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Winner-Take-All Markets

Rabo Karabekian, the protagonist of Kurt Vonnegut's novel *Bluebeard*, is an abstract expressionist painter of modest renown ("a footnote in Art History," as he describes himself). He recognizes that he was "obviously born to draw," just as others are born to tell stories, sing, dance, or be leaders, athletes, and scientists. Speculating on the historical origins of such talents, Rabo muses:

I think that could go back to the time when people had to live in small groups of relatives—maybe fifty or a hundred people at the most. And evolution or God or whatever arranged things genetically, to keep the little families going, to cheer them up, so that they could all have somebody to tell stories around the campfire at night, and somebody else to paint pictures on the walls of the caves, and somebody else who wasn't afraid of anything and so on.¹

But Rabo also recognizes that most of these talented people face diminished opportunities in modern societies:

... of course a scheme like that doesn't make sense anymore, because simply moderate giftedness has been made worthless by the printing press and radio and television and satellites and all that. A moderately gifted person who would have been a community treasure a thousand

years ago has to give up, has to go into some other line of work, since modern communications has put him or her into daily competition with nothing but the world's champions. . . . The entire planet can get along nicely now with maybe a dozen champion performers in each area of human giftedness.²

Now that most of the music we listen to is recorded, the world's best soprano can literally be everywhere at once. And since it costs no more to stamp out compact discs from Kathlèen Battle's master recording of Mozart arias than from her understudy's, most of us listen to Battle. Millions of us are each willing to pay a few cents extra to hear her rather than another singer who is only marginally less able; and this enables Battle to write her own ticket.

Rabo Karabekian and Kathleen Battle sell their services in what we call "winner-take-all markets." So do Boris Becker, P. D. James, Carl Sagan, Kazuo Ishiguro, Hakeem Olajuwon, Gabriel García Márquez, Gerard Depardieu, Oksana Baiul, Alan Dershowitz, Alberto Tomba, John Madden, Mel Gibson, Mick Jagger, George Soros, Kip Keino, Jacques Derrida, Sonia Braga, Diane Sawyer, Gary Kasparov, Giorgio Armani, Stephen Hawking, Michael Jordan, Andrew Lloyd Webber, Elle Macpherson, John Cleese, Katerina Witt, Peter Høeg, George Will, Kimiko Date, Arnold Schwarzenegger, and John Grisham. The markets in which these people and others like them work are very different from the ones economists normally study. We call them winner-take-all markets because the value of what gets produced in them often depends on the efforts of only a small number of top performers, who are paid accordingly.

For example, although thousands of people are involved in making a major motion picture, the difference between commercial success and failure usually hinges on the performances of only a handful—the director, the screenwriter, the leading actors and actresses, and perhaps a few others.

Similarly, although thousands of players compete each year in professional tennis, most of the industry's television and endorsement revenues can be attributed to the drawing power of just the top ten players. For example, the Australian Wally Masur, among the top fifty players in the world for many years, in 1993 was a semifinalist at the

U.S. Open. At no time during his career, however, did manufacturers offer tennis shoes or racquets bearing his signature.

Since most of the markets we will be talking about have more than one winner, it would be more accurate to call them "those-near-the-top-get-a-disproportionate-share markets." But this is a mouthful, and hence our simpler, if somewhat less descriptive, label.

The winner-take-all reward structure has long been common in entertainment, sports, and the arts. But, as sociologist William Goode clearly recognized, the phenomenon that gives rise to it is by no means confined to celebrity labor markets. "The failure of the somewhat less popular" is how he referred to this phenomenon: "Grocery stores have only so much shelf space and thus only so much for each type of soap, cornflakes, or maple syrup. . . . obviously the most popular of any class of products or programs will shoulder the less popular off, although in quality these may be close to the most successful in popularity."³

The cars that succeed in the marketplace are often only marginally more stylish or better built than those that fail. And even experts sometimes argue about whether the stereo loudspeaker that sweeps the market is really better than the ones buyers rejected.

When only barely perceptible quality margins spell the difference between success and failure, the buying public may have little at stake in the battles that decide which products win. But to the manufacturers the stakes are often enormous—the difference between liquidation and the continuation of multibillion-dollar annual revenues.

These high stakes have created a new class of "unknown celebrities": those pivotal players who spell the difference between corporate success and failure. Because their performance is crucial, and because modern information technology has helped build consensus about who they are, rival organizations must compete furiously to hire and retain them. In the automobile industry, for example, this might mean bidding for an especially talented designer or a highly innovative engineer, or even, in one notorious case, a ruthlessly effective purchasing agent. Little known to the buying public, these individuals often enjoy superstar status in their respective industries.

The markets in which they toil have become an increasingly important feature of modern economic life. They have permeated law, journalism, consulting, medicine, investment banking, corporate

management, publishing, design, fashion, and even the hallowed halls of academe. And, although many of the examples we cite are drawn from an American context, the forces that give rise to winner-take-all markets are also at work in other industrial economies—indeed, even in countries in the earliest stages of economic development.

The revolution in electronic communications and data processing, for example, has transformed labor markets not just in the United States, the United Kingdom, France, Germany, and Japan, but also in China, India, Brazil, and Indonesia. The same kinds of trade agreements that have brought workers in Toronto into direct competition with workers in Chicago have also brought workers in Kyoto into direct competition with workers in Munich and Johannesburg. And each year a growing share of people in all these places will read books by the same authors, see films by the same directors, and buy clothing by the same designers.

Winner-take-all markets have already wrought profound changes in economic and social life. And because many of the forces that create these markets are intensifying, even more dramatic changes loom ahead. Some of these changes are for the better. Consumers clearly gain, for example, when modern technology allows the most talented people to serve ever wider audiences. Once the compositor's work is done, a renowned author's manuscript costs no more to reproduce than a hack's. Once the world's hospitals are linked by high-speed data transmission networks, the world's most gifted neurosurgeons can assist in the diagnosis and treatment of patients thousands of miles away—patients whose care would otherwise be left to less talented and less experienced physicians.

But winner-take-all markets also entail many negative consequences, and these will be our primary focus. Winner-take-all markets have increased the disparity between rich and poor. They have lured some of our most talented citizens into socially unproductive, sometimes even destructive, tasks. In an economy that already invests too little for the future, they have fostered wasteful patterns of investment and consumption. They have led indirectly to greater concentration of our most talented college students in a small set of elite institutions. They have made it more difficult for "late bloomers" to find a produc-

tive niche in life. And winner-take-all markets have molded our culture and discourse in ways many of us find deeply troubling.

Growing Income Inequality

Despite a flurry of denials from Bush administration officials when burgeoning income inequality first made headlines in the late 1980s, there is now little doubt that the top U.S. earners have pulled sharply away from all others. For example, the incomes of the top 1 percent more than doubled in real terms between 1979 and 1989, a period during which the median income was roughly stable and in which the bottom 20 percent of earners saw their incomes actually fall by 10 percent.⁴

Growing inequality is by no means confined to the United States. In the United Kingdom, for example, the richest 20 percent earned seven times as much as the poorest 20 percent in 1991, compared with only four times as much in 1977.⁵ The British gap between males with the highest wage rates and those with the lowest is larger now than at any time since the 1880s, when U.K. statistics on wages were first gathered systematically.⁶

As in other times and places, the growing gap between rich and poor has increasingly strained our bonds of community. The top earners are richer now than ever before, yet few among them can feel proud of the social environment we have bequeathed to our children.

Despite a recent spate of books on income inequality, there remains little consensus about why it has grown so sharply. Some commentators mention changes in public policy, citing the Reagan-Thatcher program of tax cuts for the wealthy and program cuts for the poor. Others emphasize the decline of labor unions, the downsizing of corporations, and the growing impact of foreign trade. Still others—notably former Harvard president Derek Bok in his widely discussed book *The Cost of Talent*—mention imperfect competition and cultural factors. Bok sees powerful elites who are insulated from competition and able to set their own terms in a world increasingly unrestrained by inhibitions about greed.

We will argue that the runaway salaries of top performers have not resulted from the policy changes of the Reagan-Bush and Thatcher-

Major administrations, or from the decline of labor unions. Expanding trade, along with cultural forces, may have played a role, but only a supporting one. And if any one thing is certain, it is that growing income inequality has not resulted from any weakening of competitive forces.

On the contrary, global and domestic competition have never been more intense than now. Our claim is that the explosion of top salaries has stemmed largely from the growing prevalence of winner-take-all markets, which, we will argue, is tied closely to the growth of competitive forces. We will describe changes that have made the most productive individuals more valuable, and at the same time have led to more open bidding for their services.

