Economics from the Top Down

new ideas in economics and the social sciences

The Great Gatsby Curve Among America's Über Rich

Blair Fix

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Economists are not known for their literary imaginations. Flip through any economics textbook and you'll find a barrage of terms like the 'Philips curve' and the 'Fisher effect'. The jargon is simple enough — empirical relations are usually named after the person who discovered them. But this convention is neither descriptive nor fun.

The exception to this vanilla naming practice is a pattern called the 'Great Gatsby curve'.[1] It's named after F. Scott Fitzgerald's famous book *The Great Gatsby*, which explores the roiling inequality and tumultuous class dynamics of the 1920s. The Great Gatsby *curve* is an empirical relation between social inequality and social mobility. As inequality rises, social mobility tends to decline.

In this post, we'll look at the The Great Gatsby curve among America's über rich. As it turns out, these folks are not immune from inequality. Nor are they immune from an ossifying social ladder. In other words, among America's richest people, the Great Gatsby curve is alive and well.

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[1] The term 'Great Gatsby curve' was apparently coined by economists Judd Cramer and Reid Stevens, who wrote a 2012 speech for Alan Krueger, then the Chair of President's Council of Economic Advisers.
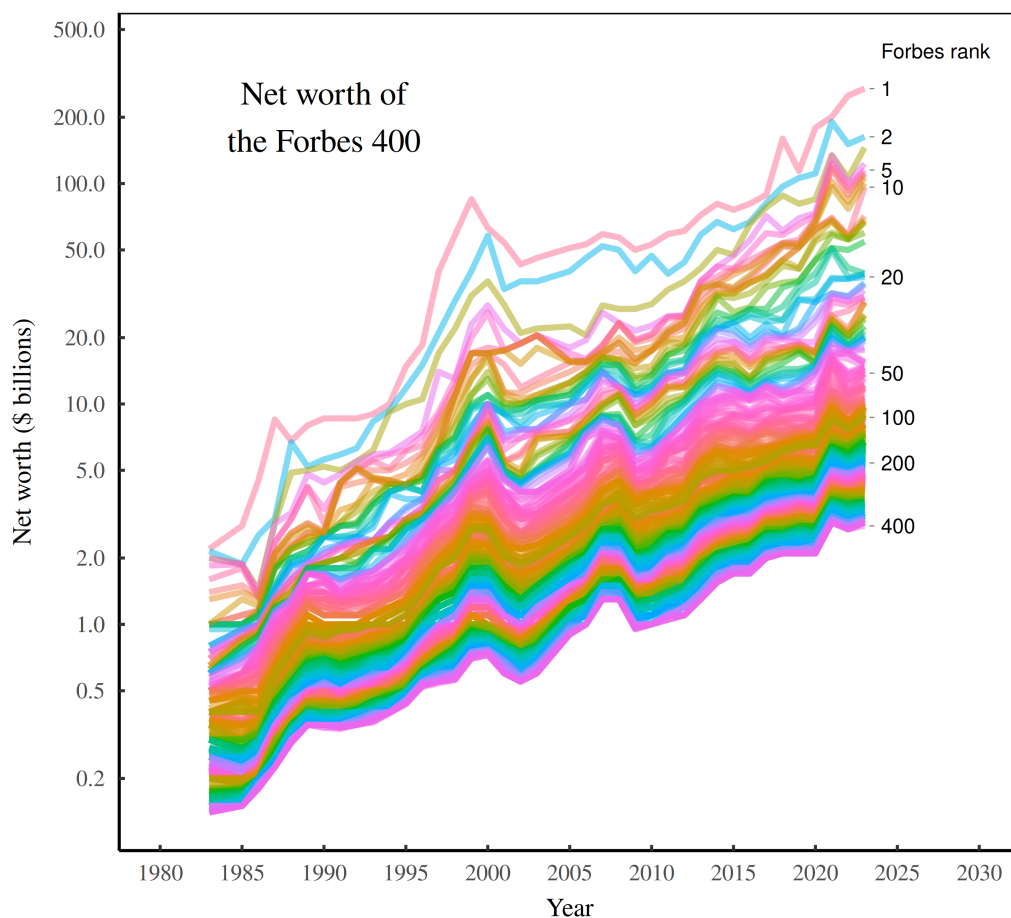
Figure 1: The net worth of the Forbes 400

Each colored line plots the net worth of a particular rank in the Forbes 400. (The richest individual is always on top, followed by the second richest individual, and so on). Note that the vertical axis uses a log scale. Sources and methods

The Forbes rat race

To make sense of what's ahead, let's start by recapping my work so far. In my last post, 'How the Rich Get Richer', I dove into the rising wealth of the Forbes 400. Figure 1 summarizes the trend. Since the 1980s, America's über rich have gotten vastly richer. And Forbes was there to document the disease.

Now as usual, I Tweeted this chart; and as usual, I made some people angry. In particular, a fellow named Bryant accused me of trickery:

> You do know that each line is not one/same person, right? Very misleading.

As it happens, I *do* know that each line is not a single person. In fact, that's the focus of this post. While America's über rich were getting richer, they were also playing a vicious game of thrones.

Let's take a look at the competition.

A game of thrones

Back in 1983, Gordon Getty was the richest American. But don't worry if you've never heard of him. Getty was (and is) the heir to J. Paul Getty's oil fortune. And yes, Gordon Getty is still alive. But he's no longer anywhere near the top of the Forbes charts. When he last graced the Forbes list in 2020, Getty sat in the 394th position. (He's since dropped off the Forbes 400 entirely.)

Here's the point. Yes, the richest Americans have gotten richer over the last four decades. But that doesn't mean that the über rich of the 1980s are the same people as the über rich of today. For the most part, they are not.

Let's use the top spot as an example. Since 1983, six men (yes, all men) have crowned themselves the 'richest American'. Figure 2 documents their reign, and their rising net worth.

After Gordon Getty's brief stint at the top, Walmart owner Sam Walton assumed the richest-American throne for much of the 1980s. He was then succeeded by Pierre DuPont II (and family).[2] In 1995, Bill Gates claimed the top spot, riding the coat tails of his Microsoft monopoly. After a two decade reign, Gates was dethroned in 2018 by Amazon owner Jeff Bezos. Bezos wore the crown until 2022, when it was taken by Elon Musk.

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[2]Forbes has a habit of aggregating silver-spoon heirs into 'families'. For example, in the 1980s, the Rockefeller family — who traces its wealth to 19th century robber baron John D. Rockefeller — still appeared on the Forbes 400. So did the Du Pont family, which traces its wealth to war profiteer Pierre Samuel Du Pont, who made a fortune selling munitions during World War I. (Du Pont later converted his war profits into General Motors stock.)

