Wealth inequality revisited:
Lessons from the 400 wealthiest Americans*

Kevin W. Capehart†

October 15, 2014

After arguing that Forbes Magazine's annual list of the 400 wealthiest Americans is the best source of data on inequality and mobility at the very top of the US wealth distribution, this paper studies that list for what it suggests about how the wealthiest Americans have fared over recent decades as a group and as individuals. The list suggests that they fared well as a group in absolute terms, even if their wealth is measured in terms of its purchasing power over a basket of luxurious goods and services. The list also suggests that they fared well as a group in relative terms, even though they shrunk as a share of their country's population. If the wealthiest Americans are seen as individuals rather than as a group, then their fortunes have been more varied with some becoming wealthier and others poorer, but there is little evidence of any increase in inter- or intra-generational wealth mobility. Causes and consequences of rising inequality and stagnant mobility are considered to conclude.

Keywords: *inequality, mobility, rich lists*

JEL classifications: *D31, C81*

*Working paper to be presented at FMM's conference on "Inequality and the Future of Capitalism" to be held in Berlin, Germany, from October 30th to November 1rst, 2014. The title and approach of this paper are loosely based on that of Peach (1996), while the content of this paper draws heavily on the author's dissertation (Capehart 2014a), which can be found online at `aladinrc.wrlc.org/handle/1961/16803`.

†Economics Department, The American University of Paris. *E-mail:* kcapehart@aup.edu

1. INTRODUCTION

Our knowledge about the past, present, and future of wealth inequality is incomplete. While the future is perhaps unknowable, our lack of knowledge about the historical and contemporary distribution of wealth is due to a dearth of data and, in at least one case pointed out by this paper, a failure to fully exploit available data. The cutting edge of economic research on wealth and its distribution is therefore still partially and often chiefly concerned with what might seem like the trivial task of simply describing the distribution of wealth. Examples of cutting-edge research on the distribution of wealth in the United States (US) include: Kopczuk and Saez (2004) who apply the estate-multiplier method to estate-tax data in order to try to estimate top wealth shares; Saez and Zucman (2014) who provide slides for forthcoming work that will apply the income-multiplier method to income-tax data in order to try to do the same; Pfeffer et al. (2013) who use a wealth survey conducted as part of the Panel Study of Income Dynamics (PSID); and Kennickell (2011) and Wolff (2014) who use the Federal Reserve's Survey of Consumer Finances (SFC).[1]

The purpose of this paper is to contribute to our knowledge of wealth inequality by using a source of data that is readily available but which has not been fully exploited and which has been largely neglected by academic researchers with some notable exceptions noted below. That data source is a list of the 400 wealthiest Americans that has been published in every year since 1982 by the popular magazine *Forbes Magazine*. Although a popular magazine may seem like a dubious source of data, the magazine's list is arguably the best source of data on the very top of the distribution of wealth in the US over recent decades, as this paper will argue. The 400 wealthiest Americans may also seem insignificant in human terms because they are an infinitesimally small percentage of the American population, but they are significant in economic terms because they own a disproportionately large share of their nation's wealth, as detailed below. Given that it is arguably the best source of data on the very top of the US wealth distribution, and given the economic significance of that part of the distribution, the magazine's list deserves serious study rather than neglect.[2]

[1]For an overview of the data and methods used to estimate the distribution of wealth, see Davies and Shorrocks (2000). Another example of cutting-edge research on the US wealth distribution is Piketty (2014a) who presents new time-series estimates of top wealth shares that were created by combining previous estimates (including those by Kennickell 2009, Kopczuk and Saez 2004, Wolff 2010) that covered different periods of time and used different data or methods. See Piketty (2014b, 6–7) for a defense of his estimates. Part of his defense is that Saez and Zucman's (2014) presentation shows similar estimates, but his primary defense is that our knowledge about the US wealth distribution is far from complete.

[2]Many of the 400 wealthiest Americans have also been some of the wealthiest people in the entire world over recent decades (at least according to an annual list of the world's billionaires published by *Forbes Magazine*, which started as an extension to its annual list of the 400 wealthiest Americans), so they own a

Using *Forbes Magazine*'s list of the 400 wealthiest Americans for every year between its inaugural year in 1982 and its most-recent year as of writing (which is the year 2013), this paper studies what that list suggests about how the wealthiest Americans have fared over recent decades as a group as unique individuals. They are shown to have fared well as a group in both absolute and relative terms. Their wealth increased in absolute terms, even if it is measured in terms of its purchasing power over a basket of luxurious goods and services. Their wealth also increased in relative terms as they took home a larger share of their nation's wealth despite shrinking as a share of the population. If the wealthiest Americans are seen as unique individuals rather than as a group, then their fortunes have been more varied with some becoming wealthier, some simply dying, and others becoming poorer while staying alive, but there is little evidence of any increase in wealth mobility.

The rest of this paper is organized as follows. The next section describes *Forbes Magazine*'s list in more detail and argues that it is the best source of data on what has happened at the very top of the US wealth distribution over recent decades. The third and fourth sections use the magazine's list to study how the 400 wealthiest Americans have fared as a group in absolute and relative terms over that period of time, ignoring who they have been as unique individuals. The fifth section studies how they have fared as individuals over the same period of time. The paper concludes by considering causes and consequences of rising inequality and stagnant mobility.

2. THE FORBES 400

In 1982, about a century after the end of the Gilded Age and around the start of what some (such as Rockoff 2012) have called a "new Gilded Age," *Forbes Magazine* published its inaugural list of the 400 wealthiest Americans. The magazine called its list the "Forbes 400." Limiting the number of people on its list to 400 was at least partly based on the fact that, during the earlier Gilded Age, the socialite Mrs. Astor maintained a list of the 400 people who constituted high society in her judgment (*Forbes Magazine* 2002, 81; Munk 2005).[3] Mrs. Astor's list was limited to 400 people because that was the number who could be comfortable in her ballroom, according to rumors. Depending on the rumor, only 400 people could be comfortable in her ballroom because that was the room's maximum capacity.

disproportionately large share of not only their nation's wealth but also the world's wealth. For more on *Forbes Magazine*'s list of some of the world's wealthiest and similar lists, see Capehart (2014b).

[3] According to an article that recounted the origin of the list: "In the late 1970s, [*Forbes Magazine*'s editor-in-chief] started pressing for a lengthy list of the country's wealthiest. [...] How many people to include? Upon hearing the concept, [the executive editor] exclaimed, 'Oh, you mean like Mrs. Astor's 400!' [...] Thus, with a little brand-borrowing, was born the Forbes 400" (*Forbes Magazine* 2002, 81).

Or, only 400 people could be comfortable in the ballroom because that was the number who possessed the requisite manners of such a room (Homberger 2002; Munk 2005; Patterson 2000). "If you go outside that number," one of Mrs. Astor's fellow socialites once said, "you strike those who are either not at ease in a ballroom or else make other people not at ease" (quoted in Patterson 2000, 83). Of note, the people who made it onto her list tended to come from "old" rather than "new" money and tended to consume in a manner that their contemporary Thorstein Veblen called conspicuous (Jaher 1975). They consumed expensive items like "splendid art collections, priceless jewelry, European antiques, yachts the size of ocean liners, lavish social gatherings, and stables of racehorses," in particular (ibid., 279–80). Whether the wealthiest Americans still consume such goods and services is discussed below, but, whereas inclusion in Mrs. Astor's list was based on ballroom manners and a variety of other criteria, sufficient wealth and American citizenship are the only criteria for inclusion in *Forbes Magazine*'s list.[4]

Putting together the inaugural year of the list apparently took "over a year" and cost "over a quarter of a million dollars on staff and research" (*Forbes Magazine* 1983, 168). A permanent staff has been dedicated to putting the list together ever since its inaugural year (ibid.). In order to put the list together, the staff starts with a list of people who may potentially be wealthy enough to be one of the 400 wealthiest Americans. Those people presumably come from the previous year's list, among other places. The staff then tries to interview each person and their associates such as their "employees, handlers, rivals, peers, attorneys, and ex-spouses" (*Forbes Magazine* 2012, 262). Other sources, including "Securities and Exchange Commission documents, court records, probate records, federal financial disclosures, and Web and print stories," are also consulted (ibid.).

Using the information gleaned from those various sources, the staff at the magazine tries to identify the 400 wealthiest Americans and estimate what each of them is worth in terms of the difference between the total value of their assets and the total value of their debts. The magazine apparently tries to account for all assets ("stakes in public and private companies, real estate, art, yachts, planes, ranches, vineyards, jewelry, car collections, and more") and all debts (ibid.). The magazine only reveals so much about how it values different types of assets, but publicly traded stocks are valued at the close of the stock market on one day

[4]During the middle of the twentieth century at a time when inequality had fallen and not yet risen again, John Kenneth Galbraith would write that many of the goods and services consumed by Mrs. Astor and her fellow socialites—"the great houses, the great yachts, the great balls, the stables, and the expansive jewel-encrusted bosoms"—had become passé among wealthy Americans (Galbraith [1958] 1998, 74–75). The threat of expropriation was one reason why such items fell out of style, according to Galbraith, but a "deeper" reason was that ordinary Americans could now afford the same or similar items (ibid., 74–77).

of the year (which was August 23rd for the most-recent year of the list as of writing) and privately held companies are valued based on the value of comparable public companies.[5]

The staff at the magazine have recognized that their wealth estimates might be wrong. "We don't pretend to know what's on each [person's] private balance sheet, although some [people] do provide paperwork to that effect," the staff said in one year (*Forbes Magazine* 2012, 262). The staff have also recognized that they might miss some of the 400 wealthiest Americans. In one year, they compared their list to a jigsaw puzzle with a few missing pieces, albeit a puzzle with enough pieces to still make out the picture (*Forbes Magazine* 1983, 6).

There are reasons to think that *Forbes Magazine*'s list may indeed miss some of the 400 wealthiest Americans or misestimate what some of them are worth. The accuracy of the magazine's list obviously depends on the extent to which the staff at the magazine can uncover information about the very top of the wealth distribution (Atkinson 2008, 69). Some information should be relatively easy to uncover. If a person owns a large amount of a publicly traded company, then that part of the person's wealth should be easy to identify and value, for example, thanks to legal reporting requirements and public stock exchanges (Blitz and Siegfried 1992, 7; Raub et al. 2010, 14). Other information may be more difficult to uncover. If a person owns a small amount of a publicly traded company—an amount that is too small to trigger any reporting requirements—then that part of the person's wealth could be difficult to identify, even though it would be easy to value, once identified. Small or even large amounts of privately held companies could be difficult to both identify and value (Atkinson 2008, 69). Other assets like artwork could also be difficult to either identify or value (ibid.; Raub et al. 2010, 7). Debts may also be more difficult to identify than assets (Atkinson 2008, 70).

Given that some assets and debts may be more difficult to identify or value than others, the list may be biased in the following ways. The list may be biased towards under-estimating the wealth of people whose wealth is dispersed across a range of assets, rather than concentrated in a single or small number of assets, and therefore biased towards excluding such people (Blitz and Siegfried 1992, 7; Raub et al. 2010, 14). The list may also be biased towards over-estimating the wealth of people who own more assets, even if they owe more debts, and therefore biased towards including such people (Atkinson 2008, 70).

Despite its potential inaccuracies, *Forbes Magazine*'s list is arguably the best source of data on the very top of the US wealth distribution over recent decades. Other sources of

[5]Similar summaries of what the magazine reveals about its methods can be found in Canterbery and Nosari's (1985) study of the inaugural year of the list, a more recent study by Kaplan and Rauh's (2013), and other studies from over the years (such as Blitz and Siegfried's 1992).

data like surveys or estate-tax records offer only incomplete accounts of the very top of the wealth distribution. Consider surveys. Surveys that are not designed to try to over-sample the very top of the wealth distribution often fail to capture that part of the wealth distribution (Davies and Shorrocks 2000, 629–30). The wealth survey conducted as part of the PSID is an example of a survey that often fails in that regard (Juster et al. 1999). Even if such surveys did try to over-sample the very top of the wealth distribution, the surveys could still be inaccurate accounts due to the non-response and misreporting problems that plague surveys of the wealthy (Davies 2009, 129–30; Davies and Shorrocks 2000, 630–1). *Forbes Magazine* may miss some of the 400 wealthiest Americans or misestimate what some of them are worth, of course, but there is no guarantee that the wealthy would response accurately or respond at all to a survey.

The Federal Reserve's SCF is generally seen as the best survey on wealth in the United States at least partly because it is designed to try to over-sample the very top of the wealth distribution (Davies and Shorrocks 2000, 632). The SCF is still an incomplete account of the very top of the wealth distribution, however, given that the survey is explicitly designed to exclude the people (or, to be more precise, the households of the people) who appear on *Forbes Magazine*'s list of the 400 wealthiest Americans (Kennickell 2006, 84). Some of the reasons that have been given for excluding the (households of the) people who appear on the magazine's list are that it would be too difficult to get them to respond and, even if they did respond, it would be too difficult to protect their confidentiality (Kennickell 2007, 2). Yet, even if the SCF was not designed to exclude part of the very top of the wealth distribution, the survey might still be an inaccurate account due to non-response or misreporting errors.[6]

Another source of data on the very top of the wealth distribution is estate-tax records from the International Revenue Service (IRS). Estate-tax records provide data on some of the wealthiest Americans, but only those who die and pay the estate or so-called "death" tax. The wealth of the wealthiest living Americans must be inferred by using the dead as a sample for the living. Such inferences have potential problems, even if tax avoidance and evasion are assumed away (Atkinson 2008, sec. 2.3; Davies and Shorrocks 2000, sec. 3.3). *Forbes Magazine*'s list, in contrast, is reserved for Americans who are still alive.

The magazine's list of the 400 wealthiest Americans is therefore arguably the best source of data on the very top of the wealth distribution, at least in a cross-sectional sense. The list is also arguably the best source of data for studying mobility throughout that part of

[6]Due to its design, the SCF can adjust for non-response errors (Kennickell 2007, 2), but there is no guarantee that those adjustments eliminate non-response errors.

the wealth distribution over time. People only die once, so estate-tax records cannot be used to study wealth mobility, except at an inter-generational level. The SCF is typically only a cross-sectional survey conducted every three years, so it cannot be used to study wealth mobility, either. The 2009 SCF was atypical because it was conducted only two years after the previous survey and it tried to re-survey the same households from before. Again, however, the SCF is typically only a triennial, cross-sectional survey. The wealth survey conducted as part of the PSID is a panel survey, so it can be used to study mobility throughout some parts of the wealth distribution (see, e.g., Diaz-Gimenez et al. 2011, 27–28), but that survey cannot be used to study mobility throughout the very top of the distribution, given that it often fails to capture that part of the distribution.

Although *Forbes Magazine*'s list is arguably the best source of cross-sectional and panel data on the very top of the wealth distribution, it is not an ideal source of data. The most notable and serious limitation of the list is that *Forbes Magazine* only provides limited details about its methods for identifying the 400 wealthiest Americans and estimating what each of them is worth. A closely related limitation is that, except in rare instances like Fitch's (2006) breakdown of Donald Trump's assets, the magazine does not provide details about the assets owned and debts owed by the people on its list. The failure to provide such details severely limits the ability of researchers to assess the magazine's methods and the accuracy of its estimates. Broad claims about biases in the magazine's methods (like the claims made by Piketty 2014a, 432–443) are therefore ultimately unfounded, but that is only because so little is known about their methods.

