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Wealth as Control of the Future

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Wealth as Control of the Future

Robert Manduca

Wealth inequality has become a major focus of social research in recent years. This research has yielded breakthroughs in describing the present distribution of wealth holdings, the impacts that access to wealth has on life trajectories, and the strong connections between wealth in the present and events in the past. However, wealth inequality scholars have yet to fully explore the relationship between wealth in the present and events in the future. Drawing on insights from financial accounting and asset pricing, this paper describes how expectations about future events are fundamental in determining the prices of assets and thus the present net worth of individuals. It then demonstrates how a "future-oriented" perspective on wealth can help resolve ongoing debates in the wealth literature, including the question of how to incorporate government social insurance programs when calculating personal net worth and the apparent puzzle of high levels of wealth inequality in countries that are otherwise economically egalitarian.

Wealth is perhaps the defining economic concept of the early 21st Century. In an era of inequality, wealth inequality is starkest of all: by one estimate, the richest three people in the United States own more than the poorest 160 million combined (Collins and Hoxie 2017). In an era when opportunity is increasingly commodified (Grusky, Hall, and Markus 2019), family wealth may be more determinative of life trajectories than family income (Conley 2010; Shapiro 2004; but see Brady et al. 2020). In an era of financialization, wealth—in the form of rising asset prices—is arguably the motivating force behind much of the economy (Adkins, Cooper, and Konings 2020; Birch and Muniesa 2020; Leyshon and Thrift 2007).

A central difficulty in conceptualizing wealth comes from its fungibility. The same dollars that are received as a flow of income from a job can be kept as savings to form a stock of wealth, which might be invested in assets that produce their own income flows while remaining ready to be tapped at any time for an emergency, a planned expense, or collateral on a loan. Wealth can be all of these things at once, which makes it a challenging concept to study.

In recent years, some of the most important scholarship on wealth inequality has used a lens that highlights the connections between wealth today and events in the past (Killewald, Pfeffer, and Schachner 2017). In addition to demonstrating how initially small differences in wealth tend to magnify over the decades (Killewald and Bryan 2018; Piketty 2014), these studies show how current wealth disparities can frequently be traced directly to explicitly racist or exclusionary policies in the not-so-distant past (Hamilton and Darity 2010; Katznelson 2005; Oliver and Shapiro 1995). This linking of present wealth to past exclusion has been critical to building the normative case for government action to reduce wealth inequality in general and the racial wealth gap in particular (Coates 2014; Darity Jr and Frank 2003).

While scholars of wealth inequality have been attentive to the connections between wealth in the present and events in the past, few have examined the connections between wealth today and events in the *future*. As I will show, these connections are just as strong, and just as important, as those linking the present with the past. To those who manage wealth for a living, it is expectations about the future, even more than memories of the past, that determine the current value of assets and liabilities—the building blocks of net worth.

This paper approaches the study of wealth inequality from the perspective of financial accounting and asset pricing. It starts from the standard accounting definition of asset ownership as control over a resource that will produce future economic benefits (International Accounting

Standards Board 2018). This definition has two components: the ownership *claim*, which originates in the past, and the economic *benefit*, which is realized in the future. Most previous research on the processes that generate wealth inequality has implicitly focused on the allocation of ownership claims.[1] Here, I explore the second half of the definition: the expectation of future economic benefits, and their valuation in the present.

Beginning with the textbook interpretation of an asset's price as the net present value of the economic benefits it is expected to generate in the future (Cochrane 2005), I argue that the wealth holdings of any individual are usefully interpreted as measuring the extent to which he or she possesses legally enforceable claims on income that is yet to be produced (c.f. Waldman 2014). Specifically, wealth can be defined as the legal right to income streams (or comparable economic benefits) expected to be realized in the future. Although such claims originate in the past, and their allocation is heavily determined by past institutional and social environments, their current value is determined by expectations about events to come.

This definition forms the basis for a "future-oriented" perspective on wealth and wealth inequality, which illuminates different features of these phenomena than the "past-oriented" perspective that has been so revealing in previous research. Through this forward-looking lens, it makes sense to conceive of wealth not simply as the unspent remains of previous economic actions, but as a preemptive claim on economic activity that has yet to take place. Rather than an inert pile of coins sitting in a vault, the forward-looking lens sees wealth as an infinite series of checks, arriving each month without any further action by their recipient.

The past- and future-oriented perspectives on wealth emphasize different aspects of its nature. The past-oriented view might see a fortune of $10,000,000 as the end result of a multigenerational process, in which an initial endowment from generations back—likely originating from an economically egalitarian but racially exclusionary government policy, such as the Homestead Act or the GI Bill—grows over the years through periodic additions and compound interest. The future-oriented perspective would see the same fortune as a legal right to (roughly) $600,000 a year of income, from now until the end of time.[2] Both descriptions are accurate—even necessary—but they focus attention on different parts of what wealth is.

After motivating the forward-looking perspective on wealth, this article explores several of its implications. Conceptually, this perspective highlights how wealth is, at its essence, a social phenomenon. The past-oriented perspective has documented that wealth in the present is

inseparable from social conditions in the past. The forward-looking view deepens this connection to the social by describing how the value of one person's assets depends entirely on the beliefs and expectations of other people (Orléan 2014). Its status as a collective belief marks wealth as more fleeting and variable than is sometimes appreciated, liable to shift with the changing outlook of society.

The future-oriented view also helps resolve certain puzzles in the wealth inequality literature. First, it reframes the ongoing debate about what types of assets should be counted as wealth. Empirical studies typically focus on "marketable wealth," those assets that can be easily sold in a market, when calculating the net worth of individuals and families. But some scholars have advocated for a broader definition of "augmented wealth" that includes expected payments from Social Security, other government transfer programs, and defined benefit pensions (Weil 2015; Wolff 1990). This debate has large substantive stakes because inequality in marketable wealth is much greater than that in augmented wealth (Catherine, Miller, and Sarin 2020).

The forward-looking perspective illustrates how social insurance programs can legitimately be seen as interchangeable with marketable wealth in some—but not all—respects. Wealth is a legally enforceable state guarantee to a certain income stream in the future, and in many cases it doesn't matter whether that guarantee takes the form of a stock certificate, a Treasury bond, or a Social Security account (c.f. Reich 1964). But in some cases it does: while a retiree might see her stock certificates and Social Security payments as interchangeable, a 35-year-old trying to compile a down payment for a house will not. The key distinction, however, is not that one is "private" and the other "public," but that stocks are liquid and can easily be converted to cash at any time, while Social Security is inaccessible until retirement.

Rather than debate about the essential nature of true wealth, I argue, scholars should be explicit about the use of wealth they are studying, and consider how restrictions on different asset types align with that use. Both marketable and social assets vary along three important dimensions: whether they are limited to a particular purpose, such as providing income in retirement; whether ownership can be transferred to other individuals; and how liquid they are—how quickly they can be sold. Different studies will incorporate different mixtures of social and marketable assets based on where they fall on these three dimensions. A study focused on access to liquidity among would-be entrepreneurs, for example, might include a different set of assets than one focused on financial security in retirement.

The partial substitutability of social insurance programs for marketable wealth portrays these programs in a new light: they are a primary method of wealth creation. Just as government action creates wealth by enforcing private property rights, it also can create wealth—often much more equitably—by directly allocating claims on future income to individuals through social insurance. Policymakers and advocates, especially those concerned with the level of wealth inequality, should take social wealth seriously.

The interchangeability between the welfare state and private savings also helps explain findings from comparative studies of wealth inequality that initially appear to be puzzling, most notably the extreme levels of wealth inequality in otherwise economically egalitarian countries such as Norway and Sweden (Pfeffer and Waitkus 2021; Skopek, Buchholz, and Blossfeld 2014). Those countries, it turns out, simply have much less marketable wealth than other countries with their level of GDP, perhaps because private wealth is not as necessary in the everyday lives of their citizens. This finding highlights how the amount of marketable wealth in a society may depend not just on its level of economic development or its financial markets, but also on its welfare state. It also identifies the national wealth-to-GDP ratio as a quantity of conceptual interest in itself, measuring the extent to which a nation's future economic activity has already been purchased by people living today.

In the following section, I revisit the literature on wealth inequality, wealth accumulation, and the ways that access to wealth shapes life trajectories, focusing specifically how wealth can function as a source of investment liquidity, an all-purpose insurance policy, and a long-term income replacement. Then, drawing on standard financial accounting practices, I make the conceptual case that the value of assets should be interpreted primarily as the discounted value of the future income expected to derive from the resources over which they represent control. The remainder of the paper explores the implications of this perspective.

Previous Research on Wealth and Stratification

Wealth Inequality in the 21st Century

Over the last few decades there has been increasing social scientific research on wealth as an economic resource distinct from income, with its own distributional patterns and its own consequences for life outcomes (Keister and Moller 2000; Spilerman 2000). While initial

research on the racial wealth gap appeared as early as the 1970s (e.g. Browne 1972, 1993), much of the current interest in wealth inequality can be traced to Oliver and Shapiro's book *Black Wealth/White Wealth* (1995), which brought widespread attention to the sheer magnitude of the Black-white racial wealth gap. As they describe, in 1988 the mean net worth of African Americans was just $24,000, exactly one-quarter that of whites. Since then, disparities have worsened: a 2017 study based on the Survey of Consumer Finances found that the median net worth among African Americans was just 10% that among whites (Dettling et al. 2017), in part due to the unequal impact of the Great Recession (Wolff 2017).

As with disparities between racial groups, total inequality in wealth is much higher than that in income (Keister and Moller 2000). The richest 1% of society is estimated to control between 30% and 40% of all private marketable wealth (Pfeffer and Schoeni 2016; Saez and Zucman 2016; Smith et al. 2019), whereas the top 1% of earners take home roughly 16% of post-tax national income (Piketty, Saez, and Zucman 2018). On the other end of the scale, the poorest 50% of the population owns just 1.1% of the wealth, while the bottom half earns 19.3% of post-tax income, almost twenty times as much (Pfeffer and Schoeni 2016; Piketty et al. 2018). Overall, in 2016, the median family in the United States made 51% of the mean family income, but held just 14% of the mean family wealth (Board of Governors of the Federal Reserve 2018).

