Mind the Gap

paulgraham.com · Paul Graham · 2004-05 · source

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May 2004

When people care enough about something to do it well, those who do it best tend to be far better than everyone else. There's a huge gap between Leonardo and second-rate contemporaries like Borgognone. You see the same gap between Raymond Chandler and the average writer of detective novels. A top-ranked professional chess player could play ten thousand games against an ordinary club player without losing once.

Like chess or painting or writing novels, making money is a very specialized skill. But for some reason we treat this skill differently. No one complains when a few people surpass all the rest at playing chess or writing novels, but when a few people make more money than the rest, we get editorials saying this is wrong.

Why? The pattern of variation seems no different than for any other skill. What causes people to react so strongly when the skill is making money?

I think there are three reasons we treat making money as different: the misleading model of wealth we learn as children; the disreputable way in which, till recently, most fortunes were accumulated; and the worry that great variations in income are somehow bad for society. As far as I can tell, the first is mistaken, the second outdated, and the third empirically false. Could it be that, in a modern democracy, variation in income is actually a sign of health?

The Daddy Model of Wealth

When I was five I thought electricity was created by electric sockets. I didn't realize there were power plants out there generating it. Likewise, it doesn't occur to most kids that wealth is something that has to be generated. It seems to be something that flows from parents.

Because of the circumstances in which they encounter it, children tend to misunderstand wealth. They confuse it with money. They think that there is a fixed amount of it. And they think of it as something that's distributed by authorities (and so should be distributed equally), rather than something that has to be created (and might be created unequally).

In fact, wealth is not money. Money is just a convenient way of trading one form of wealth for another. Wealth is the underlying stuff—the goods and services we buy. When you travel to a rich or poor country, you don't have to look at people's bank accounts to tell which kind you're in. You can see wealth—in buildings and streets, in the clothes and the health of the people.

Where does wealth come from? People make it. This was easier to grasp when most people lived on farms, and made many of the things they wanted with their own hands. Then you could see in the house, the herds, and the granary the wealth that each family created. It was obvious then too that the wealth of the world was not a fixed quantity that had to be shared out, like slices of a pie. If you wanted more wealth, you could make it.

This is just as true today, though few of us create wealth directly for ourselves (except for a few vestigial domestic tasks). Mostly we create wealth for other people in exchange for money, which we then trade for the forms of wealth we want.
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Because kids are unable to create wealth, whatever they have has to be given to them. And when wealth is something you're given, then of course it seems that it should be distributed equally.
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As in most families it is. The kids see to that. "Unfair," they cry, when one sibling gets more than another.

In the real world, you can't keep living off your parents. If you want something, you either have to make it, or do something of equivalent value for someone else, in order to get them to give you enough money to buy it. In the real world, wealth is (except for a few specialists like thieves and speculators) something you have to create, not something that's distributed by Daddy. And since the ability and desire to create it vary from person to person, it's not made equally.

You get paid by doing or making something people want, and those who make more money are often simply better at doing what people want. Top actors make a lot more money than B-list actors. The B-list actors might be almost as charismatic, but when people go to the theater and look at the list of movies playing, they want that extra oomph that the big stars have.

Doing what people want is not the only way to get money, of course. You could also rob banks, or solicit bribes, or establish a monopoly. Such tricks account for some variation in wealth, and indeed for some of the biggest individual fortunes, but they are not the root cause of variation in income. The root cause of variation in income, as Occam's Razor implies, is the same as the root cause of variation in every other human skill.

In the United States, the CEO of a large public company makes about 100 times as much as the average person.
[3]
Basketball players
make about 128 times as much, and baseball players 72 times as much. Editorials quote this kind of statistic with horror. But I have no trouble imagining that one person could be 100 times as productive as another. In ancient Rome the price of slaves varied by a factor of 50 depending on their skills.
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And that's without
considering motivation, or the extra leverage in productivity that you can get from modern technology.

Editorials about athletes' or CEOs' salaries remind me of early Christian writers, arguing from first principles about whether the Earth was round, when they could just walk outside and check.

[5]
How much someone's work is worth is not a policy question. It's something the market already determines.

"Are they really worth 100 of us?" editorialists ask. Depends on what you mean by worth. If you mean worth in the sense of what people will pay for their skills, the answer is yes, apparently.