That said, no source of data on wealth is ideal, and other sources of data have similar limitations. In terms of the SCF, that survey tries to over-sample the very top of the wealth distribution, but the Federal Reserve only provides limited details about how it does so. Income-tax records are apparently used to try to identify wealthy households, but the exact manner in which those records are used is not revealed because of concerns over inadvertently violating the confidentiality of income-tax records (Kennickell 1999, 2001). In terms of estate-tax records, such records are also confidential, so access to them is severely limited. Analyzing those records requires befriending someone at the IRS and having them analyze the records on your behalf (Kopczuk and Saez 2004, 484). The income-multiplier estimates shown as part of Saez and Zucman's (2014) slide show are also presumably based on income-tax records that someone else analyzed on their behalf. Scholarly standards of replicability and reproducibility are therefore not met, regardless of whether one is working with tax records made by the US government or a list made by a popular magazine.

Other limitations of *Forbes Magazine*'s list are notable but less concerning. An obvious limitation is that, even if researchers accept that the magazine's list is the best source of data an the 400 wealthiest Americans, it would still only be a source of data on a small number of people. The notion that a group of people can be too small to be worthy of study seems ultimately indefensible, but, even if the 400 wealthiest Americans were seen as insignificant in human terms, they would still be significant in economic terms, as this paper will now detail. While information on a larger group of the wealthiest Americans might provide more insights into wealth and its distribution, that does not imply that any insights offered by the magazine's list of the 400 wealthiest American should be ignored.

3. THEIR ABSOLUTE WEALTH

Given that *Forbes Magazine*'s list is arguably the best source of data on the very top of the wealth distribution in the United States, this paper now uses that list to study how the 400 wealthiest Americans have fared over recent decades. To begin, we will study how they have fared as a group in absolute terms, ignoring who they have been as individuals. In subsequent sections, we will turn to studying their wealth as a group in relative terms and also studying them as the unique individuals they have been.

According to the magazine's list, the total wealth of the 400 wealthiest Americans increased dramatically between the inaugural year of its list in 1982 and the most-recent year of its list as of writing, which was the year 2013. The increase in the nominal wealth of the 400 wealthiest Americans was especially dramatic. Their nominal wealth increased over 20-fold from about 92 billion to two trillion current dollars between 1982 and 2013 (*Forbes Magazine* 1982, 2013). That increase in their nominal wealth is shown as part of figure 1 in this section.[7]

Of course, for comparisons over time, nominal values should be adjusted to account for changes to the value of a dollar. Previous studies based on *Forbes Magazine*'s list of the 400 wealthiest Americans have either erroneously ignored the distinction between nominal and real wealth (Klass et al. 2006) or used a version of the Consumer Price Index (CPI) made

[7] In the years 1982 to 1989, *Forbes Magazine* did not report an estimate of the wealth of one of the 400 wealthiest Americans on its list, Malcolm Stevenson Forbes, who was the editor-in-chief of the magazine. "People would have assumed that the printed figure [for my wealth] was real, not an estimate, as all the rest are," he explained (*Forbes Magazine* 1983, 168). We impute his wealth in a given year as the median wealth of the other 399 wealthiest Americans in that year. Previous studies that have used the magazine's list to study the wealth of the 400 wealthiest Americans without any imputation for that missing wealth are only studies of the wealth of 399 out of the 400 wealthiest Americans up until the year 1990, therefore.

by the Bureau of Labor Statistics (BLS) in order to deflate nominal wealth into real wealth (Broom and Shay 2000; Kennickell 2006; Kopczuk and Saez 2004; Mishel et al. 2012).

Although the CPI is often used to deflate nominal values, the CPI is, at best, a proxy for the cost of living for ordinary Americans. If the cost of living for the 400 wealthiest Americans is extraordinary, rather than ordinary, then the CPI could be an inappropriate deflator. It has been emphasized that the CPI may be a poor proxy for the cost of living for ordinary Americans (see, e.g., Baker 1998, 22–29, 131–40), but here we wish to emphasize that it may be a poor proxy for the cost of living for the 400 wealthiest Americans.

A different index may be a more appropriate deflator. An index constructed by *Forbes Magazine* may be more appropriate, in particular. In 1986, in the same issue as its fifth-annual Forbes Four Hundred, *Forbes Magazine* published the "Forbes Four Hundred Cost of Living Index" (*Forbes Magazine* 1986, 56). In almost every year since that year, the magazine has published its index alongside its list of the 400 wealthiest Americans, although the name of the index has changed over time. The index's original name was lengthened to the "Forbes Four Hundred Cost of Living Extremely Well Index" in 1989, and then shortened to its current name (again, the Cost of Living Extremely Well Index or CLEWI) in 1994. Hereafter, we refer to the index by its current name.[8]

The magazine's coverage of its index since 1986 has drawn a sharp distinction between the groups and the standards of living associated with the CLEWI, on the one hand, and those associated with the CPI, on the other hand. The magazine has suggested that its CLEWI measures the cost of living for the Forbes Four Hundred and other, seemingly similar groups like the "rich" (1986–1995), "very rich" (1990, 1995, 2001, 2002a, 2010–2012), "super-rich" (1986), "mega-rich" (1988), "ultra-rich" (1989), "ultra-wealthy" (2012), "wealthiest consumers" (1988), "people able to spend" (1988), and "high-livers" (1993). The magazine has also suggested that its index measures the cost of standards of living like the cost of "maintaining a Forbes Four Hundred lifestyle" (1987), "living high on life's hog" (1989), "living really well" (1989, 1990), "living lavishly" (1990), "living the high life" (1992), "high living" (1993), "living rich" (1999), and "being rich" (2003a,b).

Whereas the magazine has cast its CLEWI as a cost-of-living index for the very, super-, mega-, and ultra-rich (as noted above), the magazine has cast the CPI as a cost-of-living index for groups like "the general public" (1987), "most [...] consumers" (1988), "most

[8] *Forbes Magazine*'s coverage of its index can be found in various articles in various years (see CLEWI 1986, 1987, 1988, 1989, 1990, 1991, 1992, 1993, 1994, 1995, 1996, 1997, 1998, 1999, 2001, 2002a,b, 2003a,b, 2004, 2005a,b, 2006a,b, 2007, 2008, 2009a,b, 2010, 2011, 2012, 2013). The references given below refer to years of the magazine's coverage of its index unless otherwise stated.

people" (1993), "ordinary workers" (1989), and "ordinary people" (2001). And whereas the CLEWI has been cast as an index of the cost of living highly, lavishly, richly, and really, extremely well (again, as noted above), the CPI has been cast as an index of the cost of "necessities" (1987), "an ordinary lifestyle" (1987), "a middle-class lifestyle" (1989), "just living" (1995), and "just getting by" (1998). The magazine has therefore suggested that the CLEWI measures the cost of living for Americans who are as extraordinarily wealthy as the 400 wealthiest, while the CPI measures the cost of living for more ordinary Americans.

However, contrary to the magazine's suggestion, there is a debate among economists over whether the CPI is (or could be or should be) a cost-of-living index (see, e.g., Baker 1998). Economists typically draw a distinction between a "cost-of-living index," which measures the cost of a given level of something called utility, and a "cost-of-goods index," which measures the cost of a given basket of goods and also services (where the cost of a given level of utility and the cost of a given basket of goods and services are not thought to generally coincide). The CPI measures the cost of a given basket of goods and services, so it should perhaps be called a cost-of-goods index. The CLEWI also measures the cost of a given basket of goods and services, so it should perhaps be called a cost-of-goods index, too (Devine 2000, 150).

The goods and services included in the CLEWI fall into certain categories. Those categories were chosen by the magazine to match some of the categories in the CPI, although the goods and services in each category are much more luxurious than the goods and services in the corresponding categories in the CPI. For example: The CLEWI's basket includes a category for food and beverages, but that category includes a kilo of caviar and a case of champagne, rather than the loaf of white bread and other modest items included in the corresponding category in the CPI. Other categories in the CLEWI include other luxurious goods and services. The apparel category includes a fur coat, the transportation category includes a private jet, the entertainment category includes tickets to the opera, and the healthcare category includes a face-lift, to give several examples (see, e.g., CLEWI 1986).

There are other ways in which the CPI and CLEWI differ, besides the luxurious nature of the goods and services included in the latter index. The CLEWI only includes a small number of goods and services. Only 40 goods and services are included in the index, as of writing (CLEWI 2012). The CPI, in contrast, is made up of hundreds of goods and services (see, e.g., Baker 1998, 51). Also, the CPI is a weighted average of the price of each item in its basket (ibid.), whereas the CLEWI is an unweighted average (see, e.g., CLEWI 2012).

Whether the CLEWI is an appropriate deflator for the wealth of the 400 wealthiest Americans obviously depends on whether it is appropriate to measure their wealth in terms of that index. It could be argued that the index is an inappropriate deflator because the goods and services consumed by the 400 wealthiest Americans are not identical to the goods and services included in the CLEWI. The magazine's own coverage suggests that the CLEWI excludes "several prime areas [of goods and services]" due to data limitations (CLEWI 1986, 56). The excluded areas include "houses, artworks, and antiques," as well as "servants" (ibid.). Other goods and services may also be excluded. Some goods and services included in the CLEWI should also perhaps be excluded.

While it is certainly possible that the goods and services consumed by the 400 wealthiest Americans are not identical to the goods and services that make up the CLEWI, there is a popular conception that the wealthy eat caviar, drink champagne, wear fur coats, fly in private jets, attend the opera, get face-lifts, and so on and so forth. That conception is reflected in that fact that *Forbes Magazine* constructs such an index. The conception could be incorrect, of course. Such extravagant consumption may have fallen out of style among the wealthiest Americans long ago. That said, it still seems instructive to at least consider the possibility that the CLEWI is a more appropriate deflator than the CPI. The goods and services in the CLEWI are clearly still consumed by some group of people.

It could be argued that neither the CLEWI nor the CPI are appropriate deflators for at least two reasons. First: If wealth is accumulated for future consumption (either by one's self or one's beneficiaries), rather than current consumption, then wealth should perhaps be measured in terms of future rather than current prices (Alchian and Klein 1973). Second: If wealth is accumulated for some power it confers over people or institutions, rather than for its purchasing power over current or future goods and services, then wealth should perhaps be measured in terms of the social power it confers (Officer and Williamson 2006). Unfortunately, a measure of future prices is not readily available and a measure of social power is not well established. So, if only out of necessity, the CPI and CLEWI can be used for inter-temporal comparisons of wealth.[9]

When their nominal wealth is deflated by the CPI, the increase in the wealth of the 400 wealthiest Americans between 1982 and 2013 is somewhat less dramatic. Their wealth in CPI-deflated, 2013 dollars increased a little less than 10-fold from a little over 200 billion to about two trillion constant dollars. And their CLEWI-deflated wealth only increased about four fold from about 450 billion to again about two trillion constant dollars, as shown as another part of figure 1 of this paper.

[9]Although the results would be qualitatively similar with different versions of the CPI, we use the CPI-U-RS, in particular (BLS 2013).

The increases in their CPI- and CLEWI-deflated wealth are less dramatic than the increase in their nominal wealth because, over the same period of time, the CPI roughly doubled and the CLEWI almost quintupled, as shown in figure 2 of this paper. It is perhaps not surprising that the CLEWI outpaced the CPI over that period of time. As pointed out by Poterba (2000, 110), the demand for the luxurious goods and services included in the CLEWI presumably increased relative to the demand for the more modest items in the CPI as the wealthiest Americans became wealthier. If the supply of the items in the CLEWI was relatively inelastic, then increased demand for those items would have pushed up their prices relative to the prices of the items in the CPI (ibid.). Excess demand pressures presumably pushed up the CLEWI relative to the CPI, therefore. Yet, again, despite the fact that the CLEWI outpaced the CPI between 1982 and 2013, the CLEWI-deflated wealth of the 400 wealthiest Americans still almost tripled over that same period of time.

As seen in figure 1, the wealth of the 400 wealthiest Americans—whether it is measured in nominal, CPI-deflated, or CLEWI-deflated terms—did not increase in every year between 1982 and 2013. Their wealth decreased in some years. The most-dramatic decrease in their wealth occurred after their wealth peaked in the year 2000 and then fell over the next two years. Their wealth peaked in the year 2000 at about 1.2 trillion dollars in nominal terms, 1.6 trillion in CPI-deflated terms, and 2.1 trillion in CLEWI-deflated terms. Their wealth then fell between 2000 and 20002 by about 325, 491, and 668 billion dollars in nominal, CPI-deflated, and CLEWI-deflated terms, respectively. The decline in their wealth after the year 2000 is shown as part of figure 3. The run-up and decline in their wealth around those years can be associated with the stock-market boom of the late 1990s that went bust in the early 2000s.

By the year 2007, the wealth of the 400 wealthiest Americans had exceeded its previous peak in both nominal and CPI-deflated (although not CLEWI-deflated) terms, but their wealth then fell again over the next two year. Their wealth fell by about 272 billion dollars in nominal terms, 353 billion in CPI-deflated terms, and 515 billion in CLEWI-deflated terms between 2007 and 2009. That decline in their wealth—which can be associated with the recent economic crisis that saw the collapse of a housing bubble, a panic in financial markets, a crash in the stock market, and a deep recession that rivaled the Great Depression (*Forbes Magazine* 2007–2009)—was relatively modest, relative to the decline in their wealth after the stock-market crash of the early 2000s, as seen in figure 3 of this paper.

Other declines in their wealth were even more modest. Between 1987 and 1988, as well as between 1989 and 1990, their wealth decreased slightly in real terms and increased slightly in nominal terms. Their nominal wealth increased by amounts that were on the order of only about one billion dollars, while their CPI- and CLEWI-deflated wealth decreased by amounts that were on the order of only about 10 billion dollars. For the magazine's list from 1987, publicly traded stocks were valued on September 11th of that year (*Forbes Magazine* 1987, 112), which was shortly before the "Black Monday" of October 19th when the stock market crashed. The decline in the wealth of the 400 wealthiest Americans between 1987 and 1988 can therefore be associated with that stock-market crash (*Forbes Magazine* 1988). The decline in their wealth between 1989 and 1990 can be associated with the downturn in the real-estate market, stock market, and economy more generally that occurred around those years (*Forbes Magazine* 1990).

In summary: *Forbes Magazine*'s list does not suggest that the 400 wealthiest Americans became ever-wealthier since 1982, but the magazine's list still suggests that they became wealthier since then, even if their wealth is measured in terms of the CLEWI's basket of luxurious goods and services that sold for ever-higher prices. We will now discuss whether they became wealthier, not just in absolute terms, but also relative to everyone else.

4. THEIR RELATIVE WEALTH

As the wealth of the 400 wealthiest Americans increased in absolute terms over recent decades, their wealth also increased relative to everyone else's, although the exact extent to which their relative wealth increased obviously depends on how the wealth of everyone else is measured. Part of figure 4 shows, for the years 1982 to 2013, the wealth of the 400 wealthiest Americans as a share of one specific measure of aggregate wealth. The measure that we use in the figure is a weighted average of the end-of-the-second-quarter and end-of-the-third-quarter wealth of US households in a given year, as reported by the Federal Reserve's Flow of Funds Accounts, where the weights are discussed below. Using that measure, the share of household wealth held by the 400 wealthiest Americans roughly tripled from about 0.85 to 2.75 percent between 1982 and 2013, as shown as part of the figure.