In professional sports, for example, the most productive athletes have become more valuable because of the large influx of television revenue. What is more, owners of sports teams are now forced to compete with one another for the most talented athletes because of "free agency"—athletes' freedom to choose which teams to play for, which resulted from the string of legal decisions that struck down earlier restrictions on mobility. The result has been that much of the new revenue has found its way into the salaries of top players. The San Francisco Giants offered Barry Bonds a \$43,750,000 contract in 1992 not because team owner Peter Magowan was stupid but because Bonds's presence helped fill the stands and land a more lucrative TV contract.⁷ Bonds was a free agent when he signed with the Giants, and making him a smaller offer would have risked losing his drawing power to a rival bidder.

Growth in productivity of the top performers and the more open bidding for their services have occurred for different reasons in different markets. In broad terms, however, the story in other winner-take-all markets largely resembles the one we have seen in professional sports. Disney CEO Michael Eisner was paid more than \$200 million in 1993 not because he duped shareholders but because he delivered an unprecedented increase in the company's value at a time when the mobility of chief executives has made them increasingly like the free agents of professional sports. And Danielle Steel gets \$12 million apiece for her novels not because conglomerate publishing houses have deep pockets and limited business acumen, but because she

sells millions of copies. If Dell/Delacorte had failed to bid accordingly for her manuscripts, Steel could simply have signed with a rival publisher.

The widening gap between the winners and losers is apparently not new. Writing more than a century ago, the British economist Alfred Marshall observed that "the relative fall in the incomes to be earned by moderate ability, however carefully trained, is accentuated by the rise in those that are obtained by many men of extraordinary ability. There never was a time at which moderately good oil paintings sold more cheaply than now, and there never was a time at which first-rate paintings sold so dearly."⁸

What *is* new is that the phenomenon has spread so widely and that so many of the top prizes have become so spectacular. The lure of these prizes, we will argue, has produced several important distortions in modern industrial economies. Perhaps the most important of these involves the influence of market signals on career choices.

The Misallocation of Talent

For any nation to prosper in the face of growing international competition, it must somehow allocate its most talented citizens to its most important jobs. It must steer its best executives to the enterprises that add greatest value, its most creative scientists to the most pressing technical problems, its ablest public servants to the most important cabinet positions. If the economic collapse of the communist countries can be traced to any single factor, it is their dismal performance in these critical assignment tasks. The critics of communism were right all along: The allocation of talent by central bureaucracy is a recipe for economic disaster.

Market economies have done much better by simply letting people decide for themselves which careers to pursue. Although social critics often question the recent wave of multimillion-dollar salaries on ethical grounds, there can be no doubt that these salaries have attracted our best and brightest people. Competition for the top prizes is intense, and those fortunate enough to land them are almost invariably the survivors of a series of increasingly demanding elimination tournaments.

The aspiring major-league baseball player, for example, starts with T-ball, moves on to Little League and then, if he shows enough talent and determination, to Babe Ruth League. Only the best from Babe Ruth League can hope to start for the most competitive high school teams, and only a fraction of those players go on to the minor leagues, where formidable hurdles remain before landing a shot at the majors. Even then, most players who make it onto a major-league roster ultimately fail to land a starting berth, and only a small fraction of starters go on to become stars. As we will see, competition for top positions in other sectors of the economy is no less intense. Almost without exception, the survivors of these competitions are people of enormous talent, energy, and drive.

One of our central claims is that although the competition for top slots in winner-take-all markets does indeed attract our most talented and productive workers, it also generates two forms of waste: first, by attracting too many contestants, and second, by giving rise to unproductive patterns of consumption and investment as contestants vie with one another for top positions.

Consider first the matter of overcrowding. Winner-take-all markets attract too many contestants in part because of a common human frailty with respect to gambling—namely, our tendency to overestimate our chances of winning. Becoming a contestant in a winner-take-all market entails a decision to pit one's own skills against a largely unknown field of adversaries. An intelligent decision obviously requires a well-informed estimate of the odds of winning. Yet people's assessments of these odds are notoriously inaccurate. Survey evidence consistently shows, for example, that some 80 percent of us think we are better-than-average drivers, and that even more of us think of ourselves as more productive than the average worker.⁹ We will describe evidence that many people are similarly overconfident about their odds of prevailing in winner-take-all contests. When people overestimate their chances of winning, the number who forsake productive occupations in traditional markets to compete in winner-take-all markets will be larger than could be justified on traditional cost-benefit grounds.

It is not surprising that there are bad outcomes when people make important decisions on the basis of inaccurate information. What is

perhaps less expected is that too many contestants tend to compete in winner-take-all markets even when people have completely accurate assessments of their odds of winning.

The explanation lies in an incentive problem similar to the one that gives rise to excessive environmental pollution. In deciding whether to buy an air-conditioner, for example, people weigh the benefits of their added comfort against the cost of buying and operating it. From the individual buyer's point of view, the relevant operating expense is the cost of the electricity the machine uses. But the machine's operation also imposes an additional cost on others. The more we run the air-conditioner, the more electricity we must generate, and the more we pollute the air in the process. In the absence of regulation, individuals are free to ignore this additional cost, and most of them do so. As a result, when people are driven exclusively by market incentives, we tend to get too little clean air.

By the same token, potential contestants in winner-take-all markets generally ignore an important cost imposed on others by their entry—namely that each additional contestant reduces the odds that someone already in the contest will win. This zero-sum feature leads too many people to compete in winner-take-all markets, and too few to seek productive careers in traditional markets. Thus we will argue that our national income would be higher if some students abandoned their ambitions to become multimillionaire plaintiffs' attorneys in favor of the more modest but more predictable paychecks of electrical engineers.

The winner-take-all payoff structure encourages another form of waste in that it invites—indeed, virtually compels—competitors to take costly steps to enhance their prospects of winning. Book publishing is a lottery of the purest sort, with a handful of best-selling authors receiving more than \$10 million per book while armies of equally talented writers earn next to nothing. Under these circumstances, authors naturally jump at any chance to increase their visibility and sales. Witness, for example, this excerpt from Judith Krantz's description of her promotional tour for her best-selling novel *Scraples*:

Touring for a book—it's the literary equivalent of war. I remember my hardcover tour. I'd hit a city—say, Cleveland—at night, unpack, steam

out the clothes that were wrinkled, and, the next morning, get up at six. Because there's always an "A.M. Show," a "Good Morning Show," a "Hello Show" in every city in the country. . . . When you leave that hotel early in the morning, you have to be packed up and all checked out—the publisher has a limo to get you to the studio, and your suitcase is going to be in that limo all day while you make your sixteen different stops. Your arrival at the studio is at seven-thirty or eight, and the author invariably goes on last, but you have to be there an hour ahead of time in order to keep them from going crazy. Then, after I went on, I'd do a whole day of media in Cleveland, finishing up at six o'clock, just in time to catch a plane to Detroit, and the departure gate is *always* at the very end of the airport. You do all that day after day and enough weeks in a row, and you get so that you feel you can hardly function.¹⁰

That promotional tours like Krantz's are crucial in deciding which fifteen books make it onto the *New York Times* fiction best-seller list cannot be denied. Yet, no matter how much time and effort Krantz and other authors devote to these tours, a simple truth remains: Only fifteen books can make the list each week. Because one author moves up only if another moves down, the rewards of investing in book tours loom much larger for authors as individuals than they do for authors as a whole.

If promotional efforts involve a measure of social waste, they may also help people make marginally better decisions about which books to buy, which films to see, and so on. Many other competitive maneuvers, however, have no such redeeming feature. Consumption of anabolic steroids by professional athletes, for instance, not only does not add to social value, it almost surely diminishes it. National Football League (NFL) fans have little reason to prefer watching games in which each team's linemen average 300 pounds rather than 250. Yet the advantage to any team of having larger players than its opponent can be decisive. And so, in the absence of effective drug testing, widespread ingestion of steroids, with all the attendant health risks, is inevitable.

The incentives for authors to go on book tours and for athletes to consume anabolic steroids are much like the incentives for rival na-

tions to engage in military arms races. Each side suffers an unacceptable loss of position if it buys no arms while its rival does. Yet weaponry is costly, and when both sides buy arms, both do worse than if neither had. We will argue that winner-take-all markets spawn a host of what might be called "positional arms races," which augment the losses stemming from overcrowding.

The Contest for Elite Educational Credentials

Lawyers on Wall Street who specialize in corporate takeovers receive just a small percentage of the total amount of money involved in these transactions. But the amounts involved are often staggeringly large. The RJR-Nabisco buyout, for instance, was consummated at a price of \$25 billion. So even when forty lawyers split just one-quarter of 1 percent, we are still talking about a great deal of money for what often amounts to only a few weeks' or months' work.

When such sums are conspicuously reported in the media, bright and ambitious young people naturally ask themselves, "How can I get a job as a Wall Street lawyer?" With so many applicants vying for each entry-level opening, Wall Street firms must be extremely choosy. Even to land an interview at some firms, it is necessary to hold a degree from one of only a handful of prestigious law schools. And how does one gain admission to one of these law schools? The surest route is to have been a leading student at one of a handful of elite undergraduate institutions.

