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the CATO JOURNAL

VOLUME 35 NUMBER 3 • PUBLISHED BY THE CATO INSTITUTE • FALL 2015

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THE CATO JOURNAL is listed in *Cabell's Directory*, *Journal of Economic Literature*, *Current Contents/Social and Behavioral Sciences*, *America: History and Life*, *Historical Abstracts*, *International Political Science Abstracts*, and the ABI/INFORM database.

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THE MYTH OF DYNASTIC WEALTH: THE RICH GET POORER

*Robert Arnott, William Bernstein,
and Lillian Wu*

Thomas Piketty's *Capital in the Twenty-First Century* rocketed to the top of the best-seller lists the moment it was published in 2013, and remained there for months. While this feat is quite remarkable for a weighty tome on economics, it's no mystery why Piketty's magnum opus created such a sensation; it is clearly articulated, is accessible to the non-economist, and contains a trove of historical insights.

We believe Piketty's core message is provably flawed on several levels, as a result of fundamental and avoidable errors in his basic assumptions.¹ He begins with the sensible presumption that the return on invested capital, r , exceeds macroeconomic growth, g , as must be true in any healthy economy. But from this near-tautology, he moves on to presume that wealthy families will grow ever richer over future generations, leading to a society dominated by unearned, hereditary wealth. Alas, this logic holds true only if the wealthy never dissipate their wealth through spending, charitable giving, taxation, ill-advised investments, and splitting bequests among multiple heirs. As individuals, and

Cato Journal, Volume 35, No. 3 (Fall 2015). Copyright © Cato Institute. All rights reserved.

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¹In addition to the lively debate about Piketty's core message, there has been vigorous discussion of the data sources used by Piketty where some have challenged the validity of data in Piketty's book. See Feldstein (2014), London (2014), and Reynolds (2014) for more discussion on the subject. We do not engage this topic here.

as families, the rich generally do not get richer: after a fortune is first built, the rich often get relentlessly and inexorably poorer.

The evidence Piketty uses in support of his thesis is largely anecdotal, drawn from the novels of Austen and Balzac, and from the current fortunes of Bill Gates and Liliane Bettencourt. If Piketty is right, where are the current hyper-wealthy descendants of past entrepreneurial dynasties—the Astors, Vanderbilts, Carnegies, Rockefellers, Mellons, and Gettys? Almost to a man (or woman) they are absent from the realms of the super-affluent. Our evidence—used to refute Piketty’s argument—is empirical, drawn from the rapid rotation of the hyper-wealthy through the ranks of the Forbes 400, and suggests that, at any given time, half or more of the collective worth of the hyper-wealthy is first-generation earned wealth, not inherited wealth.

The originators of great wealth are one-in-a-million geniuses; their innovation, invention, and single-minded entrepreneurial focus create myriad jobs and productivity enhancements for society at large. They create wealth for society, from which they draw wealth for themselves. In contrast, the descendants of the hyper-wealthy rarely have that same one-in-a-million genius. Bettencourt, cited by Piketty, is a clear exception. Typically, we find that descendants halve their inherited wealth—relative to the growth of per capita GDP—every 20 years or less, without any additional assistance from Piketty’s redistribution prescription.

Dynastic wealth accumulation is simply a myth. The reality is that each generation spawns its own entrepreneurs who create vast pools of entirely new wealth, and enjoy their share of it, displacing many of the preceding generations’ entrepreneurial wealth creators. Today, the massive fortunes of the 19th century are largely depleted and almost all of the fortunes generated just a half-century ago are also gone. Do we really want to stifle entrepreneurialism, invention, and innovation in an effort to accelerate the already-rapid process of wealth redistribution?

Piketty’s Core Thesis

The central thesis of Piketty’s book is his prediction that the problem of unequal wealth distribution will worsen in the 21st century, further exacerbating the economic divisions between society’s haves and have-nots. This is where his biases lead him astray. We agree that inequality in wealth distribution has intensified in the recent past, but we dispute Piketty’s rationale for its source and its persistence, as well as his

contention that it is a problem in need of fixing. Piketty devotes the largest portion of his book to a treasure trove of historical and geographical time-series on income and wealth distributions. Curiously, however, he ignores his own data, basing his predictions and prescriptions primarily on what he calls the two “fundamental laws of capitalism.”