One issue with using that specific measure is a timing issue. Wealth is a stock variable, so it should be measured at a point in time. The magazine's list in a given year is supposed to be a snapshot of wealth at the close of the stock market on a particular day of the given year, but the day of the year has varied over the years, and the day has never been at the end of any quarter. For years in which the magazine reported the day on which it took a snapshot of wealth, the day was as early as August 16th in 2002 and as late as September 12th in 1986 (*Forbes Magazine* 1982–2013). Those days fall between the end of the second quarter and the end of the third quarter, which is why a weighted average of the wealth of the household sector at the end of those two quarters was used above. The wealth of the household sector at the end of a quarter was weighted more heavily if the date on which the magazine took its snapshot of the wealth was closer (in terms of number of days) to the end of that quarter. Unfortunately, for some years, the magazine does not appear to have reported the day on which it took a snapshot of wealth. To the author's knowledge, the magazine did not report the day it took a snapshot of wealth for its lists in 1982, 1999, 2000, and 2003 to 2005, although the magazine did report that its 1982 list was a snapshot of wealth in "mid-August" (*Forbes Magazine* 1982, 101). For those years, the wealth of the household sector at the end of the second quarter was weighted equally with their wealth at the end of the third quarter.

Using a weighted average of the wealth of the household sector at the end of the second and third quarters does not necessarily resolve the timing issue. That would only resolve the issue if the wealth of the household sector changed in a linear fashion between the end of one quarter and the next. Yet, if we were to use the Flow-of-Funds estimates of the wealth of the household sector at the end of any quarter in a given year, then trends in the wealth of the 400 wealthiest Americans as a share of the wealth of the household sector would be quantitatively similar. To be more specific, if the Flow-of-Funds estimates at the end of any quarter in a given year were used, then their wealth share would be estimated to be as low as about 0.82 and as high as about 0.87 percent in 1982, and it would be estimated to be anywhere between about 2.62 and 2.85 percent in 2013. Their share of household wealth would have therefore increased between those years by a factor that was anywhere between about three to three-and-a-half percent—roughly tripling.

Although their share of wealth has roughly tripled over recent decades (at least according to *Forbes Magazine*'s list), some economists have suggested that, even at their largest, the share of wealth held by the 400 wealthiest Americans has still been small. For example: In a footnote to their 2002 article, two economists from the Federal Reserve noted that the SCF is designed to exclude the (households of the) people who appear on *Forbes Magazine*'s list (Bertaut and Starr 2002, 214, n. 10). They noted in the same footnote that the share of household wealth held by the people on the magazine's list was "on the order of 2.5 percent," which they suggested was merely a "modest" share (ibid.).

As another example: At a 2003 conference, an economist from the Federal Reserve presented a paper in which he used *Forbes Magazine*'s list to supplement the SCF (Kennickell 2003). He used that list to supplement the SCF because, as noted above, the SCF is designed to exclude the (households of the) people who appear on the magazine's list. The paper's discussant asked the audience the question, "What fraction of total wealth do you think that the [400 wealthiest Americans] hold?" (Smeeding 2003). "They hold two percent," he answered. "The lowest guess I've gotten from anyone is 10 percent. Everybody thinks it's much bigger [but] these rich guys hold two percent only, and that's it" (ibid.).

While it could perhaps be argued that the trillion or so dollars of wealth held by the 400 wealthiest Americans (about two trillion current dollars in 2013, according to the magazine's list from that year) is small relative to the tens of trillions of dollars of wealth held by all the households in America (roughly 75 trillion current dollars in 2013, according to the Flow-of-Funds estimate discussed above), it seems unreasonable to suggest that the share of wealth held by the 400 wealthiest Americans is small relative to either their share of the population or the shares of wealth held by other groups of Americans, as we will now argue.

Consider their share of wealth relative to their share of the population. At every point in time over recent decades, the 400 wealthiest Americans have been an infinitesimally small proportion of the population. In 1982, they accounted for about one five-thousandth of one percent (i.e., about 0.0002 percent) of the population using the Census Bureau's estimate of the resident population in that year. By 2013, the 400 wealthiest Americans only accounted for about one ten-thousandth of one percent (i.e., about 0.0001 percent) of the population (again, using the Census Bureau's population estimate). By comparison, the share of household wealth held by the 400 wealthiest Americans was almost one percent in 1982 and over two-and-a-half percent by 2013, according to the estimates discussed above. Their share of wealth has therefore been thousands of times larger than their share of the population. A share of wealth that is thousands of times larger than an infinitesimal share of the population is still small, perhaps, but the share of wealth held by the 400 wealthiest Americans has been at least disproportionately large.

Next, consider their share of wealth relative to the share of wealth held by another group of wealthy Americans, specifically, the wealthiest one percent of American households. Although there is no single source of data that can be used to compare the shares of wealth held by those two groups (Kennickell 2006, 84, n. 4), their wealth shares can be compared by using *Forbes Magazine*'s list and the Federal Reserve's SCF. One of the current directors of the SCF, Arthur B. Kennickell, has used the magazine's list to make similar comparisons (Kennickell 2003, 2006).[10] Those two data sources can be used to compare the shares of wealth held by the two groups in every three years between the years 1989 and 2010. Earlier

[10]On Kennickell and his role in the SCF, see Rae and DeHaan (2012).

years of the SCF are not comparable to latter years of that survey because the survey was redesigned (Kennickell 2011, 11, n. 10), and more-recent years of the survey are not yet available, but, again, the two data sources can be used to compare the shares of wealth held by the two groups in every three years between 1989 and 2010.

In 1989, the share of wealth held by the wealthiest one percent of American households was about 30.1 percent, according to estimates made by Kennickell (2012, 5, table 3) from the SCF. Kennickell (2012) reported that wealth share without reporting either an estimate of the total wealth of the wealthiest one percent of American households or an estimate of the total wealth of all the households in America, but he did report an estimate of the mean wealth of American households. He estimated that their mean wealth was about 188.9 thousand current dollars (Kennickell 2012, 4, table 2, if the constant-dollar figure he reports is converted to 1989 dollars by using the CPI-U-RS). The total wealth of American households must have therefore been estimated to be about 17.6 trillion current dollars, given that the number of households represented by the SCF in that year was apparently 93.1 million (Kennickell and Starr 1994, 880, n. 22).[11] That estimate of household wealth based on the 1989 SCF is similar to, although not exactly the same as, Flow-of-Funds estimates of household wealth at the end of any quarter in that year. According to the Flow of Funds Accounts, household wealth ranged from about 17.7 to 19.0 trillion current dollars over that year. If the wealthiest one percent of American households were estimated to be worth 30.1 percent of about 17.6 trillion current dollars, then they must have been estimated to be worth about 5.3 trillion current dollars. By comparison, the wealth of the 400 wealthiest Americans was about 270 billion current dollars in 1989, which would have been about 5.1 percent of that amount.

However, if we follow Kennickell (2006) and add the magazine's estimate of the wealth of the 400 wealthiest Americans to the SCF estimates, then the wealthiest one percent of households would have been worth about 31.2 percent of household wealth, and the 400 wealthiest Americans would have been worth about 4.8 percent of that. In a similar context, Kennickell (2006) adds the magazine's estimate because, again, the SCF is designed to exclude the (households of the) people who appear on the magazine's list. The wealth of the 400 wealthiest Americans as a share of the SCF estimate of household wealth with *Forbes Magazine*'s estimate of their wealth added to it (or, for that matter, without the magazine's

[11]The number of households represented by the SCF over the years has apparently been, in millions of households, 93.1 in 1989 (Kennickell and Starr 1994, 880, n. 22), 95.9 in 1992 (ibid.), 99.0 in 1995 (Kennickell et al. 2000, 27, n. 35), 102.6 in 1998 (ibid.), 106.5 in 2001 (Bricker et al. 2012, 78, table A.3), 112.1 in 2004 (ibid.), 116.1 in 2007 (ibid.), and 117.6 in 2010 (ibid.).

estimate of their wealth added to it) has not been exactly the same as their wealth as a share of the Flow-of-Funds estimate of household wealth, which can be seen in figure 4, but the shares have been similar, which can be seen in the same figure.

If the same calculations are made for subsequent years, then, by 2010, the share of wealth held by the wealthiest one percent of American households was about 34.5 percent and the 400 wealthiest Americans were worth about 6.7 percent of that. Or, if *Forbes Magazine*'s estimate of the wealth of the 400 wealthiest Americans is added to the SCF estimates, then share of wealth held by the wealthiest one percent of American households was about 36 percent and the 400 wealthiest Americans were worth about 6.3 percent of that. The wealth shares in the other years between 1989 and 2010 are shown as part of figure 5, where the magazine's estimate of the wealth of the 400 wealthiest Americans was added to the SCF estimates in each year.

As a final comparison, consider the share of wealth held by the 400 wealthiest Americans relative to the share of wealth held by a group of some of the least-wealthy Americans, specifically, the least-wealthy half of American households. Again, there is no single source of data that can be used to compare the shares of wealth held by those two groups, but their wealth shares can be compared for every three years between 1989 and 2010 by using *Forbes Magazine*'s list and the Federal Reserve's SCF. Figure 6 shows, for each of those years, the shares of household wealth held by the least-wealthy half of American households, on the one hand, and the 400 wealthiest Americans, on the other hand, where the shares were estimated in the same way as in the earlier figure. As seen in the figure: In 1989, the least-wealthy half of American households owned about three percent of household wealth, while the 400 wealthiest Americans owned about 1.5 percent. By 2010, the 400 wealthiest Americans owned about 2.3 percent of household wealth, while the least-wealthy half of American households owned about 1.1 percent.

It can be noted that, as long as the magazine did not over-estimate what they were worth by more than about 720 billion current dollars or 53 percent, the 400 wealthiest Americans were worth at least as much as the least-wealthy half of American households in the 2010. The fact that the 400 wealthiest Americans were worth at least as much as the least-wealthy half of Americans households in that year was partially due to the fact that about 11.1 percent of households had negative wealth with their debts exceeding their assets (Kennickell 2012, 3, table 1), but it is nevertheless a striking statistic that a group that accounted for less than one thousandth of one percent of the American population was worth at least as much as half of the roughly 120 million households in America. That statistic, as well as the earlier statistic on the share of wealth held by the 400 wealthiest Americans relative to the share of wealth held by the wealthiest one percent of American households, has been emphasized by Foster and Holleman (2010) among others.[12]

The share of wealth held by the 400 wealthiest Americans over recent decades hsas therefore been disproportionately large relative to their share of the population, roughly equal to the share of wealth held by the least-wealthy half of American households, and arguably large relative to the share of wealth held by the wealthiest one percent of American households. Their share of wealth has also been larger in recent years than it was in earlier years, despite the fact they shrunk as a share of the population. Whether the wealth of the household sector is measured based on the SCF or the Flow of Funds Accounts, the wealth of the 400 wealthiest Americans increased relative to the wealth of everyone else over recent decades, as seen in figure 4 of this paper. Their share of wealth did not increase in every year, however, as seen in the same figure. Their wealth share fell by a relatively large amount amid the stock-market crash of the early 2000s, recovered to a large extent, and then fell by a smaller amount amid the recent economic crisis. The most-recent estimates suggest that their wealth share has all but recovered.

5. THEIR INDIVIDUAL FATES

As discussed in the previous section, *Forbes Magazine*'s list suggests that, if we ignore who they have been as individuals, then the wealth of the 400 wealthiest Americans as a group increased relative to the wealth of everyone else over recent decades. The magazine's list also suggests that, if we continue to ignore who they have been as individuals then the wealth of wealthier people increased relative to the wealth of less-wealthy people even among the 400 wealthiest Americans themselves. Figure 7 shows, for the wealthiest to the 400th wealthiest Americans in 1982 and 2013 (whoever they happened to be in those two years), the change in their wealth in billions of constant (specifically, CPI-U-RS deflated, 2013) dollars. Note that the ordinate axis in the figure uses an inverse hyperbolic sine transformation.[13] As seen

[12] Another striking statistic—which was estimated by Allegretto (2011), emphasized by Stiglitz (2012, 8), and expounded upon by Bivens (2012) and others—is that the share of household wealth held by the six heirs of Walmart in 2007 was roughly equal to the share of wealth held by the least-wealthy 30 percent of American households in that year.

[13] That is to say, if y denotes the variable of interest, then that variable was transformed as $\ln\{\theta y + (\theta^2 y^2 + 1)^{1/2}\}/\theta$, where the scale parameter θ was somewhat arbitrarily set to one one-thousandth. An inverse hyperbolic sine or "arcsinh" transformation approximates a logarithmic transformation at extreme values, but the former is more popular than the latter in the literature on wealth because, while wealth can be zero or negative, the log of a non-positive number is infinite or imaginary (Kennickell 2006, 84; Pence 2006). (At values close to zero, an arcsinh transformation approximates a linear transformation or, equivalently, no

in the figure: The increase in the wealth of the wealthiest American was relatively large at about 67 billion constant dollars; the increase in the wealth of the 100th wealthiest American was roughly equal to the average change of about five billion; the change in the wealth of the 200th wealthiest American was smaller at about three billion; and the change in the wealth of the 400th wealthiest American was smaller still at about one billion constant dollars.

Figures like figure 7 are often used in the literature on poverty to study the distributional effects of income growth. In that context, such figures show changes in income between two periods of time as a function of relative income. The figures are used to study whether growth was "pro-poor" in the sense (among the other senses in which that term is used) that poorer people saw their incomes rise by more than richer people, ignoring who those people might have been in either period of time. An obvious issue with such a figure is that it obscures the gains or losses experience by unique individuals (Grimm 2007). The same issue presents itself in our figure.

Figure 8 extends our earlier figure by showing changes in the wealth of unique individuals who appeared on *Forbes Magazine*'s list in 1982, 2013, or both of those years. Only 38 people appeared in both years. For those 38 people, the figure shows the uncensored changes in their wealth. Considering just those changes for the moment, the figure suggests that some people fared better between 1982 and 2013 than figure 7 would suggest. The investor Warren Buffett fared better, for example. In 1982, he was the 92nd wealthiest American with a wealth of about half a billion constant dollars. By 2013, the 92nd wealthiest American was worth about five billion dollars, but, by then, Buffett was the second wealthiest American with a wealth of over 50 billion dollars.

Other people who appeared on the list in both 1982 and 2013 fared worse than figure 7 would suggest. The oldest grandson of John D. Rockefeller—David Rockefeller—fared worse, for example. David was the third wealthiest American in 1982 with a wealth of about two billion constant dollars. The third wealthiest American was worth 41 billion dollars by 2013, but David was not worth nearly that much by then. He still fared fairly well, of course, or else he would have fallen off the list. David was the 193rd wealthiest American with a wealth of 2.8 billion dollars.

An above-average change in wealth does not necessarily imply that someone fared as well in the intervening period as that change would suggest. Take Donald Trump, for example. According to *Forbes Magazine*, Trump was the 290th wealthiest American in 1982 with a

transformation at all.) A semi-log scale could have been used for the figure, given that all of the changes in wealth were positive, but the semi-arcsinh scale was used in anticipation of a similar figure that follows.

wealth of about 200 million constant dollars, and he was the 134th wealthiest American with a wealth of over three billion dollars by 2013, but, for the first half of the 1990s, he was not one of the 400 wealthiest Americans. Indeed, his debts may have even exceeded his assets by hundreds of millions of dollars at one point (Capehart forthcoming). Again, however, an above-average (or below-average) change in wealth between 1982 and 2013 implies that someone ultimately fared better (or worse) than figure 7 would suggest.