Indeed, the day has already arrived when failure to have an elite undergraduate degree closes certain doors completely, no matter what other stellar credentials a student might possess. Harvard's graduate program in economics, for example, recently rejected an applicant from a small Florida college, despite her straight-A transcript and glowing recommendations from professors who described her as by far the best student they had ever taught. Her problem was that the committee also had a file drawer full of applications from straight-A students with strong letters from schools like Stanford, Princeton, and MIT. On the evidence, the Florida applicant *might* have been as good or better than the others. But committees are forced to play the odds,

which tell us clearly that the best students from the best schools are better, on average, than the best students from lesser schools.

The nation's elite educational institutions have become, in effect, the gatekeepers for society's most sought-after jobs. Those who fail to pass through their doors often never have a chance. We will present evidence that realization of this truth has spread widely among our best and brightest high school seniors. Years ago many top students attended state universities close to home, where they often received good educations at reasonable expense to their families. Today these same students are far more likely to apply to, be accepted by, and matriculate at one of a handful of the nation's most prestigious universities, most of which are located in the Northeast. When the rejection letters from these schools are sent out each year in April, recipients increasingly have grounds for feeling downcast. Though many of them are barely seventeen, some of life's most important doors have already closed in their faces.

Of course, there are some obvious advantages to concentrating the best students in a few top schools, just as there are advantages to tracking the best students into separate classrooms in the elementary schools. But tracking also entails costs, and the central question in each case is, How much tracking is best? The debate rages on in the public schools, where the alternatives are usually a limited amount of tracking within each school or no tracking at all. But those are not the choices we face in higher education. There we must choose between tracking at the local or regional level (for example, by putting the best students into honors programs in the state universities) and tracking at the national level (by sending the best students to a small number of elite institutions). The second option is the one we are heading for, yet it is by no means clear that it dominates the first.

In recent years a number of books have lambasted the supposedly cushy working conditions of university professors. *ProfScam* author Charles Sykes offers this blustery indictment:

They are overpaid, grotesquely underworked, and the architects of academia's vast empires of waste. . . . They insist that their obligations to research justify their flight from the college classroom despite the fact that fewer than one in ten ever makes any significant contribution to their

field. Too many—maybe even a vast majority—spend their time belaboring tiny slivers of knowledge, utterly without redeeming social value except as items on their résumés. . . . In tens of thousands of books and hundreds of thousands of journal articles, they have perverted the system of academic publishing into a scheme that serves only to advance academic careers and bloat libraries with masses of unread, unreadable, and worthless pabulum.¹¹

Although much of this criticism is overblown (after all, students from around the world increasingly clamor for admission to American universities), it also contains a kernel of truth in several areas. We will argue that the objects of most severe criticism—namely growing salaries and shrinking teaching loads—are best understood as natural consequences of positional arms races in higher education.

Realizing the importance of prestige in attracting top students, schools across the country have attempted to mimic the strategy of elite universities by bidding for the distinguished and visible faculty whose research accomplishments are perhaps the most important emblems of academic distinction. In the process, a superstar phenomenon—albeit a relatively mild one—has emerged in academia: Top researchers' salaries have escalated more rapidly than those of their lesser-ranked rivals, even as the teaching loads of top faculty have shrunk. The quest for academic prestige has also motivated universities to bid aggressively for top administrators, fund-raisers, and others who have demonstrated the capacity to attract and manage resources.

In a world with unlimited resources, these developments might not be cause for concern. But we live in a world in which educational costs have rapidly been outpacing the costs of other goods and services. Undergraduate tuition at the Ivy League schools (*excluding* room, board, and other expenses)—which stood at less than \$3,000 per year in 1970—has now reached \$20,000, and similar escalation has occurred in tuitions elsewhere. Political pressure has been mounting to control these costs, but unless we understand the forces that give rise to them, we risk costly errors. Excellence in higher education is a critical source of economic advantage, and if costs are to be cut, it must be done in a way that does not compromise this advantage. The winner-take-all

perspective suggests a number of practical policy changes that might serve this goal.

Contests for Relative Position in Everyday Life

The winner-take-all markets we have mentioned so far are high-visibility arenas in which people, many with celebrity status, compete for enormous financial rewards. These contests affect the lives of ordinary citizens to the extent that they mold our system of higher education, alter the distribution of income, increase the prices of what we buy, and so on.

But there are also many other arenas in which ordinary citizens are themselves confronted directly with rewards that depend on relative, rather than absolute, performance. The ability to purchase many goods and services, for example, is constrained less by the absolute amount of one's earnings than by how much one earns relative to others. In Los Angeles most people would like to have a home with a commanding view, and yet only a small fraction—say 10 percent—of the home sites there can satisfy that demand. If each family is willing to pay the same fraction of its income for the privilege, the allocation of home sites with views will be settled by relative income alone. If everyone's income were to double, or to fall by half, the winning bidders would be the same—those with incomes in the highest ten percent.

Because many important rewards in life depend on relative, not absolute, income, people have a strong interest in seeing that their incomes keep pace with community standards. This incentive structure leads to a variety of winner-take-all contests in everyday life.

To land a job, for example, an applicant is well advised to "look good." But what, exactly, does that mean? On reflection, any realistic definition turns out to depend almost completely on context. To look good means simply to look better than most other applicants. One way to do so is to spend more than others on clothing. Since the same incentives clearly apply to all applicants, however, an escalating stand-off inevitably ensues. At leading law and business schools, many students don't dare appear for an interview wearing a suit that costs less than six hundred dollars. Yet when all students spend that amount, their attractiveness rankings are no different than if all had spent only

three hundred dollars. In either case, only one person in ten can exceed the ninetyeth percentile on the attractiveness scale.

As wasteful as escalating expenditures on clothing might seem, the stakes become even higher once cosmetic surgery emerges as a weapon in the competition to look good. Such surgery is expensive, is painful, and entails a small risk of serious side effects. Its use is increasing rapidly and, in some areas of the country, it has already become widespread. In Southern California, for example, morticians now complain that the noncombustible silicone sacks used in chin, breast, and buttocks augmentation have begun to clog their crematoria.

Although surgical enhancement of appearance often clearly serves an individual's goals, its social utility is highly questionable. Indeed, once it becomes the norm, its principal effect is merely to shift the standards that define normal appearance. Many people who would once have been described, nonjudgmentally, as being slightly overweight or having slightly thinning hair now feel increasing pressure to undergo liposuction or hair-transplant surgery.

Agreements to Limit Wasteful Competition

It would be surprising if no one had ever noticed that people and firms often find themselves embroiled in wasteful positional arms races, and more surprising still if no steps had ever been taken to curb them. People often are aware, at least implicitly, of these wasteful processes, and have implemented a host of strategies for keeping them under control. Because they function like treaties that limit military weapons, we call these strategies "positional arms control agreements."

The governmental regulations we will identify as positional arms control agreements (whether originally adopted for that purpose or not) come in many forms and apply in many arenas. These include restrictions on the top prizes that individuals may receive—such as income taxes, consumption taxes, and luxury taxes; campaign finance laws; safety regulations, both in the workplace and in product markets; regulations that limit working hours; regulations, or "blue laws," that limit retail business hours; and even laws that prohibit polygamy.

Many such limiting agreements do not involve the force of law. Re-

tail merchant associations, for example, sometimes agree collectively to limit business hours (although enforcement difficulties often lead to a breakdown of these agreements). Private and parochial schools often limit clothing expenditure by imposing uniform requirements or dress codes. Sports leagues impose roster limits, pay caps, drug bans, and revenue-sharing arrangements. And where the antitrust laws permit, industry associations often work out elaborate agreements for sharing the fruits of basic research.

Even informal social norms are sometimes employed to limit wasteful competition. We will offer this interpretation, for example, of social norms that limited the casualties from dueling in eighteenth-century Europe; of contemporary norms in many communities, especially small ones, that frown on conspicuous consumption; and of social norms that discourage cosmetic surgery and other practices regarded as vain.

Some Winner-Take-All Markets Are Worse Than Others

Our claims that winner-take-all markets attract too many resources and generate wasteful spending patterns rest on the standard economic premise that the social value of a product or service is well measured by what the market is willing to pay for it. The top prizes in many winner-take-all markets, however, significantly overstate the social value added by top performers. In these instances the tendency to attract too many resources may be greatly amplified.

The legal profession is a case in point. Without denying that lawyers perform a number of tasks that are indispensable for a well-ordered society, we note that many lawyers appear to receive salaries that far exceed their social value. This is especially the case for lawyers involved in litigation, which usually does less to create new wealth than to redistribute existing wealth.¹² As economist Kenneth Boulding once described the problem:

[F]or any individual person there is a payoff in having the best lawyer. Under these circumstances, it is not surprising that the law attracts some of the ablest minds of our society and that the payoffs for high ability are

probably as great in the law as in any other profession if not greater. If, however, we could achieve a kind of intellectual disarmament and agree that nobody would be allowed in the legal profession with an IQ above a hundred, the result would be almost exactly similar; people would still try to buy the best lawyers they could, but a valuable intellectual resource would be economized.¹³

We may suspect that when Boulding made this fanciful proposal, almost thirty years ago, he had little inkling of how attractive it might someday seem to a society ravaged by the modern tort system.

