SUCCESS ♠ND LUCK

Good Fortune
and the Myth of Meritocracy

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LUCK ♠ND SUCCESS

Luck is not something you can mention
in the presence of self-made men.

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HOW WINNER-TAKE-ALL MARKETS MAGNIFY LUCK'S ROLE

Why do hardworking people with similar talents and training often earn such dramatically different incomes? And why, too, have these earnings gaps grown so much larger in recent decades? Almost no other questions have proved more enduringly fascinating to economists.

The traditional approach to these questions views labor markets as perfectly competitive meritocracies in which people are paid in accordance with the value of what they produce. In this view, earnings differences result largely from individual differences in "human capital"—an amalgam of intelligence, training, experience, social skills, and other personal characteristics known to affect productivity. Human capital commands a rate of return in the marketplace, just like any other asset, suggesting that individual pay differences should be proportional to the corresponding differences in human capital. So, for example, if Sue has twice as much human capital as James, her earnings should be roughly twice as large.

But not even the most sophisticated measures of human capital can explain more than a tiny fraction of individual earnings differences during any year. And since the distributions of intelligence, experience, and other traits across individuals don't seem to have changed much during the past few decades, the human capital approach has little to say about growing pay disparities over time.

The human capital approach is also completely silent about the role of chance events in the labor market. It assumes that the more human capital you have, the more you get paid, which obviously isn't always the case. Of course, most people in the top 1 percent didn't get there *just* by being lucky. Almost all of them work extremely hard and are unusually good at what they do. They have *lots* of human capital. But what the human capital approach misses is that certain skills are far more valuable in some settings than in others. In our 1995 book, *The Winner-Take-All Society*, Philip Cook and I argued that a gifted salesperson, for example, will be far more productive if her assignment is to sell financial securities to sovereign wealth funds than if she's selling children's shoes.[1]

If markets have been growing more competitive over time, why are the earnings gaps unaccounted for by the human capital approach larger than ever? Cook and I argued that what's been changing is that new technologies and market institutions have been providing growing leverage for the talents of the ablest individuals. The best option available to patients suffering from a rare illness was once to consult with the most knowledgeable local practitioner. But now that medical records can be sent anywhere with a single mouse click, today's patients can receive advice from the world's leading authority on that illness.

Such changes didn't begin yesterday. Alfred Marshall, the great nineteenth-century British economist, described how advances in transportation enabled the best producers in almost every domain to extend their reach. Piano manufacturing, for instance, was once widely dispersed, simply because pianos were so costly to transport. Unless they were produced close to where buyers lived, shipping costs quickly became prohibitive.

But with each extension of the highway, rail, and canal systems, shipping costs fell sharply, and at each step production became more concentrated. Worldwide, only a handful of the best piano producers now survive. It's of course a good thing that their superior offerings are now available to more people. But an inevitable side effect has been that producers with even a slight edge over their rivals went on to capture most of the industry's income.

Therein lies a hint about why chance events have grown more important even as markets have become more competitive. When shipping costs fell dramatically, producers who were once local monopolists serving geographically isolated markets found themselves battling one another for survival. In those battles, even a tiny cost advantage or quality edge could be decisive. Minor random events can easily tip the balance in such competitions—and in the process spell the difference between great wealth and economic failure. So luck is becoming more important in part because the stakes have increased sharply in contests whose outcomes have always hinged partly on chance events.

Many of the environmental changes that have been occurring over time are analogous to reductions in shipping costs. That's true, for example, of reductions in tariff barriers and better communication technologies. Perhaps even more important has been the fact that an increasing share of what makes a product valuable is accounted for by the ideas embedded in it. Ideas don't weigh anything so are costless to ship.

Cook and I argued that these changes help explain both the growing income differences between ostensibly similar individuals and the surge in income inequality that began in the late 1960s. In domain after domain, we wrote, technology has been enabling the most gifted performers to extend their reach.

Local accountants were displaced in two waves—first by franchised services like H&R Block and more recently by tax software for the masses. Brick-and-mortar shops have been going out of business at a rapid clip, replaced by Amazon and other online retailers. And whereas the best tire producer in, say, Akron, Ohio, was once assured of a vibrant local market, drivers now buy from only a handful of the best producers worldwide.