For everyone except the 38 people who appeared on the magazine's list in both 1982 and 2013, only censored changes in their wealth can be shown. For the 362 people who were on the list in 1982 but dropped off by 2013, the amount by which a person's wealth changed is shown as the difference between his or her wealth in 1982, on the one hand, and the minimum wealth of the 400 wealthiest Americans in any year after he or she dropped off the list, on the other hand. The change in a person's wealth would have been at least as large as that difference, if the person was still alive and still an American citizen by 2013.

Some of the people who dropped off the list were still alive and still Americans by then. After appearing on the list in 1982 with a wealth of over two billion constant dollars, and after dropping off the list in the 1980s amid an ill-fated attempt to corner the silver market with his brother, Nelson Hunt did not make it back on the list by 2013, but he was still alive and still an American in that year, for example.

Some of the people who dropped off the list were no longer alive or no longer Americans by 2013, however. Over a quarter (specially, 117) of the 400 people who appeared on the list in 1982 eventually dropped off because they died. Other people dropped off the list for other reasons, but at least some of them eventually died, too. At least some of the 243 people who dropped off the list because of a decline in their wealth eventually died. One of the sisters of the Hunt brothers—Margaret—eventually died after dropping off the list because of a decline in her wealth, for example. And one of the two people who dropped off the list because they renounced their American citizenship eventually died. Carnival Cruise Line founder Ted Arison, who dropped off the list in 1994 because he renounced his American citizenship, died in 1999. For the people who died, they obviously lost all their wealth and much more, but the change in their wealth between 1982 and 2013 was still at least as large as the difference that was described above, at least in some sense.[14]

[14] The one other person who was on the list in 1982 but eventually dropped off the list because he renounced his American citizenship was Campbell Soup Company heir John Thompson Dorrance III. He was still alive and still wealthy enough to be one of the 400 wealthiest Americans in 2013 if only he was still an American citizen (at least according to *Forbes Magazine*'s list of the world's billionaires in 2013), so his change in wealth was better than the change shown in figure 8.

For the 362 people who were not on the list in 1982 but came onto the list by 2013, the amount by which a person's wealth changed is shown as the difference between the minimum wealth of the 400 wealthiest Americans in any year between 1982 and the first year that the person appeared on the list, on the one hand, and his or her wealth in 2013, on the other hand. The change in a person's wealth would have been at least as large as that difference, if the person could have appeared, but did not appear, in the year in which the minimum wealth of the 400 wealthiest Americans was at its minimum.

Most of the people who came onto the list by 2013 could have appeared on the list in 1982 if only they were wealthy enough, but some could not have appeared, either because they had not been born yet or because they had not become American citizens yet. The minimum wealth of the 400 wealthiest Americans was at its minimum in 1982, so the three people who were born after 1982 (namely, oil-pipeline heir Scott Duncan and Facebook co-founders Dustin Moskovitz and Mark Zuckerberg) could not have appeared on the list back in that year, although the change in their wealth between 1982 and 2013 was still at least as large as the difference described above, at least in some sense.

The number of people who would have appeared on the list in 1982 if only they had already been American citizens is unknown, but the number might be zero. There were only 38 immigrants on the list in 2013 who were not already on the list in 1982 (Navarro 2013). The wealthiest one of them (namely, Google co-founder Sergey Brin) was almost surely not a multi-millionaire back in 1982, and the earliest year any of them appeared on the list was 1987. George Soros appeared on the list for the first time in that year, but he had been an American citizen since the 1960s. To the extent that any of those immigrants were already multi-millionaires back in 1982, the change in their wealth was worse than the change shown in our figure.

Although some of the changes shown in the figure may be misleading due to censoring, some of the greatest gains seem to have been experienced by people who were not on the list in 1982 but made it onto the list by 2013, while some of the greatest losses seem to have been experienced by people who were on the list in 1982 but dropped off by 2013. Bill Gates was not on the list in 1982, so he must have been worth less than the minimum wealth of the 400 wealthiest Americans in that year, which was about 174 million constant dollars. By 2013, Gates was the wealthiest American and worth 72 billion dollars. Gates fared well between 1982 and 2013, therefore. The wealthiest American in 1982—the shipping mogul Daniel Keith Ludwig—did not fare as well. Ludwig was worth over four billion constant dollars in 1982, but he eventually dropped off the list because he died.

Thus, the changes in wealth among the 400 wealthiest Americans between 1982 and 2013 were perhaps not as pro-wealthy as figure 7 might suggest. Relatively wealthier members of the 400 wealthiest Americans became relatively wealthier between 1982 and 2013, but the 400 wealthiest Americans in 1982 were not exactly the same people—or even mostly the same people—as the 400 wealthiest Americans in 2013, and people who were the same moved up and down the ranks.

The change in the wealth of the 400 wealthiest Americans as a group between 1982 and 2013 was also perhaps not as pro-wealthy as the increase in their wealth relative to the wealth of everyone else might suggest. The change in the their wealth between those two years can be decomposed into the contributions of the people who appeared on the list in both years, people who came onto the list, and people who dropped off. The contribution of people who appeared on the list in both years ("incumbents") is simply the sum of the changes in their wealth. If someone appeared on the magazine's list in both years, and if his or her wealth increased by a given amount, then the wealth of the 400 wealthiest Americans must have also increased by that amount.

The contributions of the people who came onto the list ("entrants") and the people who dropped off the list ("dropouts") can be calculated as the sum of the differences between a person's wealth in 2013 and the minimum wealth of the 400 wealthiest Americans in 1982, in the former case, and the negative of the sum of the differences between the minimum wealth of the 400 wealthiest Americans in 1982 and a person's wealth in 2013, in the latter case. If someone was on the list in 1982 but dropped off by 2013, and if all other things were equal, then the wealth of the 400 wealthiest Americans would have decreased by the difference between his or her initial wealth and the minimum wealth of the 400 wealthiest Americans. Likewise, if someone was not on the list in 1982 but came onto the list by 2013, and if all other things were equal, then the wealth of the 400 wealthiest Americans would have increased by the difference between his or her initial wealth and the minimum wealth of the 400 wealthiest Americans. All other things were not equal, of course. The minimum wealth of the 400 wealthiest increased between 1982 and 2013, for example. Yet, decomposing the change in the wealth of the 400 wealthiest Americans in that way still seems sensible.

The contributions of the people who dropped off the list can be further decomposed into the contributions of the people who dropped off the list because they died ("decedents"), the people who dropped off the list because they renounced their American citizenship ("renunciants"), and the people who dropped off the list because their wealth declined in either absolute or relative terms ("other dropouts").

Decomposing the 1,807-billion-constant-dollar increase in the wealth of the 400 wealthiest Americans between 1982 and 2013 in such a manner, incumbents added about 273 billion constant dollars (of which Buffett contributed about 21 percent all by himself) and entrants added about 1,652 billion (of which Gates contributed about four percent), while decedents subtracted about 57 billion (of which Ludwig subtracted about eight percent), other dropouts besides renunciants subtracted a similar dollar amount (about 61 billion, of which Nelson Hunt subtracted about four percent), and renunciants subtracted a negligible amount (less than one billion constant dollars). Thus, while some of the increase in the wealth of the 400 wealthiest Americans was due to the gains experienced by people who were one of the 400 wealthiest Americans in both of those years, most of the change was due to the gains experienced by people who were not yet one of the 400 wealthiest Americans back in 1982. There is no guarantee that those people started from a lowly station in life or that they ended up doing anything more than inheriting a fortune, of course, but they were at least not already one of the 400 wealthiest Americans in 1982.

The 1,652-billion-constant-dollar contribution of the people who became one of the 400 wealthiest Americans by 2013 can be decomposed further into the contributions of people who were self-made, at least according to *Forbes Magazine*, and people who were not. According to the magazine, 273 out of the 400 people on its list in 2013 were self-made, in the sense that they "built [their] fortunes themselves" (although they might not have built their fortunes "entirely from scratch" because they might have "borrowed money from in-laws or parents" or "started businesses with spouses or other relatives;" Kroll 2012). All but 17 of the 273 self-made people were not on the list in 1982. The 256 self-made people who came onto the list by 2013 contributed about 1,134 billion dollars overall. Seven of those people—including the Microsoft co-founder Bill Gates, the Orcale founder Larry Ellison, the Amazon founder Jeff Bezos, and the Google co-founders Larry Page and Sergey Brin, as well as the media mogul Michael Bloomberg and the casino owner Sheldon Anderson—contributed about 22 percent of that amount or about 248 billion dollars. It can be noted that, out of the self-made people who came to the list by 2013, some appeared on the list for the first time as early as 1983 and others appeared as late as 2013. The unweighted average of their first years on the list is about 2001, while a weighted average weighted by their contribution to the total change in the wealth of the 400 wealthiest Americans is about 1998.

The other people who made it onto the list by 2013 but were not self-made contributed about 519 billion. The heirs of Walmart founder Sam Walton—oldest son Rob, youngest son Jim, daughter Alice, and daughter-in-law Christy—contributed about a quarter of that amount or about 135 billion dollars. The unweighted and weighted average of their first years on the list is about 2000 and 1997, respectively.

Forbes Magazine's list therefore suggests that, out of the 1,807-billion-constant-dollar increase in the wealth of the 400 wealthiest Americans between 1982 and 2013, about 792 billion can be attributed to 38 people who were already one of the 400 wealthiest Americans back in 1982 as well as 106 people who became one of the 400 wealthiest Americans by 2013 without building their fortunes by themselves. About 1,134 billion can be attributed to 256 self-made people who became one of the 400 wealthiest Americans by 2013. The discrepancy in the dollar-value amounts is due to people who either died, experienced a decline in their wealth, or renounced their American citizenship. The contributions of each group are summarized in table 1.

Although the extent to which the self-made members of the magazine's list actually started from a lowly station in life has yet to be quantified in any precise manner (see Kaplan and Rauh's (2013 for one recent attempt), a rise in the number of self-made members has been seen as a sign of increased wealth mobility into the very top of the wealth distribution (see, e.g., ibid.). One way in which to try to discern whether wealth mobility has actually risen, fallen, or stayed the same is to study the number of self-made entrants, not over the entire period from 1982 to 2013, but instead over several shorter periods. Part of figure 9 shows, for the years between 1995 and 2013, the number of people who came onto *Forbes Magazine*'s list between one year and the next and who were considered self-made by the magazine. The figure does not go all the way back to 1982 because the magazine did not start to systematically report whether someone's wealth was self-made until it started publishing its list online in 1996.

As seen in the figure, the number of self-made entrants by year has been relatively small and relatively constant. As many as 400 self-made entrants could have come onto the list between any one year and the next, if there was complete turnover, and if that turnover was driven by self-made men and women rising up the ranks. The average number of new entrants per year has only been about 33 people, however. The highest the number has been is 57 people. The number was that high between 1998 and 1999 at the height of the dot-com boom. The number of self-made entrants was as low as 19 people between 2002 and 2003 in the wake of the dot-com crash.

The same figure also shows, for the same years, the number of people who came onto the list between one year and the next but who were not considered self-made by the magazine ("other entrants"). The number of those people has also been relatively small and constant with a maximum of 24 people between 2003 and 2004, a minimum of two people between 2010 and 2011, and about 10 people on average per year.

Finally, the figure shows the number of people who stayed on the list between one year and the next ("incumbents"). That number has been relatively high and constant. Over the period from 1995 to 2013, the number was as high as 376 people, as low as 330 people, and equal to about 356 people on average. The minimum occurred at the height of the dot-com boom in the years between 1998 and 1999, while the minimum occurred between 2010 and 2011 in the wake of the recent crisis that is still ongoing in many senses.[15]

The relative constancy of the number of incumbents, self-made entrants, and other entrants has important implications for inter- and intra-generational wealth mobility.

An increase over time in the number of self-made *members* of the magazine's list relative to the number of other members suggests that the self made tended to be more likely to make it to the top of the wealth distribution and/or they were more likely to stay there once they made it, at least given the economic, social, and political circumstances of the period under consideration. The fact that the number of self-made *entrants* has tended to be greater than the number of other entrants in any given year suggests that they have indeed been more likely to make it to the top. It can be noted as an aside that more sophisticated empirical analysis that controls for confounding factors like age does not suggest that the self made have been statistically or substantively more or less likely to remain at the top once they get there relative to their non-self-made counterparts (Capehart 2014a, ch. 4).

In order for inter-generational mobility into the top of the wealth distribution to be rising, a rise in the number of self-made members should be observed, but, more importantly, we should see a rise in the number of self-made entrants relative to the number of other entrants. That does nor appear to be the case based on Figure 9. Figure 10 illustrates that more clearly by showing the proportion of entrants who were self made.

Intra-generational mobility also appears to have been constant in the sense that there does not appear to have been any change over time in the probability that someone who makes it onto *Forbes Magazine*'s will stay there. The more sophisticated empirical analysis noted above suggests the same.

Thus, there is little if any evidence of a change in inter- or intra-generational wealth mobility. That is not to say that the 400 wealthiest Americans have always been the same

[15]The maximum, minimum, and average number of incumbents for the entire period of time between the magazine's inaugural list in 1982 and its most-recent list as of writing has been similar. Between 1982 and 2013, out of the 400 people on the list in any given year, as many as 376 and as few as 320 people appeared again in the next year. About 352 appeared again on average.

people, of course. The people on the list in a given year are only the temporary tenants of the very top of the wealth distribution. That said, the tenancy of some people has been extended, someone's tenancy could perhaps be permanent if not for the limits of human longevity, and certain people like Sam Walton have affected the distribution of wealth long after their death.

6. FINAL REFLECTIONS

On the occasion of the 10th anniversary of its annual list of the 400 wealthiest Americans, *Forbes Magazine* asked the question, "What has the Forbes 400 accomplished in 10 years?" (*Forbes Magazine* 1991, 145). The magazine claimed that the accomplishment of its list was that "the Forbes 400 fill[ed] what was once an important blank spot in the portrait of American society" (ibid., 146). The metaphorical blank spot that the list filled was the very top of the wealth distribution. According to the magazine, its list filled that blank spot by "showing what concentrated private wealth in this country is really like, as opposed to what ideologues and political opportunists of every stripe want people to believe it is like" (ibid.). The magazine's list may not be an accurate representation of the part of the American portrait that it purports to fill, of course, either because of inadvertent mistakes or perhaps even ideology, opportunism, or some other nefarious force. Yet, *Forbes Magazine*'s list is arguably the best source of data on the very top of the wealth distribution, as this paper argued above. The list would therefore seem to deserve study by social scientists and not just casual readers.

Using the magazine's list, this paper studied how some of the wealthiest Americans fared as individuals and as a group over recent decades. The paper showed that the 400 wealthiest Americans became wealthier as a group in both absolute and relative terms over recent decades. The increase in their wealth as a group was partially, but only partially, driven by an increase in the wealth of individuals who were already some of the wealthiest Americans in earlier years. Much of the increase in their wealth was driven by an increase in the wealth of individuals who only became one of the wealthiest Americans in recent years, although at least some of the people who ceased being one of the wealthiest Americans only did so because they died, and at least some of the people who became one of the wealthiest Americans only did so because they inherited wealth.