Winner-Take-All Markets and Norms of Fairness

Winner-take-all markets have implications not only for efficiency but also for norms of fairness. The economist's theory of wages, which holds that workers are paid in proportion to the value of their productive contributions, was never intended to justify market income distributions on ethical grounds. Nonetheless, many see a certain rough justice when pay is distributed on that basis, for the system rewards not only talent but also the willingness to expend effort. In winner-take-all markets, however, pay distributions will be more spread out—often dramatically so—than the underlying distributions of effort and ability. It is one thing to say that people who work 10 percent harder or have 10 percent more talent should receive 10 percent more pay. But it is quite another to say that such small differences should cause pay to differ by 10,000 percent or more. Olympic gold medalists go on to receive millions in endorsements while the runners-up are quickly forgotten—even when the performance gap is almost too small to measure: “The miler who triumphs in the Olympic Games, who places himself momentarily at the top of the pyramid of all milers, leads a thousand next-best competitors by mere seconds. The gap between best and second-best, or even best and tenth-best, is so slight that a gust of wind or a different running shoe might have accounted for the margin of victory.”¹⁴ The realization of how winner-take-all markets contribute to income inequality may affect the extent to which society tries to alter market distributions in the name of fairness.

Media and Culture in the Winner-Take-All Society

Social critics have long complained that market imperatives have degraded our culture. What these critics have consistently failed to offer, however, is a reasoned account of *why* this should be so. If the market system is the best mechanism for producing the cars and houses we want, why isn't it also best for books, movies, and television programming?

Still, it is difficult to deny that the critics have a point. The films and books that media conglomerates urge on us will all too rarely speak well of us to future generations. Consider again Judith Krantz, who in the spring of 1994 published her eighth best-seller, a romance entitled *Lovers*. Just what is Krantz urging us to read on these frantic book tours of hers? *The New Yorker's* critic Anthony Lane quoted the following sentence in support of his claim that *Lovers* was one of eight abominable books among the top ten sellers on a recent *New York Times* list: "Did his cousin Billy Winthrop also take a pair of bodyguards with her wherever she went, Ben Winthrop asked himself in mild surprise as he leaned out of his car to give his name to the guard at the gatehouse that stood squarely at the driveway entrance to Billy's estate in Holmby Hills."¹⁵ If passages like these ever find their way onto the reading list of a freshman writing seminar, it will be to illustrate what Lane describes as the difficulty of trying "to cram twice as much information into a single sentence as it was designed to bear."¹⁶

Of course, defenders of popular culture can cite counterexamples like the novels of John Le Carré, which are consistently best-sellers and yet also consistently draw praise from even the toughest critics. And there, typically, the culture debate bogs down, an apparently unresolvable quarrel over tastes.

The winner-take-all perspective suggests a possible way of moving beyond this stalemate. We start with the observation that, as social beings, people have a keen interest in reading the same books others read, and in seeing the same movies. Consider a book buyer's choice between two books that, on the available evidence, are of equal quality: Both are on subjects of interest, both have been favorably reviewed, and so on. If one of these books happens to have made the best-seller list and the other hasn't, this tends to tip the balance. After

all, we like to discuss books with friends, and a book's presence on the best-seller list means that friends will be more likely to have read it.

As we will see, this success-breeds-success feature is common in many winner-take-all markets, but never more so than in markets for popular culture. Positive-feedback effects in the marketing of books and movies mean that a big launch has become an essential ingredient in the process of becoming a hit. A book that fails to achieve large early sales quickly lands on the remainder tables, and a film that fails to open big is unlikely to survive for long in the theaters.

We will argue that it is the financial imperatives of achieving *quick* market success that have shaped popular culture in the ways that critics find so distasteful. Publishers have learned that the surest way to achieve large early sales is to promote books by authors who have already written several best-sellers. Studios have learned that the surest route to a big opening weekend is to produce a sequel to a recent hit movie. The financial incentives strongly favor sensational, lurid, and formulaic offerings; these incentives could not have been consciously designed to be more hostile to innovative, quirky, or offbeat works, whose charms generally take longer to communicate. The winner-take-all reward structure is especially troubling in light of evidence that, beginning in infancy and continuing throughout life, the things we see and read profoundly alter the kinds of people we become.

The Challenges Posed by Winner-Take-All Markets

Whereas free marketeers maintain that market incentives lead to socially efficient results, our claim is that winner-take-all markets attract too many contestants, result in inefficient patterns of consumption and investment, and often degrade our culture. If these costs are to be avoided, firms and individuals must somehow be restrained from taking advantage of readily available profit opportunities.

This does not mean, however, that detailed, prescriptive government regulation is the cure for all social ills. As conservatives have ably demonstrated, such regulations entail pitfalls all their own, often doing more harm than the problems they were designed to overcome.

The problems we attribute to winner-take-all markets stem largely

from participants' failure to take account of the costs they impose on others. In this sense these problems are much like those associated with pollution, and our experience with pollution control offers useful guidance about how best to curb the waste that arises in winner-take-all markets.

The best remedies seldom involve bureaucratic attempts to regulate behavior directly. Rather, alternative policies that require individuals to take into account the full costs of their actions have generally proved simpler, more effective, and less intrusive. Thus, a group of northeastern states eliminated a major source of environmental litter virtually overnight simply by enacting deposit laws for soft-drink containers.

Our search will be for remedies in this mold. Our goal is to discover ways to bring individual and social incentives more closely into line, at the same time preserving freedom of choice to the greatest possible degree. If there are too many attorneys and too few engineers, we are more likely to solve this problem by altering the reward structure than by trying to regulate career choices directly.

But regulation with a light touch is still regulation, and many free marketeers will object to some of the remedies we propose. To these skeptics, we concede that people have every right to seek their fortunes in winner-take-all markets. Yet in an economy permeated by these markets, there can be no general presumption that private market incentives translate self-interested behavior into socially efficient outcomes. Precisely the same logic that justifies community intervention to curb environmental pollution also supports the community's right to restructure the winner-take-all reward system for the common good.

Does Greater Equality Necessarily Reduce Growth?

In virtually every society, we hear of the "agonizing trade-off" between equity and efficiency. Conservative American economists of the supply-side school, in particular, are fond of saying that although they would not mind seeing a more progressive tax system on equity grounds, such a move would produce devastating effects on growth.

The winner-take-all perspective poses a sharp challenge to this argument. The overcrowding problem in winner-take-all markets arises because participation in these markets is misleadingly attractive to individuals. To the extent that many, if not most, of society's highest incomes are the direct result of winner-take-all processes, the effect of higher taxes on these incomes would be to reduce the overcrowding problem.

Moreover, the people most likely to drop out would be those whose odds of making it into the winner's circle were smallest to begin with. Thus the value of what gets produced in winner-take-all markets would not be much reduced if higher taxes were levied on winners' incomes; more important, whatever reductions did occur would tend to be more than offset by increased output in traditional markets. To the extent that most of society's top earners are participants in winner-take-all markets, it follows that a more progressive tax structure would not reduce but actually increase economic efficiency!

As today's young economists look back to the early years of the Great Depression, most are astonished to realize that, less than a lifetime ago, their predecessors thought that the cure for a stagnant economy was to reduce the supply of money. We now know better, of course. For several decades, the Federal Reserve has boosted the money supply at the slightest indication of an economic downturn, and this has helped keep the economy on a remarkably even keel by historical standards.

We may all hope that, one lifetime from now, economists will look back in similar astonishment at the notions that guided late-twentieth-century economic and social policy. The problem of our time is not depression but the multiple evils of rising inequality, budget deficits, and slow growth. Yet the quintessential conservative policy prescription of this era—tax cuts for middle- and upper-income people—is no more likely to cure these problems than monetary contraction was likely to cure the Great Depression. Advocates of tax cuts sometimes concede their negative impact on inequality and budget deficits, but they see these as costs worth bearing in order to stimulate economic growth.

Our claim is that this trickle-down theory simply does not apply in economies pervaded by winner-take-all markets. This is a good thing, too, for it means that the very same policies that promote both fiscal integrity and equality are also likely to spur economic growth. The time-honored trade-off between equity and efficiency is far less agonizing than it appears.

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How Winner-Take-All Markets Arise

Each spring in northern California, contestants gather for the Calaveras County Jumping Frog Competition. The current record holder is Rosie the Ribbiter, who spanned twenty-one feet, five and three-fourth inches, in three hops in 1986. Rosie competed for little more than honor, but considerably more is at stake when at about the same time each year the world's premier thoroughbreds gather at Churchill Downs for the Kentucky Derby. Jumping frogs, racehorses, milk cows, show dogs, and breeding bulls—all these animals and many more have been contestants in winner-take-all markets.