The overwhelming concentration of wealth at the very top of the distribution, combined with the large and visible political influence of billionaires, has led to concerns that extreme wealth inequality may be particularly threatening to democracy (Hertel-Fernandez 2019; Page, Seawright, and Lacombe 2018; Beckert 2022; but see Scheve and Stasavage 2017), above and beyond the more general challenges that economic inequality poses to democratic governance (Gilens 2012; Tilly 2003).

The level of inequality in private wealth varies dramatically across rich countries, and has little correlation with the level of income inequality. In particular, countries like Norway and Sweden that 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 (Pfeffer and Waitkus 2021; Sierminska, Brandolini, and Smeeding 2006; Skopek et al. 2014). This finding has prompted some observers to argue that wealth and income are fundamentally distinct dimensions of stratification (Skopek et al. 2014).

How Wealth is Used by the 99%

Research on overall levels of wealth inequality has tended to focus on the top of the distribution, since that of where the bulk of wealth holdings are concentrated: in 2016, 96% of all wealth in the United States was held by families with a net worth above $100,000 (World Inequality Database 2020). But even in much smaller amounts, wealth is what Shapiro (2004) calls a "transformative asset," access to which can entirely alter a person's life trajectory. Far outside the ranks of billionaires, family wealth is an important driver of social stratification (Oliver and Shapiro 1995; Pfeffer and Killewald 2018; Spilerman 2000). Accordingly, research on the social consequences of wealth has emphasized the impact of access to more modest levels of wealth across the bulk of the population (Killewald et al. 2017). For aggregate statistics, the difference between a net worth of $0 and one of $100,000 is essentially a rounding error. But for the lived experience of a family, it can mean everything.

There are at least three ways in which access to wealth can be transformative. First, wealth offers a source of investment liquidity, particularly for large early investments—a college education, a house, a business—that heavily shape the life trajectories of young adults. Second, wealth is a source of insurance against unexpected financial difficulties. Finally, wealth can be a long-term income replacement, allowing senior citizens and others who are retired or cannot work to maintain high levels of consumption.

Wealth as investment liquidity

Many of the investments that have the largest positive impact on a person's life trajectory are most effective when made by early adulthood. Going to college, starting a successful business, and buying a home all have large positive effects on expected lifetime earnings, health, and other social outcomes (Sorgner, Fritsch, and Kritikos 2017; Zajacova and Lawrence 2018; Zavisca and Gerber 2016). But all typically require substantial initial outlays of capital before the returns materialize. This creates a catch-22: getting more money later requires having more money now.

Family wealth resolves the dilemma. In what Pfeffer and Hallsten (2012) call the "purchasing function" of wealth, parents (or other relatives) who have had the opportunity to save over the course of their careers can use that wealth to invest in their children at the exact

point when such investments make the most impact. Young adults with access to family wealth do not have to choose between going into debt and passing up a college education, and they can appeal to the "bank of [mom] and dad" for startup capital, a down payment on a house, or income support while they pursue a risky but potentially lucrative career (Friedman and Laurison 2019). As a result, family and personal wealth levels are associated with self-employment (Fairlie and Krashinsky 2012; see however Hurst and Lusardi 2004), as well as educational attainment (Bowles 1972; Conley 2001; Pfeffer 2018) and homeownership (Charles and Hurst 2002; Killewald and Bryan 2016). Each of these outcomes is in turn strongly predictive of higher incomes, greater net worth, and better health later in life (Zajacova and Lawrence 2018; Zavisca and Gerber 2016).

These large early investments are a major use of family wealth among those with positive net worth. Education and homeownership each account for more than one quarter of the intergenerational persistence of wealth, while direct transfers and bequests account for just 12% (Pfeffer and Killewald 2018). Because they are made early, their cumulative impact is often enormous. For instance, Killewald and Bryan (2016) estimate that each additional year of homeownership increases wealth at midlife (ages 47-56) by roughly $6,800. Buying a house at age 25 rather than age 35, then, would yield an expected payoff of almost $70,000—about half of the median Black-white wealth gap in 2016 (Dettling et al. 2017).

Wealth as all-purpose insurance

A second major use to which family wealth is put is 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. In countries without strong welfare states, such crises can easily tip a family that had been financially secure into a cycle of poverty that is difficult to escape. In the United States, for instance, medical costs—especially before the enactment of the Affordable Care Act—and job disruptions are major drivers of personal bankruptcy (Domowitz and Sartain 1999; Himmelstein et al. 2009; Pendergast, Sousa, and Wadsworth 2020). Even when outright bankruptcy is avoided, such emergencies may require compromises that shift the long-term economic trajectory downward.

Family wealth offers insurance against the most disastrous consequences of these financial shocks. With a cushion of wealth, a disruption to income does not immediately result in unpaid bills or foregone necessities. Having access to wealth prevents a negative event from becoming a long-term disaster. Workers who become unemployed with a large savings account can be 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). Households with more liquid assets also make smaller reductions in consumption after a negative income shock than those with fewer assets (Ganong et al. 2020). Moreover, the mere knowledge that such a cushion exists creates what Shapiro (2004) terms a "psychological safety net" that allows for greater risk-taking and reduces stress.

Wealth as long-term income replacement

Finally, wealth can be a long-term alternative to the labor market as a source of income (Henretta and Campbell 1978). This is how many people in the United States finance their retirement, and a major rationale for saving among Americans (Yao et al. 2011). Income from capital has long been used by the wealthy throughout their lives (Piketty et al. 2018), but in the last 40 years capital income and especially asset price appreciation have become important supplements to labor income for the only moderately wealthy as well—in some cities, the yearly appreciation on a typical owner-occupied home is greater than the median income (Adkins et al. 2020).

These three uses of wealth are not exhaustive—as Killewald et al. (2017) note, assets like homes and vehicles have use value alongside their financial worth, and the social standing that comes with great wealth is a benefit of its own. But these three uses are some of the most prominent ways in which wealth is beneficial to its owners, and studies of the social consequences of wealth are right to emphasize them.

Importantly, though, while wealth can be used as a source of liquidity for early investment, a form of insurance, and a long-term income replacement, each of those needs can also be satisfied in other ways, depending on the economic institutions that exist in a given society (Pfeffer 2011). In the United States, for instance, family wealth—along with debt—is a primary way of financing a university education, while in most European countries it is not.

Similarly, some countries provide most retirement income through public pension systems, while other countries rely primarily on family wealth for income in retirement.

Because of this wide variation in the institutional environments of different countries, scholars should be cautious when interpreting cross-national comparisons of net worth. As I will argue below, it is often more appropriate to first identify the specific use of wealth that one is concerned with, then construct a comprehensive measure that incorporates all of the ways a person might meet that need in her society.

Wealth and accumulation: The "backward-looking" lens

Some of the most consequential research on wealth inequality has applied what I term a "backward-looking" or "past-oriented" perspective on wealth. This research has been critical both for building the normative case against wealth inequality and for demonstrating how wealth inequality will tend to persist over time.

Apart from its sheer magnitude, one reason that wealth inequality has attracted so much concern is that wealth in the present is generally traceable to events in the past, often many generations back. This is because wealth is a stock that tends to persist over time, and is often passed down from parents to children (Beckert 2022; Keister and Moller 2000; Killewald et al. 2017).

The inherent persistence of wealth is one of its most consequential features. When stocks of wealth are passed down through generations, the wealth of people living today is very closely tied to the circumstances of their ancestors—including circumstances that are now widely condemned as unjust. Indeed, much of the current Black-white wealth gap can be directly linked to past racist policies such as residential covenants, redlining, and refusal to prosecute acts of racial terrorism against Black business owners (Hamilton and Darity 2010; Katznelson 2005; Oliver and Shapiro 1995). Still more can be traced to different rates of price appreciation for houses and other assets (Flippen 2004; Killewald and Bryan 2018; LaBriola 2021; Petach and Tavani 2020).

Not only will wealth inequality persist over generations, it will generally increase. If returns on wealth are reinvested, the underlying asset base will grow, passively increasing the amount of wealth and the size of future returns. This accumulation means that initial inequalities in wealth will tend to exacerbate themselves over time (Killewald and Bryan 2018), in a classic

example of cumulative advantage (DiPrete and Eirich 2006). An extra $5000 at age 25, invested at a 6% annual rate of return, will grow to $51,000 by age 65. Such exacerbation is intensified because rates of return on wealth are frequently correlated with initial wealth amounts (Bach, Calvet, and Sodini 2020; Ederer, Mayerhofer, and Rehm 2020; Piketty 2014:550).

The accumulative nature of wealth, especially when rates of return are correlated with initial endowments, is extremely consequential for inequality and stratification. It means that levels of wealth inequality are not stable, and have no tendency to balance themselves out over time. On the contrary, in most periods of history the tendency has been for wealth inequality to exacerbate itself (Piketty 2014; Scheidel 2017). Such patterns are contingent on government policy, armed conflict, and global economic conditions, but have nonetheless been the historical norm.

Probing the connections between wealth and the past has been a major scientific accomplishment and has been important in building the normative case for policies to reduce wealth inequality (e.g. Coates 2014). But thus far researchers have been less active in considering the ways in which wealth connects the present to the future. Present wealth is strongly linked to events in the future because it derives its value from expectations, a major force shaping economic and social life.

Expectations in social and economic life: How the future impacts the present

Expectations about future events play an important role in shaping social and economic action. Any sort of rational or agentic action requires a set of beliefs about what is likely to result from different choices (Emirbayer and Mische 1998; Mische 2009). Coordinating such beliefs is a key aspect of social life that is necessary for cooperation and interaction (Tavory and Eliasoph 2013, Hoppe 2020). A growing literature on the "sociology of the future" explores how these beliefs are formed and shared, and how they shape the present (e.g. Mallard and Lakoff 2011; Mische 2014).

