



## The Role of College Majors in Earnings Inequality among College Graduates

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The college degree earnings premium, typically measured as the gap between the average earnings of bachelor's degree graduates and high school graduates, has grown steadily over recent decades and is often attributed to ever-growing human capital demands in the service sector and high-tech industries (Autor 2014). Educational stratification appears to be a driver of earnings inequality in high-income countries (Lemieux 2007) because college degrees, in particular, help individuals enter jobs that are rewarded with increasingly higher salaries and wages compared to the rest of the economy. However, the monetary benefits of college education are unlikely to be uniform. Our paper concentrates on the relationship between undergraduate programs and earnings inequality *among* college graduates in the United States. We consider two perspectives to understand the role of undergraduate majors in earnings inequality in the highest-educated segment of the economy using recent data from the American Community Survey. First, we focus on the distribution of college majors across occupations, asking whether the concentration of college majors within an occupation is associated with *occupational-level* earnings. Second, we examine the importance of "matching" an individual's own college major with the commonly held major in the occupation: Is it true that mismatching yields a substantial earnings penalty at the individual level?

### College major closure

First, sociological research has shown that earnings variation between occupations is not only a function of the occupation's "skill" (i.e., human capital), but also of the capacity of occupational incumbents to channel demand, restrict the labor supply, and signal quality of service (Weeden 2002). Various institutionalized strategies help restrict the number of possible competitors in an occupation, such as licensing and formal educational credentials. These requirements "guarantee" quality-of-service offered by incumbents, but at the same time offer these same incumbents a tool to control labor supply of the occupation. Together with collective bargaining (unions), licensing and credentialing are critical "closure devices" that are associated with higher occupation-level rewards, over and above the human capital value of the services provided. Scholars have found evidence for "closure effects" in various high-income countries, such as the United States, United Kingdom, Germany, and Norway (Bol & Weeden 2015; Bol & Drange 2017). In this study, we ask a straightforward question with regard to the higher-educated segments of the labor market – where most workers hold a bachelor's degree: Should the college major be considered an occupational closure device that boosts earnings? In other words, if college majors are activated to control access to an occupation (as a "closure device"), a higher density of college majors within an occupation should be associated with higher occupation-level earnings, over and above the human capital of the workers within the occupation.

To answer this first question, we select from the 5-year 2013-2017 American Community Survey microdata all individuals employed in occupations with at least 25% of its incumbents holding a bachelor's degree. This selection includes 230 occupations representing our population of interest: the higher-educated segment of the labor market (about 1.4 million respondents). These microdata contain

relevant individual-level covariates of earnings, such as socio-demographics, region, graduate school attainment, and of course undergraduate major (37 fields). To effectively measure stratifiers of occupation-level earnings, we fit a "hierarchical linear model" containing the aforementioned individual-level drivers of earnings variation and occupation-level predictors. Inspired by earlier work on closure effects on earnings levels, we construct occupation-level variables for union density, share of graduate degrees, and licensure, as well as its concentration of selective college degrees, gender distribution, and occupation-level skills (drawn from O\*NET – a series of surveys on average skill requirements of micro-occupations).

We conceptualize "major specialization" of every micro-occupation as the key indicator of college major density: the hypothesized occupational closure device. The major specialization variable is the normalized qualitative variance of college major as calculated by occupation. We can calculate for each occupation the probability that two randomly paired cases (i.e., workers within the same occupation) hold different college majors: normalized generalized variance (NGV). Subsequently, we take the inverse of occupations' NGV, so that a value of 0 reflects perfect differentiation (i.e., all workers hold a different major) and the maximum (100) reflects perfect "specialization" (i.e., all workers hold the same major). In practice, our measure of occupations' major specialization ranges between 3 and 62. Table 1 presents the ten most and ten least major-specialized occupations, alongside averages of other occupation-level closure devices and the mean earnings for men and women. It is difficult to draw conclusions based on these descriptive statistics, so we employ a hierarchical linear model with these occupation-level variables and individual-level variables.

This allows us to answer our key question: How effective is the college major density – or "major specialization" – as an *occupational* closure device? We find that, after controlling for *individuals'* socio-demographics and established occupational closure devices (i.e., licensure, unionization, and vertical educational credentialing), an occupation's major specialization is positively and strongly associated with occupational earnings. As shown in Figure 1, the effect size of the college major density variable is substantial given the large point estimate jumps compared to the relatively small increments on the inverse NGV scale. The strength of the association between occupational major specialization and earnings appears to be similar for men and women, though women earn less on average. Yes, US college majors form barriers for occupational entry and this process creates an earnings boost enjoyed by all incumbents, over and above the occupation's skill-level payoffs and the characteristics of workers within the occupation.

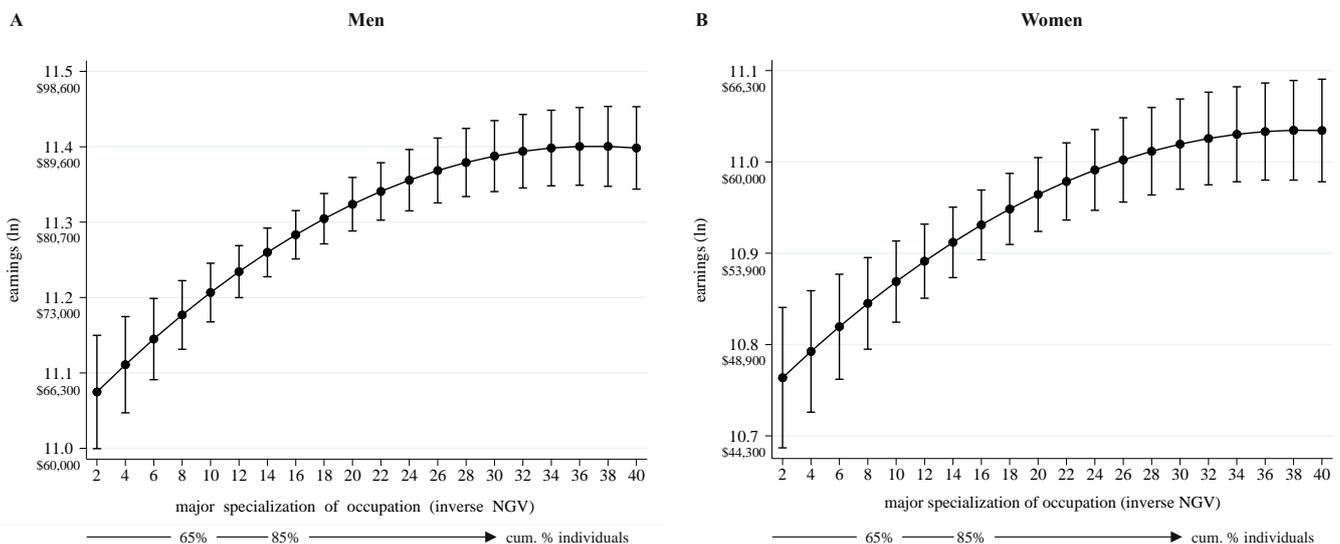
### College major matching

Second, we turn to the role of college majors in explaining earnings variation at the *individual* level. Previous research has shown that college graduates' earnings vary substantially by college major (Monaghan & Jang 2017). Again, we consider the heterogeneity within this relationship by examining the *context* in which college graduates