A complete explanation of the increase in the wealth of the wealthiest Americans as a group over recent decades would therefore require an explanation of the rising and falling fortunes of a diverse set of individuals, including the diverse set of individuals who were already wealthy, the diverse set of individuals who experienced death or decline, and the diverse set of individuals who acquired or inherited wealth.

The diversity of the individuals on its 10th-annual list was emphasized by *Forbes Magazine* when it dismissed what it saw as an ideologically or politically driven belief that the wealthiest Americans are a homogeneous group.

> To say the richest Americans constitute a class is to lump together a founder of a waste disposal company [...] and a prominent Philadelphia inheritor [...] and a dedicated second-generation professional executive [...] and a survivor of Nazi slave labor camps [...]. Throw in a onetime farm boy and grade school dropout; an opportunistic former usher from Brooklyn; a former truck driver; a one-time Polish housemaid. The only thing all these people have in common is that they all have a lot of money. (*Forbes Magazine* 1991, 146)

At the risk of belaboring this point about the diversity of the wealthiest Americans, a journalist writing for another popular magazine wrote the following.

> Many people assume that the rich are pretty much alike, that the acquisition of fortune somehow imposes other uniformities. Yet I have found [the rich] to be an eclectic mixture of extroverts and recluses, spendthrifts and pinchpennies, idealists and pragmatists—in short, individuals. (Louis 1973, 242)

Even the journalist Lundberg Ferdinand, who was by no means an apologist for plutocrats, shared a similar sentiment when he wrote the following.

> Included in the designation [of "the rich"] are trust-fund infants who at the moment of birth are incalculably rich (and presumably no more offensive than any other infants), trust-fund children of various ages, women young and old of mixed capabilities and outlooks, and men ranging from inane idlers and wastrels through routine performers to the intensely but not always laudably active. (Lundberg 1969, 638–9)

While the individuals who have appeared (however briefly) on *Forbes Magazine*'s list of the 400 wealthiest Americans during recent decades have presumably been more diverse than the people who packed Mrs. Astor's ballroom during the Gilded Age, they may not have been as diverse as the above-given quotes would suggest. Only one African-American woman (namely, Oprah Winfrey) has ever appeared on the magazine's list, for example. Yet, the people who have appeared on the magazine's list have been diverse enough that it seems difficult if not impossible to offer an all-encompassing explanation of their rising and falling fortunes. Partial explanations are still possible, however, given that changes to the wealth of the wealthiest Americans as a group can be partially explained in terms of the changing fortunes of smaller, more homogeneous groups.

Just one person, Bill Gates, accounts for about four percent of the increase in the wealth of the 400 wealthiest Americans between 1982 and 2013. Almost all of the increase in his wealth was surely due to the increase in the value of the company that he co-founded, Microsoft. The other co-founder of Microsoft (Paul Allen) and an early employee and the current CEO of that company (Steve Ballmer) account for about another two percent of the increase in the wealth of the 400 wealthiest Americans over the same years. Almost all of the increase in the wealth of those two men was surely due to the increase in the value Microsoft, as well. Thus, if the increase in the value of Microsoft could be explained, then that by itself would go a relatively long way—about six percent of the way—towards explaining the increase in the wealth of the 400 wealthiest Americans, at least in some sense.

An explanation of the increase in the value of Microsoft is perhaps best left as a case study for scholars at a business school, but it is presumably a story about an operating system that came to dominate the market (MS-DOS, the Microsoft Disk Operating System) and other products that that had varying degrees of success and whose successes were at least partly predicated on the success of its operating system (the Word word-processing software, the Excel spreadsheet software, the Internet Explorer web browser, the Zune media player, the Bing search engine, etc.).

For the Nobel-prize-winning economist Joseph Stiglitz, that story is a story of technological lock-in rather than technological innovation. Microsoft was not a "real innovator," according to Stiglitz (2012, 57). He noted that, "Microsoft [. . .] did not develop the first widely used word processor, the first spreadsheet, the first browser, the first media player, or the first dominant search engine" (ibid., 57–58). It can also be noted that Microsoft did not even develop the operating system (QDOS, the Quick and Dirty Operating System) that was the basis for its operating system that came to dominate the market. They merely licensed an operating system from someone else (namely, Tim Paterson) who was smart enough to develop it and dumb enough to license it for a meager sum. Rather than being a real innovator, Microsoft was merely a company whose operating system benefited from network externalities inherent to such systems and who used its dominant position in that market to succeeded in other markets, again, according to Stiglitz (2012, 56–58).

For others, the story of Microsoft's successes should be told in much more hagiographic terms with much less emphasis on its anti-competitive practices like bundling Internet Explorer with its operating system. In that story, Microsoft may have created some duds like the Zune, but, by and large, the company created products that consumers wanted to buy. People like Bill Gates reaped immense rewards, but those rewards were just deserts (see, e.g., Forbes and Ames 2011, 113, for such a story).

Similar disagreements about the causes and consequences of immense wealth would presumably extend to almost all of the wealthiest Americans. There may even be disagreement about the wealth of someone like Under Armour founder Kevin Plank, who accounts for a puny percentage of the increase in the wealth of the 400 wealthiest Americans over recent decades but who is nevertheless worth over one billion dollars as of writing. The current editor of *Forbes Magazine* has claimed that, "You don't get rich off the sweat of others in a free-market economy—unless you're former college football player Kevin Plank, who founded Under Armour, the perspiration-absorbing athletic-apparel maker that went on to make him a fortune in a little more than a decade" (Forbes and Ames 2011, 114–5). The editor was being facetious about Plank doing anything more than fulfilling the demands of his consumers. Yet, to the extent that someone believes that apparel makers like Under Armour run sweatshops that exploit their workers, people like Plank may have gotten rich off other people's sweat in the idiomatic sense that the people were exploited.

Therefore, even if *Forbes Magazine*'s list has been a completely accurate rendering of the 400 wealthiest Americans, what one sees when looking at the list is perhaps as hopelessly subjective as what one sees when looking at a piece of artwork. The focus of one's attention will determine how the heterogeneous group that is the wealthiest Americans will be seen.

There are nevertheless some relatively basic questions about the wealthiest Americans—like whether inequality between them and mobility among them are rising, falling, or staying the same—that can be answered in a relatively objective manner. The magazine's list may not be an ideal source of data for answering those sorts of questions, but it seems to be the best available source of data. By answering such questions, we as a society may be able to answer grander questions like whether inequality and mobility are too high, too low, or just right. Answering basic questions can therefore offer insight into the world in which we actually live and, in doing so, inform debates about the world in which we wish to live.

REFERENCES

Alchian, Armen and Benjamin Klein (1973). "On a Correct Measure of Inflation." *Journal of Money, Credit, and Banking* 5(1), 173–91.

Allegretto, Sylvia (2011). "The Few, the Proud, the Very Rich." *The Berkeley Blog: Topical Questions, Campus Experts, and Public Opinion from UC Berkeley.* blogs.berkeley.edu/2011/12/05/the-few-the-proud-the-very-rich/ (accessed May 11, 2014).

Atkinson, Anthony (2008). "Concentration Among the Rich." In James Davies, ed., *Personal Wealth from a Global Perspective*, pp. 64–90. Oxford, UK: Oxford University Press.

Baker, Dean (1998). *Getting Prices Right: The Debate Over the Consumer Price Index.* Armonk, NY: ME Sharpe.

Bertaut, Carol and Martha Starr (2002). "Household Portfolios in the United States." In Luigi Guiso, Michael Haliassos, and Tullio Jappelli, eds., *Household Portfolios*, pp. 181–218. Cambridge, MA: MIT Press.

Bivens, Josh (2012). "Inequality, Exhibit A: Walmart and the Wealth of American Families." *Working Economics: The Economic Policy Institute Blog.* epi.org/blog/inequality-exhibit-wal-mart-wealth-american/ (accessed May 11, 2014).

Blitz, Rudolph C. and John J. Siegfried (1992). "How Did the Wealthiest Americans Get So Rich?" *Quarterly Review of Economics and Finance* 32(1), 5–26.

Bricker, Jesse, Arthur Kennickell, Kevin Moore, and John Sabe (2012). "Changes in US Family Finances from 2007 to 2010: Evidence from the Survey of Consumer Finances." *Federal Reserve Bulletin* 98(2), 1–80.

Broom, Leonard and William Shay (2000). "Discontinuities in the Distribution of Great Wealth: Sectoral Forces Old and New." Working Paper 308, Levy Economics Institute of Bard College, Annandale-on-Hudson, NY.

Bureau of Labor Statistics (2013). "Updated CPI-U-RS, All items, 1978–2013." bls.gov/cpi/cpirsai1978-2013.pdf (accessed May 11, 2014).

Canterbery, E. Ray and E. Joe Nosari (1985). "The Forbes Four Hundred: The Determinants of Super-Wealth." *Southern Economic Journal* 51(4), 1073–83.

Capehart, Kevin W. (2014a). *Essays on the Wealthiest Americans.* PhD diss., American University, Washington, DC.

Capehart, Kevin W. (2014b). "Is the Wealth of the Worlds Billionaires Not Paretian?" *Physica A: Statistical Mechanics and Its Applications* 395, 255–60.

Capehart, Kevin W. (forthcoming). "Hyman Minsky's Interpretation of Donald Trump." *Journal of Post Keynesian Economics*.

CLEWI (1986). "The Forbes Four Hundred Cost of Living Index." *Forbes Magazine*, October 27.

CLEWI (1987). "The Forbes Four Hundred Cost of Living Index." *Forbes Magazine*, October 26.

CLEWI (1988). "The Forbes 400 Cost of Living Index." *Forbes Magazine*, October 24.

CLEWI (1989). "Are You Watching Chairman Greenspan?" *Forbes Magazine*, October 23.

CLEWI (1990). "The CLEWI Blues." *Forbes Magazine*, October 22.

CLEWI (1991). "Price Break for the Rich." *Forbes Magazine*, October 21.

CLEWI (1992). "Dom at a Discount." *Forbes Magazine*, October 19.
CLEWI (1993). "Reversal of Fortunates." *Forbes Magazine*, October 18.
CLEWI (1994). "Sable is Stable." *Forbes Magazine*, October 17.
CLEWI (1995). "The Luxury Blues." *Forbes Magazine*, October 16.
CLEWI (1996). "Let Them Eat Caviar." *Forbes Magazine*, October 14.
CLEWI (1997). "Cigars Up, Yachts Down." *Forbes Magazine*, October 13.
CLEWI (1998). "Live Well, Pay Up." *Forbes Magazine*, October 12.
CLEWI (1999). "What the Good Life Costs." *Forbes Magazine*, October 11.
CLEWI (2001). "The Cost of Living Extremely Well Index." *Forbes Magazine*, forbes.com/2001/12/10/1203clewi.html (accessed May 11, 2014).
CLEWI (2002a). "What Does It Cost To Live Extremely Well?" *Forbes Magazine*, forbes.com/forbes/2002/0930/400054.html (accessed May 11, 2014).
CLEWI (2002b). "Cost of Living (Well) Adjustment." *Forbes Magazine*, September 30.
CLEWI (2003a). "The Cost of Being Rich." *Forbes Magazine*, forbes.com/forbes/2003/1006/105.html (accessed May 11, 2014).
CLEWI (2003b). "The Cost of Being Rich." *Forbes Magazine*, October 6.
CLEWI (2004). "The Cost of Being Rich." *Forbes Magazine*, October 11.
CLEWI (2005a). "The Price of Living Well." *Forbes Magazine*, forbes.com/2005/09/15/cost-of-living-well-index_05rich400_clewi.html (accessed May 11, 2014).
CLEWI (2005b). "The Price of Living Well." *Forbes Magazine*, October 10.
CLEWI (2006a). "The Cost of Living Extremely Well Index." *Forbes Magazine*, forbes.com/2006/09/18/cost-of-living-well-index_lists-06rich400_clewi.html (accessed May 11, 2014).
CLEWI (2006b). "The Cost Of Living Extremely Well Index." *Forbes Magazine*, October 9.
CLEWI (2007). "The Price of Living Well." *Forbes Magazine*, October 8.
CLEWI (2008). "The Price of Ultraluxury." *Forbes Magazine*, October 6.
CLEWI (2009a). "Interactive Chart: Cost of Living Extremely Well Index." *Forbes Magazine*, forbes.com/2009/09/29/cost-living-well-lists-rich-list-09-clewi_chart.html (accessed May 11, 2014).
CLEWI (2009b). "The Price of Ultraluxury." *Forbes Magazine*, October 19.
CLEWI (2010). "Forbes Price Index Of Luxury Goods Keeps Pace With Inflation." *Forbes Magazine*, blogs.forbes.com/scottdecarlo/2010/09/23/forbes-price-index-of-luxury-goods-keeps-pace-with-inflation/ (accessed May 11, 2014).
CLEWI (2011). "Cost of Living Extremely Well Index: The Price of Living Large Is Up." *Forbes Magazine*, forbes.com/sites/scottdecarlo/2011/09/26/cost-of-living-extremely-well-index-the-price-of-living-large-is-up/ (accessed May 11, 2014).
CLEWI (2012). "Cost of Living Extremely Well Index: Our Annual Consumer Price Index; Billionaire Style." *Forbes Magazine*, forbes.com/sites/scottdecarlo/2012/09/19/cost-of-living-extremely-well-index-our-annual-consumer-price-index-billionaire-style/ (accessed May 11, 2014).
CLEWI (2013). "Cost of Living Extremely Well Index: The Price Of The Good Life." *Forbes Magazine*, forbes.com/sites/scottdecarlo/2013/09/18/cost-of-living-extremely-well-index-

the-price-of-the-good-life/ (accessed May 11, 2014).
Davies, James (2009). "Wealth and Economic Inequality." In Wiemer Salverda, Brian Nolan, and Timothy Smeeding, eds., *Oxford Handbook of Economic Inequality*, pp. 127–49. Oxford, UK: Oxford University Press.
Davies, James and Anthony Shorrocks (2000). "The Distribution of Wealth." In Anthony Atkinson and Francois Bourguignon, eds., *Handbook of Income Distribution*, Volume 1, pp. 605–75. Amsterdam, Netherlands: Elsevier.
Devine, Jim (2000). "Hidden Inflation: An Estimate of the Cost-of-Living Inflation Rate." In Ron Baiman, Heather Boushey, and Dawn Saunders, eds., *Political Economy and Contemporary Capitalism: Radical Perspectives on Economic Theory and Policy*, pp. 149–57. Armonk, NY: ME Sharpe.
Diaz-Gimenez, Javier, Andy Glover, and Jose-Vctor Rios-Rull (2011). "Facts on the Distributions of Earnings, Income, and Wealth in the United States: 2007 Update." *Federal Reserve Bank of Minneapolis Quarterly Review* 34(1), 2–31.
Fitch, Stephane (2006). "What Is Trump Worth?" *Forbes Magazine*, forbes.com/2006/09/20/trump-wealth-biz_06rich400_0921trump.html (accessed May 11, 2014).
Forbes, Steve and Elizabeth Ames ([2009] 2011). *How Capitalism Will Save Us: Why Free People and Free Markets Are the Best Answer in Today's Economy; Updated and Revised Edition.* New York, NY: Crown Business.
Forbes Magazine (1982). Forbes Four Hundred. September 13.
Forbes Magazine (1983). Forbes Four Hundred. Fall.
Forbes Magazine (1984). Forbes Four Hundred. October 1.
Forbes Magazine (1985). Forbes Four Hundred. October 28.
Forbes Magazine (1986). Forbes Four Hundred. October 27.
Forbes Magazine (1987). Forbes Four Hundred. October 26.
Forbes Magazine (1988). Forbes Four Hundred. October 24.
Forbes Magazine (1989). Forbes Four Hundred. October 23.
Forbes Magazine (1990). Forbes Four Hundred. October 22.
Forbes Magazine (1991). Forbes Four Hundred. October 21.
Forbes Magazine (1992). Forbes Four Hundred. October 19.
Forbes Magazine (1993). Forbes Four Hundred. October 18.
Forbes Magazine (1994). Forbes Four Hundred. October 17.
Forbes Magazine (1995). Forbes Four Hundred. October 16.
Forbes Magazine (1996). Forbes Four Hundred. October 14.
Forbes Magazine (1997). Forbes Four Hundred. October 13.
Forbes Magazine (1998). Forbes Four Hundred. October 12.
Forbes Magazine (1999). Forbes Four Hundred. October 11.
Forbes Magazine (2000). Forbes Four Hundred. October 9.
Forbes Magazine (2001). Forbes Four Hundred. October 8.
Forbes Magazine (2002). Forbes Four Hundred. September 30.
Forbes Magazine (2003). Forbes Four Hundred. October 6.