In capitalist economies, expectations of the future take on a particularly transformative role, because they can be tapped to fund economic activity in the present. As historian of capitalism Jon Levy puts it, "In the capitalist epoch…expectations of the future—unlike the past, always an uncertain business—determine the economic present to a remarkable degree. For example, credit, consisting of nothing but trust in a future expectation, can fund a capital

investment, as much as a past accumulation of material wealth" (Levy 2021:xvi). Beckert (2013, 2016) argues that the creation of what he terms "fictional expectations" is a precondition for economic action in capitalist societies. The stories that investors, entrepreneurs, and workers tell themselves about what *might* happen in the future are what make it possible for them to act under conditions of uncertainty in the present, bringing—perhaps—the future they dreamed of into existence (see also Beckert and Bronk 2018). The possibility for these self-fulfilling prophecies is a major source of capitalism's transformative power, although they can easily overstep their bounds and lead to financial instability (Adkins 2018; Esposito 2011).

When investments in an imagined future are made, they typically bring with them a legal claim on some portion of the future profits they expect to bring into existence. As I describe next, the details of this transaction are central to how asset prices—the value of wealth—are understood.

Wealth defined: Claims from the past on income in the future

Virtually all empirical studies of wealth define it as net worth: the sum of all assets held by an individual or household, less all debts or liabilities (Pfeffer and Schoeni 2016; Spilerman 2000; Zucman 2019). While there is debate about whether certain types of assets—most notably future Social Security benefits, as discussed below—should be included in wealth calculations (Feldstein 1976; Wolff 1990), there is broad consensus that wealth is synonymous with net assets.

But what *are* assets? Among those who interact with wealth on a daily basis—finance professionals, asset managers, and accountants—assets and liabilities are very specific concepts. The International Financial Reporting Standards (IFRS) have defined an asset as "a resource controlled by [an] entity as a result of past events and from which future economic benefits are expected to flow to the entity" (International Accounting Standards Board 2018).[3] A liability, on the other hand, is defined as "a present obligation of the entity to transfer an economic resource as a result of past events." These definitions form the basis of modern financial accounting, including the valuations of assets and liabilities that underlie empirical studies of wealth inequality.

Under these definitions, assets have two essential features: who controls them and what benefits they bring. As the IFRS definitions state, control of an asset is determined by events in

the past. Previous studies of wealth accumulation over time have largely focused on the processes by which ownership claims originate and grow, such as how savings or inheritance in one period can be used to purchase control of assets, which produce larger amounts of savings in the next period, which buy even more assets, and so on.

But the reason to hold assets is their "potential to produce economic benefits," typically income or a close substitute, in the future. Crucially, it is this future income, not the past events, that generally determines the price potential buyers are willing to pay for an asset, and thus its value in the market. In fact, on a conceptual level, the market price of an asset is typically interpreted, both by practitioners and by scholars, as a measure of the income that asset is expected to produce, discounted by uncertainty and time until realization. An entire subfield of economics is devoted to asset pricing: theorizing and estimating the present value of claims on uncertain payments in the future. As an influential textbook begins, "Asset pricing theory all stems from one simple concept, presented in the first page of the first chapter of this book: price equals expected discounted payoff" (Cochrane 2005:xiii).

Translating from expected payoffs to present values: A primer on discounted cash flow

A natural next question is how to determine the value today of payoffs or benefits that are expected in the future. While there are many possible methods, probably the oldest and most widely used is called discounted cash flow (DCF), which dates to at least the 16th century (Kruschwitz and Löffler 2006; Parker 1968). As its name suggests, DCF proceeds by discounting expected payments by their distance into the future to make them commensurable in the present.

The first step in a DCF analysis is to determine what economic benefits an asset is expected to produce in each period going forward. For example, if a property rents for $1000 a month, the expected payoff would be $12,000 in the present year, another $12,000 in year two, and so on into the future. Although recurring payments are the most common form of economic benefit analyzed with discounted cash flow, other types of economic benefit should be included as well. If the owner expects to sell the asset at some point in the future, for example, the predicted sale price should be added in that period. Even benefits in which money does not change hands should be included: the rent payments avoided by owning a home have a clear value even though they are not a transfer of funds, and still more abstract benefits like the benefit

of owning a painting can be computed as, e.g., the amount of money one *would* pay to access that particular artwork in a particular year.

The second step in a DCF analysis is to determine a *discount rate*, which quantifies the extent to which it is more valuable to have money in the present than in the future. Oftentimes the discount rate is chosen to equal the rate of interest at which the asset owner can borrow, since that captures their ability to exchange money today for money in the future. Each expected payment is then discounted by its distance into the future. This is done by dividing it by 1 plus the discount rate once for each year into the future it lies. For example, if the discount rate is 5%, a payment expected 10 years into the future would be divided by 1.05^{10}, and have a present value just 61% of its face value. 20 years out the value would fall to 38%, while a payment 100 years in the future would be worth just 1% of its face value today. Because the discount rate compounds with each year into the future, the present value of a stream of payments will be finite even when the payments themselves have no anticipated end.

Once the payments in each year have been discounted, the total present value is calculated by summing the discounted value for each year. Considering the rental property above and a discount rate of 5%, this would amount to $12,000 in the present year, $11,428 in the following year, $10,884 in the year after that, and so on. In this case, if the property continues to rent for $12,000 until the end of time, the total present value of the entire payment stream would be $240,000. Under the method of discounted cash flow, this would be the value of the rental property as an asset for its owner.

Although DCF analysis is widely used, it can be challenging to apply to real-world assets. Calculating the discounted cash flow requires choosing specific values for both the expected benefits in each period and the proper discount rate, and there is substantial uncertainty inherent in both. As a result, many practitioners use DCF as a starting point for valuation, a tool that helps them state their assumptions and gain an approximate sense of what a given asset is worth (Doganova 2013; Svetlova 2012, 2018).

Enterprise benefits and speculation benefits: The two types of payoff

The terms “payoff” and “economic benefit” can seem overly vague at first, encompassing everything from the price an asset will fetch upon sale in the future, to the income that asset might produce in the meantime, to non-monetary benefits like the use of a car or the prestige of

owning a great work of art. However, the entire universe of economic benefits can be divided into two basic categories, based on whether they depend on the beliefs that people other than the asset's owner have about its worth. Following Keynes (Keynes 1936:158; Orléan 2014), I will refer to these as "enterprise" and "speculation" benefits, and asset values based on their discounted sums as enterprise and speculation values respectively.

Enterprise benefits are those which do not depend on the beliefs other people have about the asset's value. The canonical example is a stock dividend: my company's profits are not determined by what other investors think it is worth, only by the revenues it generates and the expenses it incurs. Enterprise benefits would likewise include the rent earned by leasing out a second home, as well as most non-monetary benefits such as the use value of a car. The enterprise value of an asset is simply the discounted sum of all enterprise benefits it is expected to produce throughout its life. Analysts often refer to the enterprise value of an asset as its "fundamental" or "intrinsic" value, because it is clearly tied to material goods, services, or feelings deriving from the asset itself (e.g. Stiglitz 1990).

Speculation benefits, on the other hand, are those that depend fundamentally on other people's beliefs about the asset's value. The primary example is sale price: the income I earn from selling an asset may be influenced by the revenue it is likely to produce, but is ultimately nothing more or less than whatever price someone else is willing to pay for it. That amount is determined by *their* beliefs about the asset's future payoffs, including both the enterprise benefits it would bring to them and the speculation benefits they could realize by selling to a third party, not my own. These beliefs could arise from rational calculation, speculative frenzy, or social contagion—it makes no difference to me as long as they are willing to pay. For assets that are tradable in a market, the speculation value is the market price, and is sometimes called the market value.

The relationship between the enterprise (or fundamental) and speculation (or market) values of assets is one of the central debates in the study of finance. Under the assumptions of neoclassical economics—that people are rational, information is complete, and markets are frictionless—it can be proven that the speculation value and the enterprise value are identical; the market price of an asset will always equal the discounted value of all income it will produce over its lifetime (Gordon 1959; Williams 1938). Other economists, including Keynes himself, have described how market frictions, imperfect information, and irrationality allow for persistent

deviations between the speculation and enterprise values of an asset, but maintain the enterprise value as the proper or correct value to which market prices will eventually return, often with devastating effect (Blanchard and Watson 1982; Keynes 1936; Stiglitz 1990). A third perspective, more common in heterodox economics and sociology, argues that enterprise and speculation value may not coincide at all, even over the long run (Beckert 2016; Minsky 2008; Orléan 2014).

The arguments in the remainder of this article do not require taking a strong stance on whether enterprise and speculation asset values will always, eventually, or never align. Rather, the discussion that follows requires only that both be plausible methods of conceptualizing the value of an asset—and indeed, both are widely used by practitioners (Svetlova 2018). In practice, enterprise value will be easier to determine and more likely to be used when future enterprise benefits are more concrete and reliable, and for assets whose owners plan to hold them for long periods. Likewise, speculation value will be more influential for more liquid assets, as owners have more confidence about their ability to sell and the price they will receive.

What is common to both logics is that while the ownership of the asset is determined in the past, the value in the present is an estimate of the economic benefits or payoffs that it is expected to generate for its owner in the future, whether they take the form of dividends paid out over decades or a sale later this afternoon. This gives assets a clear temporal profile.

The temporal profile of an asset

The accounting definition of assets gives them a specific temporal profile, illustrated in Figure 1. The ownership claims originate in the past, and persist over time. The economic benefits are expected to occur in the future. At any moment between the creation of the claim and the realization of the benefits—i.e., in the present—the asset has a value, which is typically interpreted as reflecting the expected, discounted value of the future benefits. For conciseness, I will use the term "income" in the remainder of the paper to refer to all economic benefits produced by assets, although as mentioned these benefits may not always involve a literal transfer of money.

[Insert Figure 1 here]

As described above, much of the most illuminating recent research on wealth inequality has explored how wealth in the present is tied to events in the past. This research focuses on the first temporal link in Figure 1, taking what I term a "past-oriented" or "backward-looking" perspective on wealth. Research in this vein investigates what specific actions in the past generated the claims that underly today's assets, and how they are linked to present distribution of wealth. The "forward-looking" or "future-oriented" perspective considers the second temporal link in Figure 1, examining the connection between an asset's value today and the income that it is expected to produce in the future. As Figure 1 illustrates, the past- and future-oriented perspectives are complementary, emphasizing different links in the temporal chain that together comprise the lifetime of an asset.