Reasons for such displacements differ from case to case. But an important contributing factor in almost all cases has been the information revolution. In the 1950s, telephone connections across the Atlantic were so scarce that some international firms hired clerks in the United States to spend their entire workday reading texts over the phone to their counterparts in European branches, just to keep the lines open. In those days, international corporate operations were heavily constrained by the practical difficulties of coordination and control. For a firm to survive in that era, it was often enough to be the best producer in a fairly narrow locale.

But both the scale and scope of individual markets have grown enormously in the intervening years. When one seller's offering is better than all others, word quickly spreads. Lower shipping costs, coupled with falling trade barriers, have made it easier than ever to serve buyers everywhere. The upshot is that if an economic opportunity arises anywhere in the networked world, ambitious entrepreneurs are quickly able to discover and exploit it.

Modern communications technology has also reinforced powerful network effects that have increased the rewards to top performers. Those effects helped explain the growing dominance of the Windows PC platform during the late 1980s. Once

Microsoft's Windows graphical user interface reached parity with earlier rival Apple's Macintosh, the numerical superiority of Windows users became a decisive advantage. Software developers concentrated their efforts on the Windows platform because more users meant more sales. And the greater availability of software titles, in turn, lured still more users to Windows, creating a positive feedback loop in the form of a network effect that drove Apple to the brink of bankruptcy.

Network effects sometimes permit one firm's ephemeral advantage to defeat a rival's otherwise superior offering, as apparently happened in the battle between Betamax and VHS several decades ago. In the late 1980s, I purchased my first video cassette recorder, one of the last in my circle of friends to do so. I vividly recall the salesman's conclusive demonstration of the superiority of Sony's Betamax format over the competing VHS format from JVC. Although I agreed with him that the Betamax picture was much sharper, he didn't seem the least bit surprised when I announced my decision to buy the VHS machine instead.

The problem for Betamax was that early versions permitted users to record at most only 60 minutes of content at a time. And since one of the main reasons for owning a VCR was to record televised movies, that was a serious drawback. When VHS offered customers the chance to record for two hours at a time, sales quickly began tipping in its favor, despite its inferior picture quality.

Once the installed base of VHS machines exceeded that of Betamax, Blockbuster and other video rental shops began tilting their rental stocks in favor of VHS titles, which in turn further increased the attractiveness of that format.

Another popular use of VCRs at the time was for people to send home videos to their children's grandparents. But that worked only if both households used the same format, so here was an additional positive feedback loop that reinforced the reasons for choosing VHS. In the meantime, Sony had managed to extend Betamax recording times. But by then the downward spiral was well underway, and Betamax was doomed.

Network effects merit special emphasis because they are perhaps the most important source of randomness in high-stakes winner-take-all contests. One reason for reading a book or seeing a film is to enjoy the experience of discussing it with others. Opportunities for such exchanges are of course more numerous when you read best-selling titles or watch popular films. But of the thousands of entries released in any given year, only a relative handful find their way onto the most widely circulated best-seller lists.

Whether a book becomes a best seller depends on many factors, perhaps the most important of which is whether it's any good. But as their authors can attest, many good books never achieve best-seller status. It is far more likely that a book of given quality will become a best seller if it was written by an author of earlier best sellers. Among first-time best sellers, most are books that enjoyed strongly favorable reviews in prominent outlets like the *New York Times* or the *Atlantic*. But most books, like most other artistic endeavors, elicit a spectrum of reactions from reviewers. As illustrated by the Music Lab experiments discussed earlier, a disproportionate number of best sellers will thus have been written by fortunate authors whose books were assigned to initial reviewers who happened to like them. Many best sellers are no more worthy, in purely objective terms, than a host of other books that fail to make the list.

Winner-take-all markets generally display two characteristic features. One is that rewards depend less on absolute performance than on relative performance. Steffi Graf, one of the best female tennis players of all time, played at a consistently high level throughout the mid-1990s, yet she earned considerably more during the twelve months after April 1993 than during the preceding twelve months. One reason was the absence during the latter period of her rival Monica Seles, who had been forced to leave the tour after being stabbed in the back that April by a deranged fan at a tournament in Germany. Although the absolute quality of Graf's play didn't change much during Seles's absence, her relative quality improved substantially.