The problem with this family aggregation is that it mixes methods. The nouveau rich have their wealth tabulated individually. But the silver-spoon heirs have their wealth counted as a group. Since Forbes is cagey about its methods, we don't know how or why it makes the distinction between individuals and families. For example, Sam Walton's heirs (Jim, Rob Alice and Lucas) appear separately on the 2022 Forbes 400. As individuals, none of these heirs break the Forbes top ten. But if we aggregated their wealth into the 'Walton family', they'd be number two on the list, with a group worth of $190 billion.

In short, you have to take Forbes' wealth data with a grain of salt.
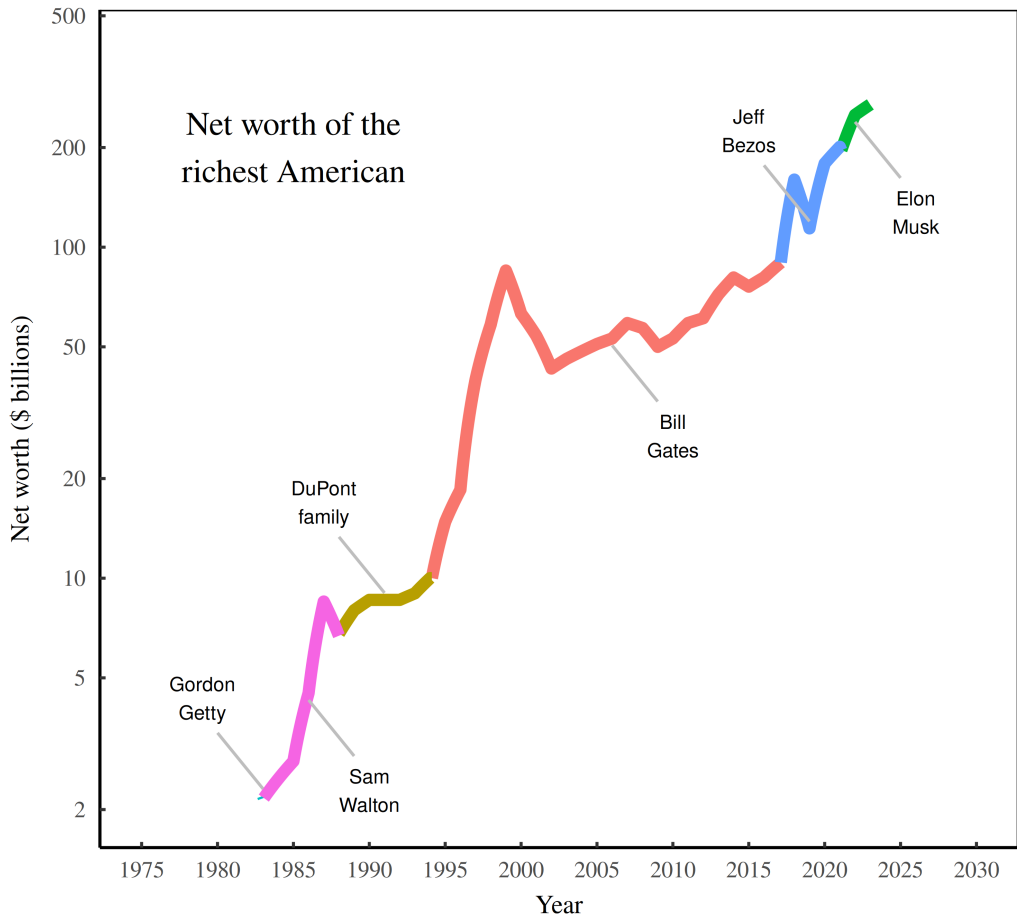
Figure 2: The American game of thrones — the reign and net worth of the richest American

Since 1983, six men (yes, all men) have had the dubious honor of being the richest American. Here, I've plotted their net worth and the period that they sat on the throne. Note the log scale on the vertical axis. Sources and methods

Looking at Figure 2, we could paint a similar picture for every rank within the Forbes 400. But since making four hundred charts would be a bit tedious, let's only gaze at two more graphs. Figures 3 and 4 show the succession history for the 2nd and 3rd richest American. The story is familiar:

1. There's been a series of successions;

2. Despite these successions, the rich have gotten richer.

Looking ahead, I'm going to try to connect these two patterns.
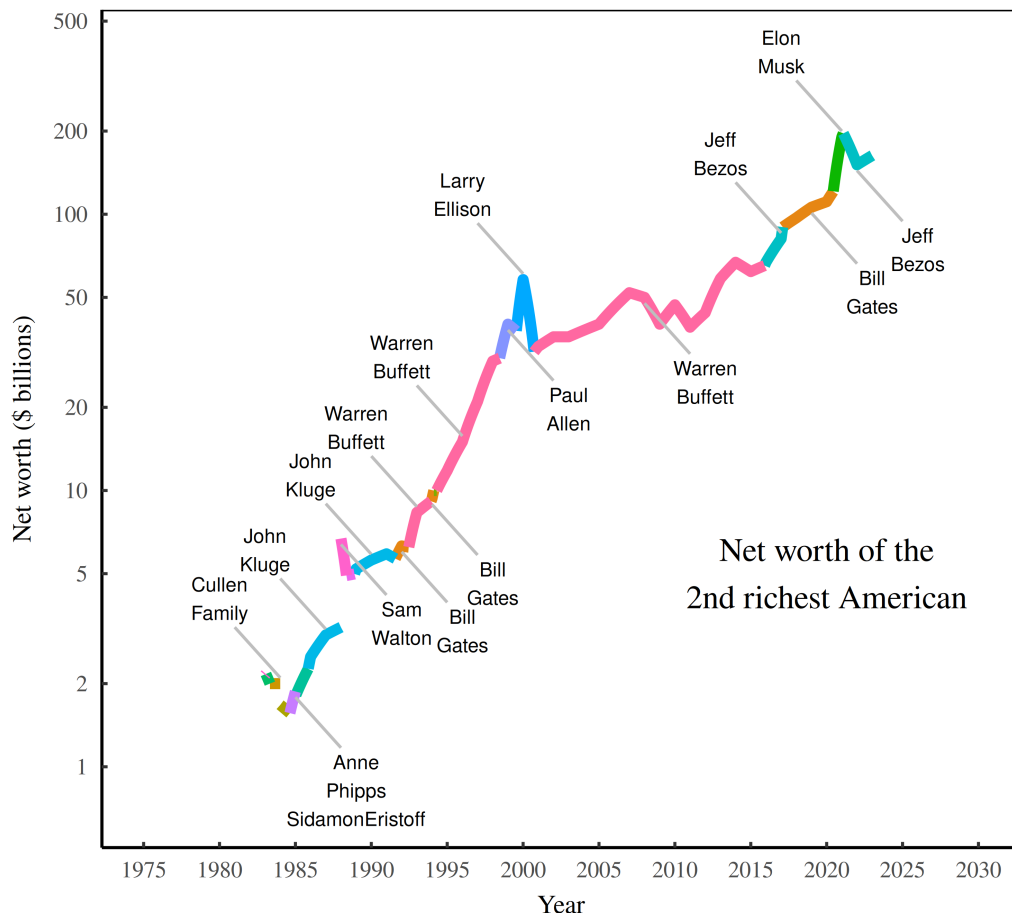
Figure 3: The race to runner up — the reign and net worth of the second richest American