A few CEOs' incomes reflect some kind of wrongdoing. But are there not others whose incomes really do reflect the wealth they generate? Steve Jobs saved a company that was in a terminal decline. And not merely in the way a turnaround specialist does, by cutting costs; he had to decide what Apple's next products should be. Few others could have done it. And regardless of the case with CEOs, it's hard to see how anyone could argue that the salaries of professional basketball players don't reflect supply and demand.

It may seem unlikely in principle that one individual could really generate so much more wealth than another. The key to this mystery is to revisit that question, are they really worth 100 of us? Would a basketball team trade one of their players for 100 random people? What would Apple's next product look like if you replaced Steve Jobs with a committee of 100 random people?
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These
things don't scale linearly. Perhaps the CEO or the professional athlete has only ten times (whatever that means) the skill and determination of an ordinary person. But it makes all the difference that it's concentrated in one individual.

When we say that one kind of work is overpaid and another underpaid, what are we really saying? In a free market, prices are determined by what buyers want. People like baseball more than poetry, so baseball players make more than poets. To say that a certain kind of work is underpaid is thus identical with saying that people want the wrong things.

Well, of course people want the wrong things. It seems odd to be surprised by that. And it seems even odder to say that it's unjust that certain kinds of work are underpaid.

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Then
you're saying that it's unjust that people want the wrong things. It's lamentable that people prefer reality TV and corndogs to Shakespeare and steamed vegetables, but unjust? That seems like saying that blue is heavy, or that up is circular.

The appearance of the word "unjust" here is the unmistakable spectral signature of the Daddy Model. Why else would this idea occur in this odd context? Whereas if the speaker were still operating on the Daddy Model, and saw wealth as something that flowed from a common source and had to be shared out, rather than something generated by doing what other people wanted, this is exactly what you'd get on noticing that some people made much more than others.

When we talk about "unequal distribution of income," we should also ask, where does that income come from?
[8]
Who made the wealth
it represents? Because to the extent that income varies simply according to how much wealth people create, the distribution may be unequal, but it's hardly unjust.

Stealing It

The second reason we tend to find great disparities of wealth alarming is that for most of human history the usual way to accumulate a fortune was to steal it: in pastoral societies by cattle raiding; in agricultural societies by appropriating others' estates in times of war, and taxing them in times of peace.

In conflicts, those on the winning side would receive the estates confiscated from the losers. In England in the 1060s, when William the Conqueror distributed the estates of the defeated Anglo-Saxon nobles to his followers, the conflict was military. By the 1530s, when Henry VIII distributed the estates of the monasteries to his followers, it was mostly political.
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But the principle was the
same. Indeed, the same principle is at work now in Zimbabwe.

In more organized societies, like China, the ruler and his officials used taxation instead of confiscation. But here too we see the same principle: the way to get rich was not to create wealth, but to serve a ruler powerful enough to appropriate it.

This started to change in Europe with the rise of the middle class. Now we think of the middle class as people who are neither rich nor poor, but originally they were a distinct group. In a feudal society, there are just two classes: a warrior aristocracy, and the serfs who work their estates. The middle class were a new, third group who lived in towns and supported themselves by manufacturing and trade.

Starting in the tenth and eleventh centuries, petty nobles and former serfs banded together in towns that gradually became powerful enough to ignore the local feudal lords.
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Like serfs, the middle class made a living largely by creating wealth. (In port cities like Genoa and Pisa, they also engaged in piracy.) But unlike serfs they had an incentive to create a lot of it. Any wealth a serf created belonged to his master. There was not much point in making more than you could hide. Whereas the independence of the townsmen allowed them to keep whatever wealth they created.

Once it became possible to get rich by creating wealth, society as a whole started to get richer very rapidly. Nearly everything we have was created by the middle class. Indeed, the other two classes have effectively disappeared in industrial societies, and their names been given to either end of the middle class. (In the original sense of the word, Bill Gates is middle class.)

But it was not till the Industrial Revolution that wealth creation definitively replaced corruption as the best way to get rich. In England, at least, corruption only became unfashionable (and in fact only started to be called "corruption") when there started to be other, faster ways to get rich.

