Should Social Insurance Programs Count as Wealth? Augmented Wealth in Research and Policy

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Research on wealth and wealth inequality is hindered by lack of consensus on a fundamental question: what counts as wealth? Scholars disagree on whether net worth should encompass only marketable assets, or also include non-marketable "augmented wealth," such as pensions and social insurance programs. Because augmented wealth often exceeds marketable wealth in total value and is much more equitably distributed, definitional choices shape even the most basic conclusions of empirical wealth research. This article advocates for use-specific wealth definitions, recommending that researchers first identify the use(s) for wealth of interest in a given study, then include all assets available for those uses, whether marketable or not. Case studies of Norway and the United States demonstrate the importance of augmented wealth--beyond pensions alone--across the wealth distribution, while a cross-national analysis shows that differences in augmented wealth can help resolve the puzzling lack of correlation between income and (marketable) wealth inequality across countries.

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Over the last decade, scholars and policymakers around the world have devoted increased attention to wealth and wealth inequality. These efforts have yielded major substantive and methodological breakthroughs in measuring wealth distributions and identifying both drivers and consequences of wealth inequality (e.g. Killewald, Pfeffer, and Schachner 2017; Zucman 2019). But despite this progress, a fundamental conceptual question remains unresolved: what counts as wealth? Specifically, should a person's net worth be narrowly defined to include only those assets that can be easily converted to cash, or more expansively to incorporate other economic resources they have access to, such as pension benefits and social insurance programs?

Most empirical researchers have followed System of National Accounts and OECD recommendations in adopting a definition of "marketable wealth" consisting of privately held assets that can, in theory, be easily sold on a market (OECD 2013; United Nations et al. 2009; Zucman 2019). But there are strong critiques of this approach, which argue that by excluding rights to defined benefit pensions, public pensions, and potentially other types of social insurance, marketable wealth is conceptually incoherent—and severely understates the full economic resources available to many households (Feldstein 1976; Sierminska and Wroński 2023; Weil 2015; Wolff 1990). As researchers have begun to calculate the wealth value of public and defined benefit pensions across increasing numbers of countries, it has become clear that this definitional question has enormous empirical stakes: in many countries the present value of Social Security and other public pension benefits is larger than that of all marketable wealth *combined*, and inequality in augmented wealth is much lower than that in marketable wealth (Cowell et al. 2017; Sierminska and Wroński 2023).

Despite a great deal of debate, the question of whether and how to incorporate social insurance programs into studies of the wealth distribution has yet to be satisfactorily resolved. This paper argues that taking augmented wealth seriously means fully considering how it both can and cannot substitute for marketable wealth as a means of meeting specific needs that would otherwise be met using marketable wealth. In doing so, it contributes to the methodological and conceptual literatures on the definition of wealth, as well as the empirical literatures on wealth inequality and on the wealth value of social insurance programs.

Part of the power of private, liquid assets comes from their fungibility: the same dollars can be invested to produce income while also serving as collateral on a loan and being ready to tap as a source of insurance if necessary. But this fungibility has often allowed researchers to

avoid being explicit about which use(s) of wealth they are most concerned with: are they interested in financial security in retirement, the ability to meet an unexpected expense, or the political influence of the superrich? The fungibility creates particular confusion regarding augmented wealth, because many social insurance programs are effective marketable wealth substitutes for some uses while being entirely unavailable for other uses.

Rather than argue over which definition comes closest to the true essence of wealth, I argue, researchers ought to first determine the use or uses of wealth they are interested in, and then incorporate all assets that can be put to those uses, whether marketable or not. As I describe, both marketable and augmented assets have legal and logistical constraints that allow them to be effectively put to some uses but not others. A study focused on readiness for retirement would be fundamentally misleading if it did not include Social Security. But a study focused on the ability to meet an unexpected financial shock, or the political influence of the wealthy, would be fundamentally misleading if it included *either* Social Security or private, defined-contribution pensions (which are generally included in estimates of marketable wealth), since neither is typically available for those uses.

If anything, previous empirical estimations of augmented wealth likely underestimate its importance, because they have focused solely on pensions (e.g. Bönke et al. 2019; Sierminska and Wroński 2023). Public pensions are just the largest of a wide array of social insurance programs that may substitute for marketable wealth. To illustrate this, I present case studies estimating the value of social insurance programs available to low-, medium-, and high-marketable wealth residents of two countries, Norway and the United States, for three common uses of marketable wealth: meeting unexpected financial shocks, investing in human capital, and saving for retirement. In all three scenarios, social insurance wealth dwarfs the marketable wealth held by the 10th percentile resident of both countries, while being comparable in magnitude to that held by the median resident and non-trivial even for residents at the 90th percentile of marketable net worth.

Acknowledging the partial substitutability of social insurance programs for marketable wealth also helps clarify a major puzzle in the wealth inequality literature. Cross-national studies have documented that inequality in marketable wealth shows minimal correlation with that in income (Pfeffer and Waitkus 2021; Skopek, Buchholz, and Blossfeld 2014). Most strikingly, some countries with very low levels of income inequality, such as Norway and Sweden, have

extremely high inequality in marketable wealth (Cowell, Karagiannaki, and Mcknight 2018; Jantti, Sierminska, and Smeeding 2008). However, these countries have much greater levels of social insurance wealth than most, meaning that marketable wealth may be less important in the daily lives of most residents, while still accruing to investors, entrepreneurs, and landlords. The expected consequence would be that countries with larger welfare states will have *less total marketable wealth*, relative to the size of their economies, but greater inequality in what marketable wealth they do have (c.f. Fessler and Schürz 2018).

An analysis of Luxembourg Wealth Study (LWS) data provides support for this account. While there is not a statistically significant bivariate relationship between wealth inequality and income inequality, there is a strong negative relationship between wealth inequality and the wealth-to-income ratio—a measure of how much total wealth exists in a country, relative to the size of its economy. Countries with more wealth, all else equal, have less wealth inequality. Moreover, after controlling for the wealth-to-income ratio, the level of income inequality has a positive and statistically significant relationship with wealth inequality. That is, after adjusting for the centrality of marketable wealth to their economies, nations with more egalitarian income distributions also have more egalitarian wealth distributions. The wealth-to-income ratio itself has a strong negative correlation with a measure of welfare state generosity, as would be expected if social insurance wealth is a partial substitute for marketable wealth.

Full consideration of augmented wealth has important implications for policy as well as scholarship. Policymakers and advocates, especially in the United States, have identified reducing wealth inequality as an important goal, and have proposed numerous policies to more broadly distribute marketable wealth, such as a wealth tax or "baby bonds" providing a universal wealth endowment at age 18 (e.g. Durkee 2021; Iacurci 2021). These policies would be transformative, but even ambitious versions would leave substantial marketable wealth inequality remaining (Dvir-Djerassi 2024; Zewde 2020). While social insurance programs are not effective substitutes for all uses of marketable wealth—for instance, they may not address concerns about the concentration of power among the wealthy—expanding the scope of social insurance wealth, through programs such as child allowances or tax credits for human capital investments in early childhood, or mandated paid sick leave as insurance against illness, offers a complementary approach that can further reduce inequality.

Background: Wealth Inequality and the Augmented Wealth Debate

Wealth Inequality in the 21st Century

In recent decades social scientists have devoted increasing attention to wealth as an axis of stratification and inequality (Keister and Moller 2000; Killewald et al. 2017; Zucman 2019). Wealth inequality has risen around the world over the last 50 years. In the United States, the share of total marketable wealth held by the richest 1% of the population rose from between 20% and 25% in the 1970s to between 30% and 41% in 2012 (Saez and Zucman 2016; Smith et al. 2019). In France and the UK, the share held by the top 1% has increased moderately since the 1980s after falling for almost a century (Alvaredo, Atkinson, and Morelli 2018; Garbinti, Goupille-Lebret, and Piketty 2020), while Australia shows a similar increase starting in the 1970s (Katic and Leigh 2016). In China, the top 10% share rose from 40% in 1995 to 67% in 2015 (Piketty, Yang, and Zucman 2019), while in Norway, the Gini coefficients in housing and financial wealth respectively rose from 0.275 to 0.289 and 0.806 to 0.822 during the period 2010-2018 (Galster and Wessel 2024).

Cross-national studies have found that the level of wealth inequality varies dramatically across high-income countries. Wealth inequality is almost always much higher than income inequality (Davies and Shorrocks 2000), but there is little correlation between the level of wealth inequality and that of income inequality—a finding that has puzzled inequality scholars (Cowell et al. 2018; Jantti et al. 2008; Pfeffer and Waitkus 2021; Sierminska, Brandolini, and Smeeding 2006; Skopek et al. 2014). In particular, countries like Norway, Sweden, and Denmark, which have extremely low levels of income inequality, and are famously regarded as egalitarian, have levels of wealth inequality comparable to the United States, while Southern European countries like Italy and Spain have lower levels of wealth inequality but higher levels of income inequality. This finding has prompted some observers to argue that wealth and income are fundamentally distinct dimensions of stratification (Skopek et al. 2014).

Social insurance programs and the debate over augmented wealth

A major challenge for the empirical study of wealth inequality is that there is not yet consensus on how wealth should be defined and measured. There is widespread agreement that an individual's wealth is equivalent to her net worth: the sum of all the assets she owns, minus all liabilities (Feldstein 1976; Spilerman 2000; Wolff 1990; Zucman 2019). But there is

disagreement about what constitutes an asset, and what asset types should be included. In practice, there are two major approaches to defining wealth, focused on "marketable" and "augmented" wealth respectively.

Many empirical studies, including those cited above, have followed the System of National Accounts (United Nations et al. 2009) and the OECD (OECD 2013) in including all assets that can potentially be sold on a market in relatively short order, as well as defined contribution pensions (which are composed of marketable assets). This "marketable wealth" is what appears on a household's balance sheet. It is attractive because it is relatively straightforward to measure and conforms with most people's intuitions about their net worth. However, marketable wealth has been subject to considerable critique on the grounds that it fails to account for a large portion of the assets owned by many households (Feldstein 1976; Quinn 1985; Weil 2015). Some researchers have argued that empirical wealth research should adopt a broader definition of "augmented wealth" (Wolff 1990) that incorporates private defined benefit pensions, public pensions (like Social Security in the United States), and potentially other non-tradable assets.

Assets are defined by accountants and finance professionals as the ownership of resources expected to produce economic benefits—most commonly income or other money payments—in the future, with an asset's price reflecting the value of the expected benefits, discounted by time and uncertainty (Cochrane 2005). Specifically, the International Financial Accounting Standards define an asset as "a present economic resource controlled by an entity as a result of past events," where an economic resource is "a right that has the potential to produce economic benefits" (International Accounting Standards Board 2018). This basic definition underlies the asset values used in all empirical studies of wealth inequality. It also makes clear why limiting the estimation of a person's wealth to just those assets that are easily tradable may be insufficient. A stock certificate is a right, guaranteed by a country's legal system, to a stream of income in the form of some portion of a company's future profits. A Social Security account is a right, guaranteed by the same legal system, to a stream of income in the form of retirement checks. It is not immediately obvious why the former, but not the latter, should be considered part of someone's net worth.