Since 1983, sixteen individuals have sat on the second-richest American throne — some multiple times. Here, I've plotted their net worth and the period of their reign. (For clarity, I've omitted some of the labels.) Note the log scale on the vertical axis. Gaps in the lines occur when the second richest American is new to the Forbes 400 list. Sources and methods

Fractal inequality

Now that we've watched the game of thrones among the three richest Americans, let's return to the rise of wealth inequality. Since the 1980s, the wealthiest Americans have gotten richer, both in dollar terms, but also relative to other Americans.

Figure 5 shows one way to look at the pattern. The colored lines plot the net worth of the three richest Americans, measured relative to the American median wealth. The trend may look linear, but don't be fooled. The vertical axis
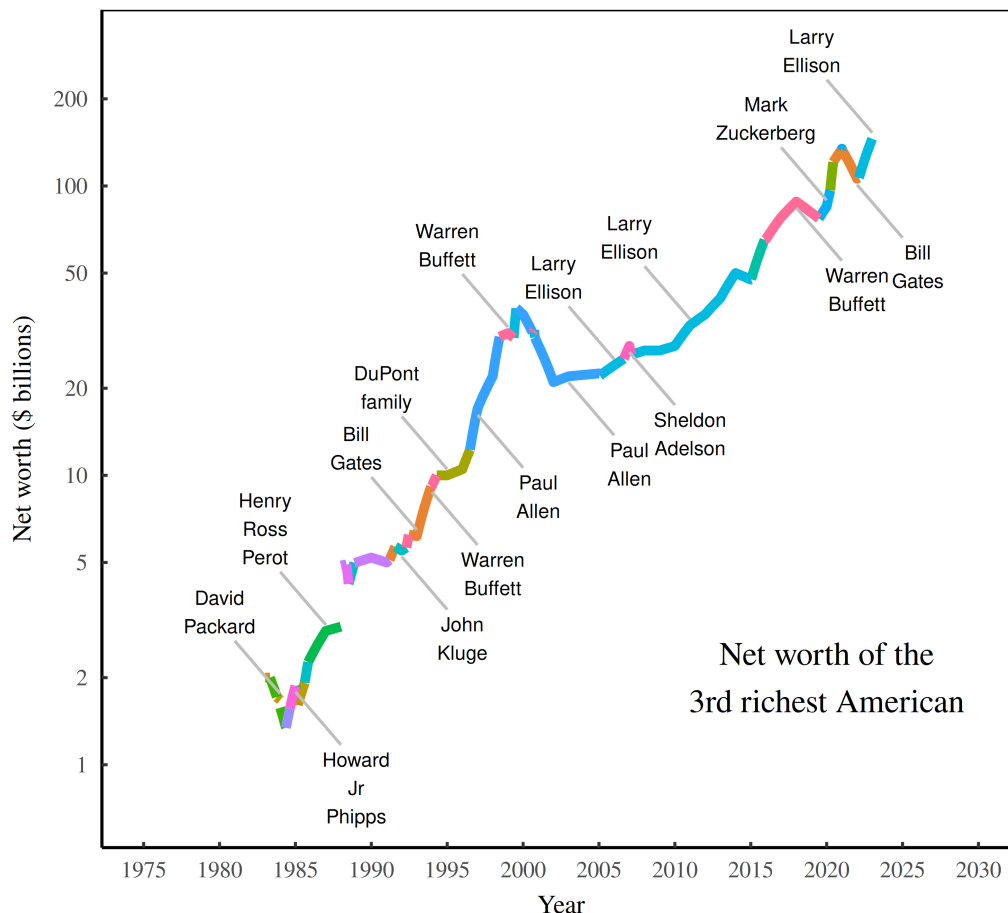
Figure 4: Third place, but who's counting — the reign and net worth of the third richest American

Since 1983, twenty individuals have sat on the third-richest American throne — some multiple times. Here, I've plotted their net worth and the period of their reign. (For clarity, I've omitted some of the labels.) Note the log scale on the vertical axis. Gaps in the lines occur when the third richest American is new to the Forbes 400 list. Sources and methods

uses a log scale. Since 1983, the relative net worth of the richest American increased by about a factor of forty. The second and third spots were not far behind.