In addition to being widely invoked by practitioners today, the connection between present value and future income has a long scholarly history. The equation of wealth with discounted future income was advocated by early 20th Century theorists of capital such as Irving Fisher and Thornstein Veblen (Fisher 1906; Veblen 1908). It also suffuses early sociological studies: Henretta and Campbell, in their pioneering study of net worth as a component of status, state that "[w]ealth is the sum of current income plus the value of income in future years discounted by the interest rate" (Henretta and Campbell 1978:1207). Spilerman (2000:500) argues that "[o]ne approach to establishing comparability between wealth and income is to view the former as a capitalized income stream," while Sorenson (2000:1533) states that the "value [of asset *j*] is given by the returns to *j* over the lifetime of the asset." The conceptual connection—even the interchangeability—between present wealth and future income is tight and long established.

Today, the understanding that wealth is a measure of future income is sufficiently recognized that the World Bank motivated its 2018 report on national wealth by invoking its forward-looking aspect: "Wealth, by its nature, concerns the future—the flow of income that each asset can generate over its lifetime" (Lange, Wodon, and Carey 2018:3). But the implications of this forward-looking perspective for scholarship and policy—particularly that related to wealth inequality—have not been fully appreciated.

Speculation value and the social nature of wealth

A consistent contribution of economic sociology has been to point out that economic concepts and actions are invariably social constructions—modes of behavior and custom that are mutually agreed upon or enacted by members of a society, rather than universal facts or natural laws (Krippner 2001).[4] Wealth is a particularly potent example: past-oriented research has documented convincingly how the wealth distribution today carries with it the social structures of previous eras (e.g. Hamilton and Darity 2010; Killewald et al. 2017; Oliver and Shapiro 1995). While income inequality is also shaped by historical social conditions, the fact that incomes are generated anew each year can obscure these connections. With wealth they are directly visible: the exact assets that comprise a family's portfolio today might have been unjustly acquired decades ago.

The forward-looking perspective highlights an additional aspect of wealth's social nature. For assets that can be traded, the market price is the speculation value—the amount that people other than the asset holder are willing to pay for it. This means that the market value of one person's wealth is entirely a function of beliefs and expectations that *other people* have about the size and likelihood of a future payoff, conditional on government policy and broader economic conditions (Esposito 2013; Orléan 2014). Further, the market in which the asset's value is determined is itself created by state and private institutions, the peculiarities of which influence the price an asset is able to fetch (Beckert 2011). For example, institutional decisions about which stocks to include in certain indices, such as the Dow Jones Industrial Average, can cause asset values to fluctuate substantially (Petry, Fichtner, and Heemskerk 2021).

Because market values are determined by the beliefs, expectations, and preferences of the entire population of potential buyers, they tend to be fairly stable over time—and can seem enduring or immutable. But every so often there is a sudden shift, and great fortunes are instantly made and lost (Esposito 2011, 2013). A particularly momentous example of this was the 2008 mortgage crisis. After years of hewing to a particularly optimistic set of expectations about the amount people would pay for certain houses, banks and other investors updated their beliefs, and trillions of dollars of wealth disappeared in a matter of months.

The 2008 crisis, like other large-scale changes in economic beliefs, produced a raft of "stranded assets:" those whose purchase prices, determined under one set of social expectations, no longer accord with the amount of economic benefits they now seem likely to produce (Caldecott 2017; Congressional Budget Office 1998). Because owners do not directly influence

asset prices themselves, there is often little they can do about stranded assets. Far from being immutable or unchanging, the social nature of wealth marks it as fluctuating and contingent, varying with the conjectures of others.

As with other economic concepts, the fact that wealth is socially constructed does not make it any less impactful on people's lives—as the 2008 financial crisis makes clear. But it should affect how policymakers and researchers approach it. When scholars document disparities in wealth levels by race or education, what they're saying is that certain groups of people are more or less able to secure claims on income to be realized at some future point. These claims have important impacts on people's material and social lives. But they are legal entitlements specific to a certain time and place, dependent on current public policy.

The remainder of this paper explores two cases in which the future-oriented perspective on wealth helps make sense of ongoing debates or questions within the wealth inequality literature. First, I show how the forward-looking view helps reframe the ongoing debate about what asset types ought to be included when calculating a person's net worth. Then, I consider how it helps make sense of cross-national patterns of wealth inequality and total wealth relative to GDP.

Should social insurance programs be counted as wealth?

The previous sections demonstrated that wealth can be usefully conceptualized as a claim on future economic benefits—typically income or a close equivalent—with the value of any particular asset reflecting the present discounted value of those benefits. But that leaves the question of what kinds of claims ought to count. Should the definition of wealth be limited to those claims that can be traded in a market? Should it incorporate claims on benefits that derive from social insurance programs? Should it be even more expansive?

Most empirical studies of wealth today follow the System of National Accounts (United Nations et al. 2009) in including all assets that can potentially be sold on a market in relatively short order (Zucman 2019).[5] 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, many scholars have argued that marketable wealth is incomplete, because households often have claims on future income that are not captured in their balance sheets (Davies 2008; Weil 2015). An alternative measure of

"augmented wealth" (Wolff 1990) would include all such claims, whether they are easily tradable or not. In practice, most advocates define augmented wealth to include marketable wealth, defined-benefit pensions, and public pensions such as Social Security, but in principle it should extend to other forms of state-provided social insurance such as unemployment benefits and income maintenance programs.

Some advocates go even further, including in a person's net worth the present value of future income that is statistically likely, but over which they have no legal claim—counting as wealth, for instance, the value of a person's human capital in the form of additional earnings they are likely to accrue from a college degree or specialized training (Friedman 1957; Looney 2022; Weil 2015). While there is a certain logic to this argument, stemming from a conception of wealth as discounted permanent income rather than net worth,[6] the lack of an enforceable claim over the hypothesized income distinguishes human capital from wealth.[7] Returning to the accounting definitions of assets and liabilities, this paper will define wealth as only those economic benefits to which a person has an enforceable legal right. Of course, the laws underlying both private property and social insurance programs can change, but at any particular moment these laws provide enforceable claims to some income streams and not to others.

In the United States and many other countries, people have enforceable legal rights to most social welfare programs, and the value of these programs is enormous. One recent study calculated the present value of future Social Security payments in the United States at $42 trillion in 2016, compared to $79 trillion of total marketable wealth (Catherine et al. 2020), while another found that social security and defined benefit pensions together are worth more than all non-retirement wealth held by Americans ages 40-59 (Jacobs et al. 2021). In Germany, the total amount of pension wealth is comparable in size, or even exceeds, that of all marketable wealth combined (Bönke et al. 2019; Rasner, Frick, and Grabka 2011). Because social insurance tends to cover large segments of society, there is much less inequality in augmented wealth than in marketable wealth (Feldstein 1976). Catherine et al. (2020), for example, estimate that the top 1% own 40% of all marketable wealth but only 30% of all wealth when Social Security is included.

The massive size of Social Security and other social insurance programs, which I will refer to as "social wealth," makes their proper treatment imperative for accurate research on wealth and wealth inequality. Taking a future-oriented view of wealth shows how it can make

sense to treat social and marketable wealth as interchangeable for some purposes, but not for others.

Tailoring wealth definitions to outcomes of interest

The forward-looking view perspective on wealth—specifically, the logic of enterprise value—makes clear how social insurance programs can be seen as a form of wealth. After all, if assets are enforceable claims on future income, then all such claims should be included when calculating total assets, even if they cannot be traded on a market. Returning to the role of expectations in influencing behavior, a person who expects to receive Social Security payments after retirement is likely to make different decisions about employment, saving, and spending than one who does not—and empirically, households do consider Social Security and other types of social insurance when making decisions about how to save or spend their incomes (Attanasio and Brugiavini 2003; Attanasio and Rohwedder 2003).

But there is a major caveat. Social Security benefits and investments in the stock market can be plausibly described as interchangeable—*for some purposes*. As described above, households use wealth in multiple ways. As methods of preparing for retirement, a Social Security account and a stock portfolio are equally effective. But as a means of making a down payment on a house, or of covering an unexpected financial shock, Social Security is almost useless, because it is generally inaccessible before retirement. Moreover, a great deal of present concern about wealth inequality derives from the way in which massive amounts of wealth may distort democratic politics (Page et al. 2018; Skocpol and Hertel-Fernandez 2016). To someone concerned with the political influence of Charles Koch or Michael Bloomberg, the comparatively egalitarian distribution of Social Security wealth is cold comfort.

Rather than debate endlessly over what constitutes the true essence of wealth, scholars and policymakers would do well to make their definitions use-specific. They should first determine the specific use 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, they should consider how the restrictions on each asset type do or do not align with that particular use.

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. Other marketable assets have logistical constraints: selling a house can take weeks to months and typically involves costs totaling 5-10% of total value.

Table 1 outlines three major forms of restrictions on the use of assets. First, assets might be limited to one particular purpose, such as income replacement after job loss. Second, assets differ in whether they are alienable: can ownership be transferred to someone else, and if so, who? Finally, assets differ in their liquidity—the extent to which their value can be quickly converted into cash.

[Insert Table 1 here]

These constraints do not neatly align with the division between marketable and augmented wealth, although the ability to transfer ownership maps most closely onto the distinction. Publicly traded stocks are perhaps the characteristic marketable asset that have no restrictions on use, are transferrable, and are highly liquid, but other forms of marketable wealth are more restricted in how they can be used—just as publicly provided social insurance programs are. Social Security is a public program with extremely low liquidity, while unemployment insurance is much more liquid.

The debate about whether the marketable or augmented definition of wealth is more appropriate has progressed with increasing intensity over the last several years (e.g. Looney 2022; Weil 2015; Zucman 2019). The forward-looking perspective on wealth helps resolve this issue. It shows why it does make sense to consider social insurance programs and marketable wealth as equivalent for some uses, and also why claiming that they are entirely interchangeable (e.g. Catherine et al. 2020; Feldstein 1976; Weil 2015) is misleading. Rather than argue over the true nature of wealth, researchers ought to include in their definition all assets that can be used for the purpose they are interested in. This approach helps resolve an academic debate. But it also establishes social wealth as a major area of wealth creation policy.