More formally, in their review of the sociology of property, Carruthers and Ariovich (2004) identify five dimensions of property: who owns it, what is owned, what constraints exist

on its use, how rights are enforced, and whether and how rights are transferred. On each of these dimensions, it is possible to articulate an answer for many social insurance programs, and in many cases the answers for social insurance programs are similar to those for at least some kinds of marketable wealth. In part because of these similarities, Charles Reich argued in his classic essay "The New Property" (Reich 1964) that social insurance programs and other government largess ought to be considered commensurate with more traditional forms of property—a viewpoint that was influential in establishing due process rights to US social insurance (Super 2013).

There are empirical as well as theoretical arguments for augmented wealth. Social scientists across disciplines have documented how public welfare states and private economic resources function as partial substitutes. Prasad (2012) shows that countries with less generous welfare states saw greater expansion of consumer credit during the late 20th century, a finding replicated and refined by Wiedemann (2021). Hacker (2019) documents a "Great Risk Shift" in the United States, where risks once absorbed by government or employers have been transferred onto individuals, while Fessler and Schürz (2018) show that countries with more generous welfare states have lower net wealth. A long-established literature studying pensions has shown that in places where public pensions are available, workers save less for retirement (Domeij and Klein 2002; Jappelli, Marino, and Padula 2021). At both the individual and national scales, there is partial substitutability between public social insurance and private resources.

On the other hand, there are both practical and conceptual objections to augmented wealth. Practically speaking, estimating the present cash value of pensions and social insurance programs is challenging, requiring assumptions about mortality, discount rates, and valuation that may introduce a great deal of imprecision in estimations (Davies and Shorrocks 2000:607; Saez and Zucman 2016:526). These practical challenges, rather than conceptual disagreement, are the primary reason that the OECD guidelines for microstatistics on household wealth recommend excluding public pensions (OECD 2013:71). But conceptual arguments have also been raised: that social insurance and pension wealth are not typically under the direct control of their "owners" (Wolff 1990:181), and have constraints that limit their usefulness for purposes such as consumption smoothing and intergenerational transmission (Pfeffer and Waitkus 2021:575; Spilerman 2000:503–4; Wolff 2017:117). There is also the question of where to draw

the line: if Social Security should be included as a form of wealth, what about health insurance (Zucman 2019:113)?

Empirical estimates of augmented wealth

The debate over what counts as wealth matters because both the total amount of wealth and the level of inequality vary enormously depending on which definition is used. Recent studies have estimated augmented wealth—typically operationalized as the sum of marketable wealth, public pension wealth, and in some cases private defined benefit pension wealth, but excluding other social insurance wealth—in countries including Australia (Longmuir 2023), Austria (Knell and Koman 2022), Finland (Maunu 2010), Germany (Bönke et al. 2019; Rasner, Frick, and Grabka 2011), Italy (Mazzaferro and Toso 2009), Poland (Wroński 2023b), the United States (Catherine, Miller, and Sarin 2024; Jacobs et al. 2021), and Switzerland (Kuhn 2020), building on earlier work in Canada (Shamsuddin 2001), the UK (Atkinson 1983; Dunn and Hoffman 1983), and the US (Feldstein 1976; Quinn 1985; Wolff and Marley 1989). Across these countries, the total amount of pension wealth has been consistently estimated to be comparable to—and in many cases greater than—the amount of all marketable wealth combined (Sierminska and Wroński 2023). In the United States, for example, the present value of expected Social Security payments has been estimated at $40.6 trillion dollars (Catherine et al. 2024), or roughly $124,000 per capita, compared to recent estimates of $80 trillion or $244,000 per capita in total marketable wealth (Zucman 2019). Across the European Union the value of pension wealth has been estimated at almost $300,000 per capita, compared to just over $200,000 per capita of marketable wealth (Wroński 2023a). Public pensions are the largest single asset class in most countries where their wealth value has been estimated.

Moreover, because social insurance programs cover large segments of society, there tends to be much less inequality in augmented wealth than in marketable wealth (Feldstein 1976). In most countries the Gini coefficient in augmented wealth is around 20 percentage points lower than that in marketable wealth (Cowell et al. 2017; Sierminska and Wroński 2023; Wroński 2023b), meaning that public and defined benefit pensions reduce wealth inequality by about one third. In the United States, recent estimates have found that the Black-white wealth gap when Social Security and pensions are included is half as large as the gap in marketable wealth alone (Thompson and Volz 2021; Wolff 2022). This highlights the potential of

augmented wealth to reduce inequality, but also reinforces the importance of definitional clarity—the lower inequality in pension wealth does not address concerns about the racial wealth gap when it comes to the ability to purchase a house, meet an unexpected expense, or afford college tuition.

Resolving the debate: Defining wealth by matching uses to constraints

What counts as wealth is a deep conceptual question with major empirical implications. A careful attempt to answer it must begin by understanding how wealth is used in practice, and how legal and logistical constraints on various asset types determine which purposes they may be used for. By pinpointing the specific uses of wealth that are of interest in a given study, and identifying the asset types whose constraints allow those uses, researchers can arrive at use-specific definitions of wealth that are less contested and more illuminating than attempts at one universal definition.

How marketable wealth is used

While marketable wealth can be put to many purposes, there are a few core uses that account for much of its utility, and make it what Shapiro (2004) calls a "transformative asset:" one whose possession—even in relatively small quantities—can fundamentally shift a person's life trajectory. Scholars have noted this, and developed various typologies of the core uses of wealth (e.g. Frick and Grabka 2009; Pfeffer and Hällsten 2012). Beckert (2024), building on Fessler and Schürz (2022), identifies six core "capacities" for wealth: it can provide *security*, it can provide *opportunity*, it can be a source of *income*, it can be *bequeathed*, it can provide *social status*, and it can provide *power*. Both Beckert and Fessler and Schürz are concerned primarily with social differentiation, showing how wealth is predominantly used for different purposes by different social groups and at different points in the wealth distribution. The capacities of wealth that are most common across most of the distribution are security and opportunity (Beckert 2024:478), while income in retirement is the most common use for augmented wealth. I briefly describe these three uses here.

<u>Security: Wealth as all-purpose insurance</u>

For most households, a core reason to accumulate private wealth is as a source of *security*—what Pfeffer and Hällsten (2012) call its "insurance function." Losing a job, suffering a health emergency, or having to pay for unexpected repairs to a house or car can all be major financial shocks to a household. Wealth offers insurance against these shocks, preventing a short-term disruption from becoming a long-term disaster. Households with greater liquid net worth make smaller reductions in consumption after a negative income shock than those with fewer assets (Ganong et al. 2020), while unemployed workers with substantial savings are choosier about seeking reemployment, resulting in higher wages and better advancement opportunities when they return to the workforce (Alexopoulos and Gladden 2006; Bloemen and Stancanelli 2001). Moreover, the mere knowledge that such a cushion exists creates a "psychological safety net" (Shapiro 2004) that allows for greater risk-taking and reduces stress.

Opportunity: Wealth as investment liquidity

A second major use of marketable wealth is to create *opportunity*. In what Pfeffer and Hällsten (2012) call its "purchasing function," wealth can be used to make investments likely to generate positive returns. These can be as straightforward as using wealth as investment capital, buying a stock or starting a business, but they also encompass personal investments like going to college or buying a home. Family wealth allows these investments to be made freely, even early in life: Young adults with access to family wealth do not have to incur debts to attend college, and they can appeal to the "bank of mum and dad" (Friedman and Laurison 2019) for startup capital, a down payment on a house, or income support while they pursue a risky but potentially lucrative career. As a result, family and personal wealth are associated with self-employment (Fairlie and Krashinsky 2012; see however Hurst and Lusardi 2004), educational attainment (Conley 2001; Pfeffer 2018) and homeownership (Killewald and Bryan 2016). Each of these outcomes in turn predicts higher incomes, greater net worth, and better health later in life (Zajacova and Lawrence 2018; Zavisca and Gerber 2016).

Wealth as a source of income

A third use of marketable wealth—and the primary use of augmented wealth from pensions and Social Security—is to generate income (Henretta and Campbell 1978). Voluntary private savings, as well as mandatory savings through defined contribution retirement schemes,

are an important source of retirement income in many countries (Barrett and Tseng 2008; OECD 2021c; Pai 2006).

These uses are not exclusive. Some authors (Fessler and Schürz 2022; Killewald et al. 2017) distinguish the use value of assets, for instance living rent free in a house or driving a car. At the top of the distribution, wealth also provides intergenerational prosperity, social prestige, and political and economic power (Beckert 2024; Fessler and Schürz 2022). The power provided by great wealth has been a major reason for concern about rising wealth inequality: a single fortune can bring political influence that outweighs millions of voters, undermining democratic governance (Page, Seawright, and Lacombe 2018; Wessel 2021; Winters and Page 2009).

Legal and logistical constraints on wealth

Considering some of the common uses for wealth helps clarify how social insurance programs and other non-tradeable assets are both analogous and not analogous to marketable wealth. As a source of retirement income, Social Security is an excellent substitute for private savings. But as a means of making a down payment on a house, or covering an unexpected financial shock, Social Security is much less helpful, because it is generally inaccessible before retirement.

Importantly, Social Security is far from the only asset class with restrictions on its use. Other social insurance programs, such as unemployment insurance or paid sick leave, can be accessed only in the event of a particular financial shock. But many forms of marketable wealth also have legal limitations on their use. Employee stock options, for example, have stringent conditions on exactly when and how they can be exercised, while defined contribution retirement accounts typically have penalties associated with early withdrawals.

Two main types of constraints are important to consider: constraints on use and constraints on liquidity. Carruthers and Ariovich (2004) designate "articulation of use" as a key dimension of property, and describe how legal restrictions are routinely placed on how private assets can be used: zoning laws stipulate what types of buildings can be constructed on privately owned land, covenants limit what a loan can be used for, and licensure requirements limit the use of automobiles even by their owners. Legal constraints also bind social assets: unemployment insurance can only be accessed after job loss, while child allowances are limited to families with children.

A second constraint on both marketable and social assets is liquidity: how quickly can an asset's value be accessed? Asset liquidity is a spectrum, with asset types ranging from perfectly liquid (cash), to essentially liquid assets that can be converted to cash with a simple application or sale (publicly traded stocks, unemployment insurance), to moderately liquid (real estate, whose sale often takes time and involves high transaction costs) to extremely illiquid (equity in privately held companies, public and private pensions).

Acknowledging these constraints is important for scholarship. Often, the specific constraints on individual asset types, and how they align with a given use of wealth, will be more relevant than the distinction between marketable and augmented wealth. By matching constraints to uses, use-specific definitions of wealth can be created that form a foundation for effective and clear empirical research.

Tailoring wealth definitions based on uses and constraints

The preceding paragraphs have highlighted some common uses of marketable wealth, and described how legal and logistical constraints on purpose and liquidity limit both marketable and social assets. These constraints can form the basis of use-specific wealth definitions that are better suited to most empirical research than universal definitions. To implement such a definition, researchers should first determine the specific use(s) of wealth that they are most concerned with: is this a study of access to higher education, or of the political influence of the superrich? Then, considering both marketable and augmented assets, they should ask whether the legal and logistical constraints on each asset type allow it to be used for that purpose. In many cases, the appropriate wealth definition will include some (but not all) social insurance programs and some (but not all) types of marketable wealth.

Table 1 provides examples of assets that might be included or excluded from standard empirical analyses focused on certain common uses for wealth. As it shows, while some marketable asset types are versatile, others have constraints that mirror those on social assets. In most cases, for instance, it will not make sense to include defined-contribution pensions in analyses focused on uses other than saving for retirement, while home equity may be inappropriate to include in analyses focused on the ability to meet an unexpected expense, since relatively few households use it for that purpose (Adames and Bryer 2024; Board of Governors of the Federal Reserve System 2024).