So in modern American, the rich have gotten richer relative to the average person. But that's not all. It turns out that there's a fractal pattern to this rising inequality. No matter where we look, we find that the rich have pulled away from their less-fortunate brethren.
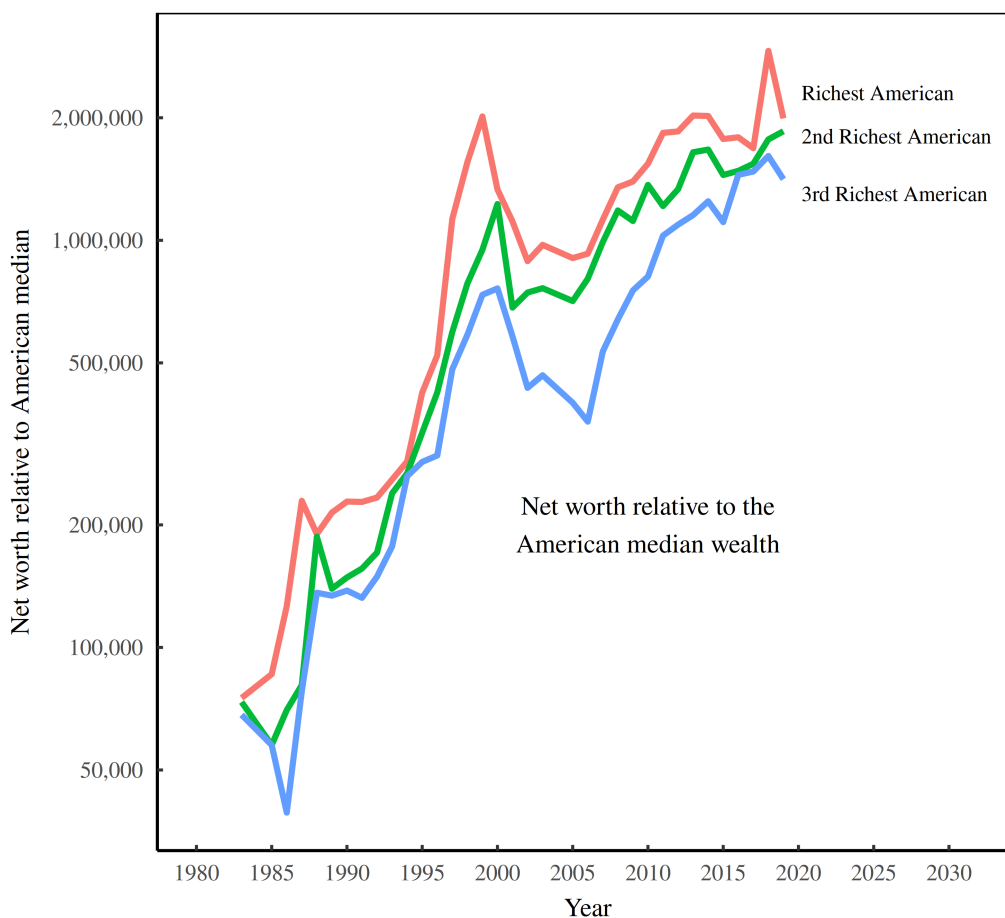
Figure 5: The rich have gotten richer — the net worth of the three richest Americans relative to the American median wealth Compared to the median American, the three richest Americans have gotten (much) richer Note the log scale on the vertical axis Sources and methods

This figure plots the net worth of the three richest Americans relative to the median wealth of the Forbes 400. Even compared to other rich people, the three richest Americans have grown richer over the last four decades. Sources and methods

Take the Forbes 400 as an example. By any reasonable standard, every member of the Forbes 400 is jaw-droppingly rich. Yet even within this menagerie of elites, the rich have gotten richer.

Figure 6 shows the trend. Again, the colored lines plot the net worth of the three richest Americans. But check out what their net worth is pegged against. That's right, I've plotted the net worth of the three richest Americans relative to *other extremely rich people* — in this case, the median wealth of the Forbes 400.
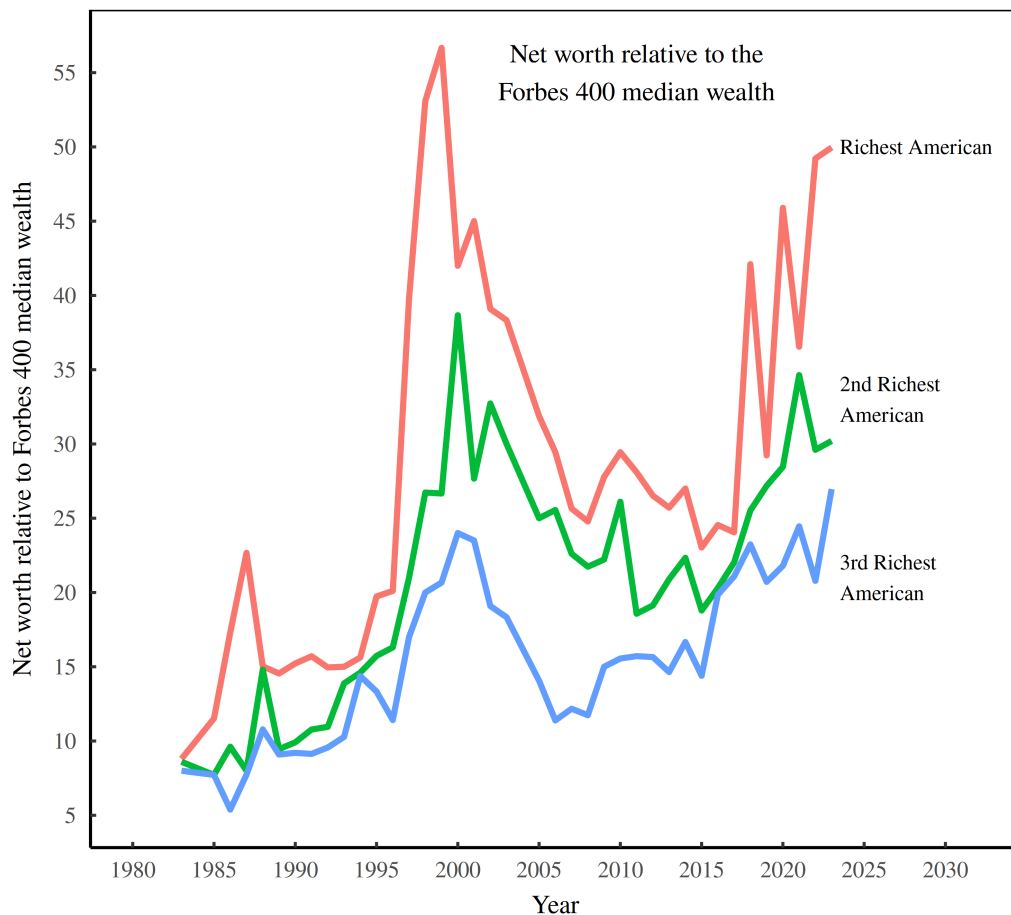
Figure 6: The über rich get richer than the mega rich

This figure plots the Gini index of wealth inequality among the Forbes 400. Over the last four decades, Forbes 400 wealth has grown more unequal. Sources and methods

Let's have a taste of some of these numbers. In 1983, the richest American was worth about 10 times more than the median member of the Forbes 400. Fast forward to 2023, and that value has increased to a factor of 50. Let's say that again. Elon Musk is so rich that he's *50 times* richer than the Forbes 400 median. (And that's not even the most extreme observation. In the late 1990s, Bill Gates was over 55 times richer than the Forbes 400 median.)

Richer and more unequal

To summarize our story, rising American inequality has had a fractal form. Over the last 40 years, the rich have pulled away from the average American. At the same time, the über rich have pulled away from the merely mega rich.