**Table 1.** Occupations' Closure Indicators and Earnings by Major Specialization Tier

		Major Specialization	Licensure	Union Density	Vertical Credentialing		Median Earnings	
			% required	% member or represented	% less than BA	% MA or more	men	women
<b>Highest major specialization level</b>		<b>38.5</b>	<b>14.3%</b>	<b>3.1%</b>	<b>20.2%</b>	<b>40.7%</b>	<b>\$87,948</b>	<b>\$57,942</b>
<i>rank</i>	<i>top 10</i>							
1	Chemical engineers	62.3	6.4%	1.3%	10.8%	31.0%	\$109,618	\$100,000
2	Marine engineers	62.3	10.6%	6.9%	26.9%	23.2%	\$97,000	\$81,720
3	Civil engineers	61.3	17.5%	2.5%	12.7%	29.9%	\$91,935	\$77,735
4	Mechanical engineers	58.3	5.8%	1.4%	23.8%	23.8%	\$89,591	\$83,134
5	Electrical engineers	57.9	6.1%	1.7%	20.2%	30.8%	\$103,293	\$90,017
6	Petroleum engineers	56.6	5.5%	0.3%	18.0%	26.0%	\$124,162	\$115,047
7	Accountants and auditors	55.8	8.1%	1.5%	19.9%	23.9%	\$80,000	\$62,187
8	Nurse anesthetists	55.5	32.0%	1.7%	3.6%	86.0%	\$165,549	\$145,105
9	Registered nurses	55.4	34.0%	4.7%	41.7%	10.6%	\$71,516	\$62,312
10	Aerospace engineers	54.9	3.5%	3.1%	12.5%	38.1%	\$111,344	\$97,714
<b>Lowest major specialization level</b>		<b>7.0</b>	<b>7.0%</b>	<b>3.0%</b>	<b>46.8%</b>	<b>21.0%</b>	<b>\$77,735</b>	<b>\$56,183</b>
<i>rank</i>	<i>bottom 10</i>							
221	Tour and travel guides	3.3	4.6%	1.2%	54.9%	10.8%	\$24,000	\$20,000
222	Lifeguards	3.6	10.4%	5.4%	61.6%	7.2%	\$39,318	\$32,007
223	Postsecondary teachers	3.7	10.3%	5.3%	5.8%	81.6%	\$72,428	\$60,011
224	Library technicians	4.2	1.6%	6.0%	65.6%	11.7%	\$35,753	\$25,703
225	Animal trainers	4.3	4.8%	0.7%	68.1%	5.0%	\$41,774	\$31,040
226	Media / communication workers	4.5	9.5%	2.7%	44.8%	20.4%	\$50,054	\$42,055
227	Community / social service specialists	4.6	4.6%	3.3%	41.2%	24.6%	\$52,701	\$46,561
228	Massage therapists	5.0	30.5%	0.4%	73.2%	6.2%	\$30,326	\$26,350
229	Social / community service managers	5.2	5.0%	1.1%	26.9%	34.6%	\$70,479	\$56,183
230	Interviewers, except eligibility / loans	5.3	3.2%	2.4%	72.9%	7.2%	\$39,920	\$33,110

**Figure 1.** Marginal Effects of Major Specialization of Occupations (Occupation Random Intercepts)



are employed. The dominant explanation for college major “pay off” variation is that different college majors carry different types or levels of human capital. For example, assuming there’s a consistently high demand for technical services in the economy, we might expect workers who hold a so-called “STEM major” to earn more than, say, sociology majors (assuming there’s less aggregate demand for sociological analysis). But what if the STEM graduate becomes a high school teacher? Or what if the sociology major becomes a tax agent? Do they earn more or less than their college major-occupation “matched” counterparts? Using data from the United States, Germany, and France, researchers found that being employed in a common destination to others who hold the same college major is associated with an earnings advantage (Bol *et al.* 2019). Conversely, not being in a “matched occupation” leads to an earnings disadvantage for the college graduate.

One innovative analytical strategy proposed in our study is to examine the “major-occupation” match organically rather than using dichotomous description of the graduate’s employment context (i.e., matched vs. not matched, as used in earlier work). We construct a continuous measure of major-occupation match by calculating for each individual the percentage of workers in the same occupation who hold the same undergraduate major. This empirically driven procedure is called a “realized matches” approach in the economics of education. While this matching percentage is quite high for college graduates in occupations such as nursing, where almost everyone holds the same nursing degree as the respondent, the major-occupation match practically ranges between 0% and 72%.

We then regress earnings on the individual-level major-occupation, while accounting for a range of individual-level controls and occupation-fixed effects. Figure 2 shows the estimates from this model. We find a significant positive association between major matching within occupations and earnings. Concentrating on the linear component of the model, a 10-percent increase in the share of workers holding the same college major within the occupation as the individual is associated with 3.6 percent (men) to 4.8 percent (women) higher earnings. These effect sizes translate to a couple of thousand dollars annually. Hence, yes, a stronger major-occupation match is

beneficial to the college graduate, but the relative advantages (or disadvantages) remain small. Furthermore, the relationship is non-linear: very strong major-occupation matches do not yield extraordinarily higher pay.

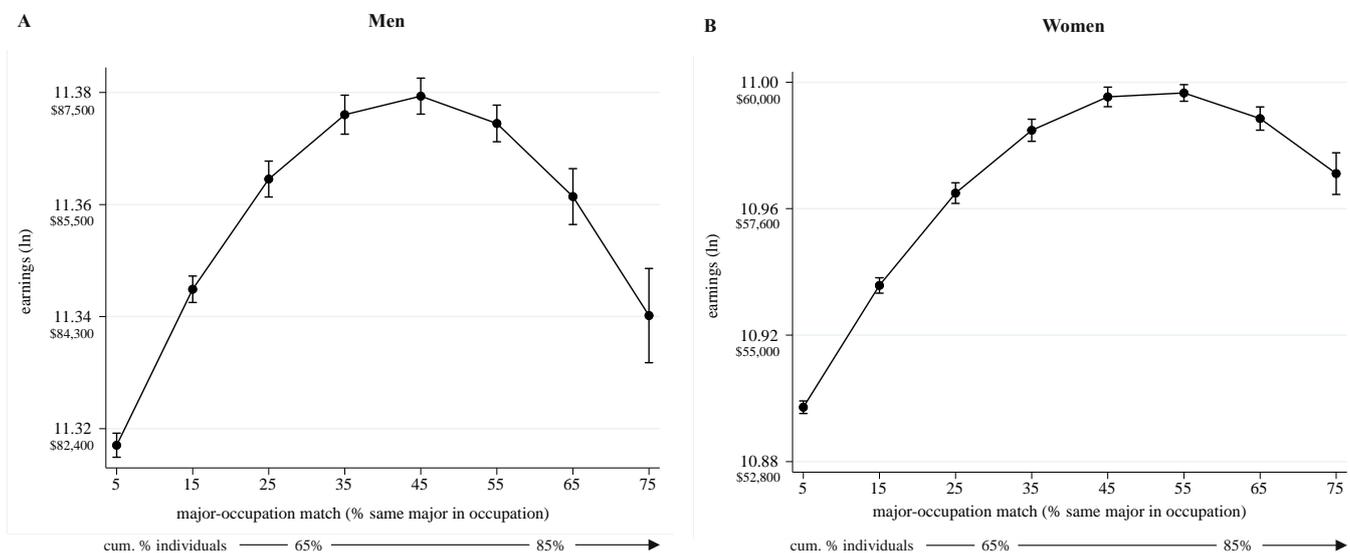
**Implications**

Undergraduate majors explain a substantial share of earnings variation among higher-educated individuals in the workforce. Economists often conceptualize these college major “effects” as payoffs from human capital investments, such that the variation in college major earnings payoffs more or less reflects the “demand” for skills obtained in higher education programs and applied in particular occupation (Altonji *et al.* 2012). We do not disagree with this perspective on the role of college majors in earnings inequality. In fact, this intuitive relationship between higher education degrees and earnings is reflected in our full regression results, where undergraduate majors are consistently predictive of earnings (“fixed effects”).