Taking stock of social wealth

The previous section described how marketable and social wealth can be considered interchangeable for some—but not all—purposes. This partial interchangeability is an important conceptual point to highlight, because outside of the academic wealth literature, privately held assets and government social insurance programs are rarely considered to be synonyms. Acknowledging this equivalence profoundly alters our understanding of not just what wealth is but also where it comes from. Consider: more than one-third of the wealth in the United States derives from a government entitlement program, as does more than half of the wealth in Germany (Bönke et al. 2019; Catherine et al. 2020). If social wealth is taken seriously, then social insurance programs are a major—even the primary—way in which wealth is created.

If anything, previous studies understate the value of social wealth, because they have typically focused only on pensions. To illustrate the importance of expanding the definition of augmented wealth beyond pensions, and how this varies across countries, Table 2 provides an illustration of the wealth created by the social welfare systems of Sweden and the United States.

In each country I imagine a hypothetical family with two working 30-year-old parents, a 2-year-old child, and another child on the way. Each family earns the median household income for their country and age, roughly $60,000 in both places. I then estimate the present value of the welfare state programs that the families are likely to make use of at some point in their lives, using date from the relevant welfare agencies. By necessity this is a conceptual thought exercise, rather than an exact analysis, and the specific numbers I calculate should be taken as only a very rough approximation. The exercise nonetheless helps to demonstrate the sheer magnitude of the value created by social welfare programs.

Details of the estimation procedure are provided in Appendix 1. Broadly speaking, I conduct a discounted cash flow analysis for each social program, using data from the administering agency (California Employment and Development Department 2021; Forsakringskassan 2020; Social Security Administration 2021). In the United States, where many social insurance programs vary by state, I imagine a couple living in California, the largest state and one of the most generous in terms of its safety net.

Based on data from the Credit Suisse Global Wealth Report, the marketable wealth held by the Swedish couple would be roughly $83,000, while that of the American couple would be $131,000 (Shorrocks, Davies, and Lluberas 2019). As previous research would predict, the discounted value of public pensions in both countries is substantially greater than each couple's

marketable wealth: future Social Security benefits are worth $170,000 to the American couple, and the Swedish equivalent is worth $264,000. This single program more than doubles the wealth of each couple, and reverses the relationship between them: whereas the American couple has roughly $50,000 more marketable wealth, once pensions are incorporated the Swedish couple has $45,000 more total wealth.

[Insert Table 2 here]

A second major component of social wealth are public programs that help families cope with unexpected financial shocks, such as lost wages due to unemployment or illness. These programs in Sweden are substantial: workers are entitled to 300 days of unemployment at between 70% and 80% of their base salary, paid medical leave of up to six months while keeping their job, and 60 days of paid time off to care for a sick child. In total, the value of unemployment insurance to the Swedish couple is roughly $34,000, while paid sick leave is worth another $26,000.[8]

In the United States, there is no paid medical leave at the Federal level, and unemployment insurance varies by state. California does have a paid sick leave program that gives three days of paid time off per year, while the California state unemployment program provides benefits for 26 weeks. For the hypothetical Californian family, then, unemployment insurance would be worth about $11,700 and paid sick leave would be worth $701.

Finally, a third suite of programs fulfill certain aspects of the investment function of wealth, particularly for investments in human capital and education. In Sweden, new parents receive a combined 480 days of paid parental leave, with each parent required to take at least 90. Additionally, children receive a child benefit of SEK 1,250 per month until they turn 16, and the same amount in study grants until age 20, to help parents defray the costs of childrearing. Together, these two programs are the equivalent of having an additional $75,000 of savings set aside for parenthood. If children grow up to attend university, tuition in Sweden is generally free, which amounts to another roughly $75,000.[9] The United States does make human capital investments in the form of the Child Tax Credit, which provides a $2000 tax reduction for each child under 17, of which $1400 is refundable even for those who do not owe taxes. The tax savings from the existing CTC would be worth roughly $35,000 to the US couple, though the

refundable portion amounts to just $14,600. There is no paid parental leave at the Federal level in the US, although California provides 8 weeks at 60% of normal earnings, worth $5,608.

As Table 2 makes clear, pension programs only scratch the surface of the ways in which the welfare states of both the US and Sweden create very real economic benefits for their residents. In total, the American couple can count on approximately $220,000 in social wealth, about 1.7 times as much as their entire personal savings. In Sweden, the hypothetical family has a claim on $475,000 of social wealth, a whopping 5.7 times their marketable wealth.

Social wealth deserves particular attention from those eager for government action to reduce wealth inequality, because it greatly expands the scope of policy options for egalitarian wealth creation. Rather than simply subsidizing savings or investment, wealth can be created at a stroke through new or expanded social insurance programs. These programs have the additional benefit of covering the uses that everyday people typically have for wealth—investment, insurance, and long-term income replacement—without exacerbating the political and economic challenges posed by large concentrations of private assets.

A final takeaway from Table 2 is that the relative importance of social compared to marketable wealth varies dramatically between the United States and Sweden. In the US, marketable wealth formed a substantial portion of the hypothetical couple's total assets. In Sweden, it was almost an afterthought, just 15% of the total. This highlights how the institutional structure of each country fundamentally shapes the role played by marketable wealth—a fact that is critical to keep in mind when comparing marketable wealth across nations, and that helps explain apparent puzzles in the cross-national wealth inequality literature.

Total marketable wealth and cross-national wealth inequality

One of the more striking findings from comparative studies of wealth inequality is that wealth inequality across countries is only moderately correlated with income inequality. Some countries that are 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 portrayed as less egalitarian and that have higher levels of income inequality (Jantti, Sierminska, and Smeeding 2008; Pfeffer and Waitkus 2019; 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, if related, dimensions of economic inequality (Pfeffer and Waitkus 2019; Skopek et al. 2014). It has also prompted a rapidly growing literature aimed at understanding the sources of variation in wealth inequality, as distinct from income inequality. Initial contributions have explored the role of demographic factors (Cowell, Karagiannaki, and Mcknight 2018) and differences in asset composition (Pfeffer and Waitkus 2019).

The examples of the Swedish and American families in the previous section demonstrate the conceptual challenges inherent in cross-national wealth comparisons, and suggest a possible explanation for the seemingly anomalous patterns of wealth inequality across nations. As we have seen, the same amount of marketable wealth can mean very different things in different countries. The hypothetical Swedish family in Table 2 could rely on the welfare state to meet hundreds of thousands of dollars' worth of expenses that the American family had to meet through its own savings. Despite having less marketable wealth than the American family, the Swedish family had greater total access to economic resources.

Under these circumstances, it's not unreasonable to imagine that the Swedish family would place a lower priority than its American counterpart on accumulating private savings, because it simply has less need for marketable wealth to meet basic life expenses (c.f. Cowell et al. 2018). The forward-looking perspective helps identify the retirement and insurance uses of wealth as cases where there can be close equivalence between marketable and social wealth. Indeed, this substitution of social for marketable wealth has been documented in the case of retirement savings (Domeij and Klein 2002).

If middle class Swedes tend to rely on the welfare state for needs that residents of other countries meet with private savings, the consequences for the distribution of marketable wealth would be twofold. First, a greater share of marketable wealth would likely be concentrated among the very rich, whose fortunes derive from processes like investments or entrepreneurship that are not shaped by the need for personal savings. But second, the total amount of marketable wealth in society might be lower, because it simply plays a less central role in Sweden than in countries with less extensive welfare states.[10]

Findings from recent cross-national studies are consistent with this explanation: although there is no consistent relationship between inequality in marketable wealth and inequality in

income, there is a strong relationship between wealth inequality and the average *amount* of marketable wealth, as a fraction of average income. Figure 2 presents a re-analysis of data from three recent papers comparing wealth and income inequality across countries (Cowell et al. 2018; Pfeffer and Waitkus 2021; Skopek et al. 2014). Between them, these papers use four sources of wealth and income data: two waves of the Luxembourg Income and Wealth Surveys (LWS; the early wave studied by Cowell et al. uses data from 1998-2002 and the later wave examined by Pfeffer and Waitkus uses data from 2012-2014), the Survey of Health Aging and Retirement in Europe (SHARE), and the Credit Suisse Global Wealth Report and OECD income dataset (GWD/OECD).

As shown in Figure 2A, the relationship between income inequality and wealth inequality is weak in all four datasets. The overall correlation between the Gini for income and that for wealth is 0.26 in the early LWS, 0.18 in the late LWS, -0.08 in the SHARE, and -0.12 in the Global Wealth Report/OECD.

[Insert Figure 2 here]

But as figure 2B shows, the relationship between wealth inequality and the total size of wealth, measured as the ratio of average wealth to average income in the sample,[11] is much stronger, and has a negative slope: the correlations are -0.64 in the early LWS, -0.50 in the late LWS, -0.17 in the SHARE, and -0.53 in the Global Wealth Report/OECD. A similar analysis of the Credit Suisse Global Wealth Report 2019 also shows a negative relationship, with a correlation between the Gini index for wealth and the ratio of wealth-to-GDP of -0.35.

Establishing a definitive causal link is beyond the capacity of these data, but the inverse relationship between total levels of and inequality of marketable wealth is consistent with a dynamic where many individuals accrue less in private savings in societies that provide greater amounts of social wealth. At minimum, this analysis highlights the need for extreme caution when comparing inequality statistics across countries with different economic institutions (c.f. Bruenig 2020). Even when marketable wealth is defined consistently, the social role that 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 comparably high level in the United States.

The analysis in Figure 2 also raises the total amount of marketable wealth owned by a country's residents as a quantity of social scientific interest in itself, one that varies independently of total income and may be endogenous to social welfare policy. As the following section will discuss, the national wealth-to-GDP ratio is a metric that deserves extensive study and one that the forward-looking perspective on wealth helps to interpret.