Now I recognize that there's going to be little sympathy for the declining (relative) status of the mega rich. Outside of their posh circle, no one cares that the mega rich are losing ground to the ultra rich. Still, the fractal nature of inequality means that the mega rich are good for at least one thing: they can be our inequality guinea pigs.

In particular, I want to know if, like the rest of us, the mega rich experience the Great Gatsby curve — the tendency for growing inequality to come with ossifying social mobility. But I'm getting ahead of myself. Before we can look at wealth mobility among the mega rich, we need to measure wealth inequality.

Let's do that now. Figure 7 shows wealth inequality among the Forbes 400, measured using the Gini index. The pattern is consistently upwards, albeit with a big jump in the late 1990s. In my next post, I'll investigate what's driving this rising Forbes inequality. But for now, let's just take it as an empirical fact. In modern America, the rich have gotten more unequal.

From rat race to rat regime

Let's return to the rich-person rat race. In Figures 2 – 4, we saw how wealthy Americans battled to maintain their spot at the top of the Forbes list. Some individuals lasted longer than others. But no one held their throne indefinitely.

What we'll do now is get more rigorous with our analysis of this game of thrones. Sure, thrones have changed hands. But has the pace of the game changed? In other words, what's happened to wealth mobility among the Forbes elite?

As you'll see, the über-rich game of thrones seems to have ossified. But before we get to this pattern, we need to review some technical details. I need to show you how I measure wealth (im)mobility. With that in mind, let's look at Figure 8.

Here, each point represents a person — a onetime member of the Forbes 50 (the fifty richest Americans). On the *x-y* axes, I've plotted the person's Forbes rank in two consecutive years. The horizontal axis shows rank in 1985, while the vertical axis shows rank in 1986. (Note that both scales are reversed.)
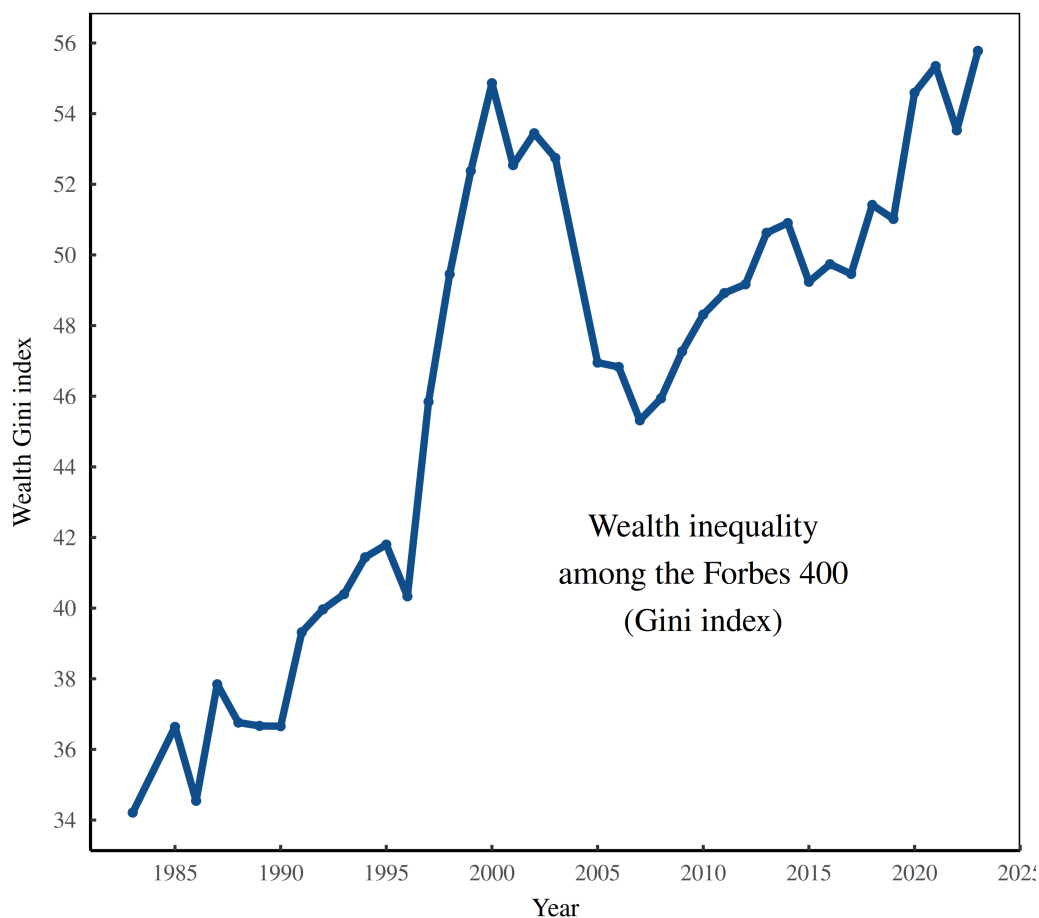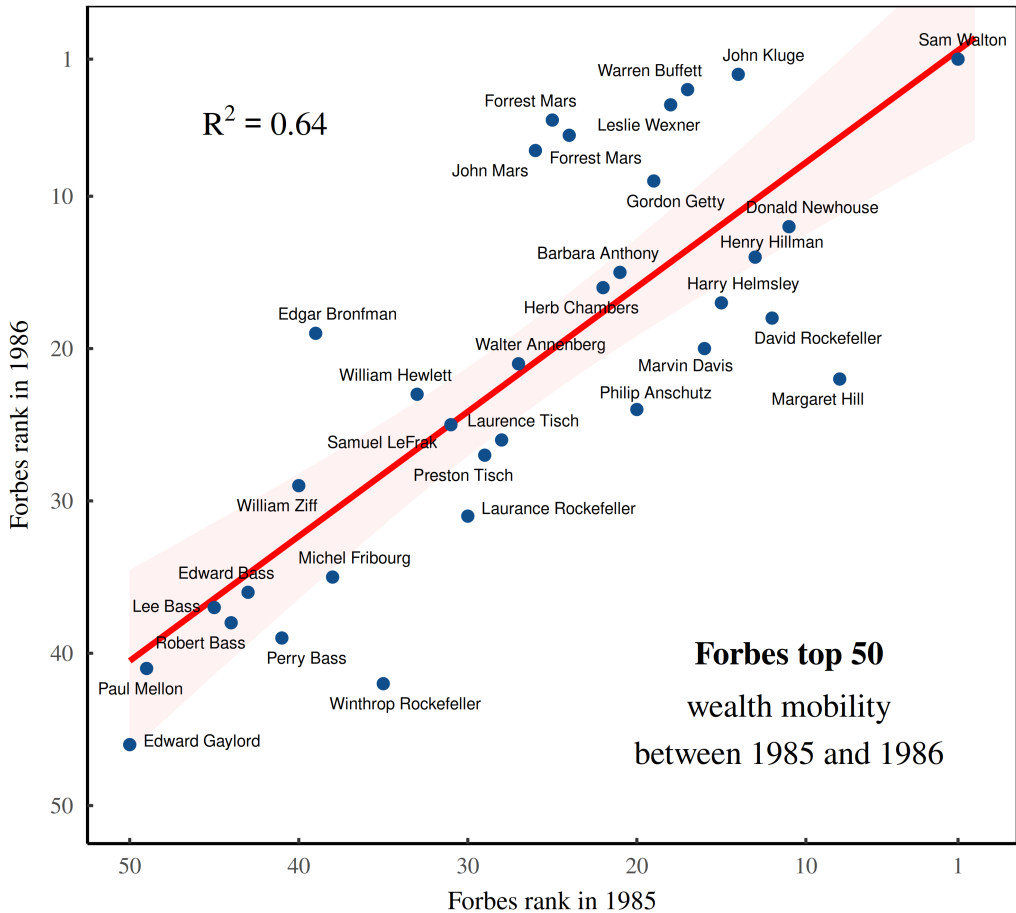
Figure 7: The American rich have gotten more unequal