Besides animals and persons, what other kinds of contestants compete in these markets, and by what processes are the winners chosen? More fundamentally, just what *is* a winner-take-all market? And what forces give rise to these markets in the first place? We must answer these questions before we can tackle larger questions about how winner-take-all markets have transformed society.

Winner-Take-All Markets Defined

Consider this list of winners: best-seller, World Cup champion, Harvard matriculant, Rhodes scholar, first-round draft pick, clerk to a Supreme Court justice, cover girl, prime minister, host state for the

first Mercedes plant in the United States, French Open champion. What do they all have in common?

One characteristic they share is that each prevailed in a contest whose payoffs are determined by relative rather than (or in addition to) absolute performance. In tennis, for instance, how much a player earns depends much less on how well she plays in absolute terms than on how well she performs relative to other players. Steffi Graf received more than \$1.6 million in tournament winnings in 1992, and her endorsement and exhibition earnings totaled several times that amount. By any reasonable measure, the absolute quality of her play was outstanding, yet she consistently lost to archrival Monica Seles. Seles was forced to withdraw from the tour after having been stabbed in the back by a deranged fan in April 1993. In the ensuing months, despite little change in the absolute quality of her own game, Graf's tournament winnings accumulated at almost double her 1992 pace.¹

Reward by relative performance is the single most important distinguishing characteristic of winner-take-all markets. In the markets that economists normally study, by contrast, reward depends only on absolute performance. For instance, a production worker's pay—to the extent that it depends on performance at all—depends on the number of units he assembles each week, not on how his productivity compares with that of his coworkers.²

A second feature of winner-take-all markets is that rewards tend to be concentrated in the hands of a few top performers, with small differences in talent or effort often giving rise to enormous differences in incomes. Both features—reward by relative performance and high concentration of rewards—show up in economist Sherwin Rosen's description of the market for classical musicians:

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.³

As we will see in chapters 6 and 7, it is this reward-by-relative-performance feature that gives rise to many of the inefficiencies we attribute to winner-take-all markets. The fact that rewards are large and concentrated in many winner-take-all markets is of interest primarily because of its implications for income inequality. Highly concentrated rewards, by themselves, do not give rise to the kinds of inefficiencies we describe. Nor, for that matter, are winner-take-all markets the only source of income inequality. In assembly tasks for which workers are paid by the piece, for example, a small proportion of unusually productive workers may consistently earn several times more than the average worker.

Whether championship performance yields large financial rewards in a winner-take-all market naturally depends on the arena in which it occurs. In the world of sports, the most lavishly rewarded top performers are professional boxers. In 1992 alone, former heavyweight champion Evander Holyfield earned more than \$28 million. There are many other winner-take-all arenas, however, in which rewards are neither large nor concentrated. In handball, for instance, Joe Durso won eight national titles between 1982 and 1992, yet had to support himself largely through his salary as a Brooklyn schoolteacher during that period. Two-sport athlete Roy Williams, Jr., has twice been bowler of the year on the Pro Bowlers Association Tour, and during the last twenty-five years has also won six world horseshoes titles. "Horseshoes are my first love, but bowling is my job," he says. "I wouldn't be able to make good money in horseshoes."⁴

Cases in which rewards depend on relative performance but are not highly concentrated clearly cannot be major sources of inequality. Such cases nonetheless often provide useful insights into the ways winner-take-all markets function, and in later chapters we will examine how many of them affect the lives of ordinary citizens. For the most part, however, our focus will be on those winner-take-all markets whose prizes are large, both in absolute terms and in relation to the rewards contestants could have earned in alternative endeavors.

✓ like open source critical mass

Mass Markets and Deep-Pocket Markets

We see huge prizes in some winner-take-all markets because there are a multitude of buyers each with a small interest in the winner's performance. Thus, champion prizefighters earn so much more money than champion handball players because there are many more boxing fans than handball fans, and cable TV's pay-per-view makes each one an effective bidder for the champion's services. Handball fans have yet to achieve critical mass for entering the television arena.

The large incomes received by leading actors, recording stars, and best-selling authors likewise result from the willingness of a large number of buyers to pay a little more for the services of one performer rather than another. We will call markets of this type "mass" winner-take-all markets.

Large prizes in many other winner-take-all markets result from a small number of buyers who are intensely interested in the winner's performance. Examples in this category, which we call "deep-pocket" winner-take-all markets, include the markets for top painters and sculptors, for attorneys who are effective at keeping organized crime figures out of jail, and for geologists who are unusually good at finding oil.

As we will see in chapter 3, the scope of mass winner-take-all markets has grown over time relative to that of deep-pocket winner-take-all markets. But as our analysis in chapter 6 will make clear, the distributional and efficiency issues posed by these two market types are essentially the same.

We can gain additional insight into the nature of both mass and deep-pocket winner-take-all markets by examining the kinds of contestants that compete in them.

The Contestants in Winner-Take-All Markets

People and animals are not the only types of contestants in winner-take-all markets. Some of these markets, for example, involve contests between competing technologies. The rewards to different technologies typically depend not just on their absolute performance but also on how they perform relative to one another. And there are often

enormous differences in rewards even when the performance differences are very small.

Consider, for instance, the struggle to come up with a zero-emissions vehicle. California recently enacted legislation requiring that at least 2 percent of all automobiles sold in the state in 1998 emit no harmful exhaust gases. Since no manufacturer can afford to abandon a market as large as California, and since the state's environmental regulations have a history of spreading to other states, this legislation has launched a frenetic search by automakers to discover the best technology for complying. Although most research has focused on electric-powered vehicles, there are still serious technical problems with this strategy. A hydrogen-powered vehicle recently introduced by Mazda has proved sufficiently promising for the ultimate outcome to remain unclear. What is clear, however, is that the manufacturer who comes up with the best technology will be a big financial winner.

History is replete with similar winner-take-all battles between rival technologies. In electric power transmission, the contest was between alternating-current methods and direct-current methods. In video recording it was between Beta and VHS. With nuclear reactors, light-water-, gas-, heavy-water-, and sodium-cooled designs were the main competitors. Unix, Macintosh, MS-DOS, Windows, and OS-2 have been the most important rival operating systems for personal computers. And digital technology battled analog technology in the race to bring high-definition television to market.

Fashions, too, often compete in winner-take-all markets. In the world of haute couture, designers often stake their survival on conflicting hunches about hem lengths and lapel widths. And executives at General Motors likewise took a financial leap of faith when they brought out their 1958 Chevrolet, the first American car in several years that lacked conspicuous tail fins. But probably no group is more vulnerable to the whims of fashion than the entrepreneurs who compete in the market for trendy nightclubs in cities like New York. They know at the outset that most of their clientele wants to patronize only the hottest club; and they know, too, that the few clubs that ever attain that status can hope to maintain it for a matter of months at most. In all these cases, the reactions of a few critical "buyers" at an early stage can spell the difference between runaway success and failure.

Various geopolitical entities also compete in winner-take-all markets. Rival political candidates are an obvious example. State and local governments engage in winner-take-all rivalries as well. When the federal government announced its decision to construct a multibillion-dollar superconducting supercollider, twenty-five states became embroiled in a competition to persuade federal bureaucrats that theirs was the most attractive jurisdiction in which to locate the facility. Local governments likewise compete to attract and retain the large corporations and government projects that are critical to their fiscal health.

Countries at war provide another obvious example of winner-take-all rivalry, but countries are also rivals in a variety of more subtle ways. For instance, as the explosive growth of international trade and commerce has made national borders more permeable, more and more of the world's most talented professionals work outside their home countries. Many of these people eventually emigrate, to the substantial economic and cultural benefit of their new countries. As one former Fortune 500 CEO put it, "Intellectual capital will go where it is wanted, and it will stay where it is well treated."⁵ By all accounts the competition to attract these top professionals appears to have only just begun.

Languages, too, battle one another for supremacy in the global marketplace. And with English the almost certain victor in this struggle, the English-speaking countries have a leg up in their efforts to attract and retain the world's professionals.

Research universities are also contestants in winner-take-all markets. The winners capture the lion's share of the available research funding, the most distinguished faculty, and the most promising students. A National Science Foundation (NSF) graduate fellowship is one of the most prestigious honors that can be bestowed on an entering graduate student in the sciences, and almost two-thirds of the nearly seven hundred NSF graduate fellows in a recent year elected to study at just ten universities.⁶ At the time they did the research that ultimately led to their Nobel Prizes, 49 percent of American Nobel laureates were housed in just five universities: Harvard, Columbia, Rockefeller, Berkeley, and Chicago.⁷ Of course, many more than these five would be delighted to sit atop the academic pecking order. In-

deed, literally hundreds of schools are striving for precisely this goal, apparently undeterred by the fact that most of them must fail. As in any other hierarchy, room at the top is limited, and the battle to achieve and maintain academic prestige is no less intense than the winner-take-all contests we see in other arenas.