The first “law” states that capital’s contribution to national income, denoted as α , can be expressed as

$$(1) \alpha = r\beta$$

where r is the return on capital and β is the capital-to-income ratio, a measure of the capital intensity in a given society. This relationship is intuitively obvious; if a nation’s capital is 600 percent of national income (or the equivalent of six years of national income), and if the real return on that capital is 5 percent, then the portion of national income earned from capital will be 30 percent.

The classical estimate of capital’s contribution to national income is 10 percent to 15 percent. Piketty’s estimate of α is higher, for two reasons. First, his definition of capital is very broad, including not only investment capital, but also productive industrial assets, real estate, and even public assets, such as highways and national parks. Second, and more importantly, Piketty’s approximation of r , while perhaps correct in the distant past, is irrelevant in today’s low-yield world—but more on that later.

Although Piketty’s first fundamental law is self-evident (it is, after all, purely a definition), his second “law” is less intuitive. The ratio of capital to income, β , is defined by:

$$(2) \beta = s/g$$

where s is the savings rate and g the real growth rate of the aggregate economy. For example, with a savings rate of 12 percent and an economic growth rate of 2 percent a year, long-run capital accumulation will eventually expand to 600 percent of national income. The higher the savings rate and/or the lower the labor force growth and/or the lower the productivity growth, the higher the β . The equation expresses a dynamic whose consequences can play out over decades.

The relationships represented in Piketty’s second law have important implications in a world of slower macroeconomic growth. Our research, and the research of many others, suggests that future economic growth will slow considerably due to two demographic headwinds. First, labor force growth in the developed world

has already slowed sharply, even reversing in some developed economies. Second, the global labor force is aging. Because productivity growth occurs at a much faster pace for young adults than for mature adults who are approaching peak levels of productivity, an older workforce means fewer productivity gains. A slowdown in productivity growth is already underway in the developed world, and it is only a matter of time—roughly one generation—before the emerging economies suffer the same fate: sooner in China and Russia, later in India. If growth is halved, then, *ceteris paribus*, aggregate capital must double as a multiple of income, unless r falls even further than g , either as a consequence of demographic pressures or in parallel with demographic shifts.²

Over the last 125 years or so, the global capital-to-income ratio, β , has ranged between a low of about 200 percent following the devastation wrought by two world wars and a global depression, and today's high of roughly 600 percent, the level also reached during the *belle époque*, or robber baron, period of the late 19th century. Piketty asserts β is going even higher from here, to 700 percent by the year 2100.³ His claim is based on his estimates of the factors of β —economic growth and the savings rate. He forecasts that annual real growth in global output will decline by half from the current 3.0 percent to 1.5 percent in the second half of the 21st century. We agree with his expectations of slower growth. But we have to disagree with his net savings rate assumption of a constant 10 percent. Is his presumption of a fixed savings rate not a rather heroic assumption, given the objective evidence of recent decades?

In Piketty's eyes such a high capital-to-income ratio is cause for alarm. Why so? Piketty is repelled by a high β because a society's total capital, or wealth, is almost always much more unevenly distributed than its income, and a record-high β means a larger pool of

²One of the authors has closely studied the impact of demography on GDP growth and on capital market returns; our work suggests that these demographic pressures will serve to reduce both growth and asset class returns. In Arnott and Chaves (2012), the relative impact of demography is more stark for asset class returns than for GDP growth. Therefore, we reject the conclusions that Piketty draws from his anecdotal evidence. However, we should acknowledge that the pending demographic changes are wildly "out of sample": they represent demographic profiles never seen in human history, so these demographic shifts may play out in surprising ways. Models based on past data will be unreliable guides to the future.

³The net savings rate is savings net of capital depreciation and depletion.

wealth will soon be disproportionately enjoyed by the wealthiest members of society. By way of example, Piketty posits that in 2010 the share of earned income of the top 1 percent of American workers was 17.4 percent, whereas the top wealthiest 1 percent owned a 33.8 percent share of total societal wealth.