Looking at the 50 richest Americans, this figure plots their rank in 1985 (horizontal axis) against their rank in 1986 (vertical axis). The amount of scatter indicates the degree of wealth mobility, year to year. Conversely, the *lack* of scatter indicates the degree of social *immobility*. We can quantify this immobility using the R^2 value, which here is 0.64. Sources and methods

Looking closely at the blue points in Figure 8, you can see that the dot in the upper right corner is Sam Walton — America's richest person in 1985 and again in 1986. Now, if everyone was like Sam, retaining their wealth rank year to year, our chart would have no jitter. The blue points would form a perfect diagonal line, up and to the right. But obviously that's not what happens.

Instead, the points have significant scatter, indicating that the Forbes rat race was fairly dynamic. Year to year, most people changed ranks. For example, oil heiress Margaret Hunt Hill dropped from the 8th to 22nd spot. And

$R^2 = 0.64$

Forbes top 50
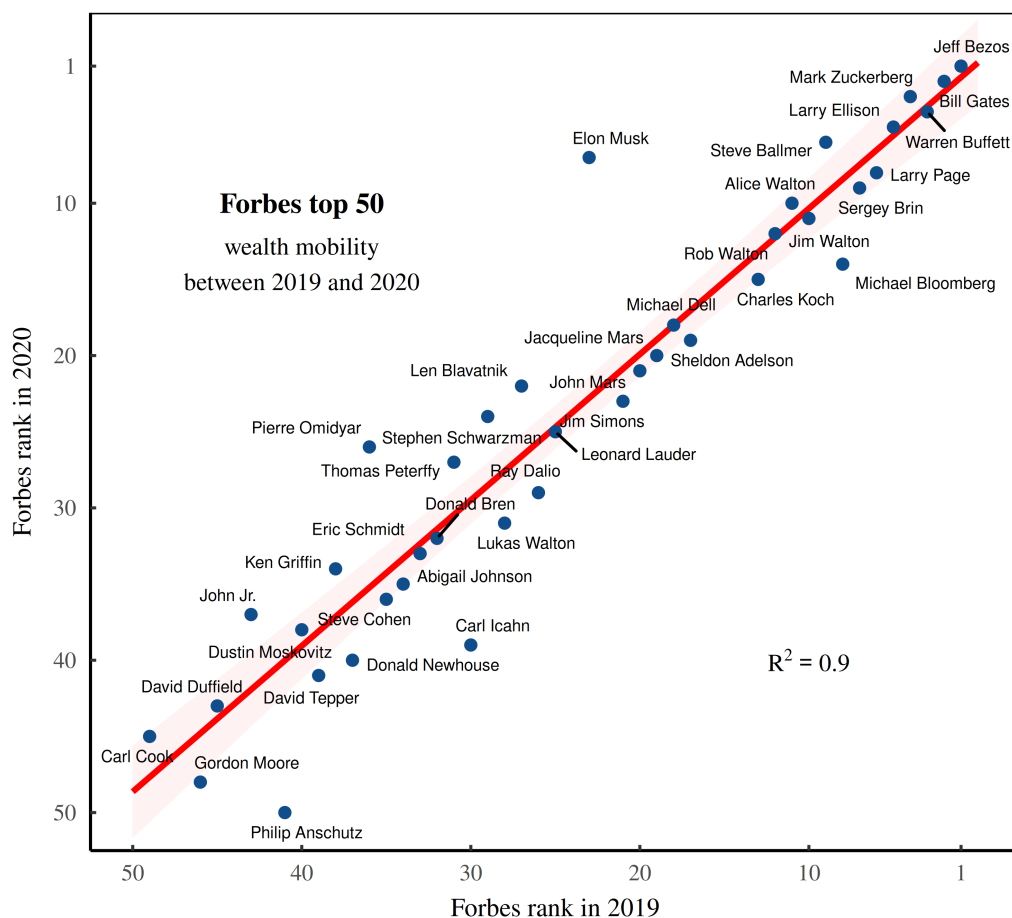
wealth mobility

between 1985 and 1986

Figure 8: Wealth (im)mobility among the fifty richest Americans, 1985 to 1986

Looking at the 50 richest Americans, this figure plots their rank in 2019 (horizontal axis) against their rank in 2020 (vertical axis). The amount of scatter indicates the degree of wealth mobility, year to year. Conversely, the *lack* of scatter indicates the degree of social *immobility*. We can quantify this immobility using the R^2 value, which here is 0.90. Sources and methods

TV mogul John Werner Kluge jumped from the 14th to the 2nd spot. This jumping creates scatter in our chart. And the scatter is how we'll quantify wealth (im)mobility.