[Table 1 here]

By tailoring definitions of wealth to uses, scholars and policymakers can incorporate the real insight that certain social insurance programs provide important economic benefits, without getting bogged down in an unresolvable debate about the fundamental nature of wealth. This will also reduce the likelihood of studies talking past each other, coming to different conclusions because they use different definitions.

Where to draw the line?

A common concern raised about augmented wealth is the question of where to draw the line (e.g. Saez and Zucman 2016:526). If Social Security should be considered a form of wealth (for some purposes), what about disability insurance, which most people never use—but which can be worth hundreds of thousands of dollars to those who do use it? What about health insurance? What about human capital, as Milton Friedman and others have argued (Friedman 1957; Looney 2022; Weil 2015)?

Conceptually, there are reasonable arguments for an expansive definition. There is clearly a sense in which a college degree is a source of value, even if it doesn't seem quite equivalent to a stock certificate. Should the uncertain but statistically likely income boost from a bachelor's degree be accorded the same status as a legally enforceable claim on corporate profits? Insurance, particularly indemnity or catastrophe insurance that protects against unlikely but ruinous events, raises a related issue. Intuitively, most people might not consider homeowner's insurance a form of wealth. But even if never used, this insurance provides clear—if challenging to quantify—value via protection and reduced uncertainty. The conceptual questions of differences and similarities between different forms of value deserve continued scholarly attention and debate.

For most empirical analysis, however, what is needed is a practical way to distinguish assets that should be included when computing net worth from resources whose value is too nebulous or difficult to calculate. For these purposes, there are two distinctions that can be made that, while certainly up for debate, align well with standard definitions of marketable wealth and are defensible on the conceptual merits.

One clear distinction can be drawn between assets to which a person has a *current legal right* and other potential sources of income whose benefits are more speculative. This draws on the "enforcement of rights" dimension of property articulated by Carruthers and Ariovich (2004), including only those assets whose rights are enforced by the state, and aligns with the standard practice for estimating marketable wealth. If a stock doesn't pay its promised dividends, the owner can recover damages through the legal system. Access to most entitlement programs is similarly guaranteed by the state. But human capital is not: if a student is unable to find lucrative employment after graduation, they can't sue their educator. For this reason, human capital should be excluded from most empirical research on wealth.

The uncertainty surrounding insurance is different, involving the likelihood of needing coverage rather than its value if needed. Here, a distinction can be drawn between insurance that substitutes for savings and insurance against catastrophe. Some negative events are small enough, and probable enough, that in the absence of insurance people will stockpile savings against them. For example workers accumulate more private savings when unemployment insurance is less generous (Engen and Gruber 2001). Most workers are able to save up enough to cover short-term income loss, and unemployment is likely enough that they choose to do so. But other events are so devastating that most people cannot save for them. Replacing a home lost to fire, for example, may cost hundreds of thousands of dollars—far more than most people can set aside, which is why they purchase homeowners' insurance. Long-term disability, floods, and bank failures are other catastrophic events whose damage is likely to exceed individual savings capacity, and many governments provide insurance against these risks.

It is questionable whether these types of catastrophe insurance substitute for private savings in the way unemployment insurance does. The events are rare enough that many people may not feel the need to save for them—and even for those who do, accumulating sufficient savings is generally infeasible. Importantly, definitions of marketable wealth do not typically include the actuarial value of private homeowner's insurance or malpractice insurance, which similarly insure against unlikely but devastating losses.

For these reasons, a defensible practice for most empirical research is to exclude catastrophe insurance—both public and private—while including forms of insurance that more readily substitute for savings. Of course, for a study of housing equity in hurricane country, or

financial security among workers in occupations with high rates of disability, these forms of insurance may be sufficiently salient and widely used to justify including them.

The distinction between savings-substitute insurance and catastrophe insurance may also help with the treatment of health insurance, a particularly thorny issue for cross-national comparisons. Health insurance can be thought of as a combination of a user subscription fee paid for routine care, such as check-ups, preventative screenings, and basic consultations, and catastrophe insurance against uncommon but extremely costly illnesses or injuries. Under the distinction proposed here, neither the ongoing subscription fee nor the catastrophe insurance would be considered a direct substitute for savings, so neither would be necessary to include in a definition of wealth (an alternative approach would include the discounted value of premiums or other health expenses that are avoided through public health insurance).

In sum, my recommended approach to defining wealth for most empirical research involves in three steps:

1. Articulate one or more uses for wealth that are the focus of study.
2. Identify both marketable and augmented assets whose legal and logistical constraints allow them to be applied to the uses of interest. The recommendations in Table 1 may be useful starting points, but researchers should make their own decisions based on the specifics of their analysis, and should state and defend the asset types included and excluded as part of their research methods.
3. Only consider assets to which owners have a current legal right, and exclude both private and social insurance against catastrophe, while including forms of insurance that substitute for savings

Explicitly applying use-specific definitions of wealth will help research more accurately capture the assets that are relevant in individual studies, while limiting confusion among readers who may not realize that different studies use entirely different conceptions of what wealth is. In addition, these definitions allow fuller consideration of sources of augmented wealth beyond pensions.

More than just pensions: quantifying the extent of social insurance wealth

The previous section described how marketable and social insurance wealth can be considered interchangeable for some, but not all, purposes. This partial interchangeability is important to highlight, because outside of the academic wealth literature, privately held assets and government social insurance programs are rarely considered to be synonyms. If augmented wealth is counted, then social insurance programs are a major—even the primary—way that wealth is created. If anything, previous studies have understated the magnitude of augmented wealth, because they have typically focused on pensions alone. But pensions are just one of many ways that governments directly provide individuals with economic resources that might otherwise come from private savings.

To illustrate the importance of augmented wealth beyond pensions, and how this varies across countries, Table 2 presents case studies examining augmented and marketable wealth in two countries, Norway and the United States. These are two high-income countries that differ markedly in their economic institutions and level of income inequality, yet have similarly high levels of inequality in marketable wealth. Norway is a paradigmatic Nordic universalist welfare state (Esping-Andersen 1990), with strong and universal public provision of healthcare, pensions, and social insurance, as well as high union coverage. The United States is a liberal market welfare state, with fewer and less universal protections and much lower rates of union membership. Reflecting these differences, the Gini coefficient for household disposable income in Norway, according to the Luxembourg Wealth Study, was 0.26 in 2019, while that for the United States was 0.47, almost twice as high (LIS 2024).

However, when it comes to marketable wealth, the levels of inequality are much more similar, with 2019 Gini coefficients of 0.76 in Norway and 0.88 in the US. Among the 11 countries where both income and wealth inequality are observed in recent waves of the LWS, the US had the second-highest income inequality, while Norway had the lowest. But Norway had the fourth-highest wealth inequality—behind the US, South Africa and Denmark, and ahead of the UK, Germany, South Korea, and Italy, all of which had much higher income inequality. Examining these two countries illustrates how social insurance wealth can change the experience and consequences of similarly high levels of marketable wealth inequality.

I consider scenarios illustrating three of the common uses for marketable wealth: a worker preparing for retirement (income generation), a midcareer employee worried about income loss due to sickness or unemployment (security), and a young couple preparing to have

their first child (opportunity). In each case I estimate the present value of applicable social insurance programs for hypothetical individuals near the bottom, middle, and top of the marketable wealth distribution, and compare that value to their marketable wealth holdings by broad asset class. These case studies are intended to illustrate the magnitude of value created by social welfare programs, and how it compares to marketable wealth at different points in the distribution. My hope is to encourage future researchers to construct more precise estimations of the wealth equivalent of these programs across the distribution, as is increasingly being done for public pension wealth (Sierminska and Wroński 2023).

Details of the estimation methods are provided in Appendix 1. Broadly, I use the Luxembourg Wealth Study (LWS 2023) to compute the 10th, 50th, and 90th percentiles of disposable net worth for residents of each country in each scenario in 2019. I determine the income and asset composition of my hypothetical individuals by taking the mean among all people within 10 percentiles of the focal point. For example, the income assigned to my 50th percentile resident is the mean income among people between the 45th and 55th disposable net worth percentiles. I then calculate the expected social insurance benefits using online calculators from providing agencies. When social insurance programs pay out over multiple years, I apply a 2% real discount rate, following the practice of the OECD for analyzing pensions (OECD 2021c). Norwegian Kroner are converted into US dollars at an exchange rate of 10.3837, that used by the LWS for 2019.

In the United States, where social insurance levels vary by state, I analyze California, the largest state and one of the most liberal. In Appendix Table A1.1 I present results for Texas, the second largest state and one that is more conservative. However, because the large majority of augmented wealth is provided by federal programs (specifically Social Security and the Child Tax Credit), the estimates do not vary substantially between these two states.

Income in retirement

I first consider the scenario in which augmented wealth has most frequently been discussed: saving for retirement. In Panel A of Table 2 I consider an employed individual approaching retirement age (67 in both countries). According to the Luxembourg Wealth Study, the median disposable net worth for employed persons in Norway aged 62-66 was $390,823 in 2019 (10th percentile: $57,189; 90th percentile: $1,158,409). The average labor income among

those near the center of the wealth distribution was $52,990, while it was $45,127 for those near the bottom and $78,475 for those near the top. In the US, net worth was $35,501 at the 10th percentile, $472,370 at the median, and $3.7 million at the 90th percentile, while average incomes were $30,442, $58,050, and $171,756. At the top of the distribution, financial assets and real estate equity made up the bulk of wealth holdings, although private, defined-contribution pensions were also substantial in the US (these pensions are much less common in Norway and data on them are not available). At the 10th and 50th percentiles of the US, private pensions were the largest asset class, while financial wealth and non-financial, non-real estate assets were most important in for the 10th percentile in Norway.

[Table 2 here]

Estimates of public pension wealth are constructed by applying each country's net pension wealth multiplier from the OECD (OECD 2021a, 2021b) to the specified income. In Norway, estimated pension wealth ranged from around $435,000 at the 10th percentile to $661,000 at the 90th, while in the US it ranged from $272,000 to $669,000, with the median at $412,000. The magnitude of social insurance wealth for retirement is enormous, far larger than that of marketable wealth for both the 10th and 50th percentile workers, and comparable marketable wealth even at the 90th percentile in Norway. Moreover, pension wealth is *much* more equitably distributed than marketable wealth applicable to retirement: in Norway the 10th percentile worker had just 5% as much marketable wealth as the 90th, but 66% as much public pension wealth, while in the US the ratio was 1% for marketable wealth and 41% for public pension wealth. The large magnitude and equitable distribution of social pension wealth, which are consistent with findings in previous research (e.g. Catherine et al. 2024; Wroński 2023a), highlight how failing to account for augmented wealth can be misleading when studying preparation for retirement.

Insurance against income loss

A second major use of marketable wealth is as insurance against unexpected income loss or financial shocks—the "insurance" or "security" function of wealth (Beckert 2024; Pfeffer and Hällsten 2012). Two relatively common types of income loss that the US and Norwegian welfare

states provide insurance against are unemployment and short-term sickness. Both countries also insure against long-term disability, but because those programs function more as catastrophe insurance than a substitute for savings I do not examine them here (Appendix 1 provides an estimate of the actuarial value of sick leave and long-term disability insurance combined). I calculate the value of these programs in each country for a 45-year-old worker, near the midpoint of their career. These are shown in Table 2B.