Room at the top is equally limited in arts and entertainment. People who watch *60 Minutes* on Sunday evenings are unable to watch the programs that NBC, ABC, and Fox offer in the same time slot. (Some enthusiasts imagine that they escape this constraint by taping the other offerings, only to discover that they never get around to watching the tapes.) None of us has time to see all the films, plays, or concerts available in the marketplace, or to read all the books, or to listen to all the recordings. We are forced—if only reluctantly—to pick and choose. And when choose we must, we confine our attention to the best entrants in each category. Here, too, small differences between contestants often translate into large differences in economic reward.

Athletes and athletic teams are perhaps the quintessential winner-take-all contestants. In Olympic competition, only hundredths of a second separate the top performances in swimming, sprinting, downhill skiing, and scores of other events. Yet the gold medalists in these events often go on to earn millions in endorsements, while the runners-up are quickly relegated to footnotes. In team sports the differences in rewards paid to average and top performers, although generally less extreme than in individual sports, are nonetheless often substantial.

Although the contestants in winner-take-all markets are often entities other than persons, contests with high stakes almost always generate a set of closely related contests that do involve persons. During his illustrious career as a racer and breeding stallion, Secretariat earned millions of dollars. But—although he is reported to have had a very comfortable existence by equine standards—only a small fraction of his take was ever spent on the horse's care and maintenance. Most of the balance accrued to the investors in the syndicate that owned him, to the trainers who prepared him to race, to the jockeys who guided him to victory, and not least to the breeders who brokered his winning genetic mix.

The large prizes at stake in the competition among professional

sports franchises tend similarly to be captured by a relatively small number of key personnel—talented coaches and athletes of high ability—who make winning more likely. When publishers stand to earn millions by bringing a best-seller to market, competing houses bid for celebrity authors, inventive publicists, and other people who enhance the odds of achieving best-seller status. Film studios hoping for a blockbuster bid for the best actors, screenwriters, directors, and producers. State and local governments trying to attract industry or federal facilities compete for the best consultants and lobbyists. Political parties compete for the most talented strategists and media advisers. Parties in high-stakes litigation compete for the ablest attorneys and private investigators. Corporations compete for the best CEOs, engineers, tax accountants, and advertising teams. Universities compete for the most prominent researchers, fund-raisers, and administrators. Clothing manufacturers compete for the most able designers. And so on.

These observations lead us to say that the ultimate winner-take-all contestants are persons, and throughout the book, our focus will be on winner-take-all contests in the labor market,

Processes for Determining Winners

Further insight into the nature of winner-take-all markets is afforded by a look at the processes used to select winners. These processes are as numerous and varied as the types of contestants. In some cases winners are chosen by lottery. The Federal Communications Commission (FCC), for example, has often used lotteries to allocate radio and television broadcast frequencies, and the Civil Aeronautics Board (CAB) once used them to allocate scarce landing and takeoff rights among commercial air carriers.

In addition to using lotteries, both the FCC and CAB have used auctions to select winners in the broadcasting and airline industries. The Department of the Interior uses auctions to allocate offshore oil-drilling leases. In the private sector, auctions are used to allocate book manuscripts, screenplays, racehorses, and a variety of other important ingredients in winner-take-all markets.

Other winner-take-all contests are decided by tests of skill, learn-

ing, or ability. Most athletic contests, for instance, are decided by comparing objective measures like elapsed times or numbers of points scored. Prestigious universities allocate slots among students partly on the basis of performance on the Scholastic Assessment Test (SAT), the Graduate Record Examinations, and the Law School Admissions Test. The NFL administers a battery of speed, strength, and leaping tests to prospective players.

But many other winner-take-all contests are resolved on the basis of considerably more subjective evaluations. Some athletic competitions are decided at least partly on the basis of judges' opinions, as in platform diving and figure skating. In entertainment, casting committees conduct screen tests, and record producers hold auditions. Committee evaluations are also decisive in the award of many government contracts and facilities, such as cable television franchises or the locations of military bases.

In the political arena, majority voting is by far the most common mechanism for settling contests. Voting is widely employed in other arenas as well. Corporate boards of directors elect their chairmen, university alumni elect their boards of trustees, sportswriters elect recipients of MVP awards, and so on.

One of the biggest single winner-take-all contests ever played out in the private sector culminated on November 19, 1985, when a Texas jury awarded Pennzoil more than \$10.5 billion in damages against Texaco for interfering in Pennzoil's attempt to acquire Getty Oil.⁸ Judges, juries, and other officers of the courts are increasingly the mechanism for settling winner-take-all disputes in the American economy.

Few moviegoers will ever forget the scene from *The Godfather* in which the uncooperative film producer awakens to find himself in bed with the severed head of his favorite thoroughbred. Coercion is a principal weapon in organized crime's efforts to acquire and maintain control over illicit enterprises. On a much larger scale, warfare has always been an important mechanism in the contests between nations.

For our purposes, perhaps the most important of all procedures for settling winner-take-all contests are the ordinary workings of the competitive marketplace. In the time-honored tradition, consumers vote with their wallets to determine who wins and who loses.

With any of these processes, winners sometimes emerge after a single trial, as with those who win the state lottery. More generally, however, society's biggest winners reach the top only after a long process of successive elimination or cumulation. Before even applying for their first faculty positions, for example, future Nobel laureates will generally have competed successfully for admission to the best undergraduate and graduate schools; and having landed a post at a top research institution, they must then compete for research grants and for the right to publish their findings in the leading journals. Only then does their competition begin in earnest.

We gain a clearer understanding of winner-take-all markets by seeing the kinds of contestants that compete in them and the kinds of processes used to choose winners. But to gain real understanding of how winner-take-all markets function, we must examine the various forces that give rise to them in the first place.

Sources of Winner-Take-All Markets

Most people who have ever suffered through an introductory economics course remember, at least dimly, that the prices and quantities of goods exchanged in the marketplace are governed by the forces of supply and demand. Some winner-take-all markets arise because of special conditions on the supply side—forces that influence costs of production. Other winner-take-all markets arise because of special conditions on the demand side—forces that influence the amounts buyers are willing to pay. Still others involve a combination of supply- and demand-side forces.

Production Cloning

On the supply side, the ultimate source of a mass winner-take-all market is that the services of the best performers can be reproduced, or "cloned," at low additional cost. For example, once the master recording has been made, it costs no more to transcribe the best soprano's performance onto a compact disc than it does her understudy's. Once the film is in the canister, it costs no more to make an additional print of an Academy Award winner than a B western. Once the television cameras have been set up, it costs no more to broadcast a tennis

match between the first- and second-ranked players in the world than it does to broadcast a match between the 101st and the 102nd. If the best performers' efforts can be cloned at low marginal cost, there is less room in the market for lower-ranked talents.

More generally, whenever there are economies of scale in production or distribution, there is a natural tendency for one product, supplier, or service to dominate the market. The battle is to determine which one it will be.

Network Economies

On the demand side of many markets, a product becomes more valuable as greater numbers of consumers use it.⁹ A vivid illustration is VHS's defeat of the competing Beta format in home video recorders. VHS's attraction over the initial versions of Beta was that it permitted longer recording times. Though Beta later corrected this deficiency and on most important technical dimensions came to be widely regarded by experts as superior to VHS, the initial sales advantage of VHS proved insurmountable. Once the number of consumers owning VHS passed a critical threshold, the reasons for choosing it became compelling—variety and availability of tape rentals, access to repair facilities, the capability to exchange tapes with friends, and so on.

IBM's MS-DOS format capitalized on a similar network economy. Its initial sales advantage gave software writers a strong incentive to write for the IBM operating system. The resulting software inventory gave people a good reason for choosing IBM-compatible products even after otherwise superior machines began to appear in the marketplace. And for many years, the density of IBM's sales and service network enabled it to withstand competition from much cheaper clones.

The attraction of a dense network of sales and repair facilities is often decisive in the auto industry as well. The French manufacturer Peugeot, for example, recently abandoned the American market because its declining dealer network made it prohibitively costly to attract new buyers.

Network economies are especially relevant in the choice between alternative modes of communication. For example, the value to any individual of having telephone service, a fax machine, or a hookup to an electronic mail system depends strongly on the number of others

who possess the same technology. Network economies will also be decisive in the competitions between the disc and tape modes of digital audio recording. And technological compatibility is of such importance in the contest between digital and analog systems in high-definition TV that most governments are likely to allow broadcasting in only one format.

Network economies, however, are by no means confined to issues of technological compatibility. For example, one valuable part of the experience of reading a book is discussing it with a friend who has also read it. If a book has been widely reviewed and discussed in the media, people have more reason to read it than they would an otherwise identical book that has not received this attention. Similar considerations apply to movies, plays, music, spectator sports, and a host of other interactive consumer activities.