Interpreting the national wealth-to-GDP ratio

The previous section showed how a measure of the total wealth in a country, relative to its total income, offers some purchase on otherwise puzzling patterns of wealth inequality across countries. The national wealth-to-GDP ratio is prominent in the economics literature on wealth, most notably in the work of Thomas Piketty (Piketty 2014; Piketty and Zucman 2014). However, it has been surprisingly absent from the sociological literature. While some research has noted variation in average wealth levels across countries (e.g. Cowell et al. 2018), the relationship between mean wealth and mean income has not received the same attention as, for example, the relationship between inequality in wealth and inequality in income. But countries vary dramatically in their wealth-to-income ratios in ways that matter for society. The forward-looking perspective offers an interpretation of this variation as capturing the extent to which a country's future economic activity has already been claimed by its present residents in the form of private, marketable assets.

The wealth-to-GDP ratio compares the total marketable wealth owned by residents of a country to the total economic output of that country in one year. It is thus a measure of how much total wealth a country's residents own, normalized by the size of their economy. Interestingly, there is enormous variation in this ratio, both cross-sectionally across countries and within countries over time. Figure 3A plots the ratio of marketable private wealth to GDP for a range of countries in 2019, using data from the Credit Suisse Global Wealth Report (Shorrocks et al. 2019). Among countries where high quality data exist, the ratio varies by a factor of almost three, from just over 200% to roughly 600%. There is no evidence of a systematic relationship between the level of economic development and the wealth-to-GDP ratio: countries with both high and low ratios appear at every income level. Norway and Switzerland, for instance, were the two highest-income countries in the sample, each with GDP per capita just over $80,000. But

with essentially the same income, Norway had a total marketable wealth of $203,000 per person, while Switzerland had over $450,000, more than twice as much.

[Insert Figure 3 here]

A similarly impressive variation occurs within countries over time. Figure 3B plots wealth-to-GDP ratios for the US, the UK, France, and Germany from 1870-2010, using data from Piketty and Zucman (2014). All four of these countries saw large swings in the ratio over the course of the 20th Century, with France, for example, falling from a ratio of 700% around 1900, to just 200% in 1950, back up to almost 600% in 2010. While these swings track the destruction of World Wars I and II, the correlation isn't perfect: low wealth-to-income ratios persisted for almost 50 years after the second world war.

This pattern of variation in wealth levels, conditional on GDP, does not conform to commonsense understandings of the relationship between wealth and prosperity. It is not the case that *developed* countries, with high living standards and complex productive capacities, are *wealthy* countries, in terms of having large amounts of marketable assets. Stereotypical ideas of thriftiness as a key to prosperity do not appear in the national-level data. Neither is it the case that countries become systematically more or less wealthy as their economies grow over time.

How, then, should one interpret this variation? Economists have demonstrated mathematically that the wealth-to-GDP ratio, over the long term, will be related to the savings rate and the rate of economic growth (Piketty and Zucman 2014). But this does not fully answer the question of what drives the variation and what a high wealth-to-GDP ratio says about a society.

The forward-looking perspective on wealth helps interpret what wealth-to-GDP is measuring. If an individual asset represents control over one particular stream of future income, with its value in the moment equaling the present value of the expected income to be paid out, then total national wealth signifies the sum total of *all* claims on future income held by all present residents of a country, combined. The wealth-to-GDP ratio, then, measures the extent to which a country's future production has already been capitalized into marketable assets owned by present residents.[12] A country with a high wealth-to-GDP ratio is one where a great deal of future economic activity, relative to the current size of the economy, is already spoken for. A

lower ratio means that asset markets have penetrated less into the future, with more of the country's future income either reserved for future generations or claimed through social programs rather than capital markets. The wealth-to-GDP ratio thus may offer a rudimentary measure of the level of assetization: the extent to which economic activity has been capitalized into marketable assets (Birch and Muniesa 2020; Leyshon and Thrift 2007).

While the past-oriented perspective on wealth highlights how the present generation benefits from the economic activity of its predecessors/ancestors, this forward-looking interpretation of wealth-to-GDP shows how present generations also benefit from the economic activity of generations yet to come, claiming ownership today of income to be generated decades in the future. The connection to the past has raised concerns about inequality among members of the present generation. That with the future raises concerns about inequality between generations, as those with resources today purchase control of the future earnings of younger cohorts (Adkins 2018). It is even possible, in the case of certain perpetual endowments, that future generations may find themselves working on behalf of people who have long since passed away—a process in which "the dead hand of the donor potentially extends from beyond the grave to strangle future generations" (Reich 2018:147).

Although the wealth-to-GDP ratio offers a great deal of interest to sociologists and other social scientists, it does pose certain challenges that future research should wrestle with. First, it can vary for multiple reasons, which may have different normative interpretations and implications for policy. Particularly when an economy is growing rapidly, wealth can accumulate in productive assets that contribute to future economic growth: a new factory creates wealth for its owner today while also expanding the economy tomorrow. On the other hand, high wealth-to-GDP can result from increased financialization and assetization, as a greater *share* of future GDP is claimed by present owners of capital. Future research should endeavor to distinguish between these two possible drivers, as well as determining the social and economic conditions that contribute to each.

Wealth-to-GDP also suffers because wealth and income are not measured on the same scale: income is a flow in one year, while wealth is the discounted value of a stream of payments to come over many years. This means that the ratio has no cardinal interpretation: a ratio of 500% is larger than one of 200%, but it's hard to know what is objectively large or small. A more appropriate measure, but a challenging one to compute, would compare existing

marketable wealth to the present discounted value of all future GDP. Just as the present value of an individual asset can be computed from its expected future income, so—in theory—can a present value be computed for the expected future income of an entire economy. This quantity would be measured in the same units as wealth, and the ratio would measure precisely what fraction of future economic activity has been claimed as present wealth.

Conclusion

Wealth is one of the most important, but most conceptually slippery, economic concepts in the 21st Century world. The liquidity and fungibility of today's assets mean that wealth can behave like a stock or a flow, an insurance policy or a venture fund, a source of authority or a facilitator of consumption—all at the same time. Its stickiness means that wealth as measured in the present is simultaneously a consequence of actions taken generations in the past and an anticipation of payments to be made years or even decades into the future.

In this paper I have outlined a "future-oriented" or "forward-looking" perspective on wealth, which can usefully complement the "past-oriented" perspective that has been so productive in recent research. Just as recent scholarship exploring the linkages between wealth and the past has generated fundamental insights into the drivers of inequality and the persistence of injustice, so does a forward-looking perspective on wealth offer the potential to fundamentally reshape our understanding of what wealth is, where it comes from, and how policy should engage with it.

This future-oriented lens stems directly from the standard definitions of assets used in accounting, finance, and asset pricing. Virtually all quantitative research on wealth relies on these definitions when calculating net worth. Channeling the International Accounting Standards Board, I interpret an asset as control of an economic resource with the potential to produce future benefits. Control over this resource—the legal entitlement to whatever it should produce—is determined by past events, whether one's own decision to save, a grandparent's entrepreneurialism, or a racially exclusionary government policy. But the asset's value derives from expectations about the benefits is yet to generate. For tradeable assets, the market price reflects the expectations that people other than the owner have about its future behavior. This highlights the social nature of wealth: the exact opposite of the archetypal pile of inert, objective, and durable gold coins, an asset's value is nothing more or less than the dollar-weighted average

of the beliefs other people have about the future payments it will yield. When events—changes in consumer tastes, a shortage of a particular commodity, a global pandemic—cause those beliefs to shift, the prices of assets, and the value of the wealth they comprise, will change accordingly.

I have offered two initial areas where a forward-looking view of wealth helps clarify our understanding. First, the forward-looking perspective brings some resolution to current debates about "augmented wealth" and whether anticipated payments from government programs should be included when calculating wealth levels. As a conceptual matter, I have argued, any enforceable claim on future income should be considered wealth. But because many government programs target only a subset of the myriad uses to which marketable wealth can be put, advocates of augmented wealth go too far when they argue, for instance, that Social Security wealth is entirely equivalent to marketable wealth. Researchers should be explicit about which uses of wealth they are interested in studying, and include exactly those enforceable claims on future income that can be applied to those specific uses.

That said, many social insurance programs have sufficiently few restrictions that they are frequently treated as fungible with private savings. Social security is one such program: people save less in places that provide more generous public pensions (Attanasio and Rohwedder 2003; Domeij and Klein 2002). But it is hardly the only one. As I have shown, in Sweden the present monetary value of social programs likely to be used by a typical 30-year-old couple amounts to almost half a million dollars, roughly six times that couple's private assets.

This analysis highlights an important perspective on what government social programs do. Seen from the viewpoint of augmented wealth, social programs are simply a way—often the single largest way—in which government action creates wealth. With private property, governments create wealth by lending their authority to the claims of asset holders on the income whose control they've purchased. With social programs, governments provide the income directly. Recognizing the importance of social wealth does not mean that creating it is easy—the political hurdles involved in establishing or expanding new social programs can be massive. But it establishes the value created by these programs as commensurate in many ways with that of private savings.

The broad definition of augmented wealth that the forward-looking lens supports may help explain the variation in wealth inequality levels across countries—in particular, the high levels of wealth inequality in some otherwise egalitarian countries. Places like Denmark,

Norway, and Sweden have high levels of marketable wealth inequality, but they have relatively little marketable wealth compared to the size of their economies, perhaps because robust welfare states help meet many expenses that citizens of other nations cover with personal savings.

The variation in marketable wealth levels across countries also has a meaningful interpretation under the future-oriented perspective. Countries with high wealth-to-GDP ratios have converted more of their future economic activity into presently tradable assets, while those with lower wealth-to-GDP ratios have left more of that activity to the future. While there remains work to be done refining the conceptual and empirical aspects of the wealth-to-GDP ratio, it deserves attention as a subject of research in itself.

I have only scratched the surface of what a future-oriented perspective on wealth can illuminate. It emphasizes the malleability of wealth, as asset managers reallocate their portfolios in response to changing expectations. Researchers may also find it useful to explore the authority that wealth brings: "control over" an economic resource does not just mean entitlement to the fruits of its production, but also the ability to decide how—and by whom—it is used. Finally, the forward-looking view should be applied to debt, in which one's own expected income becomes the property of another. When heavily indebted young people proclaim that they have "no future" (Adkins 2018:21), they are not speaking metaphorically when it comes to economics.