In Norway, the median marketable wealth among employed persons aged 43-47 was $173,000. That at the 10th percentile was -$35,000, while that at the 90th percentile was $692,000. In the US, marketable net worth was -$5,000, $116,000, and $1.1 million at the 10th, 50th, and 90th percentiles respectively. The majority of assets held by both the 50th and 90th percentile workers in both countries were in real estate. The negative net worth of workers at the 10th percentile came primarily from real estate debts in Norway and from non-housing liabilities in the US. Approximate incomes at these wealth percentiles were $50,000, $58,000, and $76,000 in Norway, and $40,000, $60,000, and $125,000 in the US. As in the retirement scenario, the much greater income inequality in the US is apparent, while the wealth distributions are more similar between the two countries.

In Norway, most workers are eligible to receive unemployment benefits of 62.4% of their previous wages for up to 104 weeks (Norwegian Labour and Welfare Administration 2023b). The total present value of these benefits would be $62,000, $71,000, and $87,000 for the low-, median-, and high-wealth workers respectively. In the US, unemployment benefits vary by state, but in California workers are eligible to receive up to 26 weeks of benefits at 50% of their previous earnings up to a cap of $450 per week (California Employment and Development Department 2023). The 10th percentile worker would be eligible to receive a total $9,932, while the 50th and 90th percentile worker would receive the $450/week cap, with a total value of $11,700.

A second type of protection is against the inability to work due to short term illness. In Norway, workers are allowed up to 52 weeks of paid sick leave at 100% of their standard salary up to a cap of around $68,500 per year (Norwegian Ministry of Labour and Social Inclusion 2022). The 10th and 50th percentile workers would be eligible for their earnings of $50,000 and $58,000, respectively, while the 90th percentile worker would receive the cap. The US has no mandated sick leave at the national level, but in California workers are eligible for 5 days per

year, worth $794, $1,203, and $2,501 respectively for the hypothetical 10th, 50th, and 90th percentile workers. Sick leave is thus a major area where the welfare states of Norway and the United States differ.

Simply summing the face value of unemployment insurance and paid sick leave likely overestimates the value of these two programs in terms of marketable wealth: unlike most marketable assets, these programs are not fungible: unemployment insurance cannot generally be applied to cover wages lost due to sickness. In Table 2B I report the minimum face value across the two programs to partially account for the fungibility of marketable wealth, assuming that in the absence of these programs people would accumulate savings against some combination of these shocks, but not each one individually. I also report the summed face value for comparison. A further alternative, taking the statically expected actuarial value based on OECD data on per capita spending by each country, is presented in Appendix 1.

Even more than retirement savings, augmented wealth programs applicable to income loss disproportionately benefit workers in the lower parts of the wealth distribution. In both countries the 10th percentile workers had negative net worth, meaning that these social programs may be their primary cushion against income loss due to unemployment or sickness. For the 90th percentile worker, on the other hand, these programs were quite small relative to marketable wealth, totaling just 10% of marketable wealth in Norway and less than 1% in the US. The differences between the Norwegian and US welfare states are more striking in this scenario than in retirement: at the median, the Norwegian programs were worth roughly $57,000, about 33% of marketable net worth, while the US programs were worth just $1,200 ($13,000 if face values are summed), about 1% of net worth.

Starting a family

A third suite of social insurance programs fulfills aspects of the "opportunity" or "investment" capacity of wealth, particularly those related to building human capital. These include parental leave programs that give new parents time off work to bond with their children, and child allowances and tax credits that help families provide for their children. Studies have found that investments made in early childhood have outsize returns across the life course in health and economic terms (Calder 2014; Cannon et al. 2018; Esping-Andersen 2008) and that

parental leave has long-term benefits for health and some education outcomes (Danzer et al. 2022; Danzer and Lavy 2018; Ginja, Jans, and Karimi 2020).

Panel C of Table 2 presents the estimated value of these programs for a young couple (age 30) expecting their first child. To approximate the resources available to this couple I consider the wealth and household income among childless couples ages 28-32 in each country (for parsimony, I assume that both parents work and each earns half of household income). In Norway, the median such couple had marketable wealth of $43,000 and a household income of $86,000 (10th percentile: -$55,000 net worth and $72,000 income; 90th percentile: $270,000 net worth and $109,000 income). In the US the amounts were -$77,000 net worth and $74,000 income for the 10th percentile, $52,000 net worth and $94,000 income for the median, and $378,000 net worth and $230,000 income for the 90th percentile—again illustrating the greater income inequality in the US. Real estate made up the bulk of the holdings of the 50th and 90th percentile US couples and the 90th percentile Norwegian couple, though financial assets were more important for the 50th percentile Norwegian couple. The debt composition of the 10th percentile Norwegian couple was split between residential and non-residential debts, while the 10th percentile US couple held non-real estate debts of $113,000.

Parental leave programs allow parents to stay home from work to recover from birth and bond with their infant. In Norway, parents receive a combined 49 weeks of parental leave at full pay, of which a certain amount must be used by each parent (Norwegian Ministry of Labour and Social Inclusion 2022). The parental benefit would thus be worth between $37,000 and $53,000 for the hypothetical Norwegian couples, with the median eligible for $44,000. In the US, there is no paid leave at the federal level, but in California each parent is entitled to 8 weeks at 70% to 90% of previous wages (California Employment and Development Department 2025). This would amount to $10,000, $13,700, and $25,000 for the 10th, 50th, and 90th percentile US couples.

Once children are born, they must be provided for. Both countries make substantial investments in reducing this cost burden, taking the form of a child benefit in Norway and the Child Tax Credit (CTC) in the United States. In Norway families receive 1,766 kroner/month for children under 6 and 1,310 kroner/month for children age 6-17, for a total discounted value of $26,161 over the years until the child turns 18 (Norwegian Labour and Welfare Administration 2023a). In the United States the CTC under current law is $2,000 per child under 17, of which

$1,400 is refundable, though this is scheduled to revert to a fully refundable $1,000 per child in 2025 (Hulehan 2023). The discounted value of the US CTC is $29,155 at the current level and $14,578 at $1,000/year, assuming the parents owe at least $2000 of income tax each year and jointly earn less than $400,000.

Childcare and education are other areas in which these countries make large social investments, although the value provided by these programs may vary substantially depending on family structure and whether children grow up to attend college. Because of this variability I exclude these programs from the main analysis, though rough estimates are reported in Appendix Table A1.2.

The social insurance programs available to young parents amount to a substantial sum in both countries: $60,000-80,000 for the Norwegian couples and $40,000-55,000 for those in the US. For parents near the bottom of the wealth distribution, who have negative net worth, these are considerable amounts compared both to the other assets they own and to the debts they owe. For parents in the middle of the distribution, they are comparable in size to total marketable wealth: 72% of marketable wealth in the US and 161% in Norway. They are smaller, but still non-trivial, at the top of the distribution: about 30% of marketable wealth in Norway and 13% in the US. In both countries, these programs would provide similar amounts for any additional children.

Summing up

The case studies considered here make clear how the economic resources provided by social insurance programs in both Norway and the United States are massive, and extend beyond pensions alone. Programs to avoid income loss are worth tens of thousands of dollars to midcareer workers, while programs to support families amount to roughly $60,000-$80,000 per child for Norwegian couples and $40,000-$55,000 for American ones. In all three scenarios, the benefits to low-wealth persons were particularly large relative to their marketable net worth, while those to high-wealth persons were smaller, though still generally non-negligible. This indicates that social insurance wealth may be especially important for those who might otherwise be at risk of poverty. While the dollar value of social insurance wealth accessible for retirement is much larger than that applicable to income loss or raising a child, as a fraction of the marketable wealth of likely recipients the values were more similar. Future research should strive

to create a full distributional accounting of social insurance wealth for various common uses, one that could be directly compared to existing distributional analyses of marketable wealth and public pensions.

A final takeaway from this analysis is that the importance of social insurance wealth relative to marketable wealth can differ between countries. In all three scenarios, the social insurance wealth available in Norway was substantially larger than that in the United States, while marketable wealth levels were more similar between the two countries. This highlights how the institutional structure of each country shapes the importance of marketable wealth (c.f. Beckert 2024)—a fact that is critical to keep in mind when comparing marketable wealth across nations, and that helps explain an apparent puzzle in the cross-national wealth inequality literature.

Cross-national wealth inequality and the role of social insurance wealth

One of the more striking findings from comparative studies of wealth inequality is that there is relatively little correlation between (marketable) wealth inequality and income inequality across countries. Some countries thought of as economically egalitarian, such as Denmark, Norway, and Sweden, nonetheless have extremely high levels of inequality in marketable wealth. At the same time, wealth inequality levels are much lower in Southern European countries, such as Italy and Spain, that are often considered less egalitarian and that have higher levels of income inequality (Cowell et al. 2018; Jantti et al. 2008; Pfeffer and Waitkus 2021; Sierminska et al. 2006; Skopek et al. 2014).

The relatively weak relationship between income and wealth inequality at the national level has prompted some scholars to call for treating the two quantities as fundamentally distinct dimensions of economic inequality (Pfeffer and Waitkus 2021; Skopek et al. 2014). It has also prompted a rapidly growing literature aimed at understanding the sources of variation in wealth inequality specifically. Initial contributions have explored the role of household demographic and socio-economic characteristics (Cowell et al. 2018) and differences in asset composition and housing wealth (Pfeffer and Waitkus 2021).

The examples of social insurance wealth in Norway and the US described in the previous section suggest one possible explanation for this apparent puzzle. Inequality in marketable wealth is high in both countries, with 2019 Gini coefficients of 0.76 in Norway and 0.88 in the

US. But the hypothetical Norwegians were eligible for tens to hundreds of thousands of dollars more than the Americans from welfare state programs related to retirement, insurance against income loss, and human capital investment. This suggests that marketable wealth in Norway may be less important than in the US when it comes to meeting everyday needs (c.f. Cowell et al. 2018; Domeij and Klein 2002).

This pattern extends beyond just the US and Norway. In their study of wealth accumulation and welfare states in Europe, Fessler and Schürz (2018) document that countries with more expansive welfare states tend to have lower total levels of private wealth accumulation—exactly as would be expected if people treat social insurance programs and private savings as (partial) substitutes. These findings echo those from the comparative welfare state literature documenting the substitutability between private credit and welfare state programs (Prasad 2012; Wiedemann 2021). Moreover, the substitution effect is more complete at lower points in the wealth distribution. Among poor households, Fessler and Schürz find, wealth accumulation is much lower in countries with more generous welfare states. But among rich households, the relationship is much weaker—perhaps because rich households are more likely to accumulate wealth as a byproduct of entrepreneurship or investment rather than by foregoing consumption to save for retirement or a rainy day. An implication of these patterns, as Fessler and Schürz hypothesize, is that countries with more generous welfare states might have greater inequality in what marketable wealth does exist, while having less marketable wealth overall. This would lead to a negative correlation across countries between the total amount and the level of inequality in marketable wealth.

In fact, this is exactly what the data show. Figure 1A plots LWS data (LIS 2024) on inequality in marketable wealth and disposable income, an analysis comparable to that of previous cross-national studies (e.g. Pfeffer and Waitkus 2021; Skopek et al. 2014). Each country-year in the data is shown, with the country means across all years as labeled points. Consistent with previous research, the relationship is relatively weak: the correlation between the Gini index for marketable wealth and that for disposable income is 0.21 across the full set of countries and years and 0.3 if country means are used.