However, a sociological perspective considers the *context* of college major payoffs, revealing heterogeneity in earnings stratification among college graduates. We demonstrate that occupations differ in the extent to which they can generate earnings boosts over and above their supply-and-demand based rewards to skill and knowledge. Our study suggests that a high density of a particular college major within an occupational niche allows its incumbents to control access, thereby bidding up the total income of the occupation. Creating barriers for occupational access – “you need this particular credential and license to get this job” – helps incumbents, but likely deprives outsiders with similar skillsets from accessing this market income.

Furthermore, at the individual-level, we find that undergraduate majors pay off slightly more if the college graduate enters an occupation where their colleagues hold the same educational credential. We consider these major-occupation matching earnings advantages to be relatively small. College majors matter (most) for getting *access* to particular occupations, but within occupations workers with different majors earn fairly similar salaries and wages. This suggests that while skills obtained in college programs matter for

**Figure 2. Marginal Effects of Major-Occupation Match on Earnings (with Occupation Fixed-Effects)**



labor market earnings, individuals with a different or uncommon educational preparation are still rewarded at similar levels as their colleagues. It is unclear whether this conclusion holds in other countries. The US labor market is known to have weaker “linkage strength” between educational programs (of any level) and specific occupations than, for instance, Germany or other continental European countries (DiPrete *et al.* 2017). On average, US employers are perhaps more comfortable hiring a non-specialist, especially for entry-level jobs, counting on “on-the-job” training and skill acquisition. If this is true, a follow-up study using our continuous measure of major-occupation match should indicate higher matching payoffs and steeper mismatch disadvantages in some European countries.

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**Missing Wealth Distribution, Wealth Inequality and Anti-Inequality Policies**

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**1. Introduction**

In decades marked by increasing wealth-to-income ratios and disparities (Piketty & Zucman, 2014), the design of wealth taxes is a pertinent topic in economic discourse (Saez & Zucman, 2022). While only a few countries implement comprehensive wealth taxes, others primarily rely on property taxes and inheritance (or transfer) taxes for wealth transmission across generations. Despite their generally progressive nature, existing wealth taxes exhibit limited redistributive impact due to their small scale (Kuypers *et al.*, 2020). Given the underperformance of current legislation, there is a growing need to study the development of effective wealth taxation strategies to address wealth inequality significantly. However, assessing the role and efficacy of wealth taxes, even in terms of policy design, hinges on the availability of reliable data. Sampling errors, particularly related to missing data, are widely discussed in the literature on wealth and income distribution. Various methodologies, such as replacement (Vermeulen, 2018) and re-weighting (Munoz & Morelli, 2021), address unit non-response issues, especially at the top income levels. Recent efforts linked to the World Inequality Database (WID) aim to integrate data from tax sources, household surveys, and National Accounts to create Distributional National Accounts (DINA), allocating national income to households. Carranza *et al.* (2023) apply the WID adjustment to examine inequality variations across countries using EU-SILC data. Much of the literature focuses on household income and its inequality, given the generally lower quality of wealth data, particularly from surveys. In the case of wealth distribution, sampling errors due to item non-response, along with non-sampling errors like under-reporting, pose challenges to data accuracy.

Hence, the main goal of the work is to match the literature on the adjustment of wealth distribution with that on the effects of wealth taxation. We study the missing part of the wealth distribution, explicitly focusing on financial assets, in the Luxembourg Wealth Study (LWS) and then explain a methodology to correct the under-reporting of financial assets in surveys. We apply this procedure to Austria, Canada, and Italy and, finally, provide initial evaluations on the policy relevance of the missing part of the wealth distribution.

**2. Micro-macro wealth data discrepancies in LWS**

In this section, we compare the wealth figures of LWS countries with their National Accounts counterpart. Such a comparison is standard in the literature, both institutional and academic; peculiar examples are the ECB paper by Ahnert *et al.* (2020), focusing on Household Finance and Consumption Survey (HFCS), and the paper by Jäntti *et al.* (2008), who adopt the initial waves of LWS. All the authors agree on the complexity of these micro-macro comparisons due to conceptual differences between micro (surveys) and macro (NA) data, for instance, related to the definitions of the household, the reference periods, or the different valuations of assets, debt, and incomes (self-evaluation in surveys, market prices in National Accounts).

Conscious of the possible difficulties and with some assumptions explained below, we conduct a preliminary analysis of the micro-macro wealth comparison in LWS. We provide figures for eight countries selected according to the degree of comparability and

availability of official sources: Austria, Canada, Finland, Germany, Italy, Norway, the United Kingdom, and the United States.

Regarding the National Accounts, we use single-country data sources provided by national statistics institutes.<sup>1</sup> In particular, we focus on the National Accounts of the household sector. In implementing the comparison, we modulated the definitions of wealth components adopted in LWS and NA to be as coherent as possible, considering significant differences across countries. The main issue related to the micro-macro comparison, well explained in Ahnert *et al.* (2020), regards the role and categorization of business equity. In the financial accounts, there is no similar concept; therefore, the value (available in surveys) may end up accounted for as financial or non-financial assets.