There remains much work to be done. What is certain, however, is that as wealth continues to become more central to economic, political, and social life, a more complete understanding of what it is, where it comes from, and the many different uses to which it is put will be ever more critical.

Notes

[1] The primary exceptions are studies that explore variation in rates of return, such as Killewald and Bryan (2018) and Petach and Tavani (2020).

[2] The $600,000 figure assumes the wealth is invested at a 6% rate of return, roughly the average in the US from 1980-2012 (Saez and Zucman 2016). The exact number will differ depending on how the asset is invested, and will generally fluctuate from year to year, but even in US government bonds the figure is likely to be hundreds of thousands of dollars of annual income.

[3] In 2018, the IFRS began using a two-part definition of assets. An asset is now defined 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." The key elements of the definition—that control is determined in the past and economic benefits are realized in the future—are maintained.

[4] The principle that economic concepts as fundamental as money itself are social relations rather than objective facts is uncontroversial in economics (e.g. University of Minnesota 2016), but the necessary consequence that social inequality will manifest itself in seemingly asocial economic patterns is often underappreciated.

[5] This definition typically includes defined-contribution pensions, which are composed of marketable assets although they cannot be sold without penalty.

[6] Brady et al. (2018) demonstrate that net worth is not an effective proxy for permanent income.

[7] One exception could be earnings from existing employment contracts that do not allow termination except for cause. In this case, the earnings from the course of the contract could be considered as wealth.

[8] Determining a value for insurance programs that may not be used involves some challenges. Appendix 1 discusses why using the full cash equivalent of these programs has merit but arguably overstates their value on average, and outlines some alternative valuation methods, as well as their pros and cons. Note that in both countries a third major social insurance program protects against long-term disability. For those who use it, disability insurance is by far the most valuable social insurance program, but because it is only used about a small proportion of the population I exclude it from this analysis of a typical couple.

[9] I estimate the cost of college as the average net tuition paid to send one child to a 4-year public university and the other to a 2-year public university in the United States (Ma, Pender, and Liassi 2020).

[10] Another institutional determinant of the extent to which typical families accrue private savings is the availability of household credit. Sweden and the other Nordic countries have much more permissive household credit markets than Germany and many southern European countries (Wiedemann 2021). This could affect average national wealth levels in two ways. First, if households can easily acquire loans to cover unanticipated expenses, they might feel less need to save for a rainy day than they otherwise would. Second, if this household debt is owned by

residents of other countries (but not if it is owned by Swedes), it would directly lower the total national wealth.

[11] Note that Skopek et al. only report median income and wealth in their paper, so for the reanalysis of their data I use the median wealth to median income ratio rather than the mean wealth to mean income ratio as in the two LWS datasets. The median is not an ideal measure as it conflates the total amount of wealth with the level of wealth inequality.

[12] In a globalized economy, the more precise definition is the amount of future economic activity *anywhere* that is owned by present residents of a county. Swiss investors may own shares in American corporations, meaning they have a claim on future US GDP.

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Tables

Table 1. Restrictions on selected asset types.

Type of asset	Asset	Restricted use?	Alienable?	Liquidity
Marketable	Publicly traded stocks	No	Yes	High
	Equity in private companies (e.g. startups)	No	Yes	Low
	Real Estate	No	Yes	Medium
	Defined Contribution Pensions	Yes - retirement	Inheritance only	Medium
Augmented	Social Security	Yes - retirement	No	Low
	Defined Benefit Pensions	Yes - retirement	Inheritance only	Low
	Unemployment insurance	Yes - income replacement for job loss	No	High
	Paid sick leave	Yes - income replacement for illness	No	High
	Child allowance	No	No	High

Table 2. Sources of marketable and social wealth for a hypothetical young family, USA and Sweden (all values in USD, converted at 8.276 SEK/USD).

Wealth component	USA	Sweden
Annual income [1]	$60,752	$56,970
Marketable wealth [2]	$131,808	$83,164
Public pension wealth [3]	$169,667	$264,164
Social insurance wealth [4]		
Unemployment insurance	$11,700	$34,338
Paid sick leave (self and child combined)	$701	$26,451
Total social insurance wealth	$12,401	$60,789
Human capital investments [5]		
Parental leave	$5,608	$23,750
Child allowance/Child Tax Credit [6]	$35,299	$45,771
Student grants for living expenses	$0	$5,468
Estimated university tuition [7]	$0	$75,484
Total human capital investments	$40,907	$150,474
Total social wealth	$222,976	$475,427
Social/marketable wealth ratio	1.69	5.72
Total wealth	$354,784	$558,591

Notes:

1. Sources: Manduca et al. 2020 (US), Statistics Sweden 2020 (Sweden)

2. Source: Shorrocks et al. 2019

3. As described in Appendix 1, pension wealth is calculated using the OECD (2019) multiplier for gross income replacement applied to household's income

4. Disability insurance provides by far the largest benefit of any social wealth program in either country, but it is used by a much smaller fraction of the population than the other programs. In the interest of focusing on social wealth that a typical family is likely to use, I exclude disability insurance from the totals. Sources: California EDD (US), Försäkringskassan (Sweden)

5. Sources: US Social Security Administration (US), Försäkringskassan (Sweden)

6. Sources: California EDD (US), Försäkringskassan (Sweden)

7. The US estimate includes the nonrefundable tax savings from the CTC as currently enacted, under the assumption that this family will owe income taxes. These amount to $2000 per child per year through 2025 and $1000 per year thereafter. If only the refundable portions of the CTC are included, the discounted value would be $14,598. If the temporary Child Tax Credit expansion passed in 2021 were made permanent, its present value for the American family would be $85,612.

8. The value of free higher education for the Swedish family is calculated as the average total tuition paid for one 4-year and one 2-year college degree in the United States. Source: Ma, Pender, and Liassi 2020.

Figures

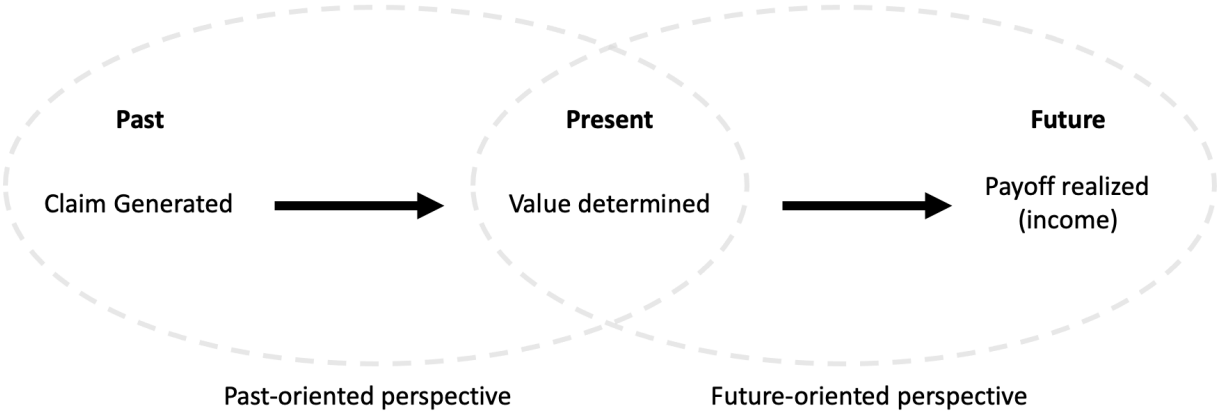

Figure 1. The temporal profile of an asset.

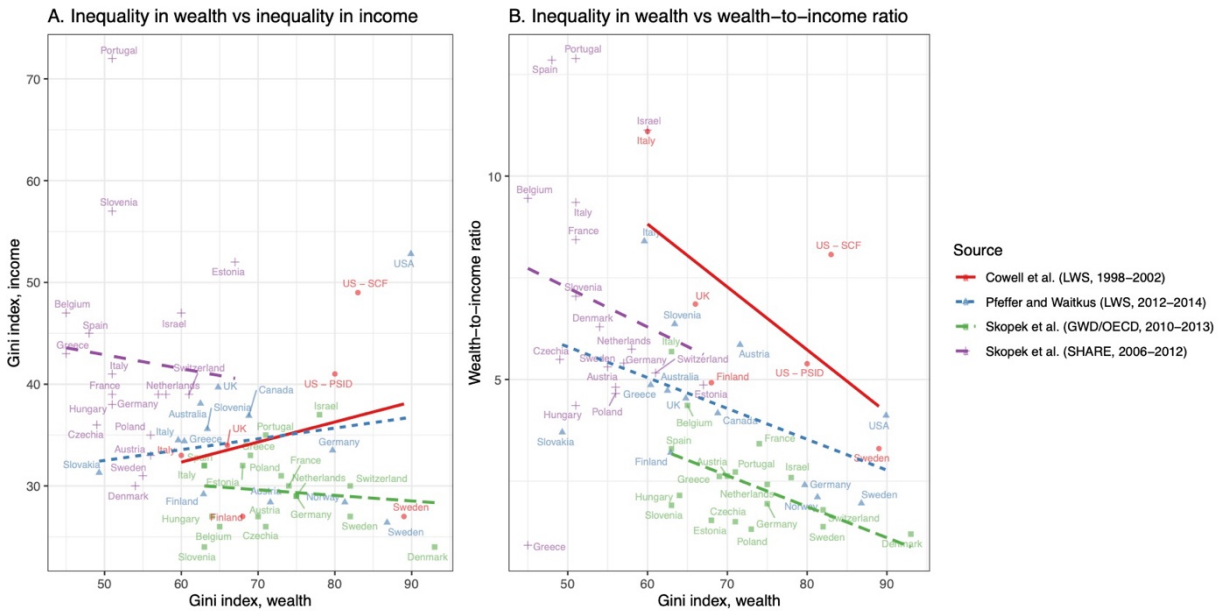

Figure 2. Re-analysis of findings from Cowell et al. (2018), Pfeffer and Watkins (2021), and Skopek et al. (2014). Left: Gini index for wealth vs Gini index for income. Right: Gini index for wealth vs ratio of average wealth (mean in Pfeffer and Waitkus and Cowell et al., median in Skopek et al.) to average income.