Forbes Magazine (2004). Forbes Four Hundred. October 11.
Forbes Magazine (2005). Forbes Four Hundred. October 10.
Forbes Magazine (2006). Forbes Four Hundred. October 9.
Forbes Magazine (2007). Forbes Four Hundred. October 8.
Forbes Magazine (2008). Forbes Four Hundred. October 6.
Forbes Magazine (2009). Forbes Four Hundred. October 19.
Forbes Magazine (2010). Forbes Four Hundred. October 11.
Forbes Magazine (2011). Forbes Four Hundred. October 10.
Forbes Magazine (2012). Forbes Four Hundred. October 8.
Forbes Magazine (2013). Forbes Four Hundred. October 7.

Foster, John Bellamy and Hannah Holleman (2010). "The Financial Power Elite." *Monthly Review* 61(1), 1–20.

Galbraith, John Kenneth ([1958] 1998). *The Affluent Society*. Boston, MA: Mariner Books.

Grimm, Michael (2007). "Removing the Anonymity Axiom in Assessing Pro-Poor Growth." *Journal of Economic Inequality* 5(2), 179–97.

Homberger, Eric (2002). *Mrs. Astor's New York: Money and Social Power in a Gilded Age*. New Haven, CT: Yale University Press.

Jaher, Frederic Cople (1975). "Style and Status: High Society in Late Nineteenth-Century New York." In Frederic Cople Jaher, ed., *The Rich, the Wellborn, and the Powerful: Elites and Upper Classes in History*, pp. 258–284. Secaucus, NJ: Citadel Press.

Juster, F. Thomas, James Smith, and Frank Stafford (1999). "The Measurement and Structure of Household Wealth." *Labour Economics* 6(2), 253–75.

Kaplan, Steven and Joshua Rauh (2013). "It's the Market: The Broad-Based Rise in the Return to Top Talent." *Journal of Economic Perspectives* 27(3), 35–55.

Kennickell, Arthur (1999). "Using Income Data to Predict Wealth." Federal Reserve Board, Washington, DC. federalreserve.gov/econresdata/scf/files/wealthincome7web.pdf (accessed May 11, 2014).

Kennickell, Arthur (2001). "Modeling Wealth with Multiple Observations of Income: Redesign of the Sample for the 2001 Survey of Consumer Finances." Federal Reserve Board, Washington, DC. federalreserve.gov/econresdata/scf/files/scf2001list.sampleredesign9.pdf (accessed May 11, 2014).

Kennickell, Arthur (2003). "A Rolling Tide: Changes in the Distribution of Wealth in the US, 1989–2001. Paper presented at the Conference on International Perspectives on Household Wealth, Levy Economics Institute of Bard College, Annandale-on-Hudson, NY, October 17–18. Audio recording available at levyinstitute.org/publications/?docid=677 (accessed May 11, 2014).

Kennickell, Arthur (2006). "A Rolling Tide: Changes in the Distribution of Wealth in the US, 1989–2001." In Edward Wolff, ed., *International Perspectives on Household Wealth*, pp. 19–88. Northampton, MA: Edward Elgar.

Kennickell, Arthur (2007). "The Role of Over-sampling of the Wealthy in the Survey of Consumer Finances." Federal Reserve Board, Washington, DC. federalreserve.gov/econresdata/scf/files/isi2007.pdf (accessed May 11, 2014).

Kennickell, Arthur (2009). "Ponds and Streams: Wealth and Income in the US, 1989 to 2007." *Finance and Economics Discussion Series Working Paper* 2009-13, Federal Reserve Board, Washington, DC.

Kennickell, Arthur (2011). "Tossed and Turned: Wealth Dynamics of US Households, 2007–2009." *Finance and Economics Discussion Series*, Working Paper 2011-51, Revised May 29, 2012, Federal Reserve Board, Washington, DC.

Kennickell, Arthur (2012). "The Other, Other Half: Changes in the Finances of the Least Wealthy 50 Percent, 2007–2009." *Finance and Economics Discussion Series*, Working Paper 2012-40, Federal Reserve Board, Washington, DC.

Kennickell, Arthur and Martha Starr (1994). "Changes in Family Finances from 1989 to 1992: Evidence from the Survey of Consumer Finances." *Federal Reserve Bulletin* 80(October), 861–82.

Kennickell, Arthur, Martha Starr, and Brian Surette (2000). "Recent Changes in US Family Finances: Results from the 1998 Survey of Consumer Finances." *Federal Reserve Bulletin* 86(January), 1–29.

Klass, Oren, Ofer Biham, Moshe Levy, Ofer Malcai, and Sorin Solomon (2006). "The Forbes Four Hundred and the Pareto Wealth Distribution." *Economics Letters* 90(2), 290–95.

Kopczuk, Wojciech and Emmanuel Saez (2004). "Top Wealth Shares in the United States, 1916–2000: Evidence from Estate-Tax Returns." *National Tax Journal* 57(2), 445–87.

Kroll, Luisa (2012). "The Forbes Four Hundred: The Richest People in America." *Forbes Magazine*, forbes.com/sites/luisakroll/2012/09/19/the-forbes-400-the-richest-people-in-america/ (accessed May 11, 2014).

Louis, Arthur (1973). "The New Rich." *Fortune Magazine*, September.

Lundberg, Ferdinand (1969). *The Rich and the Super-Rich: A Study in the Power of Money Today.* New York, NY: Bantam Books.

Mishel, Lawrence, Josh Bivens, Elise Gould, and Heidi Shierholz (2012). *The State of Working America* (12th ed.). Washington, DC: Economic Policy Institute.

Munk, Nina (2005). "Don't Blink. You'll Miss the 258th-Richest American." *New York Times*. September 25.

Navarro, Andrea (2013). "American Dreams: Foreign-Born Members of the Forbes 400." *Forbes Magazine*, forbes.com/sites/andreanavarro/2013/09/18/american-dreams-foreign-born-members-of-the-forbes-400/ (accessed May 11, 2014).

Officer, Lawrence and Samuel Williamson (2006). "Better Measurements of Worth." *Challenge: The Magazine of Economic Affairs* 49(4), 86–110.

Patterson, Jerry (2000). *The First Four Hundred: Mrs. Astor's New York in the Gilded Age.* New York, NY: Rizzoli.

Peach, James (1996). "Regional Income Inequality Revisited: Lessons from the 100 Poorest Counties." In William Dugger, ed., *Inequality: Radical and Institutional Views on Race, Gender, Class, and Nation*, pp. 237–250. Westport, CT: Grennwood Press.

Pence, Karen (2006). "The Role of Wealth Transformations: An Application to Estimating the Effect of Tax Incentives on Saving." *B.E. Journals in Economic Analysis and Policy: Contributions to Economic Analysis and Policy* 5(1), 1–24.

Pfeffer, Fabian, Sheldon Danziger, and Robert Schoeni (2013). “Wealth Disparities Before and After the Great Recession.” *Annals of the American Academy of Political and Social Science* 650(1), 98–123.

Piketty, Thomas (2014a). *Capital in the Twenty-First Century*. Trans. Arthur Goldhammer. Cambridge, MA: Belknap Press.

Piketty, Thomas (2014b). “Addendum to the technical appendix to chapter 10 of *Capital in the 21rst Century*.” piketty.pse.ens.fr/files/capital21c/en/Piketty2014TechnicalAppendixResponsetoFT.pdf (accessed 28 May 2014).

Poterba, James (2000). “Stock Market Wealth and Consumption.” *Journal of Economic Perspectives* 14(2), 99–118.

Rae, Matthew and Robert DeHaan (2012). “‘Listening to Other People’: Arthur Kennickell; Leadership on the Survey of Consumer Finances.” *Profiles in Statistical Courage*. statisticalcourage.info/downloads%5CArthur%20Kennickel.pdf (accessed May 11, 2014).

Raub, Brian, Barry Johnson, and Joe Newcomb (2010). “A Comparison of Wealth Estimates for America’s Wealthiest Decedents Using Tax Data and Data from the Forbes Four Hundred.” Paper presented at the Annual Meeting of the National Tax Association, Chicago, IL, November 20. piketty.pse.ens.fr/files/RaubJohnsonNewcomb2010.pdf (accessed May 11, 2014).

Rockoff, Hugh (2012). “The Great Fortunes of the Gilded Age and the Crisis of 1893.” In Susan Wolcott and Christopher Hanes, eds., *Research in Economic History*, Volume 28, pp. 233–62. Bingley, UK: Emerald Group.

Saez, Emmanuel and Gabriel Zucman (2014). “The Distribution of US Wealth, Capital Income, and Returns since 1913: Evidence from Capitalized Income-Tax Data.” gabriel-zucman.eu/files/SaezZucman2014Slides.pdf (accessed May 11, 2014).

Smeeding, Timothy (2003). Discussion of session on “Wealth Changes in the United States Over the 1990s,” Conference on International Perspectives on Household Wealth, Levy Economics Institute of Bard College, Annandale-on-Hudson, NY, October 17–18. Audio recording available at levyinstitute.org/publications/?docid=677 (accessed May 11, 2014).

Stiglitz, Joseph (2012). *The Price of Inequality: How Today’s Divided Economy Endangers Our Future*. New York, NY: W.W. Norton.

Wolff, Edward (2010). “Recent Trends in Household Wealth in the US: Rising Debt and the Middle-class Squeeze—An Update to 2007.” Levy Economics Institute of Bard College Working Paper 589, Annandale-on-Hudson, NY.

Wolff, Edward (2014). “Household Wealth Trends in the United States, 1983–2010.” *Oxford Review of Economic Policy* 30(1), 21–43.

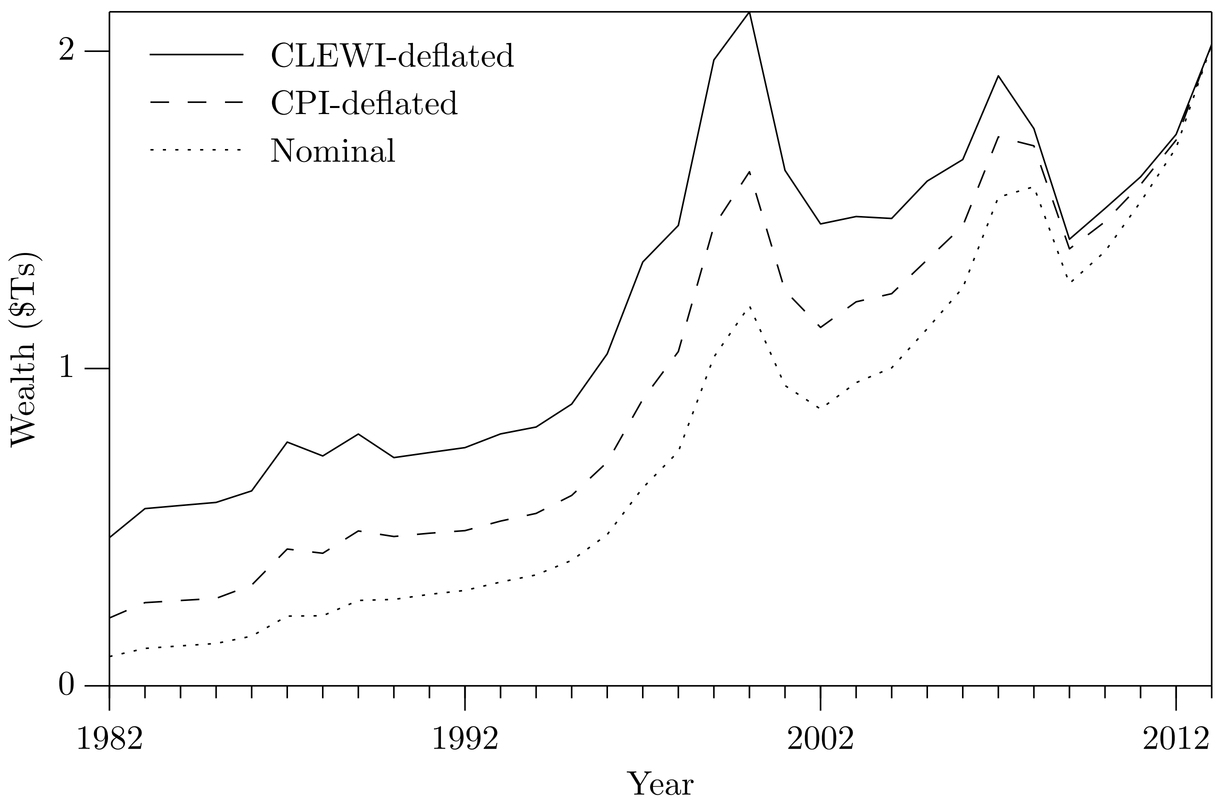

Figure 1: Wealth of the 400 Wealthiest Americans, 1982–2013

Source: Data adapted from BLS (2013); (*Forbes Magazine* 1982, 1983, 1984, 1985, 1986, 1987, 1988, 1989, 1990, 1991, 1992, 1993, 1994, 1995, 1996, 1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013).

Note: This figure shows the wealth of the 400 wealthiest Americans, based on *Forbes Magazine*'s list from the years 1982 to 2013. Their wealth is shown in nominal dollars, CPI-deflated dollars, and CLEWI-deflated dollars with 2013 as the base year.