Panel B plots the level of wealth inequality against the wealth-to-income ratio, a measure of the total amount of marketable wealth possessed by residents of each country, normalized for income. Here, there is a strong negative relationship: the correlation is -0.61 for individual

country-years and -0.64 for country means. Countries with greater wealth inequality also have *less overall wealth*, relative to the size of their economies. These differences are large in magnitude: residents of low-inequality Italy own roughly *three times* as much marketable wealth, relative to the size of their economy, as residents of high-inequality Denmark or Sweden. This aligns with the prediction that where marketable wealth is less central to economic life, there is greater inequality in what marketable wealth does exist. .

Table 3 presents a descriptive regression analysis of these patterns. It includes all country-year observations in the LWS data, with standard errors clustered by country and fixed effects for five-year periods. As the first column in Table 3 shows, the Gini index for disposable income does not have a statistically significant relationship with wealth inequality. But the wealth-to-income ratio (column 2) has a negative and statistically significant relationship: countries with more total wealth, relative to the size of their economies, have less wealth inequality. Further, if both the wealth-to-income ratio and the level of income inequality are included as predictors (column 3), the coefficient on income inequality is *positive* and statistically significant. That is, once the centrality of marketable wealth in a country (as measured by the wealth-to-income ratio) is accounted for, countries with more income inequality do in fact have more wealth inequality—suggesting that wealth and income may map onto a single dimension of economic stratification after all.

The remaining columns of Table 3 introduce a measure of overall welfare state generosity from the Comparative Welfare Entitlements Project (CWEP; Scruggs 2022). There is not a strong bivariate relationship between wealth inequality and welfare state generosity by this measure (column 4), though the expected positive relationship emerges once the wealth-to-income ratio and level of income inequality are included (column 5). There is also a very strong negative relationship between welfare state generosity and the wealth-to-income ratio (column 6), as would be expected if welfare state programs substitute for private wealth. Appendix 2 replicates the analysis in Figure 1 and Table 3 a) using gross rather than disposable income and b) using only the most recent year of data for each country, finding similar results.

Definitively establishing the causal relationships connecting marketable wealth, income, and the welfare state is beyond the scope of this paper. But the analysis in Figure 1 and Table 3 is consistent with a scenario where a) marketable wealth is less central to economic life in countries where more social insurance wealth is more available, and b) perhaps as a result,

residents of these countries accumulate less marketable wealth on average. Because c) this substitution effect is likely greater for poorer residents (Fessler and Schürz 2018), it leads to more inequality in what marketable wealth does exist. But that inequality is arguably as much a byproduct of marketable wealth's lower importance for daily life as an indicator of additional stratification.

At minimum, this analysis highlights the need for extreme caution when comparing inequality statistics across countries with different economic institutions (Beckert 2024; Bruenig 2020; Cowell et al. 2018). Even when marketable wealth is defined consistently, the social role it plays may be very different in different countries. The high level of inequality in marketable wealth in Norway or Sweden means something very different, in terms of the lived experiences of most Norwegians or Swedes, from the similarly high level in the United States.

Discussion

As wealth inequality has become more prominent in academic and public discourse, the challenges presented by unresolved definitional questions have grown. In particular, the question of when and how to incorporate augmented wealth—claims that individuals possess on resources that are not tradable in a market—into studies of the wealth distribution has not been adequately resolved. Here, I have argued that serious study of augmented wealth means considering the ways in which it both is and is not a substitute for marketable wealth, and incorporating it alongside marketable wealth in those circumstances—and only those circumstances—where it is an effective substitute.

Rather than seeking to definitively establish one perfect definition of wealth, I have argued, researchers should first identify the use(s) of wealth that they are most interested in, and then incorporate both marketable and augmented assets that are guaranteed by the state and whose legal and logistical constraints allow them to be put to that use. I have provided recommendations of marketable and augmented assets that will generally be included or excluded in studies focused on several of the most common uses of wealth, but which assets to include is ultimately a question for each researcher to decide based on the specifics of their case.

Even in cases where researchers decide to use marketable wealth exclusively, thinking carefully about the uses for wealth is a beneficial practice. The fungibility of marketable wealth—the fact that the same dollars can provide income, investment, insurance, and power, all

at the same time—means that the precise motivation for research on wealth inequality often goes unstated. When scholars write about wealth inequality, or advocates argue that it is the defining economic problem of our time, are they envisioning inequality in retirement income? Inequality in personal investment capital or insurance? Inequality in control over the economic or political levers of society? Clarifying the specific goals is critical to producing accurate scholarship and effective policy.

Getting the question of augmented wealth right is important. Previous research has shown that public pension wealth is enormous—in many countries, roughly as large as all marketable wealth put together (e.g. Bönke et al. 2019; Catherine et al. 2024; Knell and Koman 2022; Kuhn 2020; Wroński 2023a). The level of wealth inequality, and even the direction of change over time, vary depending on whether augmented wealth is included. This means that decisions about when and how to include pensions and other social insurance wealth can change the fundamental conclusions drawn about patterns of wealth inequality. Researchers should not overstate the importance of augmented wealth by treating it as entirely interchangeable with marketable wealth, but neither should they ignore it entirely.

Moreover, as I have demonstrated, pensions are only the beginning: other types of social insurance wealth amount to tens or hundreds of thousands of dollars of value for residents of Norway and the US, countries with very different welfare states. Importantly, in all three scenarios I examined, social insurance wealth was particularly notable for people at the bottom and middle of the marketable wealth distribution. For those at the 10^{th} marketable wealth percentile, social insurance wealth formed the overwhelming majority of assets available for retirement, income loss, or raising a family, suggesting that it is especially important for those who might otherwise be at risk of poverty. Even at the median, social insurance wealth was comparable in size to marketable wealth, particularly in Norway. At least for these three uses, social insurance forms the predominant asset class for the bulk of the population of both countries.

The magnitude of social insurance wealth, especially in Norway, also offers one possible explanation for the puzzling lack of correlation between income and marketable wealth inequality found in previous research (Cowell et al. 2018; Jantti et al. 2008; Pfeffer and Waitkus 2021; Skopek et al. 2014). In the Luxembourg Wealth Study, countries with more generous welfare states tend to have less total marketable wealth, and greater inequality in what

marketable wealth they do have—as would be expected if a more generous welfare state makes marketable wealth less central to daily economic life, particularly for poorer households (Fessler and Schürz 2018). Once the total amount of marketable wealth is accounted for, there is a statistically significant, *positive* relationship between income and wealth inequality. This pattern emphasizes how studying marketable wealth separately from the welfare state gives an incomplete social and economic picture.

Going forward, wealth researchers should work to systematically incorporate distributional welfare state analysis into wealth microdata. Just as income microdata typically include transfer income, so wealth microdata should incorporate estimates of the wealth value of social insurance programs. It is possible, based on published welfare state eligibility and benefit policies, to calculate estimates of total social insurance wealth at the individual level in many countries, just as scholars have begun to calculate the full distribution of pension wealth (e.g. Bönke et al. 2019; Jacobs et al. 2021; Kuhn 2020; Wroński 2023b). Rapp and Humer (2023) take a promising first step in their analysis of asset poverty after accounting for welfare state programs.

Implications for policy

Taking augmented wealth seriously opens major new avenues for policies to reduce wealth inequality. Wealth inequality has risen to the forefront public consciousness in many countries in recent years. In the United States, ambitious policies like a wealth tax or a universal capital endowment through baby bonds have been proposed by prominent politicians (Durkee 2021; Iacurci 2021). But while such policies to reduce inequality in marketable wealth would be transformative, even the most ambitious would still leave significant residual inequality (Dvir-Djerassi 2024; Zewde 2020). Such programs could be usefully complemented by policies that would expand social insurance wealth. Making the 2021 Child Tax Credit expansion permanent, for example, would be equivalent to providing parents a $49,000 endowment at the birth of each child. Viewed through the lens of augmented wealth, expansions of the welfare state create large increases in the effective net worth of individuals.

The equalizing potential of augmented wealth is illustrated in my case studies of the US and Norway, where it formed the overwhelming majority of assets available to the 10th percentile residents of both countries. It is also apparent in previous studies of public pension wealth.

Across a wide range of countries, inequality in retirement wealth (incorporating Social Security and defined benefit pensions) is substantially lower than that in marketable wealth alone (Catherine et al. 2024; Jacobs et al. 2021; Sierminska and Wroński 2023). Even more striking, in the United States the Black-white gap in retirement wealth is roughly half as large as that for marketable wealth, meaning that augmented wealth already substantially reduces racial wealth inequality—but only when it comes to preparing for retirement (Thompson and Volz 2021; Wolff 2022).

While existing augmented wealth is most prominent for the income replacement, security, and opportunity uses of wealth, it could conceivably be applied to other uses of marketable wealth as well. Baby bonds programs are arguably a case where a social program substitutes for the inheritance use of wealth, and public funding of elections—as in Seattle's "democracy vouchers" program, which distributes $100 in vouchers to each registered voter to donate to their preferred candidates (Griffith and Noonen 2022)—fulfills aspects of the political power function. Arguably, the vast holdings of large scale public pension funds, such as the California Public Employees Retirement System, fulfill aspects of the power function as well.

Social insurance wealth is not a perfect substitute for marketable wealth. It is often earmarked for specific uses, and can't usually be invested or used as collateral. For these reasons, greater equality of marketable wealth remains an important goal, and the more equitable distribution of social insurance wealth does not negate troubling levels of marketable wealth inequality. But social insurance wealth also has certain advantages compared to marketable wealth: it is more difficult for predatory actors to extract from marginalized communities, and does not promote further financialization of the economy. Combining efforts to directly reduce inequality in marketable wealth with policies that expand social insurance wealth may lead to greater total reductions in inequality.

The recent wave of research on wealth and wealth inequality is an important scholarly achievement, well timed to address a major economic and social challenge facing societies around the world. By thinking carefully about the ways augmented wealth both can and cannot substitute for marketable wealth, and by considering the extent to which social insurance wealth beyond pensions can contribute to overall augmented wealth, scholars and policymakers can take full advantage of this progress.

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Tables

Table 1. Recommendations of augmented and marketable assets to include in empirical studies of various common uses of wealth. “UI” = unemployment insurance, “DB pensions” = defined benefit pensions, “DC pensions” = defined contribution pensions.

Scenario	Asset types to include		Asset types to exclude	
	Marketable	Augmented	Marketable	Augmented
Retirement	Stocks, bonds, cash, DC pensions, real estate, equity in private companies	Social Security, DB pensions		UI, paid sick leave, child allowances, parental leave
Unexpected short-term income loss	Stocks, bonds, cash	UI, paid sick leave	Real estate, DC pensions, equity in private companies	Social Security, DB pensions, child allowances, parental leave
Raising a family	Stocks, bonds, cash, real estate, equity in private companies	Child allowances, parental leave	DC pensions	UI, paid sick leave, Social Security, DB pensions
Starting a new company	Stocks, bonds, cash, real estate, equity in private companies		DC pensions	UI, paid sick leave, Social Security, DB pensions, child allowances, parental leave
Political power	Stocks, bonds, cash	"Democracy vouchers" (Griffith and Noonen 2022)	DC pensions, real estate	UI, paid sick leave, Social Security, DB pensions, child allowances, parental leave

Table 2. Illustrative example of social insurance wealth across different scenarios, Norway and the United States. All amounts reported in 2019 US dollars. See Appendix 1 for details of estimation procedure.