Elementary finance, though, tells us that this matters little: A doubling of capital wealth due merely to a doubling of valuation, and so to a doubling of the concentration of capital, leaves these 1 percenters with no increase in the income earned on their capital. Incredibly, in Piketty's narrative, the return on capital, r , is insensitive to wealth accumulation, so capital's contribution to income, α , is largely driven by the capital-to-income ratio, β (Piketty 2014: 206).⁴ Indeed, to those of us who manage investments, it evokes incredulity to assert that, if the return on capital were halved, a concurrent doubling of β would not change the respective rewards to labor and capital. In fact, in our view, *these precise realignments in rewards can almost entirely explain the growing wealth inequality of the past 30 years.*

If slower demographic growth coupled with slower productivity growth would not reduce the return on capital, then Piketty would be correct that an increasing gap between capital returns and growth ($r - g$) would feed directly into a society's wealth inequality. Because g has been falling in developed nations, Piketty fears that wealth inequality may grow to dangerous levels. His fear—shared by Occupy Wall Street and similar groups—is one manifestation of a perceived widening of the social divide. The increasing attention given to this fear and the socioeconomic agendas fueled by it were important catalysts for our decision to pursue the research we present here, into the objective evidence for or against Piketty's dynastic wealth narrative.

This fear seems to us based on an invalid counterfactual. In fact, slower growth *will* affect the return on capital; this is a core assumption in modern finance, amply supported by empirical evidence.

Having mentioned Piketty's ideological bias, we must now come clean about our own. One of us (Arnott) is a free-market libertarian

⁴Piketty admits that r may have fallen and acknowledges that the more capital we throw at something, the lower its marginal return. But he returns to the idea of a 5 percent real return repeatedly, as if it's a quasi-constant. It's nowhere near that today, and has been at that level only at extreme market lows in recent decades (Arnott and Bernstein 2002).

and a reluctant Republican, the second (Bernstein) is a registered Democrat who is quite comfortable with a vigorous government role in many economic spheres, and the third (Wu) is a centrist Republican and Berkeley graduate born in communist China. Most would acknowledge the moral imperative of a humane response to poverty, which requires some economically efficient redistribution from the haves to the have-nots. The tension is, as always, between doing too little to help those who *cannot* help themselves and doing so much that inadequate incentive remains to properly reward innovation, invention, hard work, and entrepreneurial risk-bearing, or worse, an incentive to do nothing.

In addition, we believe a secondary tension exists between voluntary redistribution (charity) and involuntary redistribution (entitlement programs). At the risk of being provocative, the difference between Ayn Rand and Karl Marx can be distilled down to their respective definitions of the optimal amount of, and the central government's role in, redistribution.

What “ $r - g$ ” Can Investors Expect?

To his credit, Piketty recognizes that classical theory mandates that, as societal wealth increases, the return on capital, r , must fall as a result of supply and demand pressures as well as the decreasing return to marginal capital investment. And there he stops. But r also falls for at least two other reasons. First, increased longevity decreases investors' impatience for immediate consumption and increases their need to prepare for distant future consumption. Second, in recent centuries, the cost of intermediation has tumbled, increasing the attractiveness of, and decreasing the liquidity premium for, capital assets.

These are not small points. Piketty repeatedly references a 5 percent rate of return on land and government bonds, as described in the 19th-century novels of Balzac and Austen, almost as if it were a physical constant.⁵ Only one reference to Homer and Sylla's (2005)

⁵In 1997, one of us posed the question, “In the 2,001 years since the supposed date of the birth of Christ, if one had invested a single dollar [1/350th of an ounce of gold at that time] at 5 percent compounded real return, how much wealth would one now possess?” The answer was that this investor would now own a sphere of gold larger than the earth's orbit around the sun, growing at nearly 10,000 miles in diameter per day. While earning 5 percent real return may be possible, growing wealth intergenerationally at that rate, over long spans of time, is clearly impossible (Arnott and Bernstein 1997).

encyclopedic *A History of Interest Rates*, the go-to source for the serious observer of the evolution of capital returns over the broad sweep of history, appears in Piketty's tome. He makes no mention at all of the contemporary work of Philippe Jorion and William Goetzmann (1999); William Schwert (1990a, 1990b); John Campbell and Robert Shiller (1989); or Elroy Dimson, Paul Marsh, and Mike Staunton (2002) regarding realized returns in the 19th, 20th, and early 21st centuries.