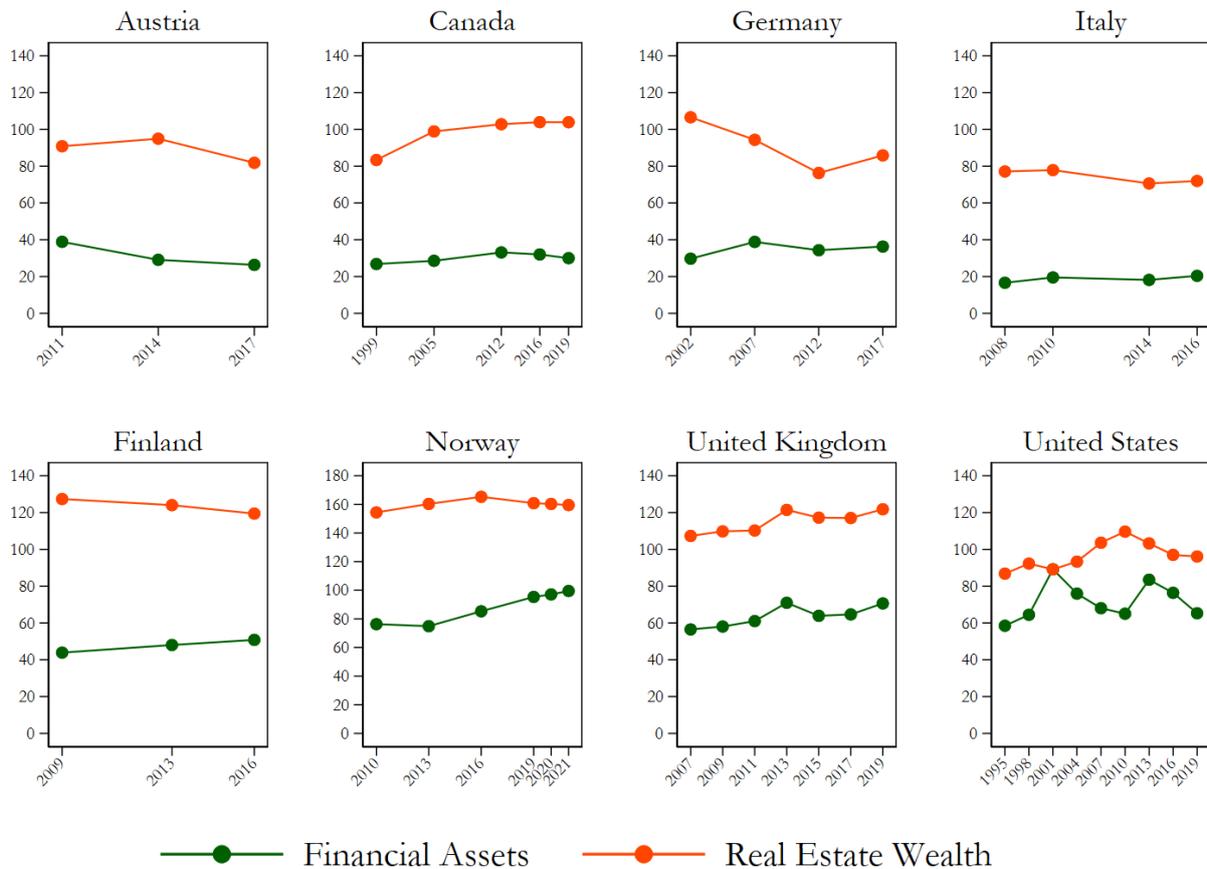
We concentrate on financial assets and real estate wealth as primary reference aggregates. The latter is defined as the sum of four main components: i) deposits and currency; ii) bonds and other debt securities; iii) stocks and other equities plus investment funds and alternative investments; and iv) other non-pension financial assets (residual). To reduce the bias between surveys and NA, we do not consider pension entitlements and reserve guarantees as part of the financial assets. Real estate assets are constituted by the value of all the real estate owned, both residential and not, including the value of built-up land.<sup>2</sup>

The selected countries present some significant differences in terms of data structure. Norway is the only country with census-like register data (they provide LWS with a 10% extraction from administrative registers). Finland combines survey and register data; the remaining countries have survey data.<sup>3</sup> Other crucial differences across these countries' wealth data consist of the data collection at the household or individual level and the possible over-sampling at the top for correcting the non-response to the survey. Out of the eight countries, only in the United Kingdom and Norway are the wealth figures recorded at the individual level; in the other countries, wealth is collected at the household-level. Oversampling at the top was conducted in Canada, Finland, the United Kingdom, and the United States.<sup>4</sup>

In Figure 1, we present ratios between LWS weighted totals and National Accounts totals in terms of financial assets and real estate wealth. The primary evidence is that financial assets have a ratio consistently lower than real estate wealth for all the countries and all the waves. In Italy, as well-known in research from the Bank of Italy (Bonci *et al.*, 2005; D'Alessio & Neri, 2015), the issue of under-reporting in financial assets is particularly pronounced (only around 20% of the national account totals is captured by the survey). Analogous (low) figures are found in Austria, Canada, and Germany (top row in the graph). By contrast, real estate wealth always has the highest ratios, meaning real estate is captured more adequately than financial assets.

In the bottom row, we group countries that present peculiarities with respect to the rest. While Finland may be considered a bridge between the two groups because the register wealth information is incorporated into the survey structure, in Norway, the ratios show the impact of complete register data on data reporting. Specifically, in Finland, the ratio for financial assets was around 50% in the last wave

**Figure 1.** Comparison between LWS weighted totals and National Accounts totals, ratios



**Note:** 100 = perfect equality between LWS and NA.

**Source:** Authors' elaborations based on Luxembourg Wealth Study (LWS) Database and National Accounts.

(2016), and in Norway, this value reached 97% in 2021. In Norway, there is also a significant mismatch between micro and macro data on real estate. The explanation is due to inconsistencies between register and National Accounts computations of real estate values, with more detail available in Epland and Kirkeberg (2012).<sup>5</sup>

For the United Kingdom, the ratios for financial assets are around 60%, well short of the NA aggregates but still much higher than for other survey-based countries. Considering that the oversampling already seeks to address possible non-responses at the top, this could mean that the under-reporting issue is less relevant in the UK.

Moreover, an additional and potentially important role may be played by the different survey designs since the data are collected at the individual rather than household level.

Finally, in the United States, the ratio of financial assets is slightly higher than in the UK. An explanation for this could be the oversampling conducted to adjust the baseline sample, although, overall, the low under-reporting is remarkable compared to the other countries.

The weight of business equity, which is the possible driver of much of these discrepancies, changes across countries: in Italy (2016), it constitutes 9% of the total wealth (sum of financial assets and real estate wealth), while in the US it rises to the 26% in 2019. The register data display a very low incidence of business equity, around 5% in Finland and around 1% in Norway. Although the role of this wealth component will deserve much attention in the future developments

of this work, their weight, especially in some countries, is low, and even if they were all attributed to financial assets, this would not imply the solution of the under-reporting puzzle.

Given the evidence shown in Figure 1 and discussed in this section, we decided to focus on three of the eight countries to implement the correction for the under-representation of financial assets. These countries, Austria, Canada, and Italy, are those where the ratios are the lowest. Germany was discarded since the information in the detailed composition of the financial assets is missing.

### 3. Methodology, correction and preliminary results

In this section, we build on the results of the previous section to implement a methodology to correct the missing financial wealth distribution. The approach is inspired by a procedure applied by Conti *et al.* (2023) to Italian wealth data (SHIW). In that paper, which focuses on presenting a dynamic micro-simulation model for the Italian economy, a correction to financial wealth ownership and amounts in the baseline distribution is carried out, and the corrected distribution is subsequently inserted into the micro-simulation model. Here, we also separate the correction procedure into ownership and amounts. The correction for ownership follows the one adopted by Brandolini *et al.* (2009) on Italian data. We run a multinomial model (pooled over all available waves) to determine the probability of owning a more or less sophisticated investment portfolio. Next, we estimate single logistic models to analyze the impact of socioeconomic and financial variables on the probability of owning each specific asset (bonds, stocks, or

**Table 1.** Wealth totals and inequality with original and corrected financial assets

	Financial Assets (original vs. corrected)	Austria (2017)	Canada (2019)	Italy (2016)
FA LWS/NA ratios	<i>Original</i>	26.37	29.95	20.40
	<i>Corrected</i>	52.60	86.43	50.84
FA Gini	<i>Original</i>	67.75	83.30	75.42
	<i>Corrected</i>	77.89	89.05	82.25
NW Gini	<i>Original</i>	72.88	71.45	59.14
	<i>Corrected</i>	73.50	76.52	62.69
NW Gini, after tax	<i>Original</i>	72.62	71.06	59.00
	<i>Corrected</i>	73.21	76.01	62.41

**Notes:** FA: Financial assets; NW: net wealth. Original refers to the wealth distribution available in LWS (Austria, 2017; Canada, 2019; Italy, 2016). Corrected refers to the wealth distribution after the application of the correction methodology on financial assets.