In all these processes, small differences at the early stages of competition can prove decisive. Whether magazines and other newspapers review a novel, for example, is sometimes influenced by whether it has already been reviewed favorably or displayed prominently in the *New York Times Book Review*:

Many of its readers are in the business—bookstore owners, agents, editors, paperback houses, other publishers. A good part of the advertising in the pages of the *Book Review* is intended not so much for the individual reader as for these other players, and for motion-picture and TV-entertainment companies. A prominent ad in the *Times* is a way to let them all know about the existence of a “big book” or a “publishing event”; indeed, some authors insist that their contracts be written to include the promise of advertisements in the *Times*. The same people who say they fear and resent the *Times*’s authority over books thus contribute to the power of the *Book Review*.¹⁰

One novel may reach the best-seller list while another of equal or higher quality lands on the remainder tables just because the *Times* happened to send the second book to an unsympathetic reviewer.

Lock-in Through Learning or Investment

Economist Brian Arthur has described another process by which an initial winner is likely to have a cumulative advantage in subsequent

rounds of the contest.¹¹ But whereas the network-economies story plays out on the demand side of the market, Arthur's story plays out on the supply side. He starts by observing that when there are competing technologies in a new industry, the rate at which each of them is improved is related to its prevalence in use. Technologies that are more widely used in the early stages thus tend to attract a disproportionate share of research-and-development efforts, and this in turn leads to even more widespread adoption. Arthur labels this process "lock-in through learning," and cites the nuclear reactor technology competition of the 1950s and 1960s and the U.S. steam-versus-gasoline-car competition in the 1890s as examples.¹²

In the same vein, Arthur offers the example of competing transport modes to illustrate how small differences in early investment patterns often produce large differences in final outcomes:

[I]n most countries road and rail are to some degree substitutes as alternative modes of transportation. Each mode is self-reinforcing in that the more heavily it is used, the more funds become available for investment in capital improvements that attract further users. Therefore, one mode may achieve dominance at the expense of the other. But reversing this or trying to assure a balance may require a significant subsidy to the weaker mode to bring it level with the advantage accumulated by the dominant mode.¹³

Sociologist Robert K. Merton and others have pointed to similar forms of "path dependency" in the careers of scientific researchers.¹⁴ Graduates of the best undergraduate schools are more likely to be admitted to the best graduate programs than others who are only marginally less talented; and the highest-ranked Ph.D.'s who emerge from those programs are more likely than their near peers to obtain faculty jobs at the best universities. The lighter teaching loads and more generous research support offered by the best universities in turn make it more likely that the initial research efforts of these scholars will succeed and attract the attention of other scientists. Success at this level breeds further success in the form of research grants, invitations to important conferences, and so on. Merton calls this phenomenon the "Matthew effect,"¹⁵ after the verse in the Book of Matthew that reads, "For unto everyone that hath shall be given, and he shall have abun-

dance; but from him that hath not shall be taken away even that which he hath."

Other Self-reinforcing Processes

Network economies and lock-in through learning are just two of many processes that involve positive-feedback effects—processes in which success breeds success. The competition among universities for scarce slots atop the academic pecking order is another such process. As sociologists Paul Kingston and Lionel Lewis note, "Prestige is a somewhat amorphous asset. Yet, for all the shadings of eliteness, there is remarkable continuity and consistency—among raters and over time—in the rankings of undergraduate schools."¹⁶ A group of perhaps three dozen schools consistently dominates the rankings in college guides and news magazines. The evidence suggests that the perceived quality of a university is closely related to the achievement levels of its faculty, students, and alumni.¹⁷ This means that any initial improvement in quality, whatever its source, will make it still easier to attract top students and faculty, which in turn will yield still further improvements in reputation. Commenting on the University of Pennsylvania's campaign to broaden its market and improve its image during the early 1980s, Provost Thomas Ehrlich noted, "The wonderful thing is that the more successful you are, the more successful you are. The more you hear Penn is the institution of choice, the more you want to come."¹⁸

Producers in the for-profit sector show similar awareness of how strongly perceptions of success can influence purchase decisions. Thus Ford Motor Company's 1993 Taurus was reported to have become the largest-selling car in the United States because of Ford's tactic of offering unusually deep discounts on sales to rental-car companies. In terms of sales to individual consumers—arguably a much better benchmark of a car's appeal—Honda's Accord retained top status. But that didn't prevent Ford from touting Taurus in its ads as "the number-one selling car in America."

The market value of being perceived as the sales leader is also apparent in other industries. It helps explain why the manufacturers of WordPerfect recently filed suit to prevent Microsoft from calling its rival product, Word, "the most popular word-processing program in

the world.”¹⁹ And for several years now, Visa has spent millions on advertisements emphasizing that whereas its card is accepted “everywhere you want to be,” many merchants “don’t take American Express.”

Strong positive feedback effects also influence career paths in entertainment and business. Casting directors, for example, often have little objective basis for choosing among the hundreds of talented but unknown actors who audition for a minor film role. But once a particular actor has been chosen and has performed according to expectation, directors have good reason to favor him in the future, for he has now become a known commodity.²⁰ Similarly, personnel committees often have little basis for choosing between applicants for entry-level management positions. But those candidates who are chosen at this early stage will often be in a much better position to move forward than their near peers who were not chosen. In all such cases a small initial advantage can eventually engender a nearly insurmountable lead.

Decision Leverage

One measure of the importance of any individual decision is the number of people who are affected by it. Thus the maxim: “When a sergeant makes a mistake only the platoon suffers, but when a general makes a mistake the whole army suffers.” For the person in the top position of a large decision-making hierarchy (CEO, ship’s captain, Supreme Court justice, and so on), a small difference in the quality of even a single decision can translate into an enormous difference in the value of final output. Consider a CEO who must decide which of two new products will be produced by his Fortune 100 firm. Even though the product chosen may account for only a small share of the firm’s total sales, making the right choice could easily mean several million dollars of added profit. Thus, if the top contenders for the CEO position are distinguishable with respect to the quality of the decisions they are likely to make in office, then the competitively determined salary of the best candidate can be dramatically higher than for the second best, even when the estimated difference in their talents is very small.

Natural Limits on the Size of the Agenda

Some winner-take-all markets arise because of cognitive limitations on the part of buyers. In many product markets, we are either unable to, or we simply choose not to, keep track of a host of similar competing products. Psychologist G. A. Miller has surveyed evidence suggesting that people have difficulty processing lists that contain more than seven items.²¹ To simplify our lives, we remember the relevant details of at most a few products in each category. As sociologist William J. Goode has put it:

Each person's investment or concern in a given field (even his or her own) is limited. Most people are satisfied to know the names of a few baseball players, scientists, bartenders, sculptors, or political figures. Ordinary group conversations do not continue for long on any one of these topics, and all parties are satisfied in making a small number of evaluative remarks about them. If everyone admired completely different "heroes" in each activity, they could not all hold an adequate or satisfying conversation. Consensus about a few leaders is itself a source of pleasure in informal talk among friends.

Indeed, if we examine the conversations of any subgroup, whether a neighborhood gathering, a family dinner, or a group of women, it is clear that only a few names come into prominence, and only those of high evaluation or notoriety are discussed at length. That is; in both a psychological and temporal sense, people do not possess sufficient time and energy—enough "shelf space"—to focus on any but the top competitors.²²

Mental-shelf-space limitations help explain why, for example, a tennis player like Andres Gomez—for many years ranked in the top ten worldwide and winner of the 1989 French Open—earned little from endorsement contracts in the United States and Western Europe, where he was consistently overshadowed by higher-ranked players like Stefan Edberg, Boris Becker, and Jim Courier. As virtually the only member of the set of world-class Ecuadorian professional athletes, however, he was a celebrity of the first rank in his native country.

Consider the case of *Gray Eagles*, a first novel by American author Duane Unkefer that flopped in the United States but spent three months on the best-seller list in Canada. Unkefer himself was puzzled,

saying that although he had written "a good book, an adventure story, a love story, a thriller," it was not about hockey or ice fishing or any other subject that ought to have appealed particularly to Canadians.²³ Although his American publisher, William Morrow, spent much more than it usually does on publicity for a first novel, the book never broke out of the flock to engage the attention of the U.S. media. The generally slower pace of the Canadian media market, however, enabled the book's Canadian publisher to arrange a five-city promotional tour with dozens of broadcast and print interviews. This tour, which could never have been set up in the United States for an unknown author, got *Gray Eagles* onto the Canadian readers' agenda. And since the book was such a good read, that was all it took.