Had he paid attention to these sources, Piketty would have noticed that over the past five millennia r has fallen from near triple-digit rates to the dramatically less than 5 percent rate of today. Jane Austen's heroes and heroines may have feasted on 5 percent consols, but already by the end of the 19th century that rate had fallen to 2 percent. In a world of fiat currencies, the modern equivalent of Austen's consol is the inflation-linked bond (in the United States, these bonds are called TIPS). At the present time, if the issuer has negligible risk of default, ultra-long TIPS typically yield approximately 1 percent.

Another oversight is Piketty's disregard for the fact that past returns on stocks and other real assets, especially in recent decades, have benefited immensely from rising valuation multiples and falling yields. As with bonds, rising valuation multiples and falling yields in equities, real estate, and other assets deliver higher current returns in exchange for lower future returns. As already mentioned, this has been the key, and generally overlooked, driver of the growing wealth gap in recent decades: financial assets are owned by the wealthy. As valuation multiples soar and yields tumble, the liquidation value of the assets of the wealthy soars, but their forward-looking returns on those assets tumble. This bears repeating yet again: If PE ratios double and dividend yields fall by half, the objective spread between the wealth of the affluent and the general public seems to have doubled, but the sustainable long-term spending on those assets has not changed by one iota. The gap in spendable wealth is unaltered.

Piketty ignores the current landscape of expected real stock and bond returns, and he presumes that the affluent can readily find 5 percent real returns on passive investments. Really? Five percent? We wish! With stocks priced to generate a real return of about 3 percent (at this writing, a 1.8 percent dividend yield in the United States, plus, if the last century is a guide, a 1.3 percent growth of real per-share dividends), and 10-year Treasury bonds offering a near-zero

real return, an overall portfolio r of 2 percent seems optimistic for those who conventionally invest in mainstream stocks and bonds, even assuming they pay no taxes or fees.⁶ Piketty's dissociation from real-world capital market returns becomes most obvious when he takes the 5 percent rent-to-purchase-price ratio of Paris flats as present-day confirmation of this value of r , as if French landlords are absolved from paying property taxes and utilities, let alone any expenses for renovations and maintenance.

In both our and Piketty's views, g has been falling for long-term secular reasons that are unlikely to reverse. And to the serious observer of forward-looking capital market return expectations, r has fallen even further and faster,⁷ contributing hugely to capital market investors' recent lofty returns, raising the value of capital assets, and aggravating the soaring wealth inequality that so troubles Piketty and many others. If U.S. stocks were trading at the same dividend yield or Shiller P/E ratio as they were in 1982, the inaugural year of the Forbes 400, the S&P 500 Index would be trading at around 600 as of this writing, not 2,000, and wealth inequality would be correspondingly less impressive.

What of Piketty's Static Savings Rate?

A constant and positive net savings rate implies that the capital accumulation in any given economy, *net of capital depreciation and depletion*, is equal to a constant fraction of the national income every single year. Therefore, when economic growth slows drastically, Piketty's second fundamental law could require up to 100 percent of the national income to be devoted to investment in order to maintain his assumption of a constant and positive net savings rate. This level of capital reallocation is without historical precedent, and we hope

⁶Arnott and Bernstein (2002) showed that annual real dividend growth in the United States, for broad market portfolios, has averaged less than 1 percent per year over the past 200 years. Bernstein and Arnott (2003) showed that the U.S. growth rate of 1.3 percent per annum since 1900 was on the high end of the global range.

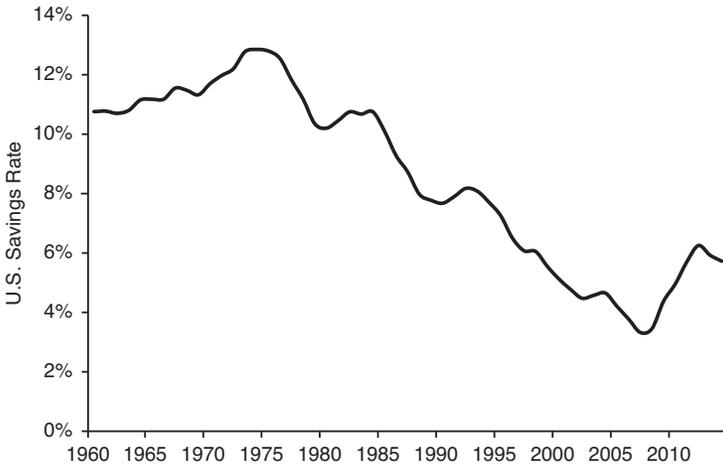
⁷Piketty argues that r is not sensitive to changes in g due to the high (greater than 1) elasticity of substitution between capital and labor; an assumption which not only conflicts with the vast body of economic theory, but also, as Acemoglu and Robinson (2015) point out, lacks empirical support. Rognlie (2014) shows the gap between r and g is likely to *shrink* when using standard empirical estimates of elasticity.