A second important feature of winner-take-all markets is that rewards tend to be highly concentrated in the hands of a few top performers. That can occur for many reasons, but most often it's a consequence of production technologies that extend a given performer's reach. That's true, for example, in the music industry, which exhibits both features of winner-take-all markets. As the economist Sherwin Rosen wrote,

> The market for classical music has never been larger than it is now, yet the number of full-time soloists on any given instrument is on the order of only a few hundred (and much smaller for instruments other than voice, violin, and piano). Performers of the first rank comprise a limited handful out of these small totals and have very large incomes. There are also known to be substantial differences between [their incomes and the incomes of] those in the second rank, even though most consumers would have difficulty detecting more than minor differences in a "blind" hearing.[2]

One hundred years ago, the only way to listen to music was to attend a live performance. Then as now, opera buffs wanted to hear the most renowned singers perform, but there were only so many live events those musicians could stage during any given year. And so there was a robust market for thousands of sopranos and tenors on the worldwide tour. The lesser-ranked performers earned less than their higher-ranked colleagues, but not that much less. Now, lifelike recording technologies enable fans to hear their favorite operas reproduced faithfully at home. And those who demand the entire stage spectacle can now watch HD broadcasts of performances of the New York Metropolitan Opera Company in theaters around the globe. All the while, local opera companies have been closing their doors.

Once critics and audiences reach consensus on who the best performers are, the market for recorded or televised operas can be served by only a small handful of artists. Most people today would have difficulty naming more than three tenors. That's because the market no longer "needs" more than a handful of tenors. Once the master recording of a tenor's performance has been made, it's essentially costless to make additional copies of it. That's also why a small handful of artists land seven-figure recording contracts, even as thousands of others—many of them nearly as talented—struggle to get by as elementary school music teachers.

Some of the same technological forces that have tended to concentrate rewards also exert countervailing effects. As Chris Anderson explained in his 2006 book *The Long Tail*, digital technology has been making music, books, movies, and many other goods economically viable on a much smaller scale than ever before.[3]

In past decades, for example, a film could generate revenue only by mustering audiences of sufficient size to justify screenings in movie theaters. Most niche markets—think Hindi-language movies in medium-size American cities—were simply not viable. That changed with Netflix. Since the marginal cost of shipping a digital movie is essentially zero, it's now possible for people to watch it without having to assemble a theater full of ticket buyers. In principle, at least, this creates exciting new possibilities for small-scale sellers.

Anderson's long-tail account and the winner-take-all account both capture important aspects of how technology has been altering people's options. But preliminary evidence suggests that the winner-take-all account has tracked the observed trends more closely.

Consider digital music sales. Long-tail proponents predict that market shares of the most popular songs should be decreasing in favor of the weakest selling titles. But as the Harvard Business School professor Anita Elberse recounts in her carefully researched 2013 book, the numbers suggest otherwise.[4] The top one-thousandth of 1 percent of song titles now account for a much larger proportion of sales (15 percent in 2011, up from only 7 percent in 2007).

Trends for weak-selling titles have also been running counter to the long-tail prediction. The proportion of titles selling fewer than one hundred copies annually, for example, was 94 percent in 2011, up from 91 percent in 2007. (This was a period during which overall sales nearly doubled, so sales of these slow-moving titles were growing substantially in absolute terms.)

The market shares of top offerings have also been growing in the publishing and film industries, according to Elberse. In some cases, they've been gaining ground because social media have amplified their attractiveness. Here again, we see the influence of network effects. Simple arithmetic ensures that Facebook exchanges are far more likely to be stimulated by posts on best-selling titles.

Another factor is that new technology has done little to relieve an important market constraint—the scarcity of people's time and energy. No one could possibly examine each of the million-plus offerings in Apple's app store. And as the Swarthmore psychologist Barry Schwartz argued in his 2004 book, *The Paradox of Choice*, most people find it unpleasant to sift through a plethora of options.[5] Many people sidestep that problem by focusing on only the most popular entries in each category.

But the mere fact that top sellers are becoming even more popular doesn't mean that the long tail's promise of a golden age of small-scale creative energy has been empty. It has indeed become less costly for producers to target buyers with highly idiosyncratic tastes, and sophisticated search algorithms increasingly enable such buyers to find just the quirky offerings they're looking for.

Creative people have never faced better opportunities to display their talent. Websites and YouTube links place their songs and stories within easy reach of almost everyone. These channels have become the new minor leagues for producing tomorrow's superstars. And because the cost of access is so low, markets for creative endeavor are becoming far more meritocratic than their earlier counterparts.