Seventeenth-century England was much like the third world today,

in that government office was a recognized route to wealth. The great fortunes of that time still derived more from what we would now call corruption than from commerce.
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By the nineteenth
century that had changed. There continued to be bribes, as there still are everywhere, but politics had by then been left to men who were driven more by vanity than greed. Technology had made it possible to create wealth faster than you could steal it. The prototypical rich man of the nineteenth century was not a courtier but an industrialist.

With the rise of the middle class, wealth stopped being a zero-sum game. Jobs and Wozniak didn't have to make us poor to make themselves rich. Quite the opposite: they created things that made our lives materially richer. They had to, or we wouldn't have paid for them.

But since for most of the world's history the main route to wealth was to steal it, we tend to be suspicious of rich people. Idealistic undergraduates find their unconsciously preserved child's model of wealth confirmed by eminent writers of the past. It is a case of the mistaken meeting the outdated.

"Behind every great fortune, there is a crime," Balzac wrote. Except he didn't. What he actually said was that a great fortune with no apparent cause was probably due to a crime well enough executed that it had been forgotten. If we were talking about Europe in 1000, or most of the third world today, the standard misquotation would be spot on. But Balzac lived in nineteenth-century France, where the Industrial Revolution was well advanced. He knew you could make a fortune without stealing it. After all, he did himself, as a popular novelist.
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Only a few countries (by no coincidence, the richest ones) have reached this stage. In most, corruption still has the upper hand. In most, the fastest way to get wealth is by stealing it. And so when we see increasing differences in income in a rich country, there is a tendency to worry that it's sliding back toward becoming another Venezuela. I think the opposite is happening. I think you're seeing a country a full step ahead of Venezuela.

The Lever of Technology

Will technology increase the gap between rich and poor? It will certainly increase the gap between the productive and the unproductive. That's the whole point of technology. With a tractor an energetic farmer could plow six times as much land in a day as he could with a team of horses. But only if he mastered a new kind of farming.

I've seen the lever of technology grow visibly in my own time. In high school I made money by mowing lawns and scooping ice cream at Baskin-Robbins. This was the only kind of work available at the time. Now high school kids could write software or design web sites. But only some of them will; the rest will still be scooping ice cream.

I remember very vividly when in 1985 improved technology made it possible for me to buy a computer of my own. Within months I was using it to make money as a freelance programmer. A few years before, I couldn't have done this. A few years before, there was no such thing as a freelance programmer. But Apple created wealth, in the form of powerful, inexpensive computers, and programmers immediately set to work using it to create more.

As this example suggests, the rate at which technology increases our productive capacity is probably exponential, rather than linear. So we should expect to see ever-increasing variation in individual productivity as time goes on. Will that increase the gap between rich and the poor? Depends which gap you mean.

Technology should increase the gap in income, but it seems to decrease other gaps. A hundred years ago, the rich led a different kind of life from ordinary people. They lived in houses full of servants, wore elaborately uncomfortable clothes, and travelled about in carriages drawn by teams of horses which themselves required their own houses and servants. Now, thanks to technology, the rich live more like the average person.

Cars are a good example of why. It's possible to buy expensive, handmade cars that cost hundreds of thousands of dollars. But there is not much point. Companies make more money by building a large number of ordinary cars than a small number of expensive ones. So a company making a mass-produced car can afford to spend a lot more on its design. If you buy a custom-made car, something will always be breaking. The only point of buying one now is to advertise that you can.

Or consider watches. Fifty years ago, by spending a lot of money on a watch you could get better performance. When watches had mechanical movements, expensive watches kept better time. Not any more. Since the invention of the quartz movement, an ordinary Timex is more accurate than a Patek Philippe costing hundreds of thousands of dollars.
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Indeed, as with expensive cars, if you're determined to spend a lot of money on a watch, you have to put up with some inconvenience to do it: as well as keeping worse time, mechanical watches have to be wound.

The only thing technology can't cheapen is brand. Which is precisely why we hear ever more about it. Brand is the residue left as the substantive differences between rich and poor evaporate. But what label you have on your stuff is a much smaller matter than having it versus not having it. In 1900, if you kept a carriage, no one asked what year or brand it was. If you had one, you were rich. And if you weren't rich, you took the omnibus or walked. Now even the poorest Americans drive cars, and it is only because we're so well trained by advertising that we can even recognize the especially expensive ones.
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The same pattern has played out in industry after industry. If there is enough demand for something, technology will make it cheap enough to sell in large volumes, and the mass-produced versions will be, if not better, at least more convenient.
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And there is nothing the rich like more than convenience. The rich people I know drive the same cars, wear the same clothes, have the same kind

of furniture, and eat the same foods as my other friends. Their houses are in different neighborhoods, or if in the same neighborhood are different sizes, but within them life is similar. The houses are made using the same construction techniques and contain much the same objects. It's inconvenient to do something expensive and custom.