**Source:** authors' elaborations on Luxembourg Wealth Study (LWS) Database.

investment funds). A threshold in the probability equal to the mean plus one standard deviation from the mean is then set. Households with a probability higher than the threshold are attributed the ownership. Finally, values of financial wealth (for each financial asset) to households who are "new" owners are imputed through matching (using Mahalanobis distance metrics).

The amount correction was applied with statistical matching using the Norwegian database as the donor and datasets from Austria, Canada, and Italy as recipients. The Norwegian data source of financial assets is the most reliable among the analyzed countries, given their different nature (register data). To control for systematic differences between the donor and recipient samples and obtain a more accurate matching, we divided the dataset into 30 cells based on financial asset percentiles. We proceed to match units that are included in the same cell only. The matching algorithm uses standard information between the two datasets to match the units in the donor and recipient datasets (subject to the cell constraint).

Overall, the rationale of this methodology is to provide an increase in the LWS/NA financial wealth ratio guided by reasonable economic criteria, given the survey structure. The methodology is conceptually separated from other methods, such as the Distributional National Accounts (DINA) approach, in which the entire household wealth is assigned to individuals.

In Table 1, we present preliminary results from our elaborations on data from Austria, Canada, and Italy for the last available wave in each of the three countries.<sup>6</sup> The complex procedure explained above increases financial assets' LWS/NA ratios, which are more pronounced in Canada and Italy than in Austria. The rise in the overall amount of financial assets is reflected in measured wealth inequality in both financial assets and net wealth. In Austria, the change in the Gini index of net wealth is less pronounced than in Canada and Italy. Finally, we undertake a simple exercise to evaluate the extent of the distributional effect of a simplified wealth tax. The tax structure is relatively straightforward; we let households beyond 1 million dollars pay a flat 5% tax on their net wealth. The conclusion is that the impact of the tax in reducing wealth inequality is lower with the original wealth distribution than with the corrected distribution. This effect is less substantial in Austria due to the reduced size of the correction and

the overall greater equality of the original distribution compared with Italy and Canada. We expect these discrepancies to be broader when considering more progressive taxes.

The next stages of the research will involve expanding the analysis to other countries in the LWS database, improving the validation of the correction procedure, and studying the distributional effect of specific taxes on financial assets compared with non-financial assets.

- <sup>1</sup> The OECD provides Financial Assets Accounts who accommodate international comparison, however, they not include figures on non-financial assets (OECD, 2017).
- <sup>2</sup> In the United States we consider only the principal residence.
- <sup>3</sup> Austria: HFCS; Canada: SFS; Germany SOEP; Italy: SHIW; United Kingdom: WAS; United States: SCF.
- <sup>4</sup> In the United States six observations had net wealth at least equal to the minimum level needed to qualify for the Forbes list, thus they were removed from public data set.
- <sup>5</sup> In Table 6, pp. 15 the ratio between survey and National Accounts for dwellings is equal to 151.
- <sup>6</sup> Please contact the authors before quoting.

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**Conference: Income and Wealth Inequality: Drivers and Consequences**

Piotr Paradowski , (LIS & Gdańsk University of Technology)

On September 27-29, 2023, LIS and the Faculty of Management and Economics at the Gdańsk University of Technology (Gdańsk Tech) held the international conference titled "Income and Wealth Inequality: Drivers and Consequences" at the Gdańsk University of Technology. During the three days of the meeting, scholars presented the latest research achievements in income and wealth inequality from theoretical, empirical, and comparative perspectives, as well as the role of public policy and technological progress in the evolution of disparities and the understanding of the economic and social consequences of rising inequalities. The conference was accompanied by the attendance of almost the entire LIS team and LIS Director Peter Lanjouw.

The presentations of the latest scientific research were complemented by the extraordinary atmosphere of the Gdańsk Tech campus. Over 50 scientists worldwide (including speakers from 4 continents) presented their research findings. Keynote speakers who delivered lectures included:

- Susan Harkness (University of Bristol), the inaugural speech on "Gender Equality: Why it Matters to Income Inequality";
- Daniele Checchi (University of Milan), on "Hours Inequality";
- James E. Foster (The George Washington University & OPHI, University of Oxford), on "Multidimensional and Specific Inequalities";
- Branko Milanovic (Stone Center on Socio-Economic Inequality, City University of New York), on "Two Centuries of Global Inequality with a Focus on the Past 30 Years";
- Philippe Van Kerm (University of Luxembourg & Luxembourg Institute of Socio-Economic Research), on "The long-run Trends in Assortative Mating and its Contribution to Income Inequality in the US".

On the first day of the conference, young researchers participated in various workshop lectures on the topic "Software and Techniques for Inequality Measurements and Analysis," where they learned about datasets on income and wealth available in LIS and LWS Databases and the empirical approach to explaining inequalities using R and Python. One important element of the lectures was the introduction to Machine Learning methods used in inequality analysis and many other areas of social and exact sciences. The workshop was led by Pedro Salas-Rojo (London School of Economics and Political Science, International Inequalities Institute), Josep Espasa Reig (OECD, formerly LIS), and Piotr Paradowski (LIS & Gdańsk University of Technology).

The conference was inaugurated by the Rector of the Gdansk University of Technology, Krzysztof Wilde, the Vice-Dean of the Faculty of Management and Economics, Magdalena Olczyk, and the Director of LIS, Peter Lanjouw. As part of the conference, there was also a debate titled "The Bridge Between Research and Economic Policy," in which not only eminent scientists dealing with inequalities but also decision-makers participated. Guests included Daniele Checchi (University of

Milan), Michael Förster (Sciences Po Paris), Susan Harkness (University of Bristol), Stanisław Maciej Kot (Gdańsk University of Technology), Dariusz Rosati (Member of the Polish Parliament), and Joanna Tyrowicz (University of Warsaw and Monetary Policy Council). The debate addressed issues related to the causes and effects of income and wealth inequalities, specifically in relation to public policy.

Two excellent research papers presented at the conference won the conference Awards dedicated to young scientists who completed their doctorate after 2016 or are still pursuing doctoral studies. The Best Paper Award was granted to Benjamin Tippet (University of Greenwich) for his work "Finding Fortunes: A New Methodology to Estimate Missing Wealth in Survey Data." The Best Poster Award was received by a doctoral student from the University of Warsaw, Ivan Skliarov, for his scientific work titled "Does Reckless Risk or Careful Planning Make Households Wealthy? A study of the US based on the Luxembourg Wealth Study database." The conference's scientific presentations are available on the [LIS website](#).

