax Guide [53]	Cross-national corporate research
Ernst & Young 2022–23 Personal Tax Guide [61]	Cross-national corporate research
Ernst & Young 2023 Estate & Inheritance Tax Guide [54]	Cross-national corporate research
Estate Tax Exemption Level [163]	Corporate research
Finance Act, 1971, Second Schedule (Ireland) [97]	Government legislation
Finance Act, 1975, Sec. 47 (Ireland) [98]	Government legislation
Finance Act, 1984, Sec. 111 (Ireland) [99]	Government legislation
Finance Act, 1990, Sec. 128 (Ireland) [100]	Government legislation
Finance Act, 1991, Sec. 115 (Ireland) [101]	Government legislation
Frank (2021) [70]	Corporate research
French Inheritance Law Brochure [4]	Corporate research
French Public Finances Directorate General (2015) [143]	Government research
Frequently Asked Questions on Gift Taxes [87]	Government legislative info
German Tax Law (1977) [74]	Government legislation
German Tax Law (1980) [75]	Government legislation
German Tax Law (1996) [76]	Government legislation
German Tax Law (2002) [77]	Government legislation
German Tax Law (2009) [78]	Government legislation

German Tax Law (2010) [79]	Government legislation
Gift, Estate, and Generation-Skipping Transfer Tax Calculations [157]	Corporate research
Guerrero (2021) [82]	Corporate research
HM Revenue and Customs (2016) [83]	Government legislative info
Historical Look at Estate and Gift Tax Rates [117]	Corporate research
Inheritance Tax and Inheritance Law in Chile [80]	Corporate research
Inheritance Tax and Inheritance Law in Sri Lanka [81]	Corporate research
Jacobson et al. (2007) [104]	Government research
Jappelli et al. (2011) [106]	Cross-national academic research
Kessler & Pestieau (1991) [108]	Cross-national academic research
Kley (2012) [111]	Academic research
Law and regulations relating to the estate tax (1917) [178]	Government legislation
Lin et al. (2018) [114]	Academic research
Luzkow (2018) [118]	Academic research
Manestra (2023) [119]	Academic research
OECD (2021) [124]	Cross-national government research
OECD Revenue Statistics Database [126]	Cross-national official statistics
Omnibus Budget Reconciliation Act of 1987 (United States) [170]	Government legislation
Omnibus Budget Reconciliation Act of 1993 (United States) [171]	Government legislation
Peru Tax Law No. 10575 (1946) [133]	Government legislation
Peru Tax Law No. 2227 (1916) [132]	Government legislation
Peru Tax Law No. 7392 (1931) [130]	Government legislation

Peru Tax Law No. 7873 (1933) [131]	Government legislation
Piketty (2010) [135]	Academic research
Piketty (2020) [134]	Cross-national academic research
Plagge et al. (2010) [139]	Cross-national academic research
Profeta et al. (2014) [142]	Cross-national academic research
Schinke (2012) [151]	Academic research
Schoenblum (2008) [152]	Cross-national corporate research
Shaughnessy (1996) [153]	Cross-national academic research
Spanish Inheritance and Gift Tax [156]	Government legislation
Sri Lanka, Individual - Other taxes [141]	Corporate research
Tax Introduction Database [73]	Cross-national academic research
Tax Manual of the Federal Revenue Act of 1942 [166]	Corporate research
Tax Reform Act of 1976 (United States) [173]	Government legislation
The Revenue Act of 1916 [176]	Government legislation
The Revenue Act of 1918 [121]	Government legislation
The Revenue Act of 1921 [172]	Government legislation
The Revenue Act of 1924 [174]	Government legislation
The Revenue Act of 1926 [129]	Government legislation
The Revenue Act of 1932 [175]	Government legislation
The Revenue Act of 1935 (Chase Bank) [165]	Corporate research
U.S. IRS Form 706 Instructions (2008) [88]	Government documents
U.S. IRS Form 706 Instructions (2009) [89]	Government documents

U.S. IRS Form 706 Instructions (2010) [90]	Government documents
U.S. IRS Form 706 Instructions (2016) [91]	Government documents
U.S. IRS Form 706 Instructions (2017) [92]	Government documents
U.S. IRS Form 706 Instructions (2018) [93]	Government documents
U.S. IRS Form 706 Instructions (2019) [94]	Government documents
U.S. IRS Form 706 Instructions (2021) [95]	Government documents
Walczak (2017) [182]	Corporate research
White (1928) [183]	Academic research

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