The rich spend their time more like everyone else too. Bertie Wooster seems long gone. Now, most people who are rich enough not to work do anyway. It's not just social pressure that makes them; idleness is lonely and demoralizing.

Nor do we have the social distinctions there were a hundred years ago. The novels and etiquette manuals of that period read now like descriptions of some strange tribal society. "With respect to the continuance of friendships..." hints Mrs. Beeton's Book of Household Management (1880), "it may be found necessary, in some cases, for a mistress to relinquish, on assuming the responsibility of a household, many of those commenced in the earlier part of her life." A woman who married a rich man was expected to drop friends who didn't. You'd seem a barbarian if you behaved that way today. You'd also have a very boring life. People still tend to segregate themselves somewhat, but much more on the basis of education than wealth.
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Materially and socially, technology seems to be decreasing the gap between the rich and the poor, not increasing it. If Lenin walked around the offices of a company like Yahoo or Intel or Cisco, he'd think communism had won. Everyone would be wearing the same clothes, have the same kind of office (or rather, cubicle) with the same furnishings, and address one another by their first names instead of by honorifics. Everything would seem exactly as he'd predicted, until he looked at their bank accounts. Oops.

Is it a problem if technology increases that gap? It doesn't seem to be so far. As it increases the gap in income, it seems to decrease most other gaps.

Alternative to an Axiom

One often hears a policy criticized on the grounds that it would increase the income gap between rich and poor. As if it were an axiom that this would be bad. It might be true that increased variation in income would be bad, but I don't see how we can say it's axiomatic.

Indeed, it may even be false, in industrial democracies. In a society of serfs and warlords, certainly, variation in income is a sign of an underlying problem. But serfdom is not the only cause of variation in income. A 747 pilot doesn't make 40 times as much as a checkout clerk because he is a warlord who somehow holds her in thrall. His skills are simply much more valuable.

I'd like to propose an alternative idea: that in a modern society, increasing variation in income is a sign of health. Technology seems to increase the variation in productivity at faster than linear rates. If we don't see corresponding variation in income, there are three possible explanations: (a) that technical innovation has stopped, (b) that the people who would create the most wealth aren't doing it, or (c) that they aren't getting paid for it.

I think we can safely say that (a) and (b) would be bad. If you disagree, try living for a year using only the resources available to the average Frankish nobleman in 800, and report back to us. (I'll be generous and not send you back to the stone age.)

The only option, if you're going to have an increasingly prosperous society without increasing variation in income, seems to be (c), that people will create a lot of wealth without being paid for it. That Jobs and Wozniak, for example, will cheerfully work 20-hour days to produce the Apple computer for a society that allows them, after taxes, to keep just enough of their income to match what they would have made working 9 to 5 at a big company.

Will people create wealth if they can't get paid for it? Only if it's fun. People will write operating systems for free. But they won't install them, or take support calls, or train customers to use them. And at least 90% of the work that even the highest tech companies do is of this second, unedifying kind.

All the unfun kinds of wealth creation slow dramatically in a society that confiscates private fortunes. We can confirm this empirically. Suppose you hear a strange noise that you think may be due to a nearby fan. You turn the fan off, and the noise stops. You turn the fan back on, and the noise starts again. Off, quiet. On, noise. In the absence of other information, it would seem the noise is caused by the fan.

At various times and places in history, whether you could accumulate a fortune by creating wealth has been turned on and off. Northern Italy in 800, off (warlords would steal it). Northern Italy in 1100, on. Central France in 1100, off (still feudal). England in 1800, on. England in 1974, off (98% tax on investment income). United States in 1974, on. We've even had a twin study: West Germany, on; East Germany, off. In every case, the creation of wealth seems to appear and disappear like the noise of a fan as you switch on and off the prospect of keeping it.