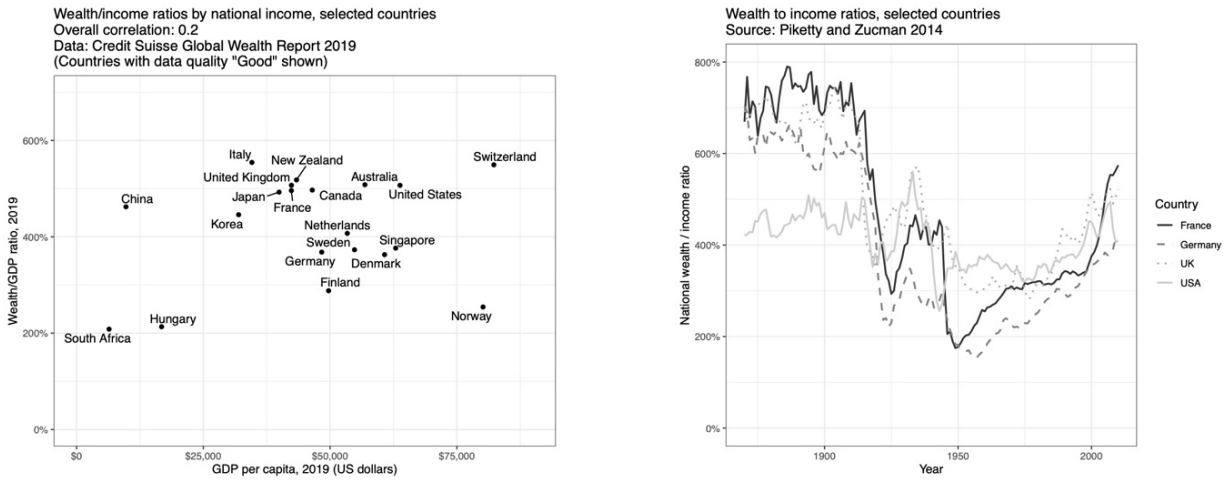

Figure 3: Wealth-to-GDP ratios across countries (left) and over time (right).

Appendix 1. Details of Social Wealth Calculation

In Table 2 of the main text I present an analysis of the value of social wealth for two hypothetical families, one in Sweden and one in the United States. This appendix details how the values in Table 2 were calculated.

Setup

I consider a household composed of a married couple, both members aged 30, that has one two-year-old child and is expecting another child in the next year. In Sweden I assign the hypothetical family an income of SEK 471,500, the 2018 median for cohabiting couples age 18-29 with children under age 18 (Statistics Sweden 2020). Using the December 2020 conversion factor of 8.276 Swedish Kroner to one US dollar, this corresponds to $56,970 (XE 2020). In the US I assign the family an income of $60,752, the median household income for native-born US citizens aged 30 in 2016 (Manduca et al. 2020). Income is used in both countries to determine the level of many social benefits.

Because many parts of the US safety net are administered by states, levels can vary substantially with geography. For concreteness, I imagine a family living in California, the largest state and one of the more generous in terms of social programs. Details of eligibility and benefit levels are sourced from the California Employment Development Department (California Employment and Development Department 2021, 2021), US Social Security Administration (Social Security Administration 2021), Swedish Försäkringskassan (Forsakringskassan 2020), and OECD Pensions analysis (OECD 2019). Following the standard used by the OECD for comparative analysis of pension systems, I employ a real discount rate of 2%. Alternative rates will alter the relative value of programs whose payoffs occur in the near versus more distant future, for instance the value of pensions compared to the value of child allowances.

According to the Credit Suisse 2019 Global Wealth Report, the median adult in Sweden had a net worth of $41,582, compared to $65,904 in the United States (Shorrocks et al. 2019). This corresponds to roughly $83,000 and $132,000 respectively for a couple.

Pensions

The largest social insurance program in both Sweden and the United States is the public pension system. I estimate the present value of pension benefits in two steps. First, I multiply the

household's current income by the average gross replacement rate for public pensions at the national average earnings, as calculated by the OECD (OECD 2019). This provides an expected pension income for each year after retirement.[13] I do not include voluntary private pension funds, which are already included in the median wealth estimates from the Global Wealth Report and thus the "marketable wealth" line of Table 2. Both Sweden and the United States have a life expectancy at age 65 of between 19 and 20 years, so I assume that the family will receive their pensions from the age of retirement until age 84. The standard retirement age in Sweden is 65, while that in the United States for those born after 1960 is 67 (Social Security Administration 2021). In the second step, I discount the future payments at 2% a year back to age 30, in line with the OECD's method. I sum the discounted value of all expected years of pension payments to arrive at the total present value of public pension wealth.

Using this approach, the age 30 pension wealth of a typical household in Sweden is $264,164—far more than the median private wealth of $83,000 for a couple. In the US the wealth equivalent of Social Security is about $170,000, comparable to that of the Swedish pensions and almost 30% more than the median marketable wealth of $130,000. In both countries, then, households near the median of the income and wealth distributions are likely to have substantially more money in pension wealth than in marketable wealth. This is in line with previous findings from the US and Germany (Catherine et al. 2020; Rasner et al. 2011), and with the findings of Domeij and Klein (2002) that residents of Sweden rely on the public pension program for their retirement rather than private savings.

Social Insurance

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 medical leave, for instance, substitute for aspects of the insurance function of wealth, helping to meet expenses after an adverse event. These programs in Sweden are substantial: workers are entitled to 300 days of unemployment at between 70% and 80% of their base salary, paid sick leave of up to six months while keeping their job, and 60 days of paid time off to care for a sick child.

A major methodological question involves how to quantify the value of social insurance programs to their recipients—specifically, whether to use the full face value or some fraction of it that accounts for the likelihood of use. While this seems like a technical question, it is deeply conceptual: is the value of these programs only the amount of money they pay out, or is there value in knowing that it is there?

One approach would be to simply look at the average amount of money per person paid out by these programs—the expected discounted lifetime receipts. Another approach would be to consider the amount of private savings that can be replaced by the program benefits, essentially counting them at face value. A related approach would consider the face value of the program benefits, but would consider only the maximum value provided across all programs rather than the sum, to better accord with the fungibility of private savings. A fourth approach would be to consider the amount that the same insurance might cost on the private market. This approach, which should fall between the expected payout and the face value, is probably the most conceptually appropriate, but is difficult to calculate. For the purposes of this exercise, I use the sum of the face value of social insurance programs. For an individual deciding how much of their paycheck to put away for a rainy day, the key question is how much can be expected from the government should the need arise: the face value. Even if they never end up making use of the insurance, they will still benefit from the "psychological safety net" (Shapiro 2004) it provides.

In total, the wealth equivalent of Swedish unemployment insurance for a family earning the median income is roughly $34,000, and the value of sick leave is another $26,000. Combined these totally roughly $61,000, about 75% of the marketable wealth of the median Swedish couple. In the United States there is no paid medical leave at the Federal level, and unemployment insurance varies by state. California does have a paid sick leave program that gives three days of paid time off per year, while the California state unemployment program provides benefits for 26 weeks. For the hypothetical Californian family, then, unemployment insurance would be worth about $11,700 and paid sick leave would be worth $701. Thus, in terms of their ability to insure themselves against these common risks, the median Swedish and American families are similarly situated when marketable wealth and social insurance wealth are combined, even though the American family has 60% more marketable wealth.

In both countries additional government programs insure against long-term disability, a less frequent but potentially even more catastrophic event. In the US, the monthly disability benefit for a hypothetical couple with this income level would be $1,595, while for the Swedish couple it would be $3,071. The present discounted value of all disability insurance payments until retirement is thus about $498,000 in the US and $958,000 in Sweden, dwarfing even pension wealth in both countries. However, because the experience of long-term disability is far less common than retirement, short-term sickness or job loss, it may not factor into everyday decision-making about savings levels in the same way these other programs do, and directly comparing the large wealth equivalent of disability insurance programs to marketable wealth may be less informative.

Investments in human capital

A third suite of government programs, particularly in Sweden, fulfill certain aspects of the investment function of wealth, specifically focusing on investments in human capital and education. In Sweden, a suite of social programs center on childrearing. New parents receive a combined 480 days of paid parental leave, with each parent required to take at least 90. Additionally, children all receive a child benefit of SEK 1,250 ($150) per month until they turn 16, and the same amount in study grants until age 20, to help parents defray the costs of childrearing and invest more in their children. Together, these two programs are the equivalent of having an additional $69,500 of savings set aside for parenthood. The US has historically had no equivalent to the child allowance, but the Child Tax Credit offers tax savings of up to $2000 per eligible child, of which $1400 is refundable even for families that do not owe income tax. Additionally, the Earned Income Tax Credit provides money to certain low-income parents that meet eligibility requirements. Since the hypothetical US family has a high enough income to owe tax, I include the full $2000 per child as a benefit in the relevant years. This amounts to a discounted total value of $35,299. There is no paid parental leave at the Federal level in the US, although California provides 8 weeks at 60% of normal earnings. For a couple with an income of $60,000, this amounts to about $5600.

Further down the road, attending university is a second major human capital investment that can fundamentally shape life trajectories. 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 per year of attendance at public 4-year universities during the 2020-2021 academic year, according to the non-profit College Board, was $19,490, while that for public 2-year universities was $14,560 (Ma, Pender, and Liassi 2020).

Supposing that one child will eventually attend a 4-year university, while the other might graduate from a 2-year degree program, the discounted present value of the tuition to be paid by the American family is roughly $75,000. In Sweden, university tuition is free, meaning that compared to their American counterparts the hypothetical Swedish couple has the equivalent of an extra $75,000 in savings for college. In total, these social programs targeting the human capital aspects of the investment function of wealth are worth the equivalent of approximately $145,000 in savings for the Swedish couple, and about $5,600 for the American family. Arguably even greater amounts of money are saved by both families due to the presence of free public primary and secondary education in both countries, but since that is consistent across countries I do not estimate it here.

Notes to Appendix 1

[13] This estimate of pension income is likely lower than what each couple would ultimately receive, since incomes tend to peak after age 30. But it is a reasonable approximation of the benefits that they have accrued by age 30.