even Piketty’s most fervent enthusiasts would agree that it is implausible. Certainly, U.S. history over the past half-century suggests that a static savings rate is not realistic, as Figure 1 shows. As labor force longevity has increased, economic growth has slowed, and reliance on entitlement programs has grown, savings have inexorably declined—albeit with a meaningful savings rate “reset” in the wake of the 2008 global financial crisis.

We are not the only researchers who have challenged Piketty’s presumption of a static savings rate. Rognlie (2014) suggests that the net savings rate, s , is unlikely to be exogenous and invariant to changes in the growth rate, g . Krusell and Smith (2014) derived net savings rate formulations based on neoclassical growth models. Their formulation shows that the net savings rate varies positively with the growth rate, and when the growth rate falls to zero, the net savings rate has to be zero.

Piketty further claims that the combination of a constant and positive savings rate and a declining economic growth rate will cause the capital-to-income ratio, β , to explode, leading to increasingly unequal

FIGURE 1
U.S. SAVINGS RATE AS A PERCENTAGE OF INCOME,
1960–2014, SMOOTHED



SOURCE: Research Affiliates based on Federal Reserve Bank of St. Louis, FRED Database.

wealth distribution. But if the net savings rate declines when growth deteriorates—as history shows it is apt to do—the capital-to-income ratio could just as easily shrink as rise. We shall soon see that Piketty's prognostications of soaring dynastic wealth concentration cannot and will not come to pass.

The Implausibility of Positive Dynastic r

We are impressed with Piketty's data on the growing inequality of wealth ownership. No thoughtful observer of socioeconomic developments could disagree that today's wealthiest 1 percent have a larger share of the pie, across much of the developed world, than the affluent of past decades. A powerful bull market in equities since 1975 will have this effect and the reciprocal effect of lowering the r that those assets can produce in the future.

Piketty is mistaken to extrapolate this inequality into a hereditary, dynastic social structure. He justifies his contention with a single deeply flawed argument: the widening gap between real return on capital, r , and real economic growth, g . Over the last four decades, realized real returns have been outsized, due to that self-same massive bull market, but forward-looking returns have tumbled for the very same reason. As two of us observed (Arnott and Bernstein 2002), there is an immense difference between short-term realized returns, heavily influenced by changing valuation multiples, and long-term expected returns, which is the r that matters in Piketty's world. Piketty ignores the fact that rising asset prices benefit those who own the assets—the rich—at the cost of sharply lower future real returns. Let's examine his assumption of lofty intergenerational r leading to dynastic wealth concentration.

Piketty sensibly points out that investors will invest if they can reasonably expect r greater than g , though extended periods in which realized returns fall short of economic growth pepper the historical record. Piketty neglects to specify that the r that matters, in order for dynastic wealth to accumulate, is the r *net of taxes, spending, division among heirs, charitable giving, and other methods of depletion*. His error in this regard is both trivial in its flagrancy and profound in its importance.

Lucky indeed was the sensible consol investor of the 19th century who benefited from a gold standard and zero inflation, never needing to spend principal. Before the Industrial Revolution, the

pronounced gap between return on capital (at times, 5 percent, though not without default risk) and real economic growth (on average, approximately 0 percent) allowed an investor to live comfortably on investment income and to pass uneroded wealth—tax-free, even—typically to the first-born son. But today the situation is markedly different. Wealth suffers many indignities, by which it is rapidly and unceremoniously depleted.

Piketty turns a blind eye to this reality when he focuses his argument for an explosion of inherited, dynastic wealth on the more than 10-fold increase between 1990 and 2010 in the real fortunes of two billionaires, Bill Gates and heiress Liliane Bettencourt. Reading such folderol made us want to place an emergency call to the cherry-picking police.⁸ Is it not possible that the ability of Gates and Bettencourt's father to accumulate wealth was due to extraordinary business acumen, which brought widely sought new products to millions of customers?