There is some momentum involved. It probably takes at least a generation to turn people into East Germans (luckily for England). But if it were merely a fan we were studying, without all the extra baggage that comes from the controversial topic of wealth, no one would have any doubt that the fan was causing the noise.

If you suppress variations in income, whether by stealing private fortunes, as feudal rulers used to do, or by taxing them away, as some modern governments have done, the result always seems to be the same. Society as a whole ends up poorer.

If I had a choice of living in a society where I was materially much better off than I am now, but was among the poorest, or in one where I was the richest, but much worse off than I am now, I'd take the first option. If I had children, it would arguably be immoral not to. It's absolute poverty you want to avoid, not relative poverty. If, as the evidence so far implies, you have to have one or the other in your society, take relative poverty.

You need rich people in your society not so much because in spending their money they create jobs, but because of what they have to do to get rich. I'm not talking about the trickle-down effect here. I'm not saying that if you let Henry Ford get rich, he'll hire you as a waiter at his next party. I'm saying that he'll make you a tractor to replace your horse.

Notes

[1]
Part of the reason this subject is so contentious is that some of those most vocal on the subject of wealth—university students, heirs, professors, politicians, and journalists—have the least experience creating it. (This phenomenon will be familiar to anyone who has overheard conversations about sports in a bar.)

Students are mostly still on the parental dole, and have not stopped to think about where that money comes from. Heirs will be on the parental dole for life. Professors and politicians live within socialist eddies of the economy, at one remove from the creation of wealth, and are paid a flat rate regardless of how hard they work. And journalists as part of their professional code segregate themselves from the revenue-collecting half of the businesses they work for (the ad sales department). Many of these people never come face to face with the fact that the money they receive represents wealth—wealth that, except in the case of journalists, someone else created earlier. They live in a world in which income is doled out by a central authority according to some abstract notion of fairness (or randomly, in the case of heirs), rather than given by other people in return for something they wanted, so it may seem to them unfair that things don't work the same in the rest of the economy.

(Some professors do create a great deal of wealth for society. But the money they're paid isn't a quid pro quo. It's more in the nature of an investment.)

[2]
When one reads about the origins of the Fabian Society, it sounds like something cooked up by the high-minded Edwardian

child-heroes of Edith Nesbit's The Wouldbegoods.

[3]
According to a study by the Corporate Library, the median total compensation, including salary, bonus, stock grants, and the exercise of stock options, of S&P 500 CEOs in 2002 was $3.65 million. According to Sports Illustrated, the average NBA player's salary during the 2002-03 season was $4.54 million, and the average major league baseball player's salary at the start of the 2003 season was $2.56 million. According to the Bureau of Labor Statistics, the mean annual wage in the US in 2002 was $35,560.

[4]
In the early empire the price of an ordinary adult slave seems to have been about 2,000 sestertii (e.g. Horace, Sat. ii.7.43). A servant girl cost 600 (Martial vi.66), while Columella (iii.3.8) says that a skilled vine-dresser was worth 8,000. A doctor, P. Decimus Eros Merula, paid 50,000 sestertii for his freedom (Dessau, Inscriptiones 7812). Seneca (Ep. xxvii.7) reports that one Calvisius Sabinus paid 100,000 sestertii apiece for slaves learned in the Greek classics. Pliny (Hist. Nat. vii.39) says that the highest price paid for a slave up to his time was 700,000 sestertii, for the linguist (and presumably teacher) Daphnis, but that this had since been exceeded by actors buying their own freedom.

Classical Athens saw a similar variation in prices. An ordinary laborer was worth about 125 to 150 drachmae. Xenophon (Mem. ii.5) mentions prices ranging from 50 to 6,000 drachmae (for the manager of a silver mine).

For more on the economics of ancient slavery see:

Jones, A. H. M., "Slavery in the Ancient World," Economic History Review, 2:9 (1956), 185-199, reprinted in Finley, M. I. (ed.), Slavery in Classical Antiquity, Heffer, 1964.

[5]
Eratosthenes (276—195 BC) used shadow lengths in different cities to estimate the Earth's circumference. He was off by only

about 2%.

[6]
No, and Windows, respectively.

[7]
One of the biggest divergences between the Daddy Model and reality is the valuation of hard work. In the Daddy Model, hard work is in itself deserving. In reality, wealth is measured by what one delivers, not how much effort it costs. If I paint someone's house, the owner shouldn't pay me extra for doing it with a toothbrush.