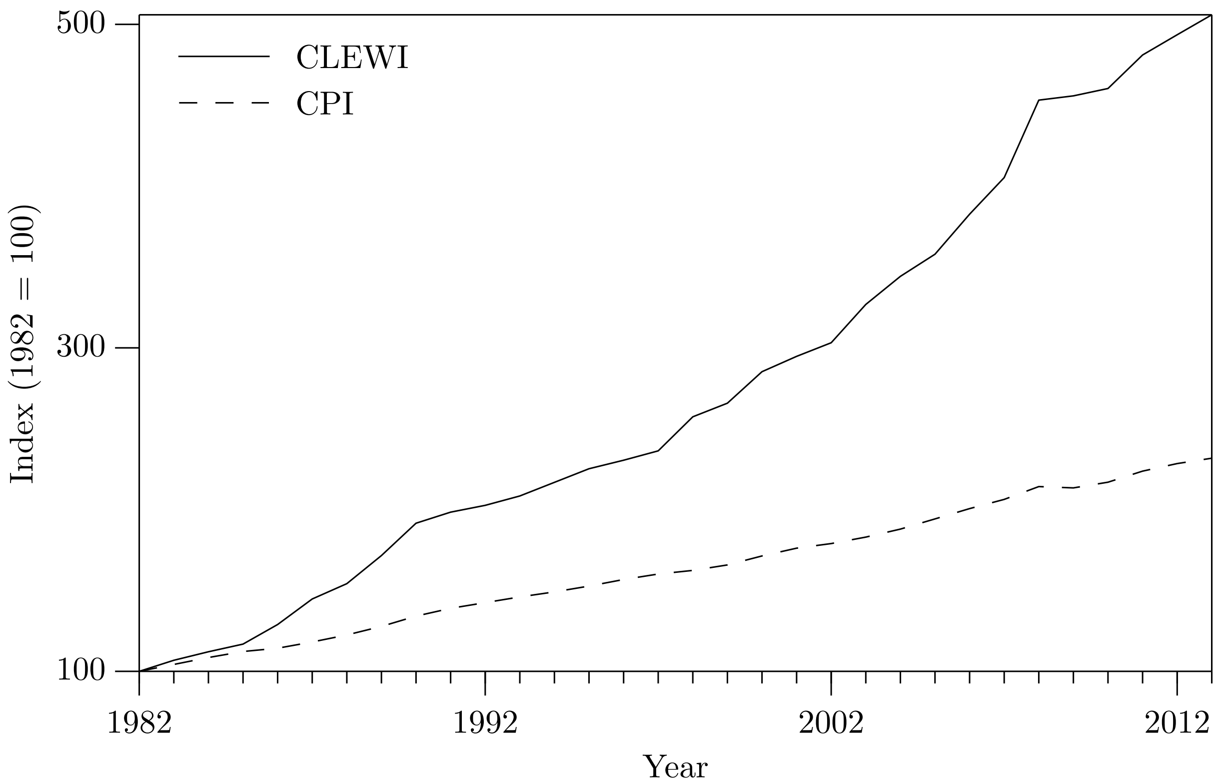

Figure 2: Price levels, 1982–2013

Source: Data adapted from Bureau of Labor Statistics (2013) and CLEWI (1986–2013)

Note: This figure shows, for the years from 1982 to 2013, the level of the Cost of Living Extremely Well Index (CLEWI) and Consumer Price Index (CPI).

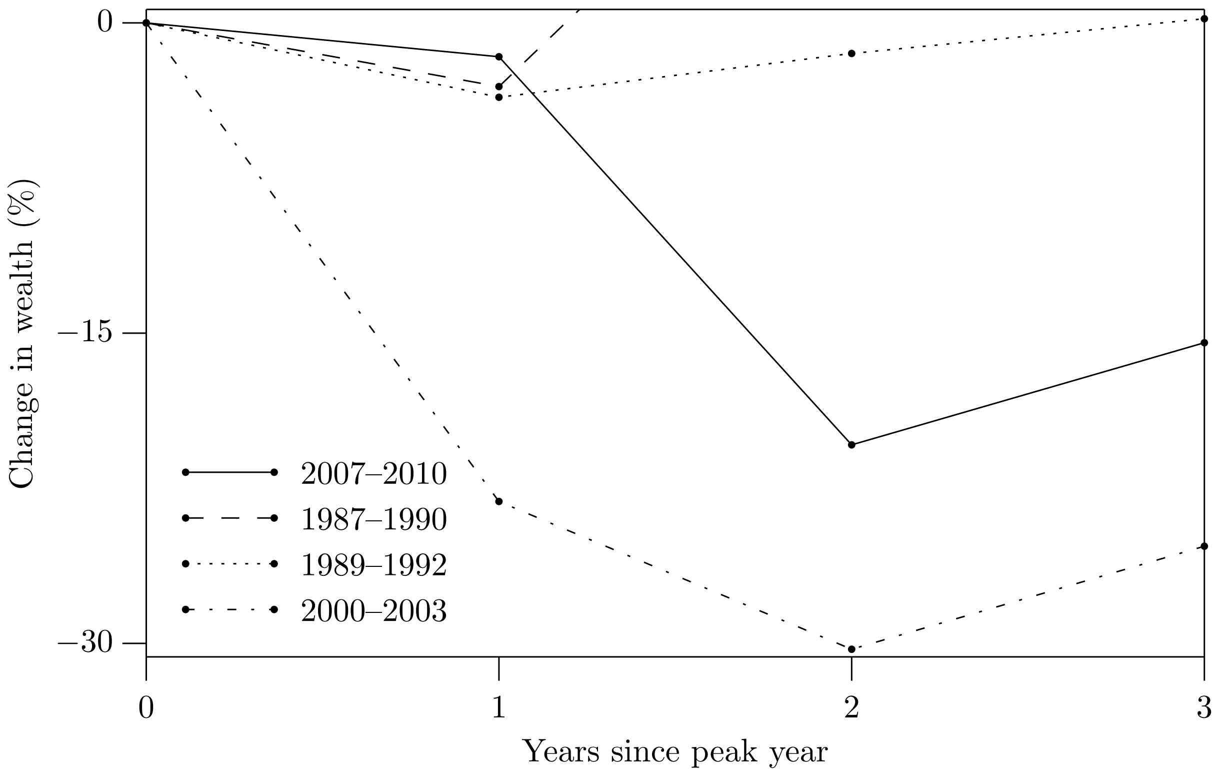

Figure 3: Percentage Change in the Wealth of the 400 Wealthiest Americans Over Select Years

Source: Data adapted from BLS (2013); *Forbes Magazine* (1987–2010).

Note: This figure shows, for years after their wealth peaked, the percentage change in the wealth of the 400 wealthiest Americans, relative to their peak wealth. Dollar values are CPI-deflated, 2013 dollars.

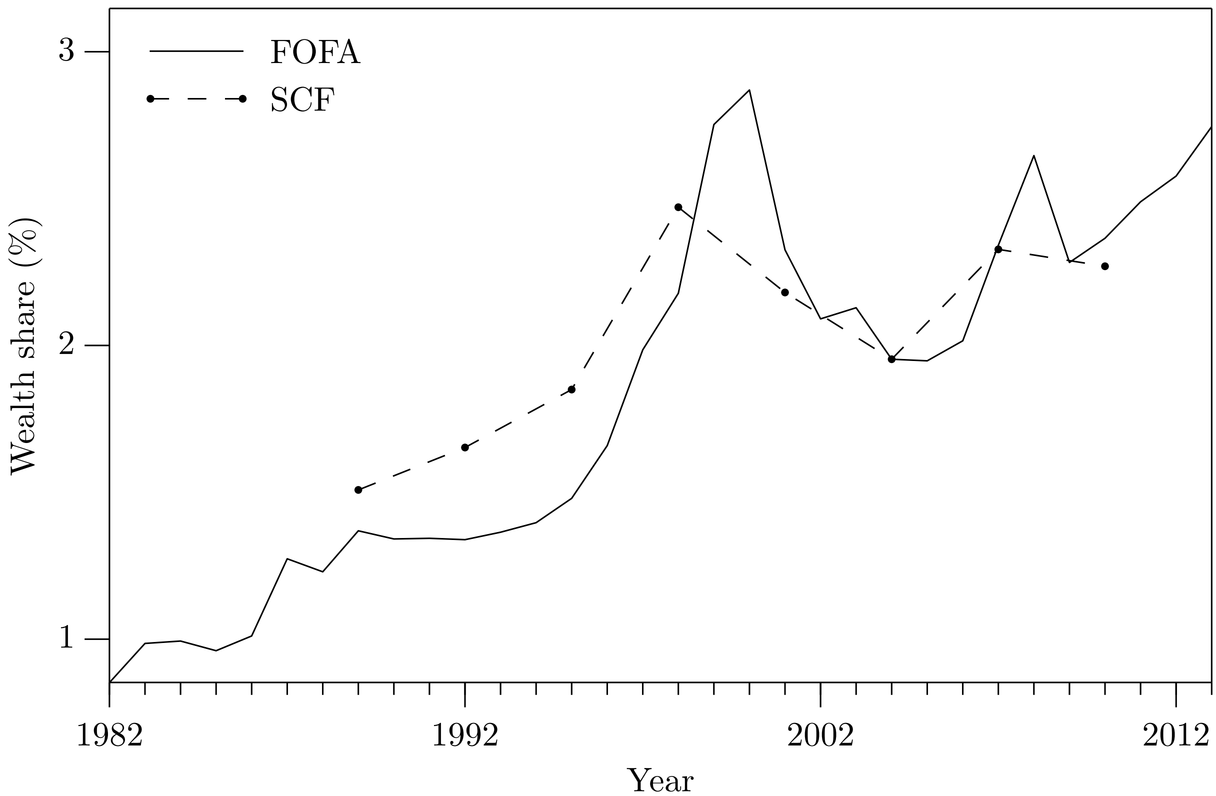

Figure 4: Share of Wealth Held by the 400 Wealthiest Americans, 1982–2013

Source: Data adapted from Bricker et al. (2012); BLS (2013); Flow of Funds Accounts; *Forbes Magazine* (1982–2013); Kennickell (2011, 2012); Kennickell and Starr (1994); Kennickell et al. (2000).

Note: This figure shows the wealth of the 400 wealthiest Americans, based on *Forbes Magazine*'s list, as a share of household wealth, based on either the Flow of Funds Accounts (FOFA) or the Survey of Consumer Finances (SCF), for years between 1982 and 2013.

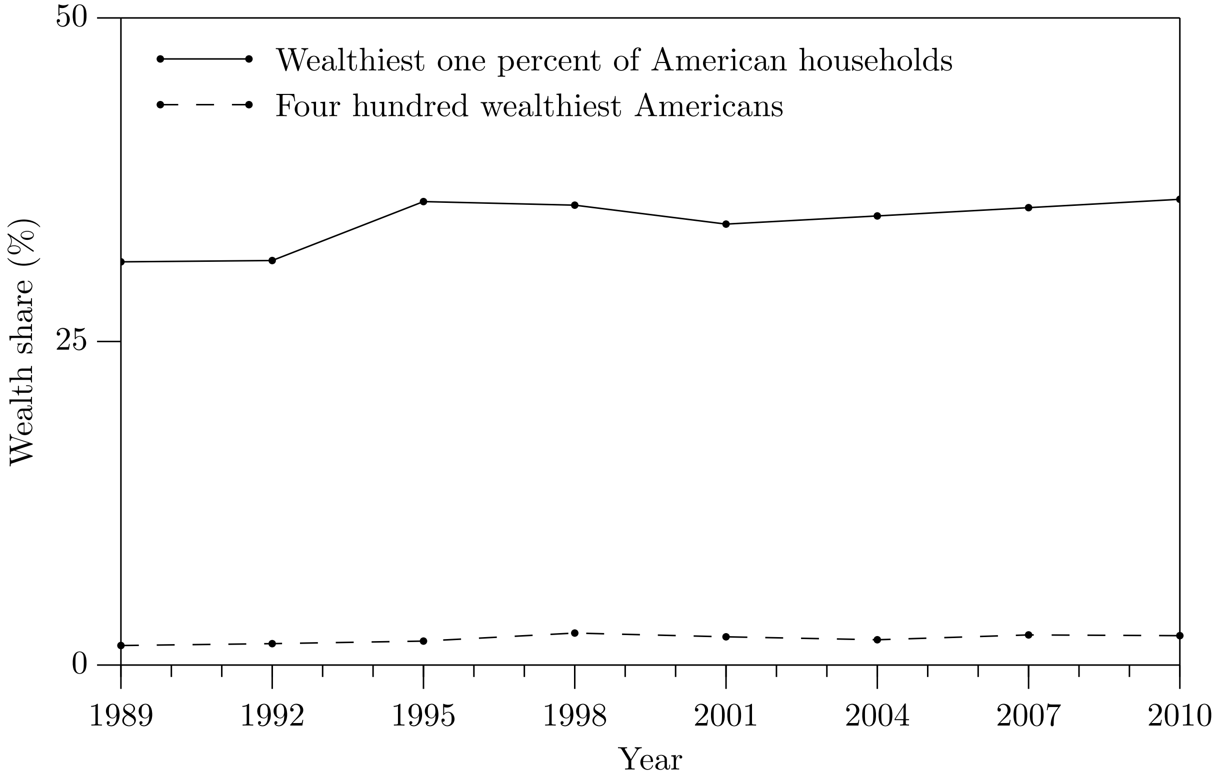

Figure 5: Shares of Wealth Held by the Wealthiest One Percent of American Households and the 400 Wealthiest Americans, 1989–2010

Source: Data adapted from Bricker et al. (2012); BLS (2013); *Forbes Magazine* (1989–2010); Kennickell (2011, 2012); Kennickell and Starr (1994); Kennickell et al. (2000).

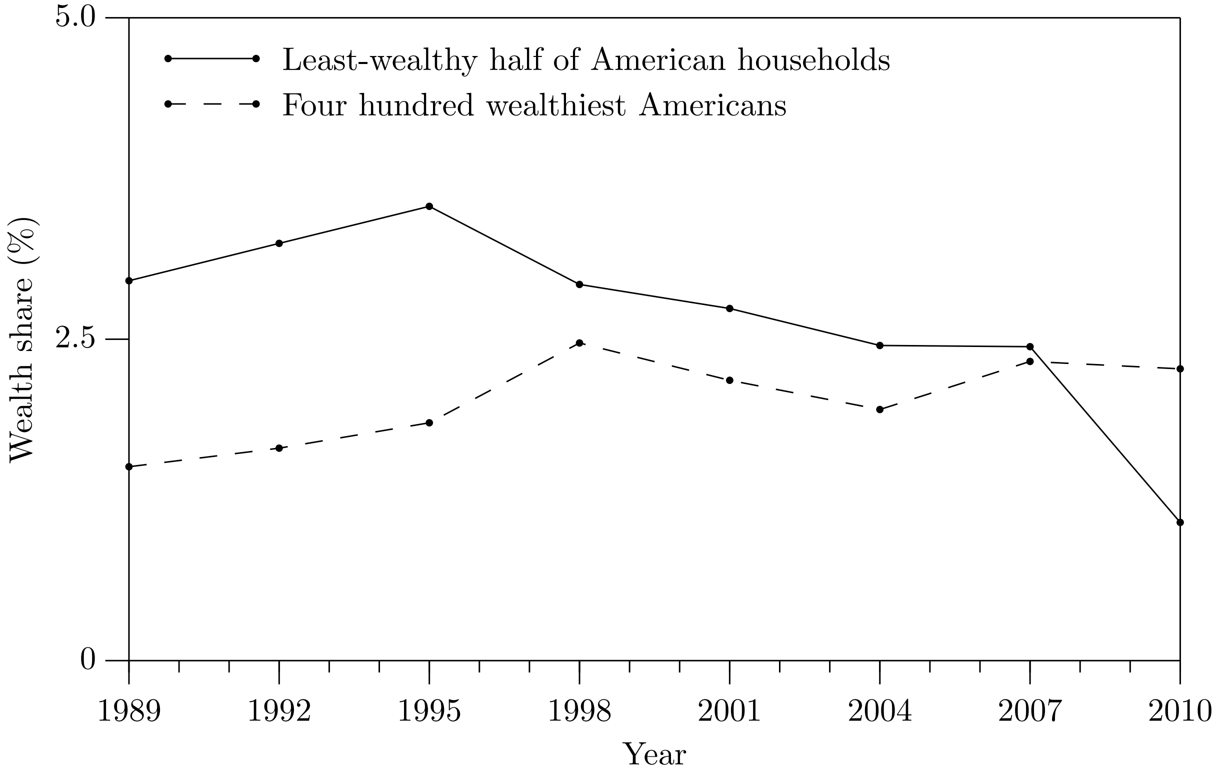

Figure 6: Shares of Wealth Held by the Least-wealthy Half of American Households and the 400 Wealthiest Americans, 1989–2010

Source: Data adapted from the same sources as figure 5.