The event was organized under the patronage of LIS, the Rector of the Gdańsk University of Technology, Krzysztof Wilde, the Dean of the Faculty of Management and Economics Małgorzata Gawrycka, the Fahrenheit Union of Universities, the Polish Economic Society, and the Central Statistical Office of Poland. The conference was co-financed by the IDUB Carbonium Supporting Conferences program from Gdańsk Tech, with financial support from the Faculty of Management and Economics and LIS.

The conference's organizing committee, a joined force of LIS and Gdańsk Tech, included researchers and doctoral students from the Department of Statistics and Econometrics, the Department of Economics, the Department of Philosophy and Methodology of Sciences, and the Department of Finance: Piotr Paradowski (chairman), Magdalena Brygała, Yuxin Lu, Dagmara Nikulin, Joanna Wolszczak-Derlacz, Stanisław Maciej Kot, Andrzej Karalus, Karol Flisikowski, and Michał Pietrzak. The organizers thank the entire LIS team, specifically Heba Omar (Assistant Director of Operations at LIS) and Taylor Kroezen (Data Expert at LIS) for their incredible support, and the staff of the administrative units of the faculty and university for their cooperation, in particular the Promotion and Organization Office of the Faculty of Management and Economics, the Logistics Office of Gdańsk Tech, the Multimedia Section of Gdańsk Tech, and all those who contributed to the organization of this conference.



## Data News / Data Release Schedule



### LIS is happy to announce the following data updates:

- Belgium** (4 new datasets and all revised) – Further annualisation from **BE18** to **BE21** in the LIS Database
- Brazil** (6 new datasets and 1 revised) – Partial annualisation from **BR17** to **BR22** in the LIS Database
- Israel** (3 new datasets and 17 revised) – Addition of **IL19**, **IL20** & **IL21** to the LIS Database
- Italy** (16 new datasets and all revised) – Addition of **IT77** to **IT84**, **IT02**, **IT06** & **IT12** to the LIS Database; addition of **IT98**, **IT02**, **IT06**, **IT12** & **IT20** to the LWS Database
- Luxembourg** (1 new dataset and 3 revised) – Addition of **LU21** to the LWS Database
- Romania** (3 new datasets and 12 revised) – Addition of **RO14**, **RO16** & **RO20** to the LIS Database
- Switzerland** (1 new dataset and 13 revised) – Addition of **CH19** to the LIS Database
- United Kingdom** (1 new dataset and 1 revised) – Addition of **UK21** to the LIS Database

### Data Releases and Revisions– Luxembourg Income Study (LIS)

#### Belgium

Four new datasets from Belgium (**BE18** to **BE21**) have been added to the LIS Database. The datasets are based on the respective waves 2019 to 2022 of the Survey on Income and Living Conditions (SILC) carried out by **Statistics Belgium (StatBel)**.

Earlier datasets of the Belgian data were revised for consistency with the later series; the revisions have no impact on the LIS Key Figures. Hourly wages (*gross1*) which had a substantial number of missing values were recovered by using the yearly wage. Furthermore, the variable *pwgta* is now provided in **BE04** with the personal intergenerational cross-sectional weight to be used with the variables *edmom\_c* and *eddad\_c* that were asked only to a subsample of selected respondents, aged 26-66 years at the moment of the interview. The variable *immigr\_c* is now provided in **BE10** and filled with the country(ies) of birth of parents. The variables *disabled* and *health\_c* are provided now for children as well in **BE16**.

#### Brazil

LIS has released a first set of annual data for Brazil in the LIS Database. The six new datasets **BR17** and **BR22** are based on the National Continuous Household Sample Survey (PNADC) from the **Brazilian Geographical and Statistical Institute (IBGE)**. Since income amounts were collected gross of taxes and contributions and taxes and social contributions were not collected nor simulated by the data provider, LIS added to the PNADC micro-simulated amounts computed by a team of experts from the University of Pernambuco (Prof. José Ricardo Bezerra Nogueira) and the Centro de Pesquisas Ageu Magalhães - CPqAM (Dr. Carlos Feitosa Luna). More information about this is available in *Compare.It*.

The dataset **BR16**, the first available year from PNADC, has been re-harmonised with the slightly adjusted simulation techniques and newly available data version, taking into account adjusted weighting factors based on the newly available population census information.

#### Israel

Three new datasets have been added to the LIS Database (**IL19**, **IL20** & **IL21**). The datasets are based on the Household Expenditure Survey (HES) carried out by **Central Bureau of Statistics** and reworked by the National Insurance Institute of Israel.

The previous datasets **IL02** to **IL18** have been slightly revised. Variable *ptime1* (part-time employment (dummy), main job) is now available, approximated by using the overall working hours in all jobs, considering as part-time all persons who work 30 hours or less. The income section has been slightly adjusted, with a minor impact on the LIS Key Figures for some years.

#### Italy

Various new data points from Italy have been added to the LIS Database. The series has been extended to include all of the datapoints currently available from the Survey of Household Income and Wealth (SHIW) carried out by the **Bank of Italy**, which implied the addition of annual data from **IT77** to **IT84**, and the years **IT02**, **IT06**, and **IT12**. It should be noted that until **IT12** the datasets refer to net income in *hitotal* (total current income). Conversely, from **IT14** the availability of detailed variables for taxes and social contributions (as simulated by the Bank of Italy) allowed the addition of those amounts to all labour income and pension variables, so that the latter datasets are considered *gross*. Note that for the datasets **IT04**, **IT108** and **IT10** taxes and contributions were also simulated by the Bank of Italy, but only as total amounts on overall income; as a result, while income taxes (*p/hxitax*) and social contributions (*p/hxscont*) are provided, the income variables are all net of taxes and contributions so that *hitotal* is equal to *dhi* (as all other datasets until **IT12**).

Note that the whole SHIW series was re-harmonised according to the latest variable list, in order to increase the coherence of the whole series. Thus, various consistency revisions have been carried out for the earlier available datasets **IT86** to **IT20**, using the latest version of the historical database available at the Bank of Italy; this involved the filling of some variables which had been left empty in the older datasets (*locsz\_c*, *area\_c*, *rural*, *farming*, *marital*, *weeks*, *net1*), the consistency of the subset of the population for which the variables are filled (*marital*, *ctrybrth*, *migrat\_c*, *immigr*, *disabled*, *educ\_c*, *lfs*, *weeks*), the uniformisation of the categories across years (*region\_c*, *own*, *migrat\_c*, *disabled*, *educ\_c*, *lfs*). In addition, a different recoding of the tertiary degrees has implied some changes in variable *educlev*.