Scenario	Quantity	Norway			US		
		p10	p50	p90	p10	p50	p90
A. Preparing for retriement, worker age 65	Individual labor income	45,127	52,990	78,475	30,442	58,050	171,756
	Marketable net worth (US includes DC pensions)	57,189	390,823	1,158,409	35,501	472,370	3,705,811
	Financial wealth	28,302	93,882	436,456	2,719	36,754	1,081,411
	Net real estate equity	5,836	256,385	620,200	7,882	179,806	1,121,034
	Defined contribution pensions	-	-	-	23,963	234,493	922,521
	Other non-financial assets	25,038	42,956	105,202	12,362	38,288	616,631
	Non-housing liabilities	1,987	2,401	3,449	11,424	16,971	35,786
	Estimated public pension wealth	434,951	510,054	661,128	271,616	412,205	668,511
	Social insurance wealth as % of marketable wealth	*761%*	*131%*	*57%*	*765%*	*87%*	*18%*
B. Insurance against income loss, worker age 45	Individual labor income	50,220	57,692	76,007	39,702	60,139	125,054
	Marketable net worth	-35,314	173,475	692,212	-4,815	116,291	1,084,500
	Financial wealth	16,814	42,822	212,790	2,586	16,726	343,745
	Net real estate equity	-64,610	108,509	421,107	3,608	98,631	596,691
	Other non-financial assets	19,228	26,802	62,223	10,686	41,909	190,973
	Non-housing liabilities	6,746	4,658	3,908	21,695	40,974	46,910
	Discounted value of social insurance programs						
	Unemployment insurance	62,059	70,600	86,861	9,932	11,700	11,700
	Paid sick leave	50,220	57,692	68,542	794	1,203	2,501
	Total augmented wealth for income loss						
	Minimum face value	50,220	57,692	68,542	794	1,203	2,501
	Sum	112,279	128,292	155,403	10,726	12,903	14,201
	Augmented wealth as % of marketable wealth						
	Minimum face value	*-142%*	*33%*	*10%*	*-16%*	*1%*	*0%*
	Sum	*-318%*	*74%*	*22%*	*-223%*	*11%*	*1%*
C. Human capital investments in newborn child, working couple age 30	Household labor income	72,334	86,081	108,877	73,581	93,925	230,109
	Marketable net worth	-55,311	43,364	269,644	-77,295	52,822	377,788
	Financial wealth	21,081	37,595	92,568	10,958	14,401	104,717
	Net real estate equity	-37,070	25,795	196,490	14,734	41,473	263,908
	Other non-financial assets	7,596	8,753	14,246	10,593	22,052	24,336
	Non-housing liabilities	46,918	28,780	33,659	113,580	25,103	15,174
	Discounted value of social insurance programs						
	Parental leave	34,081	40,557	51,298	10,192	13,008	24,784
	Child allowance	26,161	26,161	26,161	29,155	29,155	29,155
	Total augmented wealth for human capital investments	60,242	66,719	77,459	39,347	42,163	53,939
	Augmented wealth as % of marketable wealth	*-109%*	*154%*	*29%*	*-51%*	*80%*	*14%*

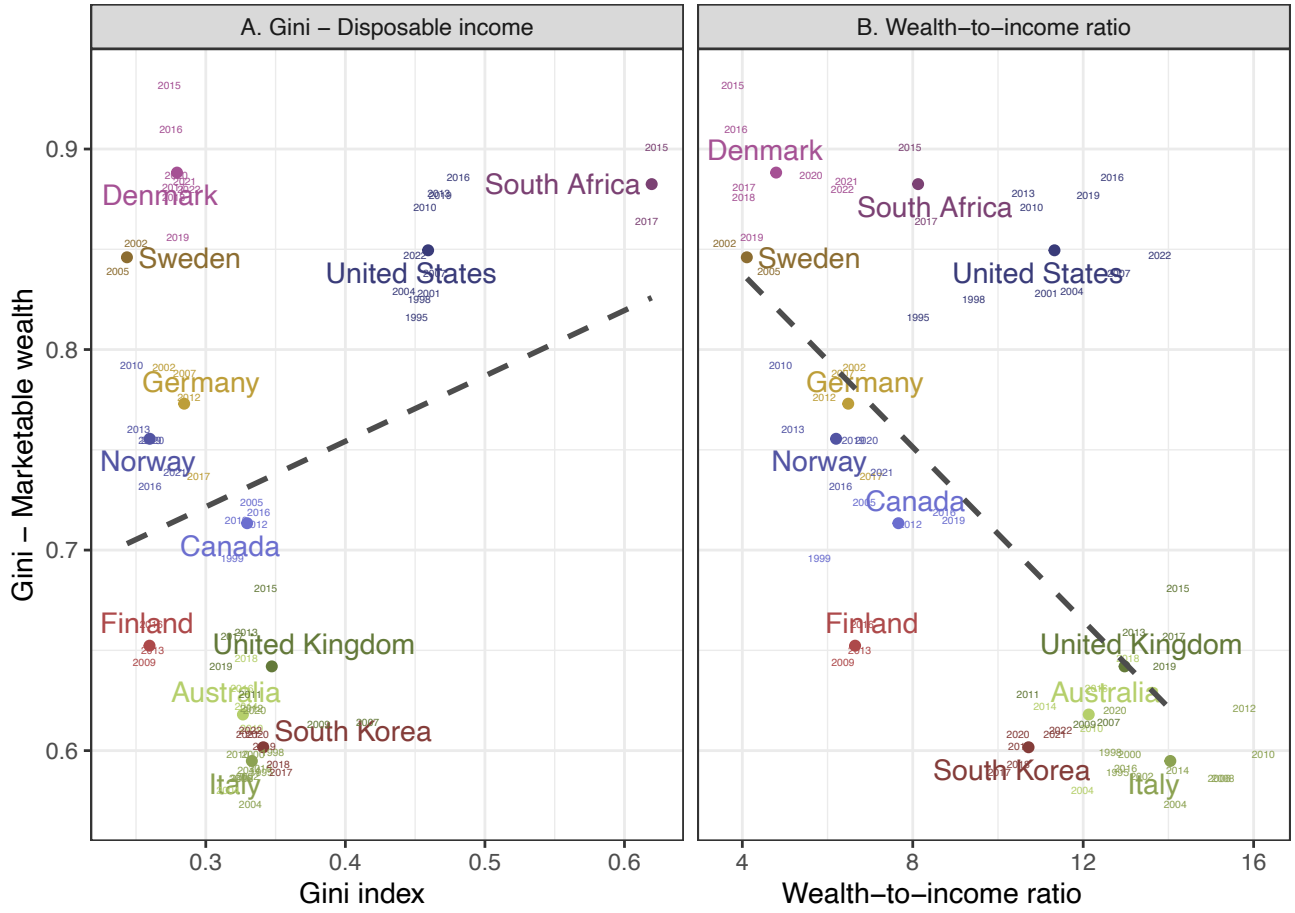
Table 3. Regression analysis of wealth inequality, income inequality, and welfare state generosity

	Dependent variable:					
	Gini - marketable wealth					Wealth-to-income ratio
	(1)	(2)	(3)	(4)	(5)	(6)
Gini - Disposable income	0.328		0.789**		1.340***	
	(0.376)		(0.321)		(0.324)	
Wealth-to-income ratio		-0.019***	-0.026***		-0.023***	
		(0.006)	(0.004)		(0.003)	
Welfare state generosity				0.001	0.004**	-0.281***
				(0.005)	(0.002)	(0.073)
Constant	0.573***	0.906***	0.666***	0.687***	0.320**	17.220***
	(0.134)	(0.042)	(0.124)	(0.199)	(0.145)	(3.372)
5-year period fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	70	70	70	58	46	46
R^2	0.088	0.389	0.631	0.038	0.740	0.320
Adjusted R^2	0.002	0.331	0.590	-0.075	0.684	0.215
Residual Std. Error	0.114 (df = 63)	0.094 (df = 63)	0.073 (df = 62)	0.102 (df = 51)	0.056 (df = 37)	3.107 (df = 39)
F Statistic	1.018 (df = 6; 63)	6.684*** (df = 6; 63)	15.178*** (df = 7; 62)	0.336 (df = 6; 51)	13.165*** (df = 8; 37)	3.056** (df = 6; 39)

Note: *p<0.1; **p<0.05; ***p<0.01

Figures

Figure 1. Wealth inequality, income inequality, and wealth-to-income ratio, Luxembourg Wealth Study. Source: LWS Data Access Research Tool. Year labels show observations for each individual year while the large dots show the mean for each country across all years observed.



Appendix 1. Details of Social Insurance Wealth Calculations

In Table 2 of the main text I present an analysis of the value of social insurance wealth for hypothetical residents of Norway and the United States across three scenarios where marketable wealth is commonly used: preparation for retirement, insurance against income loss, and human capital investments for children. This appendix describes how the values in Table 2 are calculated and provides additional detail on the simulations.

Setup

Table 2 presents three scenarios: retirement, insurance against income loss, and preparing to start a family. For each scenario, I consider hypothetical residents at the 10th, 50th, and 90th percentiles of the disposable net worth distribution among residents of their country facing that scenario in the 2019 wave of the Luxembourg Wealth Study, the most recent year available in both countries (LWS 2023). I define each scenario through a combination of age ranges, employment status, and family status. I convert Norwegian kroner to US dollars using an exchange rate of 10.3837, the LWS exchange rate for 2019. Monetary payments expected in future years are discounted at a real annual rate of 2%, that used by the OECD for pension analysis (OECD 2021a, 2021b).

Benefits for many of the social insurance programs I consider are calculated based on the recipient's income. For each scenario and wealth percentile, I calculate the mean income among residents within 5 percentiles of the focal percentile. Thus for the 10th percentile, I compute the mean *income* among those between the 5th and 15th *wealth* percentiles. This is a better approximation of the income of people with that level of marketable wealth than simply calculating the 10th percentile of the income distribution, since wealth and income are not perfectly correlated. Similarly, I calculate the total marketable wealth and the asset type composition for each percentile by taking the mean value among residents within 5 percentiles of the focal percentile. Note that this means the marketable wealth amount I report for the 10th percentile, for instance, is actually the mean markable wealth among those in the 5th to 15th wealth percentiles, and not the 10th percentile exactly. This approach is necessary to ensure that the sum of the component asset types equals the total marketable wealth.

Because many parts of the US safety net are administered by states, coverage and benefit levels can vary substantially with geography. For concreteness, I imagine residents of California, the largest state and one considered to be among the most liberal in recent decades. Appendix Table A1.1 presents the same analysis for Texas, the second largest state and one that has been historically more conservative than average. Unlike California, Texas does not have mandated paid sick leave or family leave. However, its unemployment insurance program is somewhat more generous than California's, and the bulk of augmented wealth for retirement and raising a family is provided by the federal government, so the differences between California and Texas are relatively small.

Details of eligibility and benefit levels are sourced from the California Employment Development Department (California Employment and Development Department 2021, 2025a), US Social Security Administration (Social Security Administration 2021), Texas Workforce Commission (Texas Workforce Commission 2024), Norwegian Labor and Welfare Administration (Norwegian Labour and Welfare Administration 2023c, 2023b), Norwegian Ministry of Labour and Social Inclusion (Norwegian Ministry of Labour and Social Inclusion 2022), and Lånekassen, the Norwegian educational finance agency (Lånekassen 2023).