It will seem to someone still implicitly operating on the Daddy Model that it is unfair when someone works hard and doesn't get paid much. To help clarify the matter, get rid of everyone else and put our worker on a desert island, hunting and gathering fruit. If he's bad at it he'll work very hard and not end up with much food. Is this unfair? Who is being unfair to him?

[8]
Part of the reason for the tenacity of the Daddy Model may be the dual meaning of "distribution." When economists talk about "distribution of income," they mean statistical distribution. But when you use the phrase frequently, you can't help associating it with the other sense of the word (as in e.g. "distribution of alms"), and thereby subconsciously seeing wealth as something that flows from some central tap. The word "regressive" as applied to tax rates has a similar effect, at least on me; how can anything regressive be good?

[9]
"From the beginning of the reign Thomas Lord Roos was an assiduous courtier of the young Henry VIII and was soon to reap the rewards. In 1525 he was made a Knight of the Garter and given the Earldom of Rutland. In the thirties his support of the breach with Rome, his zeal in crushing the Pilgrimage of Grace, and his readiness to vote the death-penalty in the succession of spectacular treason trials that punctuated Henry's erratic matrimonial progress made him an obvious candidate for grants of monastic property."

Stone, Lawrence, Family and Fortune: Studies in Aristocratic Finance in the Sixteenth and Seventeenth Centuries, Oxford University Press, 1973, p. 166.

[10]
There is archaeological evidence for large settlements earlier, but it's hard to say what was happening in them.

Hodges, Richard and David Whitehouse, Mohammed, Charlemagne and the Origins of Europe, Cornell University Press, 1983.

[11]
William Cecil and his son Robert were each in turn the most powerful minister of the crown, and both used their position to amass fortunes among the largest of their times. Robert in particular took bribery to the point of treason. "As Secretary of State and the leading advisor to King James on foreign policy, [he] was a special recipient of favour, being offered large bribes by the Dutch not to make peace with Spain, and large bribes by Spain to make peace." (Stone, op. cit., p. 17.)

[12]
Though Balzac made a lot of money from writing, he was notoriously improvident and was troubled by debts all his life.

[13]
A Timex will gain or lose about .5 seconds per day. The most accurate mechanical watch, the Patek Philippe 10 Day Tourbillon, is rated at -1.5 to +2 seconds. Its retail price is about $220,000.

[14]
If asked to choose which was more expensive, a well-preserved 1989 Lincoln Town Car ten-passenger limousine ($5,000) or a 2004 Mercedes S600 sedan ($122,000), the average Edwardian might well guess wrong.

[15]
To say anything meaningful about income trends, you have to talk about real income, or income as measured in what it can buy. But the usual way of calculating real income ignores much of the

growth in wealth over time, because it depends on a consumer price index created by bolting end to end a series of numbers that are only locally accurate, and that don't include the prices of new inventions until they become so common that their prices stabilize.

So while we might think it was very much better to live in a world with antibiotics or air travel or an electric power grid than without, real income statistics calculated in the usual way will prove to us that we are only slightly richer for having these things.

Another approach would be to ask, if you were going back to the year x in a time machine, how much would you have to spend on trade goods to make your fortune? For example, if you were going back to 1970 it would certainly be less than $500, because the processing power you can get for $500 today would have been worth at least $150 million in 1970. The function goes asymptotic fairly quickly, because for times over a hundred years or so you could get all you needed in present-day trash. In 1800 an empty plastic drink bottle with a screw top would have seemed a miracle of workmanship.

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Some will say this amounts to the same thing, because the rich have better opportunities for education. That's a valid point. It is still possible, to a degree, to buy your kids' way into top colleges by sending them to private schools that in effect hack the college admissions process.

According to a 2002 report by the National Center for Education Statistics, about 1.7% of American kids attend private, non-sectarian schools. At Princeton, 36% of the class of 2007 came from such schools. (Interestingly, the number at Harvard is significantly lower, about 28%.) Obviously this is a huge loophole. It does at least seem to be closing, not widening.

Perhaps the designers of admissions processes should take a lesson from the example of computer security, and instead of just assuming that their system can't be hacked, measure the degree to which it is.