Mental-shelf-space limitations also seem to help explain why fewer golfers than tennis players achieve celebrity status in the United States, even though television consistently devotes many more hours of coverage to golf than to tennis. Most professional tennis tournaments take place in a single-elimination format played over four to seven rounds, with the top players matched against lower-ranked players in the early rounds. Golf tournaments, by contrast, are decided by cumulative stroke totals over several rounds and are not set up to favor top players. It is thus much more likely that a lower-ranked player will win in golf than in tennis. For example, the PGA top earner, Greg Norman, won only two of nineteen tournaments in 1986, and, on the women's side, the LPGA top earner, Pat Bradley, won only five of twenty-six. By contrast, Ivan Lendl won seventy-four of eighty matches and nine of the fifteen tournaments he entered that year; Martina Navratilova won eighty-nine of ninety-two matches and fourteen of seventeen tournaments.²⁴ The failure of a handful of consistent winners to emerge on the PGA tour may also help explain the relative popularity of the senior men's tour, which showcases a limited number of better-known older players, such as Arnold Palmer and Jack Nicklaus.

In all cases the value of winning a spot on the agenda depends on how much effort is required to maintain that position once achieved. As in the case of political office holders, incumbents in other arenas often enjoy a clear advantage.

Habit Formation, or Acquired Tastes

Winner-take-all markets sometimes arise because of aspects of human nature that traditional economic analysis tends to ignore. A standard assumption in economics is that the more we consume of something, the less we are willing to sacrifice to obtain more of it. In many cases this assumption is well founded: A thirsty man, for instance, is willing to pay more for his first pint of water than for his third. Yet there appear to be important exceptions to this pattern. For example, a new style of music that irritates on first hearing often grows much more appealing after repeated listenings. As psychologist David Berlyne writes: "Particular harmonic or melodic practices are considered objectionable and proscribed at one period; they stir up protest when a few innovators begin to adopt them; they are then regarded as acceptable and enjoyable."²⁵

Similarly, we initially dislike some foods that go on to become favorites once we get used to them.²⁶ Few smokers report having liked the taste of their first cigarette, and most Scotch drinkers say it took them awhile to acquire a taste for it.

Habit formation and acquired tastes often help to concentrate demand on a handful of top performers. During the early 1990s, the *MacNeil/Lehrer Newshour* almost always turned first to David Gergen and Mark Shields for commentary as major news stories unfolded. Arguably many others were just as knowledgeable about domestic political affairs. But viewers grew accustomed to hearing from Gergen and Shields on such occasions, and many were bitterly disappointed when Gergen left to join the Clinton White House.²⁷

Of course, the preference for the familiar is not absolute. In his discussion of musical innovation, for example, Berlyne goes on to observe that, once they have won acceptance, many innovations wear out their welcome and in the end are regarded as "banal and insipid."²⁸ More accurately, then, we might say that people prefer the "familiar but not too familiar." Such a preference might help to explain the rapid turnover in those segments of arts and fashion—MTV videos, for instance—in which exposure to the top performers is intensely repetitive.

The importance of habits and acquired tastes points to another rea-

son that history matters. It also suggests an underlying rationale for the phenomenon of brand loyalties, whose intensity often appears to transcend all narrowly economic measures of costs and benefits.

Purely Positional Concerns

Another aspect of human nature that gives rise to winner-take-all markets is our tendency to value many goods not just according to their absolute properties, but also according to how they compare with the goods consumed by others. Such goods have sometimes been called status goods, but we prefer the more neutral and general term "positional goods," coined by the late economist Fred Hirsch.²⁹

Sometimes the demand for positional goods reflects pure status seeking. But positional demands are often important even when buyers are not consciously aware of any desire to keep up with the Joneses. We may find satisfaction in driving a fast car that handles well, for example, even if we have no interest in an auto race with our neighbors. Yet qualities like speed and handling are inescapably relative. Today a fast sedan is one that will accelerate from zero to sixty miles per hour in less than seven seconds. In 1925, by contrast, a car was considered fast if it would *eventually* reach sixty. No matter which era we consider, however, only a limited number of cars can attain superlative status in any category. Thus, if the elapsed times in acceleration tests were suddenly to rise by half for every automobile, the owner of a Porsche 911 Turbo would still derive the same satisfaction as before from driving one of the fastest cars on the road.

By its very nature, the demand for top rank can be satisfied by only a limited number of products in any given category. And this, together with the fact that people are often willing to pay substantial premiums for top-ranked products,³⁰ often gives rise to intense winner-take-all competitions between the aspiring suppliers of those products.

Even consumers who profess no interest in consumption comparisons per se will nonetheless often have much at stake in how their consumption compares with that of others. This is especially true when people care what others think of their ability. For example, attributes like intelligence or productivity are only imperfectly observable, and job seekers in particular stand to lose much if evaluators

underestimate them. Hence their interest in *relative* consumption, for in competitive markets, there is a positive correlation between ability and earned income and in turn between earned income and observable consumption items like clothing, automobiles, and houses. An investment banker, for example, would be ill advised to wear a polyester suit when meeting an important client for the first time.

Gifts and Special Occasions

Similar issues arise in connection with gift giving and the celebration of special occasions. As economist Richard Layard once put it, in a poor society a man can prove to his wife that he loves her by giving her a rose, but in a rich society he must give a dozen. To celebrate a special occasion, people search not for an average restaurant meal or bottle of wine but for ones that are special. As New York restaurateur Alan Stillman describes this phenomenon: "On any given day in New York, hundreds of major business deals are closed, deals worth millions of dollars. On any given day, dozens of people get big promotions, huge law fees or court settlements. When they celebrate at a dinner or lunch, cost literally is no object. They order the most expensive wines we have."³¹ A 1982 Château Petrus for four hundred dollars a bottle? No problem. But although every vintner and every restaurateur would be delighted to be chosen on celebratory occasions, only a limited number can ever attain that status. With gifts, likewise, the rule of thumb is that the more important the occasion, the more we plan to spend. And as before, the emphasis is on relative quality: We give two ounces of Russian caviar, not forty pounds of frozen whitefish costing the same amount; one silk undergarment, not an equivalent dollar purchase of Fruit of the Loom cotton underpants. A young man gives his fiancée a half-carat diamond, not the thirty-carat garnet that he could buy for the same money, and so on. In each of these cases, the result is to concentrate demand on a handful of top suppliers.

Avoidance of Regret

The demand for a front-rank product or service may also stem from a desire to avoid regret over possible adverse outcomes attributable to having bought less than the best. Thus when you buy the highest-rated brand of tires, you needn't second-guess yourself when you have an

accident caused by a blowout. One leading manufacturer banks on precisely this motive when it spends millions on television ads showing a baby sitting atop a tire as the voice-over urges viewers to “buy Michelins because so much is riding on your tires.”

Similarly, the manager who hires the blue-chip consulting firm insulates herself from the criticism she would face if a regulatory issue were decided adversely. Sometimes choosing the premium consultant may be warranted because of the high stakes of the contested issue. But even when the stakes are not high, managers will often want to be able to cover themselves by having done everything possible in the event of an unfavorable outcome. In genuinely high-stakes arenas, this pressure to hire the best can be all but irresistible:

“Imagine yourself a producer in charge of a very, very expensive film,” said a top composer connected to a network of successful producers, a freelancer who had worked with some of the biggest people on some of the most expensive films in the seventies. “You could shop around and see who’s good but not expensive,” he explained, “but if your picture goes down the drain, the people who are working with you, and the people in charge, say, of distribution at Disney, Universal, Fox—wherever—will scream, ‘Idiot, why didn’t you get the best?’ So there’s pressure to hire a name.”³²

The pressure to “hire a name” is a demand-related source of winner-take-all markets not just in entertainment, but in many other arenas as well.

Concentrated Purchasing Power

Another important demand-related source of winner-take-all markets stems from the concentration of great wealth in the hands of a few individuals. The wealthiest 1 percent of American families holds roughly 37 percent of the nation’s total wealth.³³ These people are able to bring great resources to bear on behalf of outcomes they care strongly about, and this often gives rise to what we have called deep-pocket winner-take-all markets. Speaking of high-priced lawyers, for example, economist Alfred Marshall noted that “a rich client whose reputation, or fortune, or both, are at stake will scarcely count any price too high to secure the services of the best man he can get.”³⁴ Concentration of

wealth also yields winner-take-all effects in markets for paintings, sculpture, architecture, and other one-of-a-kind artistic productions.

Similar concentration exists in the distribution of valuations by organizations. Large corporations, for example, place a high value on limiting their tax liabilities. The most talented corporate tax attorneys are often able to reduce these liabilities by tens of millions of dollars, and their salaries are scaled accordingly. Regulated companies may be viewed as being in high-stakes contests with the government across an even broader front. These contests pit the skills of company lawyers and economists against those of the regulators, and the result is often intense bidding for the economists and lawyers most likely to influence their outcomes. Similar behavior is triggered by decisions about the locations of attractive government facilities, the recipients of broadcast licenses, tariffs and quotas on imports, and other forms of public largesse.³⁵

With this picture of the forces that give rise to winner-take-all markets in hand, we are now in a position to examine how the economic environment has been changing over time.