Preparing for retirement

The first scenario I consider, shown in Panel A of Table 2 in the main text, is a worker preparing for retirement. Since the retirement age in both countries is 67, I calculate total gross labor income (which includes wages and self-employment income) and net worth among employed persons age 62-66 from the LWS. I then estimate pension wealth using the OECD country pensions profiles gross wealth multipliers for Norway and the US (OECD 2021a, 2021b). These report the estimated pension wealth upon retirement as a multiple of preretirement earnings for those earning 0.5, 0.75, 1, 1.5, 2, and 3 times the average worker earnings. I compare the calculated income for my three hypothetical residents of each country to the average earnings reported by the OECD, and use that multiple to determine the pension wealth multiplier, linearly interpolating between the two nearest reported levels. The OECD reports separate estimates by gender; I take the mean of the multipliers for men and women to use in the analysis. For the United States the LWS includes private defined contribution pensions in net worth, but in

Norway it does not. Because these pensions are a major way in which Americans save for retirement, I include them in the retirement analysis.

Appendix Table A1.1 Analysis of social insurance wealth, Texas.

Scenario	Quantity	US p10	US p50	US p90
A. Preparing for retriement, worker age 65	Individual labor income	30,442	58,050	171,756
	Marketable net worth (US includes DC pensions)	35,501	472,370	3,705,811
	Financial wealth	2,719	36,754	1,081,411
	Net real estate equity	7,882	179,806	1,121,034
	Defined contribution pensions	23,963	234,493	922,521
	Other non-financial assets	12,362	38,288	616,631
	Non-housing liabilities	11,424	16,971	35,786
	Estimated public pension wealth	271,616	412,205	668,511
	Social insurance wealth as % of marketable wealth	*765%*	*87%*	*18%*
B. Insurance against income loss, worker age 45	Individual labor income	39,702	60,139	125,054
	Marketable net worth	-4,815	116,291	1,084,500
	Financial wealth	2,586	16,726	343,745
	Net real estate equity	3,608	98,631	596,691
	Other non-financial assets	10,686	41,909	190,973
	Non-housing liabilities	21,695	40,974	46,910
	Discounted value of social insurance programs			
	Unemployment insurance	10,322	15,366	15,366
	Paid sick leave	0	0	0
	Total social insurance wealth for income loss			
	Minimum face value	0	0	0
	Sum	10,322	15,366	15,366
	Social insurance wealth as % of marketable wealth			
	Minimum face value	*0%*	*0%*	*0%*
	Sum	*-214%*	*13%*	*1%*
C. Human capital investments in newborn child, working couple age 30	Household labor income	73,581	93,925	230,109
	Marketable net worth	-77,295	52,822	377,788
	Financial wealth	10,958	14,401	104,717
	Net real estate equity	14,734	41,473	263,908
	Other non-financial assets	10,593	22,052	24,336
	Non-housing liabilities	113,580	25,103	15,174
	Discounted value of social insurance programs			
	Parental leave	0	0	0
	Child allowance	29,155	29,155	29,155
	Total social insurance wealth for human capital investments	29,155	29,155	29,155
	Social insurance wealth as % of marketable wealth	*-38%*	*55%*	*8%*

Insurance against income loss

While pensions are the largest and most studied form of social insurance wealth, they are far from the only one. Pensions serve the long-term income replacement function of wealth, but they are not possible to access until after retirement except in rare circumstances. Other social programs fulfill other functions of wealth. Unemployment insurance and paid sick leave, for instance, substitute for aspects of the insurance function of wealth, helping to meet expenses after an adverse event.

To estimate the value of these programs, I consider a mid-career worker. I calculate the labor income and net worth among employed persons ages 43-47 in both countries. I then use this income level as the basis for calculating the amount of unemployment insurance and paid sick leave each worker would be eligible for.

In Norway, workers are entitled to up to 104 weeks of unemployment at 62.4% of their base salary (Norwegian Labour and Welfare Administration 2023c), and to 52 weeks of paid sick leave at 100% of their base salary, up to a cap of around $65,000 per year (Norwegian Ministry of Labour and Social Inclusion 2022). In California workers are eligible for 26 weeks of unemployment benefits of 50% of their base earnings up to a cap of $450 (California Employment and Development Department 2023), and five days of paid sick leave (Cal/OSHA and California 2023). In Texas, workers are eligible for 26 weeks of unemployment benefits with a weekly benefit of 1/25 of their earnings in their highest earning quarter of the year prior to job loss (approximately 52% of their base earnings), up to a cap of $591. Texas does not mandate paid sick leave.

Because these insurance programs are used infrequently by most members of the population, simply summing their face values likely overestimates the value they provide to workers in this scenario. In my main specification I take the minimum of the face values across the two programs. This approach accounts for the fungibility of marketable wealth, since the same private savings could be simultaneously held against the possibility of job loss or sickness. The minimum of these two programs is the minimum amount of savings that these programs render unnecessary for the purpose of insurance against income loss from either unemployment or illness. For completeness, I also report the sum of the face value of the two programs.

In both countries additional government programs insure against long-term disability, a less frequent but potentially even more catastrophic event. As described in the main text, long-

erm disability insurance is more akin to catastrophe insurance than a substitute for savings, so I exclude it from my main analysis. However, one way to calculate an approximate value is to determine the actuarial value: the discounted value of the expected payment (probability of receiving disability insurance times the value if received) in each year.

The OECD provides estimates of spending on incapacity (sick leave and disability insurance combined), as well as unemployment insurance, as a percentage of GDP for each country. In Norway these averaged to 4.39% of GDP on incapacity and 0.59% on unemployment over the years 1980-2019, while in the US they were 1.04% of GDP on incapacity and 0.42% on unemployment insurance over that period (OECD 2023a, 2023b). Applying these percentages to the 2019 OECD estimates of GDP in each country yields a statistically expected annual payment of $3,069 for incapacity and $412 for unemployment insurance in Norway, and $670 for incapacity and $272 for unemployment insurance in the US. For a 45-year-old, the present value of these programs over the remaining years until retirement would be $55,282 and $7,416 for incapacity and unemployment respectively in Norway, and $12,067 and $4,894 in the US. Because these estimates are calculated for the nation overall, it is not possible to break them out across the income distribution. For that reason, along with the inability to distinguish disability insurance from paid sick leave, I exclude them from my main analysis.

Investments in human capital

The third scenario I examine is investments in human capital. In the main analysis I consider two programs in each country: mandated paid parental leave, which allows parents time off from work to bond with their infant children, and child allowances or tax credits, which help offset the expense of providing for children. In this scenario I consider a couple, both age 30, who are expecting their first child. I calculate their income and marketable wealth based on the household labor income (which is used to determine benefit amounts) and net worth of childless couples ages 28-32 in both countries.

In Norway, parents receive a combined 49 weeks of paid parental leave at full pay, of which some must be taken by the mother and some by the father or co-mother (Norwegian Labour and Welfare Administration 2023b). In California, each parent is eligible for up to 8 weeks of paid family leave at between 70% and 90% of previous earnings, up to a cap of $1,681 per week (California Employment and Development Department 2025b, 2025a). In both cases I

assume that both parents earn half of total household income. I calculate the weekly benefit to the Californian couple using an online benefits calculator (California Employment and Development Department 2025a). Texas does not have mandated paid parental leave.

Both countries also offer programs to help offset the cost of raising children. In Norway, this takes the form of a monthly child benefit of 1,766 kroner/month for children under 6 and 1,310 kroner/month for children age 6-17 (Norwegian Labour and Welfare Administration 2023a). In the United States, this is done through the Child Tax Credit. Under current law the CTC is worth $2,000 per child under 17 (of which $1,400 is refundable), though this is scheduled to revert to a fully refundable $1,000 per child in 2025 (Hulehan 2023), and Congress has considered legislation that would expand it to a fully refundable $2,000 per child (Snell 2024). During 2021 the US implemented a temporary expanded CTC of $3,600 per child under 6 and $3,000 per child aged 6-17, in which the anticipated tax credits were paid out monthly rather than as part of the yearly tax refund. For both countries I discount the child benefit amounts received in each year using a 2% real discount rate. The discounted value of the Norwegian child allowance is $26,161 per child at birth. The discounted value per child of the CTC if the current program were maintained would be $29,155, while the discounted value of the $1,000 per year CTC would be $14,578. If the CTC were expanded to its 2021 level the discounted value would be $49,304.

In addition to these two policies, both countries also provide free primary and secondary education and some support for university education. Norway also provides support for childcare for children ages 1-5. These are major social investments that provide a great deal of value for parents. But not everyone goes to university or enrolls in childcare outside the home, and prices in the US vary dramatically for those who do. This makes the calculation of a wealth equivalent even more challenging and less representative than for the other programs I consider. Because of this, I opt not to include an estimate of the wealth value of subsidized childcare or support for university in the primary analysis. That said, for completeness I attempt here to calculate a rough estimate of the relative support provided by the governments of Norway and the US for childcare and university. I do this by calculating the estimated discounted cost of attendance of each type of education in each country, and taking the difference as an approximation of the additional value provided by one of the welfare states.

Appendix Table A1.2 Approximation of value of policies supporting childcare and university attendance, Norway and United States.

Discounted value of programs	Norway	US	Difference
Cost of childcare, ages 1-4	-3,399	-34,172	30,773
University attendance - US 4 year	10,941	-8,729	19,670
University attendance - US 2 year	10,941	305	10,636

Estimates are reported in Appendix Table A1.2. In both countries parents have to pay out of pocket for childcare for children under 5. But in Norway the cost of attendance is heavily subsidized, with tuition at guaranteed public kindergartens (called barnehages) capped at 3,000 kroner per month, roughly $300 (Ministry of Education and Research 2023). To determine the cost of childcare in Norway, I sum the 3000 kroner/month tuition across ages 1-4, discounting at 2% per year. This amounts to a total discounted cost at birth of $3,399. In the US there are no universal subsidies for or guarantees of childcare. I estimate the cost of childcare for a child from ages 1-4 using data from the US Department of Labor Women's Bureau National Database of Childcare Prices (Landivar, Graf, and Rayo 2023). I consider a child attending center-based care in a medium-sized county. In 2018, the average cost of attendance for a 1-year-old in an infant center was $10,194, that for a 2-year-old in toddler care was $8,846, and that for a 3- or 4-year-old in preschool was $8,400. The total discounted sum amounts to $34,172. To arrive at an estimate of the addition value provided by the Norwegian welfare state for childcare I take the difference between the US and Norwegian costs, which is $30,773 per child at birth.

Because both countries provide free universal public primary and secondary education, there is no difference in cost of attendance, and I do not include primary and secondary education in this analysis. After graduating from high school, some students choose to attend university. In the United States, paying college tuition is one of the major uses of wealth for many families, and a central mechanism through which wealth is transferred between generations (Pfeffer and Killewald 2018). Because universities vary in the tuition they charge, it is difficult to provide a single number for the cost of college attendance, but the average net cost of tuition and fees per year at public 4-year universities during the 2019-2020 academic year, according to the non-profit College Board, was $3,210 (Ma, Pender, and Liassi 2020). The average net cost of tuition and fees for a public 2-year university was -$220 (i.e. on average students received grants slightly exceeding the cost of tuition and fees). In Norway, where a

bachelor's degree typically takes three years, college tuition is free, and citizens who are full time students are eligible for loans of 137,907 kroner per year to cover living expenses, of which 55,163 kroner can typically be converted to grants (Lånekassen 2023).