These issues strike close to home. I placed my intellectual bets long ago on the winner-take-all perspective. Yet I also have a strong personal rooting interest in Anderson's long-tail perspective. Earlier I mentioned The Nepotist, the alternative-soul band fronted by my two youngest sons, Chris and Hayden. They're still a long way from being able to make ends meet without the help of their day jobs. But they've been steadily climbing the ladder. Perhaps I'm biased in believing they're good enough to make it.[6] If they do break out, spectacular rewards could follow. But they're well aware that their odds of stardom remain almost vanishingly small.

The forces driving recent trends in CEO pay shed additional light on how small differences in performance can translate into enormous differences in earnings. Consider a company with $10 billion in annual earnings that has narrowed its CEO search to two finalists, one slightly more talented than the other—by enough, say, to cause a 3 percent swing in the company's bottom line. Even that minuscule talent difference would translate into an additional $300 million in earnings. Even if the better performer were paid $100 million, that person would still be a bargain.

CEO leverage has been growing quickly as firms have expanded in size. As the New York University economists Xavier Gabaix and Augustin Landier argued in a 2008 paper, executive pay in a competitive market should vary in direct proportion to the market capitalization of the company.[7] They found that CEO compensation at large companies grew sixfold between 1980 and 2003, roughly the same as the market-cap growth of these businesses.

But growth in executive leverage alone cannot explain the explosive increase in executive salaries. The decisions made by Charles Erwin Wilson, who headed General Motors from 1941 to 1953, had as big an impact on that company's annual bottom line as the corresponding decisions by today's average Fortune 500 CEO. Yet Wilson's total career earnings at GM, after adjusting for inflation, were just a fraction of what today's top CEOs earn every year.

That's because a second factor necessary to explain explosive CEO pay growth—an open market for CEOs—didn't exist in Wilson's day. Until recently, most corporate boards shared an implicit belief that the only credible candidates for top executive positions were employees who had spent all or most of their careers with the company. There was usually a leading internal candidate to succeed a retiring CEO, and seldom more than a few others who were even credible. Under the circumstances, CEO pay was a matter of bilateral negotiation between the board and the anointed successor.

That focus on insiders has softened in recent decades, a change driven in no small part by one particularly visible outside hire. That would be Louis J. Gerstner, who was hired away from RJR Nabisco by IBM in 1993. At the time, outside observers were extremely skeptical that a former tobacco CEO would be able to turn the struggling computer giant around. But IBM's board felt that Gerstner's motivational and managerial talents were just what the company needed and that subordinates could compensate for any technical gaps in Gerstner's knowledge. The company's bet paid off spectacularly, of course, and in the ensuing years the trend toward outside CEO hires has accelerated across most industries.

Most companies still promote CEOs from within, but even in those cases, the more open market for executive talent has completely transformed the climate in which salary negotiations take place. Internal candidates can now threaten credibly to move if they're not paid in accordance with the market's estimate of their economic value.

The more open market conditions have affected executive salaries in much the same way that free agency affected the salaries of professional athletes. CEOs of the largest American corporations, who were paid forty-two times as much as the average worker as recently as 1980, are now paid more than four hundred times as much. So once more we see the growing importance of the seemingly minor random events that produce small differences in absolute performance.

Greater competition also creates positive feedback effects that amplify the growth of salaries at the top of a variety of industries by altering spending patterns. Such effects appear to help explain growing inequality among dentists, for example. The dentists whose earnings have grown the most dramatically are often specialists in cosmetic dentistry, the demand for whose services has been fueled by higher top salaries in other occupations. And the highest paid dentists, in turn, often demand the services of the most highly paid specialists in other fields.

Recent trends in the distributions of income represent a substantial departure from those observed during the first three decades after WWII, when pretax incomes in America grew at roughly the same rate—slightly less than 3 percent a year—for households up and down the income ladder. Since the late 1960s, this pattern has changed. The inflation-adjusted median hourly wage for American men is actually lower now than it was then. Real median household incomes grew by roughly 19 percent between 1967 and 2012, primarily because of large increases in female labor force participation. Only those in the top quintile, whose incomes have roughly doubled since the mid-1970s, have escaped the income slowdown. Similar, if less dramatic, changes have been observed in most other countries.

The income growth picture is much the same within each subgroup of the population as for the population as a whole. For example, those at the bottom of the top quintile have seen little real income growth, the lion's share of which has been concentrated among top earners in the group. Real incomes among the top 5 percent, for example, were more than two and a half times larger in 2007 than in 1979, while those among the top 1 percent were almost four times larger. In 1976, only 8.9 percent of the nation's total pretax incomes went to the top 1 percent of earners, but by 2012 that group was receiving 22.5 percent of the total.