But I'm getting ahead of myself again. To judge whether wealth (im)mobility is large or small, we need context, meaning we need to compare different observations. So let's redo the analysis by moving the clock ahead a few decades to 2019/2020. Figure 9 shows the results. Again, I've plotted Forbes ranks in two consecutive years (this time in 2019 and 2020). But note how

Figure 9: Wealth (im)mobility among the fifty richest Americans, 2019 to 2020

Looking at the top 50 members of the Forbes 400, this figure measures their year-to-year wealth *immobility*. (For details about how I measure wealth immobility, see Figures 8 and 9.) The blue line shows raw values. The red line indicates the smoothed trend. Sources and methods

compared to Figure 8, there's palpably less jitter. In other words, by 2019, members of the American über rich were changing ranks much less than they did forty years ago. The game of thrones seems to have ossified.

Now to the numbers. Looking at Figures 8 and 9, the amount of scatter in each chart indicates the degree of wealth mobility among the Forbes 50. Or put the opposite way, the *lack* of scatter indicates the degree of wealth *immobility*.

We want to quantify this lack of scatter. We'll do it using the R^2 value of a linear regression, which puts the scatter on a one-point scale. A value of *zero* indicates complete scatter, meaning Forbes wealth is extremely mobile, year to year. A value of *one* indicates no scatter, meaning Forbes wealth is extremely immobile.

So that's our wealth immobility metric. Now let's get to the exciting part, which is seeing how this metric changes over time. With the Forbes 50 as our guinea pigs, let's watch the rise of wealth immobility among the richest Americans. Figure 10 shows the trend. Admittedly, the raw data is fairly noisy. Still, the upward pattern is easy to spot. Among the richest Americans, it seems that the rat race has been turning into more of a rat *regime*. Wealth has steadily become more immobile.

Gatsby among the über rich

Now that we've crunched the numbers on Forbes wealth immobility, we're ready to return to our friend the Great Gatsby curve — the tendency for social immobility to rise as social inequality increases.

It turns out that the American über rich have their own version of this curve. Figure 11 shows its form. As Forbes wealth became more unequal (horizontal axis), it also become more immobile (vertical axis). And there we have it — the Great Gatsby curve among the über rich.

Power ensconced

So why does the Great Gatsby curve exist? Well, that's a question with a book-length answer. But in principle, I think the phenomenon is quite simple. At the most basic level, enforcing inequality requires ensconcing power.

The reasoning here is that income and wealth stem from social *control*. In other words, if you give people power, they will use it to enrich themselves. And as that power becomes ensconced, social mobility declines and inequality grows.

To understand this principle, think of the extremes reached during feudalism. In his book *Power and Privilege*, sociologist Gerhard Lenski notes that feudal societies were among the most unequal to ever exist. And it's not
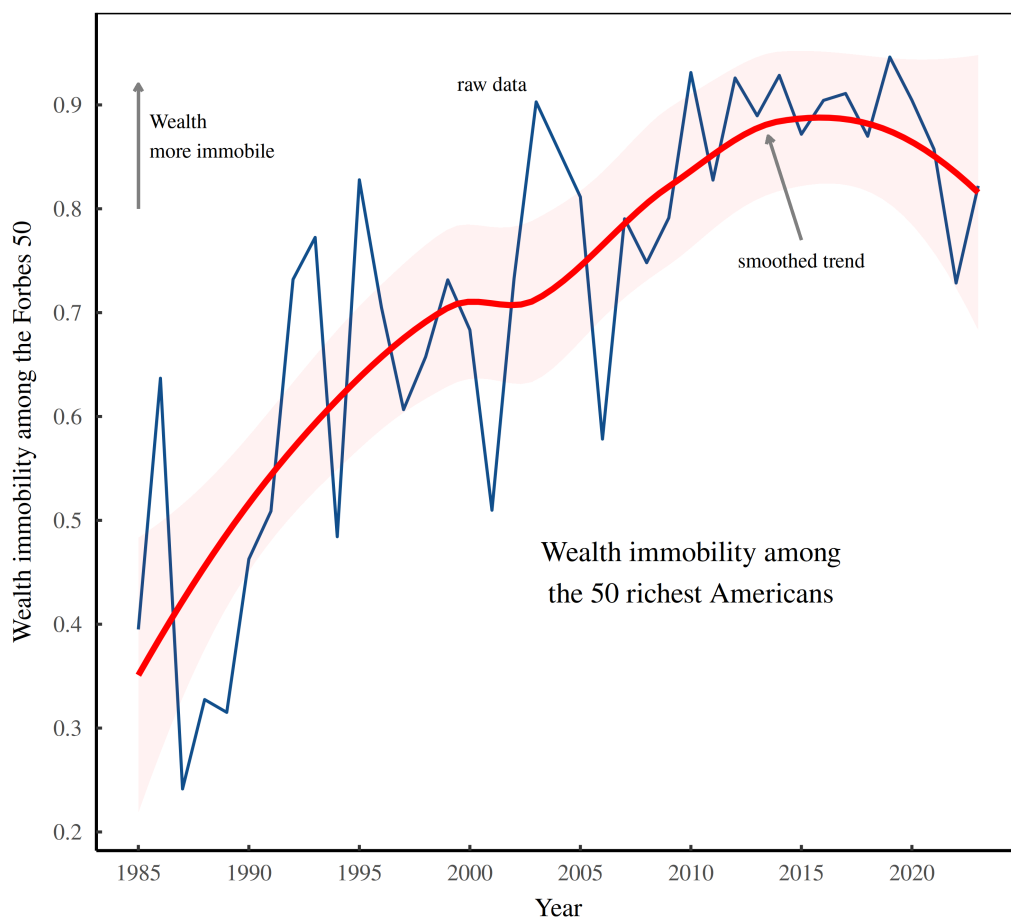
Figure 10: The rat race turns into a rat regime; among the 50 richest Americans, wealth has become more immobile

The horizontal axis shows wealth inequality among the Forbes 400, measured using the Gini index. (See Figure 7 for the time series data.) The vertical axis plot wealth immobility among the Forbes 50. (See Figure 10 for the data.) The resulting plot is a textbook example of the Great Gatsby curve; greater inequality is associated with more social immobility. Sources and methods

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hard to understand why. The feudal class system — decreed at birth and rigidly enforced by religion — was a recipe for ensconcing power and thereby maintaining extreme inequality.