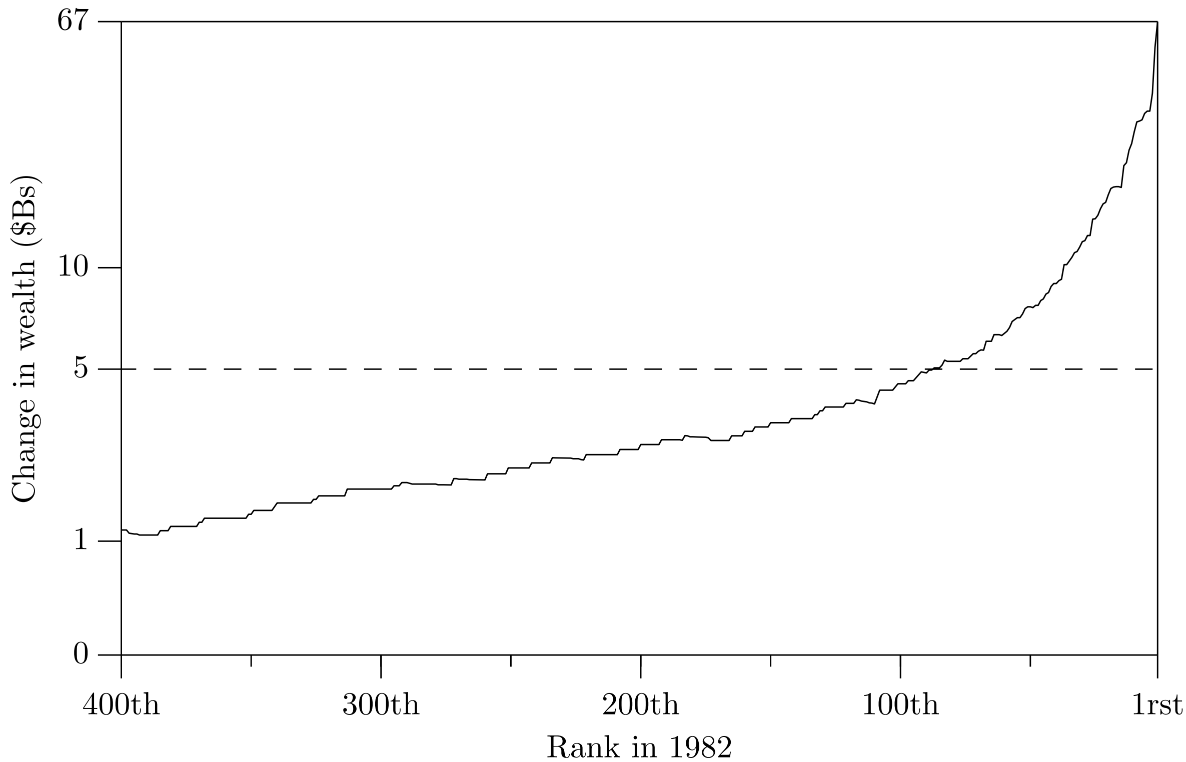

Figure 7: Anonymous Changes in Wealth, 1982–2013

Source: Data adapted from *Forbes Magazine* (1982–2013).

Note: This figure shows, on a semi-arcsinh scale, changes in the wealth of the wealthiest to the 400th wealthiest Americans between 1982 and 2013 (in billions of CPI-deflated, 2013 dollars), ignoring who they were as individuals in either of those years (solid line). The average change in their wealth is also shown (dashed line).

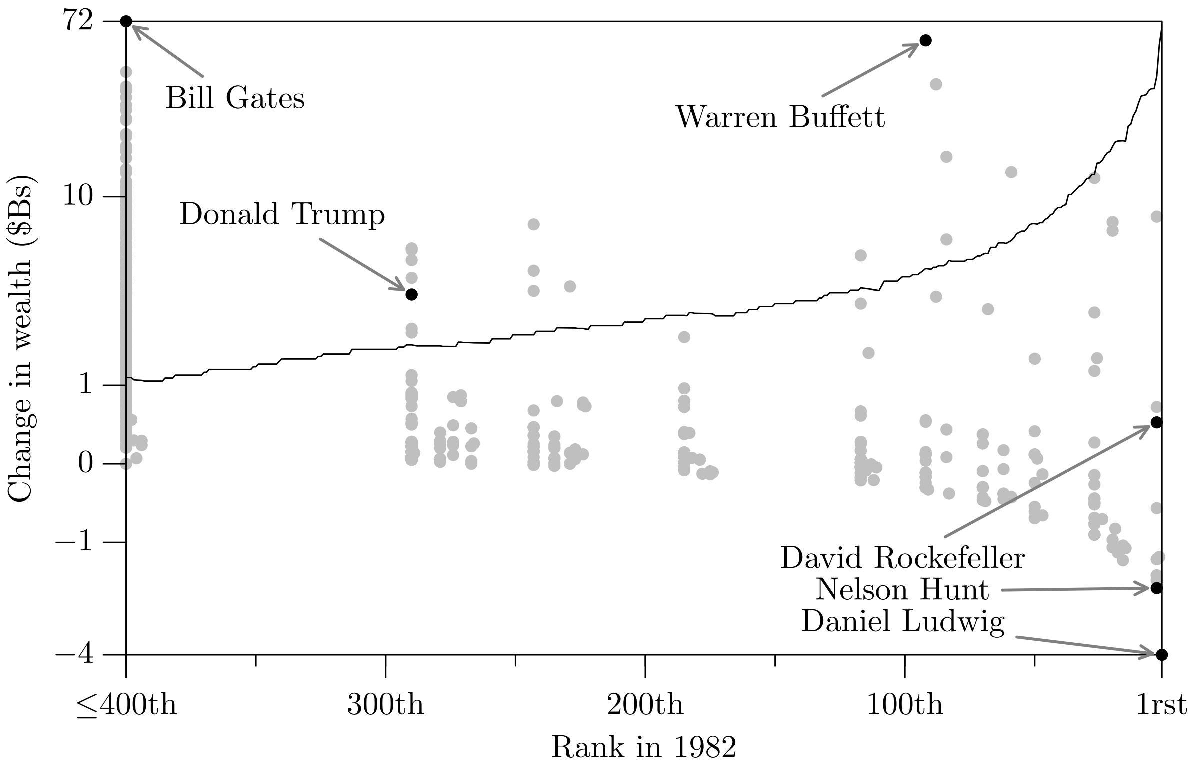

Figure 8: Non-anonymous Changes in Wealth, 1982–2013

Source: Data adapted from the same sources as figure 7.

Note: This figure shows, on a semi-arcsinh scale, changes in the wealth of the wealthiest to the 400th wealthiest Americans between 1982 and 2013, ignoring who they were as individuals (solid line). Uncensored or censored changes in the wealth of individuals who were one of the 400 wealthiest Americans in 1982 or 2013 are also shown (points).

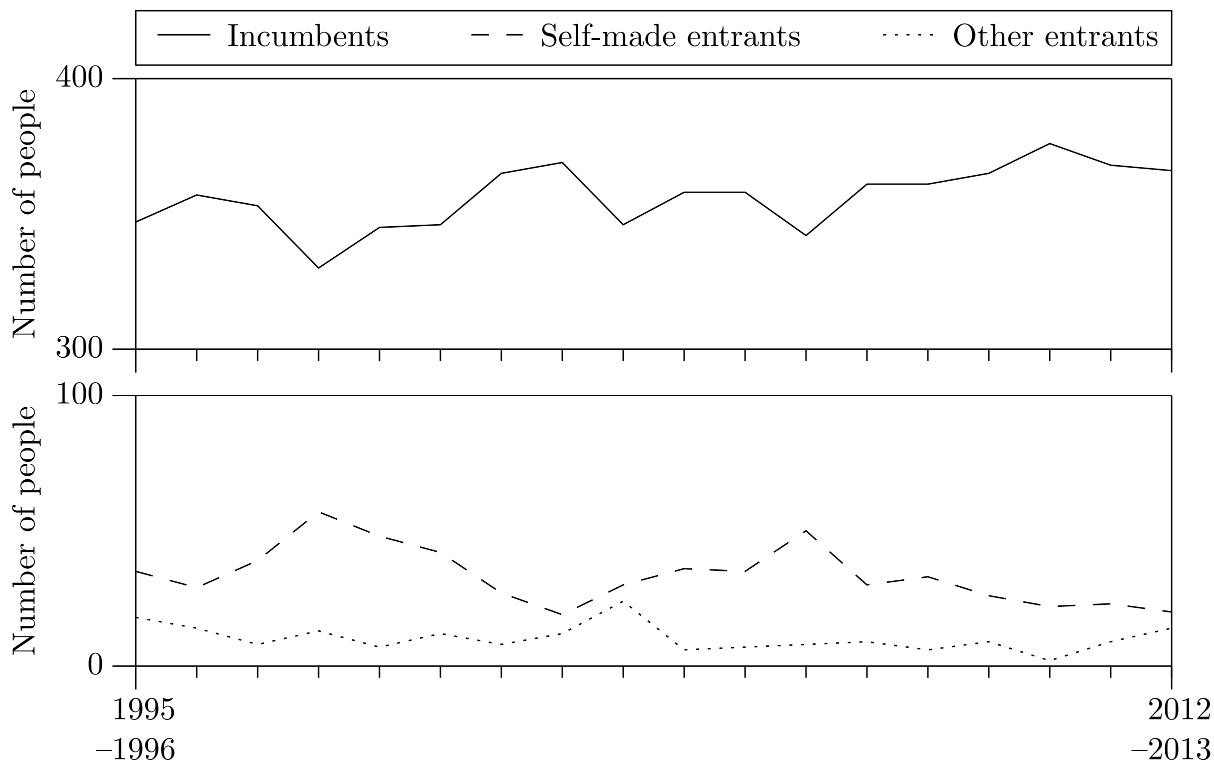

Figure 9: Number of Incumbents and Self-made or Other Entrants, 1995–2013

Source: Data adapted from *Forbes Magazine* (1995–2013).

Note: This figure shows, for the years between 1995 and 2013, the number of people on *Forbes Magazine*'s list in a given year who appeared on the list again in the next year ("incumbents") and the number of self-made or other entrants who came onto the list by the next year for either the first time or after an absence. The figure is split into two in order to better illustrate the relatively limited variation.

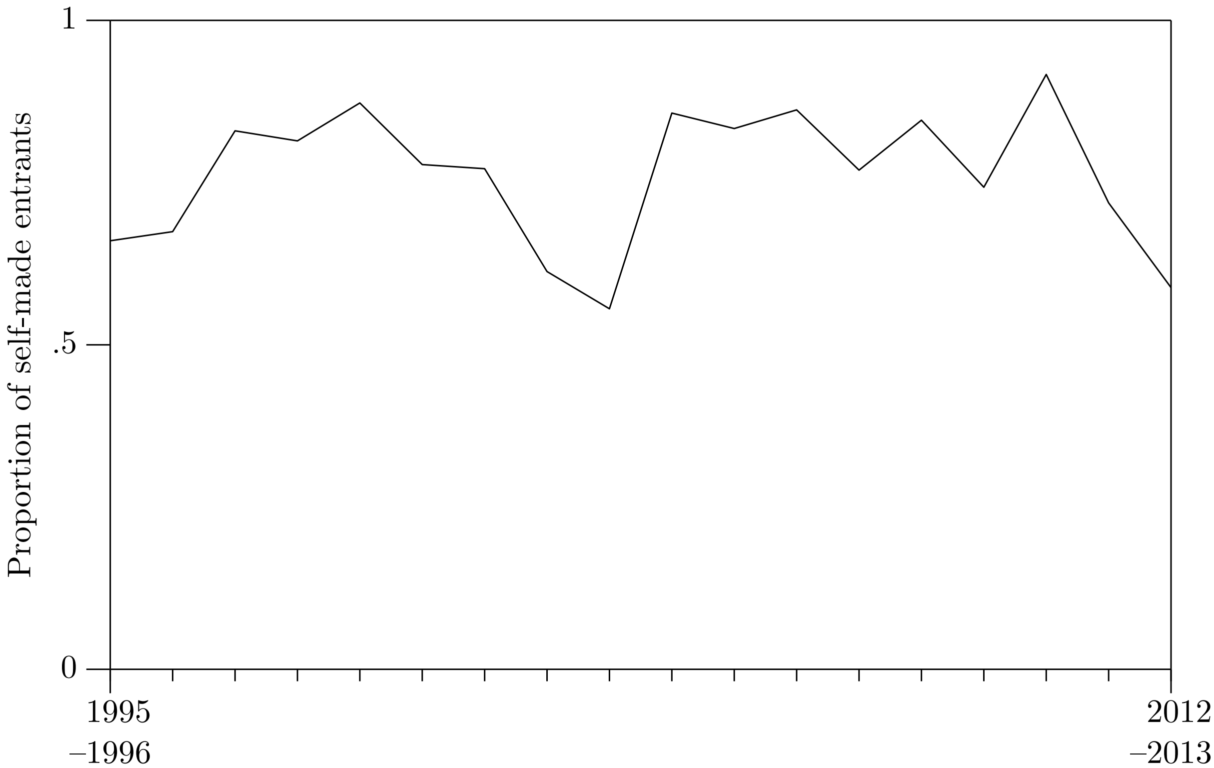

Figure 10: Proportion of Entrants Who Were Self Made, 1995–2013

Source: Data adapted from *Forbes Magazine* (1995–2013).

Note: This figure shows, for the years between 1995 and 2013, the number of entrants between one year and the next who were self made as a proportion of the total number of entrants. The highest proportion was about 92 percent for the people who came onto the list between 2010 and 2011; the lowest proportion was about 56 percent between 2003 and 2004; and the average per year was about 76 percent.

Table 1: Decomposition of the Change in the Wealth of the 400 Wealthiest Americans, 1982–2013

Group	Contribution ($Bs)
Incumbents	273
Entrants	
Self-made entrants	1,134
Other entrants	519
Dropouts	
Decedents	−57
Renunciants	−1
Other dropouts	−61
All groups	1,807

Source: Data adapted from *Forbes Magazine* (1982–2013).

Note: This table shows how the change in the total wealth of the 400 wealthiest Americans between 1982 and 2013 can be decomposed into the contributions made by different groups of unique individuals. The decomposition is discussed in the text. The dollar values are billons of CPI-deflated, 2013 dollars.