The winner-take-all account of rising inequality has not persuaded everyone. Some critics complain, for example, that the explosive growth of CEO pay proves that executive labor markets are not really competitive—that CEOs appoint cronies to their boards who approve unjustifiably large pay packages. We're also told that industrial behemoths conspire to drive out their rivals, thereby extorting higher prices from captive customers.

To be sure, such abuses occur. But they're no worse now than they've always been. As Adam Smith wrote in *The Wealth of*

Nations, "People of the same trade seldom meet together, even for merriment and diversion, but the conversation ends in a conspiracy against the public, or in some contrivance to raise prices."[8] CEOs have always appointed people they know to their boards, so that's not enough to explain recent trends.

Critics are also quick to point out that unsuccessful CEOs receive the same huge compensation packages as their more successful counterparts. That's true in any given year, but the relationship between pay and performance emerges more clearly once we examine a longer time horizon. In every labor market, there tends to be a going rate for those who perform the most important tasks, whether they be executives in business or coaches in professional sports. The more important the leadership position is, the higher the going rate. In most domains, it's extremely difficult to predict which candidates will perform best. Hiring committees generally appoint the ones they think best, and compensate them at rates in accord with what excellent performance would justify.

But companies are quicker than ever to cut their losses when performance disappoints. Relative to earlier decades, today's executives are on a much tighter leash, and those who fail to deliver are quickly sent packing. Léo Apotheker, for example, was named CEO of Hewlett-Packard in November 2010 only to be discharged in September 2011 after the company's share prices had plunged sharply under his leadership. CEOs of S&P 500 companies who left their posts in 2012 had 20 percent shorter tenures, on average, than their counterparts from 2000.[9]

Some attribute rising inequality to growth in the "skill premium," the higher wage that employers must offer in order to attract the increasing number of highly skilled workers they need. Yes, the earnings differential between college graduates and others is now wider than it was thirty years ago. Yet if we look only at the distribution of earnings among college graduates, we see the same pattern as for society as a whole. For most college graduates, wage increases have been either small or nonexistent in recent decades. The premium for college graduates exists because a relatively small number of the most successful graduates have enjoyed spectacular earnings growth during the same period.

Others argue that globalization has boosted inequality by forcing down the wages of the least skilled workers. Here, too, there's a measure of truth. Unions, for example, have lost some of their bargaining power as firms have become better able to move their operations to low-wage countries. Outsourcing via the Internet has put similar downward pressure on wages.

But these global pressures do not account for what's been happening in the white-collar professions. The growing inequality at the top is even more dramatic than at the bottom, as the most highly compensated corporate managers, lawyers, physicians, and even preachers have pulled away from the pack. In short, growth in inequality does not appear to have resulted from growing market imperfections or from increased outsourcing to lower-paid workers in developing countries.

Events of the past two decades have provided little reason to doubt that runaway growth in top incomes has resulted in large part from increasing leverage in the "winners" positions, in tandem with growing competition to fill those positions. By every measure, markets have grown more competitive, and the most productive players have gained additional leverage since *The Winner-Take-All Society*'s publication in 1995.

What's also clear is that the economic forces that have been causing the spread and intensification of winner-take-all markets have by no means run their course. We can expect continued growth in the intensity of competition on the buyers' side for the best talent, and on the sellers' side for the top positions.

In his widely discussed 2013 book, *Capital in the Twenty-First Century*, Thomas Piketty suggested yet another reason for rising inequality, which is the historical tendency for the rate of return on invested capital to exceed the overall growth rate for the economy.[10] When that happens, he argues, wealth continues to concentrate in the hands of those who own the most capital. All things considered, then, it appears prudent to envision a future characterized by continued growth in income and wealth inequality—which is to say, a future in which chance events will become still more important.

Because the enormous prizes at stake in many arenas attract so many contestants, the winners will almost without exception be enormously talented and hardworking. But as we'll see in the next chapter, they will rarely be the *most* talented and hardworking people in the contestant pool. We'll see, too, that even in contests in which luck plays only a minuscule role, winners will almost always be among the luckiest of all contestants.

The upshot is that with far greater frequency than ever before, seemingly trivial chance events give rise to spectacular differences in economic reward.