As I do for childcare, I calculate the difference in in the discounted cost of university between the two countries. In the US, the estimated discounted cost at birth of attending a 4-year university is $8,729, while the discounted net value of grants for a 2-year university is $305. In Norway, the discounted value of the 55,163 kroner per year grants is $10,941. The extra value provided by the Norwegian state is thus approximately $19,670 if a child grows up to attend a 4-year university in the US and $10,636 if they attend a 2-year university. As mentioned above, these are especially rough estimates and should be taken only as ballpark approximations. I report them because saving for college tuition is such an important use for wealth among many US families, and because childcare costs are major source of financial stress for American parents of young children.

Appendix 2. Alternative specifications, cross-national analysis

Figure A2.1. Income inequality, wealth, inequality, and wealth-to-income ratio, gross income.

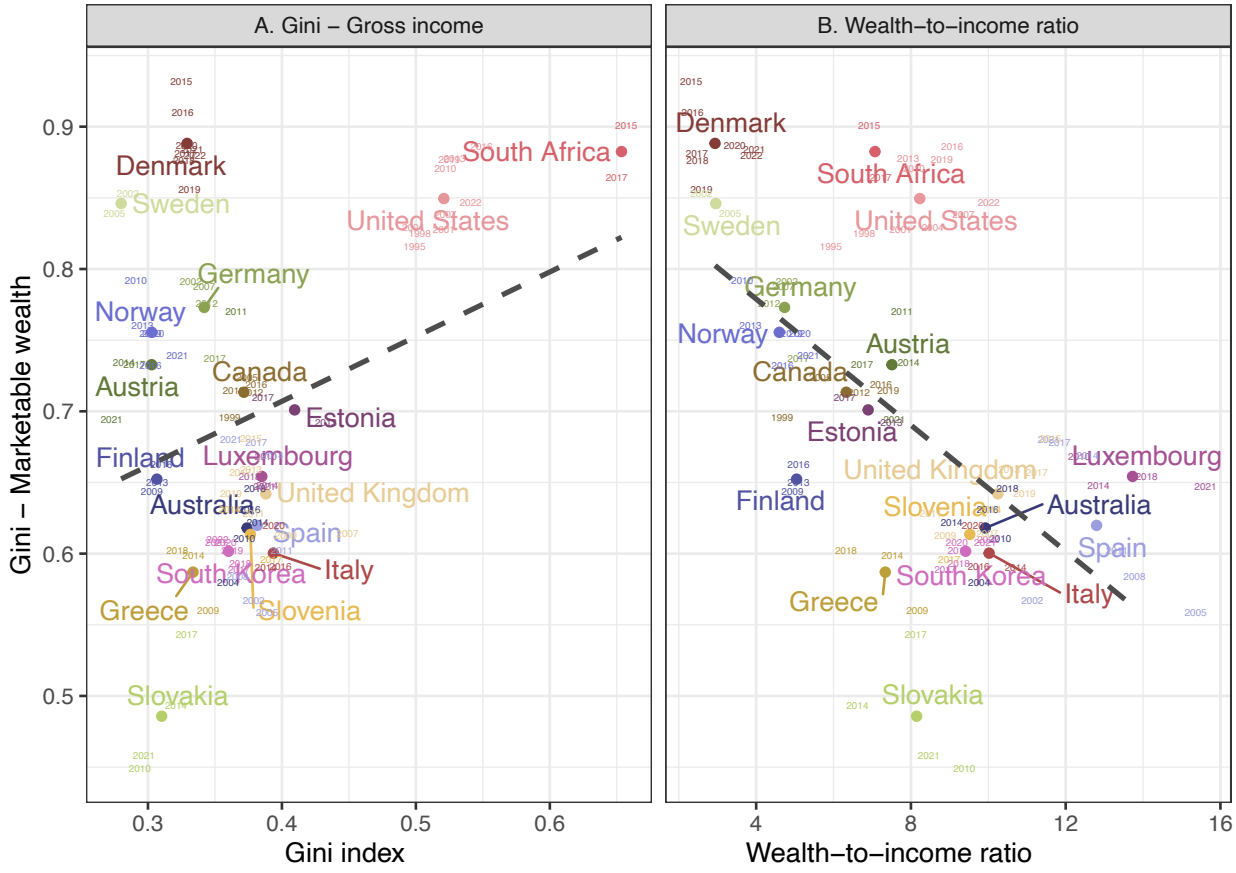


Table A2.1. Regression analysis of wealth inequality, income inequality, and welfare state generosity, gross income.

	Dependent variable:					
	Gini - marketable wealth					Wealth-to-income ratio
	(1)	(2)	(3)	(4)	(5)	(6)
Gini - Gross income	0.465		0.831***		1.199***	
	(0.304)		(0.205)		(0.236)	
Wealth-to-income ratio		-0.021***	-0.027***		-0.025***	
		(0.005)	(0.006)		(0.003)	
Welfare state generosity				0.001	0.005***	-0.129
				(0.005)	(0.001)	(0.108)
Constant	0.584***	0.938***	0.563***	0.687***	0.255**	8.640***
	(0.152)	(0.030)	(0.098)	(0.199)	(0.122)	(2.276)
5-year period fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	87	87	87	58	49	49
R^2	0.142	0.355	0.616	0.038	0.719	0.154
Adjusted R^2	0.078	0.306	0.582	-0.075	0.663	0.033
Residual Std. Error	0.111 (df = 80)	0.096 (df = 80)	0.075 (df = 79)	0.102 (df = 51)	0.057 (df = 40)	2.933 (df = 42)
F Statistic	2.205* (df = 6; 80)	7.333*** (df = 6; 80)	18.120*** (df = 7; 79)	0.336 (df = 6; 51)	12.779*** (df = 8; 40)	1.270 (df = 6; 42)
Note:						*p<0.1; **p<0.05; ***p<0.01

Figure A2.2. Income inequality, wealth, inequality, and wealth-to-income ratio, most recent year of disposable income only.

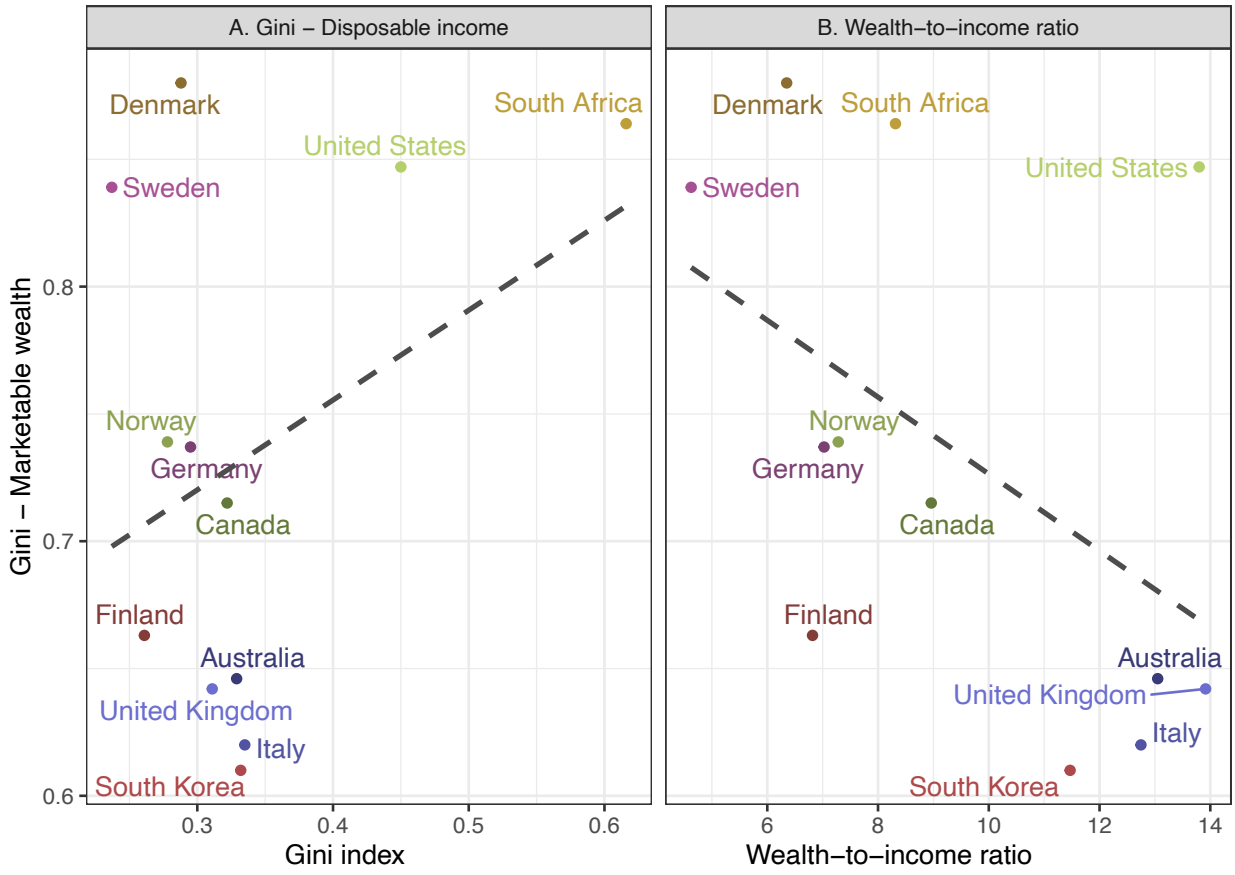


Table A2.2. Regression analysis of wealth inequality, income inequality, and welfare state generosity, most recent year of data in each country. Note that the coefficients in the bivariate regressions are no longer statistically significant, perhaps due to the much reduced sample size compared to the main text. The coefficients remain significant in column 3, when both income inequality and wealth-to-GDP are included as predictors of marketable wealth inequality.

	Dependent variable:					
	Gini - marketable wealth					Wealth-to-income ratio
	(1)	(2)	(3)	(4)	(5)	(6)
Gini - Disposable income	0.486		0.756**		1.420**	
	(0.309)		(0.259)		(0.435)	
Wealth-to-income ratio		-0.014	-0.026**		-0.022	
		(0.013)	(0.010)		(0.010)	
Welfare state generosity				-0.002	0.0002	-0.267
				(0.005)	(0.004)	(0.152)
Constant	0.724***	0.903***	0.779***	0.911**	0.594*	15.588*
	(0.121)	(0.118)	(0.095)	(0.239)	(0.241)	(6.884)
5-year period fixed effects	Yes	Yes	Yes	Yes	No	Yes
Observations	12	12	12	9	9	9
R^2	0.346	0.254	0.664	0.296	0.852	0.601
Adjusted R^2	0.100	-0.025	0.472	-0.126	0.605	0.361
Residual Std. Error	0.096 (df = 8)	0.102 (df = 8)	0.073 (df = 7)	0.100 (df = 5)	0.059 (df = 3)	2.885 (df = 5)
F Statistic	1.408 (df = 3; 8)	0.909 (df = 3; 8)	3.456* (df = 4; 7)	0.702 (df = 3; 5)	3.448 (df = 5; 3)	2.506 (df = 3; 5)
Note:						*p<0.1; **p<0.05; ***p<0.01

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