Speaking of feudalism, lately there's been lots of talk that modern society is headed towards something that's no longer 'capitalism'. (Yanis Varoufakis has captured the zeitgeist with his new book *Technofeudalism*.) Whether this thinking is correct is ultimately a game of definitions. But there's no denying that we're headed in an unsavory direction.
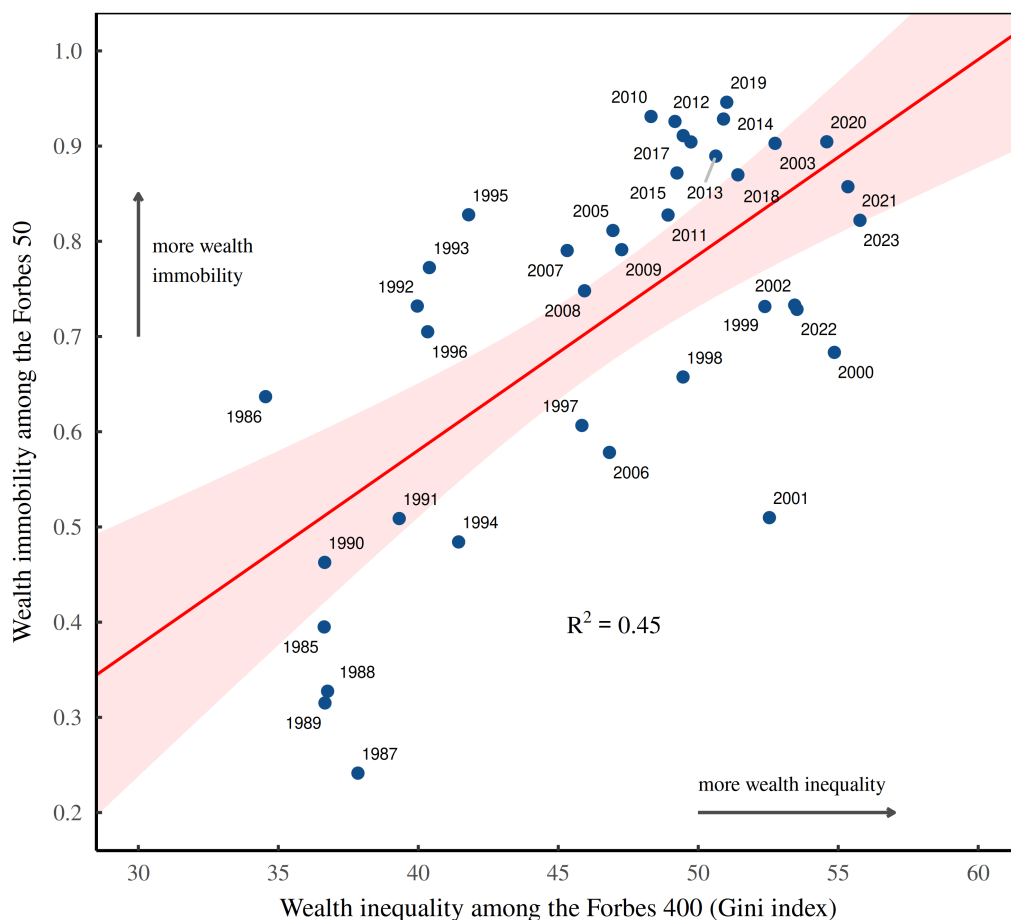
**Figure 11: The Great Gatsby curve among the richest Americans —
rising wealth inequality comes with more wealth immobility**

Each colored line plots the net worth of a particular rank in the Forbes 400. (The richest
individual is always on top, followed by the second richest individual, and so on). Note that
the vertical axis uses a log scale. Sources and methods

For my part, I agree with Jonathan Nitzan and Shimshon Bichler, who argue
that the fundamental feature of capitalism isn't 'the market'. It's the regime of
property rights. And the thing about property rights is that they have always
been inherently regressive. They can be accumulated without end. And they
can be handed to the next generation, thereby ensconcing power.

So in my view, capitalism has been 'progressive' to the degree that democratic
society has placed limits on the accumulation of property-based power. It
just happens that over the last forty years, elites have managed to dismantle
much of this democratic oversight.

Hence big business is now 'free' to accumulate monopoly power. And corporate top brass are 'free' to enrich themselves through an endless loop of stock buybacks. It's only fitting that the resulting extreme wealth inequality and turgid social immobility are evident in data collected by Forbes, a rabid cheerleader of unhinged capitalism.

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Sources and methods

Forbes 400

For details about where I scraped the Forbes data, see my previous post 'How the Rich Get Richer'.

As an addendum to that post, it appears that I previously messed up the Forbes data for 2018. (I scraped data from the Internet Archive which was mistakenly from 2017.) The corrected 2018 data lives here.

The ranked rat race

Here's how I constructed that rat-race charts in Figures 2 – 4. On the surface, it seems like you could just plot the raw Forbes data for the given wealth rank, and then use color to indicate the person holding the position. However, since the Forbes data is only updated every year, it turns out that the resulting chart is unappealing. (It's annoyingly bumpy.)

My solution is to interpolate the Forbes data to estimate the *exact* moment when the given wealth rank changes hands. The result is a more appealing chart, albeit one with some hidden uncertainty.

Wealth mobility

To measure Forbes wealth mobility (in Figures 8, 9, 10, and 11), the biggest hurdle is tracking individuals across time. Now in principle, the task is simple. For example, we take 'Bill Gates' and watch his wealth ranking change with time. No big deal.

Here's the problem. On the Forbes 400, Bill Gates isn't always called 'Bill Gates'. Sometimes he's called 'William Henry Gates III'. Other times it's 'William Gates III'. Or 'William Henry III Gates'. And so on.

Now to a human, it's obvious that these variations all refer to the same person. However, it is not obvious to a computer. And since I'm working with thousands of data points, it's got to be the computer that does the person tracking.

So how, then, do we track a single person across multiple variations of their name? The solution I use is called 'fuzzy matching'. It's an algorithm that matches strings which are not quite identical.

The difficulty is that fuzzy matching is, well, *fuzzy*. The algorithm simply quantifies the similarity between strings. It's then up to you, the analyst, to decide if a given similarity level constitutes a name 'match'. In short, fuzzy matching always comes with a degree of error. (To reduce the error, I stipulate that to be considered the 'same person', last names must be identical.) Unfortunately, we can't quantify the fuzzy-matching error without matching the strings by hand — something that I have no intention of doing.

To summarize, there's bound to be error in my measure of wealth immobility. Some Forbes individuals will be incorrectly tracked over time. However, there's no reason to suspect that this mismatching has a trend, meaning it likely does not produce the pattern we see in wealth immobility.

For the coding inclined, I use the R package `fuzzyjoin` for my fuzzy-matching needs.

Further reading

Lenski, G. E. (1966). *Power and privilege: A theory of social stratification*. Chapel Hill: UNC Press Books.

Nitzan, J., & Bichler, S. (2009). *Capital as power: A study of order and creorder*. New York: Routledge.