**Romania**

Three more datasets have been added to the recently announced annual Romanian data series. The three new datapoints **RO14**, **RO16**, and **RO20**, extend the annual data series of **RO06** to **RO20**. The data series is based on the Quality of Life Survey (ACAV) on which is based the Romanian Survey on Income and Living Conditions (SILC) and is provided by the Romanian **National Institute of Statistics (INSSE)**. We are grateful to INSSE for making available information on the value of own consumption (LIS variable *hi14*) for these three datasets explicitly for LIS. Own consumption is part of the construction of LIS disposable income and it is an important source of in-kind income in Romania. New variables are provided for the series: in **RO10** the variable *pwgta* (the additional person weight) which is the personal intergenerational cross-sectional weight to be used with variables *edmom\_c* and *eddad\_c* that were asked only to a subsample of selected respondents, aged 25-59 years at the moment of the interview; in **RO19** *hxloan* (instalment for other loans) & *public1* (public sector) are now additionally available.

**Switzerland**

One new dataset from Switzerland, **CH19**, has been added to the LIS Database. The dataset is based on Income and Living Conditions (SILC) data from the **Swiss Federal Statistical Office**.

The datasets **CH06** to **CH18** have been revised for consistency in the variables *ctrybrth*, *citizen*, *yrsresid*, and *ptime1*. Variable *hxmort* (mortgage instalments) refers now to annual amounts (previously monthly amounts); this affects also the derived variable *hhouscost* (housing costs). Transfers from general social assistance have been now placed to LIS variable *hi45* (general assistance), previously added directly at the higher aggregate *hipublic* (public transfer).

**United Kingdom**

One new data point for the United Kingdom (**UK21**) was added to the LIS Database. The dataset is based on the **Family Resources Survey (FRS)** from the **Department for Work and Pensions (DWP)** and the **Office for National Statistics (ONS)**.

A correction to the benefits section was applied to dataset **UK20**, the previously *weeklyised* amount for the ‘self-employment income support scheme (SEISS)’ (introduced in 2020 during the Coronavirus pandemic) has no longer been used; instead, the reported amounts are now treated as lump sum amounts. This change affects slightly the LIS Key Figures.

**Data Releases and Revisions– Luxembourg Wealth Study (LWS)**

**Italy**

Various new dataset from Italy have been added to the **LWS** Database. The series has been extended by the new data point **IT20**, and the remaining gap years in the LWS database **IT02**, **IT06**, and **IT12** have been added. All datasets in the series are from the Survey of Household Income and Wealth (SHIW) carried out by the **Bank of Italy**. It should be noted that until **IT12** included the datasets refer to net income in *hitotal* (total current income). See further remarks in the section ‘Data Releases and Revisions– Luxembourg Income Study (LIS)’ in this issue.

The earlier available datasets in the series have been revised for consistency. Among other minor changes, the variable *boef\_c*

(country-specific expectations about household finances) has been added to **IT10**.

**Luxembourg**

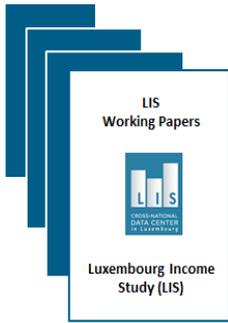
LIS has added one more data point (**LU21**) to the Luxembourgish wealth data series in the **LWS** Database. The datasets are based on the Luxembourg Household Finance and Consumption Survey (HFCS), acquired from **Banque Centrale du Luxembourg (BCL)**.

LIS added to the earlier datasets in the series the number of businesses held by the household, which is available in the variable *bus3\_c* in the datasets **LU10**, **LU14** and **LU18**, and in *bus2\_c* in **LU21**.

**LIS/LWS Data Release Schedule**

	Spring 2024	Summer 2024
<b>LIS Database</b>		
Austria	AT21	
Brazil	BR01-BR15	
Canada	CA20	
Colombia	CO21, CO22	
Denmark	DK15-DK21	
Germany		DE20
Ireland	IE20, IE21	
Luxembourg	LU20, LU21	
Peru	PE20, PE21	
Russia	RU20, RU21	
South Korea	KR16-KR22	
Sweden		SE75-SE99
<b>LWS Database</b>		
Chile		CL21
Denmark	DK15-DK21	
Mexico	MX19	
Slovakia	SK21	
Spain		ES20
Sweden		SE97-SE07
Uruguay	UY12, UY13	

## Working Papers &amp; Publications



**Focus on [In Search of a Paradox of Redistribution Analysis of Fiscal Redistribution in High-Income Countries](#)**  
**LIS WP No. 871 by David Coady (Visiting Senior Fellow Luxembourg Income Study (LIS) and Luxembourg Institute of Socio-Economic Research (LISER))**

The last decade has seen a sharp increase in interest in the possible existence of a Paradox of Redistribution (PoR) whereby narrow targeting of social transfers aimed at increasing their redistributive (poverty) impact has the perverse effect of increasing poverty over the medium term due to decreasing public support for such spending. However, empirical support for the existence of a PoR has been mixed. The author revisits this issue using harmonized LIS household survey data covering recent decades. The analysis is embedded in the standard social welfare framework, which allows for an integrated and transparent evaluation of FR, making explicit the value judgements necessarily inherent in such analyses. The results support recent findings that FR has increased over the last four decades, although the author does not find support for some recent results that FR decreased since 1995. While the paper finds strong support for a PoR for social insurance transfers (dominated by pension transfers), it is found that little support in the context of social assistance transfers. The author argues that, in the context of social assistance, more detailed country-specific studies of the underlying political and economic dynamics are needed to adequately determine the existence or otherwise of a PoR. The high-level analysis can, however, help to identify possible candidates for such country case studies.

## LIS working papers series

**LIS working papers series - No. 868**

**Single Mothers and Child Support in Extended-Family Households: an International Perspective**

by *Angela Guarin, Merita Mesäislehto, Mia Hakovirta, Molly Costanzo*

**LIS working papers series - No. 869**

**Spatial Inequalities in Latin America: Mapping Aggregate to Micro-Level Disparities**

by *Andrés Gómez-Lobo, Daniel Oviedo*

**LIS working papers series - No. 870**

**Does Social Policy Crowd Out or Crowd In Social Trust? The Perspectives of Transfer Share, Low-Income Targeting, and Universalism**

by *Naoki Akaeda*

**LIS working papers series - No. 871**

**In Search of a Paradox of Redistribution Analysis of Fiscal Redistribution in High-Income Countries**

by *David Coady*

**LIS working papers series - No. 872**

**An Intergenerational Audit for the UK: 2023**

by *Molly Broome, Adam Corlett, Sophie Hale, Charlie McCurdy, Cara Pacitti*

Published in *An intergenerational audit for the UK: 2023*, Resolution Foundation, November 2023.

<https://www.resolutionfoundation.org/publications/an-intergenerational-audit-for-the-uk-2023/>

**LIS working papers series - No. 873**

**The United States' Record-Low Child Poverty Rate in International and Historical Perspective**

by *Zachary Parolin, Stefano Filastro*

**LIS working papers series - No. 874**

**Changing Household Structures, Household Employment, and Poverty Trends in Rich Countries**

by *Leo Azzollini, Richard Breen, Brian Nolan*

## News, Events and Updates

### Call for (LIS)<sup>2</sup>ER Visitors Programme for 2024

The (LIS)<sup>2</sup>ER initiative will continue its visiting scholar's programme in 2024 following its success in 2023.

The initiative aims to foster collaborative research on Policies to Fight Inequality. Grants for research visits are one of the instruments in place to this end. Research proposals can be submitted by individual researchers or by small teams of up to three researchers. Applicants from any level of seniority will be considered and we hope to strike a balance between junior and senior visitors.

Visitors will be hosted on LIS / LISER premises and will have privileged access to LIS and LWS microdata on-site in a secure data access lab for the duration of their visit.

We expect visitors to engage with local researchers at the LISER, LIS and the University of Luxembourg – all based on campus. Potential or foreseen collaboration with local researchers will be a key criterion for the selection of proposals.

More information about the call and how to apply will be announced soon. Stay tuned!

### Best Paper/Poster Award granted

On September 27-29, 2023, LIS and the Faculty of Management and Economics at the Gdańsk University of Technology held the conference "Income and Wealth Inequality: Drivers and Consequences" at the Gdańsk University of Technology. Within the framework of the conference, the Best Paper Award and the Best Poster Award were given in recognition of outstanding research presented at the conference. The Best Paper Award went to Benjamin Tippet (University of Greenwich) for his work "[Finding Fortunes: A New Methodology to Estimate Missing Wealth in Survey Data](#)". The Best Poster Award was received by a doctoral student from the University of Warsaw, Ivan Skliarov, for his scientific work titled "[Does Reckless Risk or Careful Planning Make Households Wealthy? A study of the US based on the Luxembourg Wealth Study database](#)".

For a brief summary of this three-day event, please read the [article](#) by Piotr Paradowski. More information about the conference and the presentation is available [here](#).

### (LIS)<sup>2</sup>ER Visitors Programme 2023

During this quarter, LIS and LISER have hosted the last cohort of visitors in the framework of the (LIS)<sup>2</sup>ER 2023 Visitors Programme. Since late September, the initiative hosted one long-term 3-months visitor (David K. Jesuit, Central Michigan University) to work on income inequality, redistribution, trust and electoral support of the radical right.

In October, the initiative hosted Ella-Marie Assal and Alessandro Nardo (University of Antwerp) for two weeks. Ella-Marie was working on the drivers of inequality in Belgium, while Alessandro focused on minimum income schemes, poverty and inequality.

The last visitor in 2023, Philipp Poyntner (Paris Lodron University Salzburg), joined for two weeks in November to work on monetary policy and housing.

### (LIS)<sup>2</sup>ER Workshop on: "Housing Policy and Wealth Inequality", 28-29 November 2023

LIS and LISER convened the fourth international scientific workshop in the realm of the (LIS)<sup>2</sup>ER initiative on "Housing Policy and Wealth Inequality". This year's workshop has been organised in collaboration with the University of Luxembourg's PROPEL (PROactive Policymaking for Equal Lives) project, which studies the causes and consequences of housing inequality, and is funded by the Luxembourg National Research Fund (FNR).

The workshop took place on 28-29 November 2023 at the LISER premises with the attendance of more than 30 participants. The workshop included 10 presentations studying housing policies with different disciplinary lenses covering four different themes i) housing and wealth inequality, ii) housing, poverty and inequality in a comparative perspective, iii) housing affordability and generation rent, iv) and housing markets (and the pandemic).

The workshop was concluded with a heated policy roundtable discussion with the participation of representatives from four important players in the Luxembourgish housing sphere; namely:

- Guy Entringer, Director, Société Nationale des Habitations à Bon Marché (SNHBM)
- Manou Flammang, Chargée de mission, FEDAS Luxembourg
- Huyen Tran, Economist, European Investment Bank
- Jacques Vandivinit, Director, Fonds du Logement

The roundtable tackled the recent housing policies implemented by the Luxembourgish government to alleviate the housing renting and ownership burden faced by different societal groups in particular the vulnerable.

Information on the workshop and the available online presentation is available [here](#).

More information on the previous workshops carried out through the (LIS)<sup>2</sup>ER initiative, can be found [here](#) for the 2022 edition, [here](#) for the 2021 edition, and [here](#) for the 2020 edition.

### An intergenerational audit for the UK: 2023

The LIS data was used for some analysis underlying the latest [intergenerational audit for the UK: 2023 report](#). This report – part of the ESRC-funded Connecting Generations research programme – provides a comprehensive assessment of how living standards have changed for younger generations. It attempts to shed light on whether millennials in the UK have experienced an improvement in their economic fortunes as compared to their US counterparts. The LIS data has been used in Section 3 for establishing comparisons between the economic fortunes of the millennials in the UK as opposed to their US counterparts. The analysis is enriched by using cohort-on-cohort analysis.

### LIS team participation in conferences

- LIS was invited by the Political Science Department in Bologna University to deliver a mini workshop on the usage of the LIS Database. Carmen Petrovici gave the workshop that was held on October 11-12. During the workshop, the students were introduced to the LIS Database, the variable structure, the usage of the LISSY system, and potential research areas.
- On October 13-14, Teresa Munzi and Peter Lanjouw attended the Conference on “**Income Inequality, Vulnerability, and the Middle-Income Trap**” in Honor of Professor Martin Ravallion at Xiamen University, China. During the conference, Peter gave a Keynote Lecture on “Vulnerability Measurement and Policy Applications”, while Teresa gave a LIS presentation on “A Comprehensive Overview of Luxembourg Income Study (LIS) & The Opportunities LIS Data Could Provide”.
- On November 16, Piotr Paradowski and Heba Omar gave a virtual presentation on “Introduction to the LIS and LWS Databases LWS” at Case Western Reserve University.
- On November 27-29, Jörg Neugschwender attended the “**Workshop on Harmonization of Poverty Statistics to Measure SDG 1 and 10**” and the meeting of the “**Group of Experts on Measuring Poverty and Inequality**” organised by UNECE in Geneva, Switzerland. He presented ideas on “**How to compare social protection programs around the world and measure their role in eradicating extreme poverty and vulnerability to poverty**”.
- On December 1, Teresa Munzi and Piotr Paradowski attended and participated in the “Wealth Guidelines in Low-and middle-income countries” workshop, organized by the World Bank in collaboration with LIS and Bank of Italy in Rome, Italy.
- On December 8-9, Teresa Munzi attended the CEPR Paris Symposium 2023 and participated to a panel on “Microdata in Europe: The Way Forward” aimed at providing insights as to how to foster better cross-country microdata availability, and how the various actors can join forces to avoid duplication and maximize ultimate impact.

### The Stone Center’s GC Wealth Project released its Data Warehouse

On June 6, 2023, the Stone Center at the CUNY Graduate Center launched a new website, the **GC Wealth Project**, the result of 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 – both across countries and over time. The GC Wealth Project website has 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 the dashboard and the library 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.

On November 14, 2023, the GC Wealth Project team made the Data Warehouse available via a **new Github page**. It can be accessed **here**. Detailed documentation was simultaneously released as a Stone Center Working Paper. See **WP #75: “The GC Wealth Project Data Warehouse v.1 – Documentation”**, by, Salvatore Morelli, Twisha Asher, Frincasco Di Biase, Franziska Disslbacher, Ignacio Flores, Adam Rego Johnson, Giacomo Rella, Manuel Schechtl, Francesca Subioli, and Matteo Targa. The GC Wealth Project team encourages all interested parties to explore the Data Warehouse!