And Piketty—seemingly ignoring the ebullience in the financial markets over these two decades—counts the 10-fold increase in Gates' and Bettencourt's wealth as net savings even though it was largely due to rising valuations. Does Piketty really believe that the 22.9 percent annualized return of Microsoft over the 20-year period (or even the 8.5 percent annualized return of the CRSP U.S. Total Market Index over the same period) is in any way indicative of the future return on capital and hence of the future return on the accumulated wealth of the top 1 percent?

Very rare indeed is the family whose growing fortune is due to a positive savings rate—that is, the ability to accumulate further capital on their own. Take, as a counterexample, the Vanderbilt family. When the family converged for a reunion at Vanderbilt University in 1973, not one millionaire could be found among the 120 heirs and heiresses in attendance. So much for the descendants of Cornelius Vanderbilt, the richest man in the world less than a century before. Had Piketty managed money for rich clients, he would understand why the downward trajectory of the Vanderbilt fortune is a far more common scenario for multigenerational wealth.

⁸Even more curious is the choice of Gates to support the alarming growth of wealth dynasties, because Gates' heirs will be much less wealthy than he. Gates has announced he will be giving away most of his wealth.

Impediments to dynastic wealth have always existed. Today, they are legion. So, how is dynastic wealth eroded? Let us count the ways:

1. *Low Security Returns.* As previously mentioned, the 5 percent real return estimate that Piketty repeatedly references is, especially today, quite optimistic. Piketty believes that advanced money management tools, such as hedge funds, alternative investments, and private equity, will enable the elite to garner returns higher than those available to the huddled masses invested in their pitiful index funds.

An entrepreneur through innovation, invention, and risk-bearing in a wealth-creating business may have a shot at elevated returns, but an average arms-length investment in mainstream stocks, bonds, and REITs—the modern equivalents of Piketty’s consols and real estate—offer no realistic prospects of beating, by much, the returns that mom-and-pop investors can earn.

The hyper-wealthy, in our experience, can outperform mainly by avoiding the fad-chasing behavior of the masses, rather than seeking lofty returns from unconventional methods. A willingness to pursue modest return increments is often short-circuited by the very fact that these opportunities are uncomfortable when they are most likely to be profitable. Those who believe otherwise generally fall prey to knaves and do not remain hyper-wealthy for very long.

2. *Investment Expenses.* The brokerage and real estate management fees paid by Austen’s and Balzac’s characters are unknown to us, but we do know that today’s wealthy pay a nice chunk of change to bank trust companies, “wealth management” experts, estate attorneys, and the like—a lot of fingers are constantly dipping into the wealth pie.
3. *Income and Capital Gains Taxes.* Taxes on income and capital gains were not levied to any significant degree during the 19th century, but they consume a large fraction of pretax real return today. The modern investor is even taxed on the inflation component of return, an indignity that Balzac’s and Austen’s characters could not have imagined.
4. *Performance Chasing and Poor Investment Decisions.* This source of wealth erosion is nothing new. As documented by

Charles Mackay in the 19th century, neither wealth nor intelligence confers protection against foolish investment decisions (Kinnel 2005, 2014).⁹

5. *Charitable Giving*. Encouraged by the tax benefits associated with donating wealth, charitable giving has become a competitive sport amongst the hyper-wealthy.
6. *Hedonic Readjustment Borne on Technological Progress*. Productivity growth and human nature mandate that a return on wealth equal to inflation is not adequate. How many of us would be happy with the median standard of living from a century or even a half-century ago?
7. *Breeding*. Our intensive first-hand research inescapably supports the idea that people like to breed. Piketty's beloved Austen and Balzac characters certainly were fruitful and they multiplied, compelling each successive generation to watch as its comfortable £1,000 annual income was halved or worse, unless, of course, another family's income stream could be appropriated through marriage. We observe that today's affluent continue to breed, so that each generation's fortune should approximately halve.¹⁰
8. *Estate Taxes*. In contrast to Piketty's gilded era, present-day estate taxes exact a substantial toll on family wealth, that is, if a modern plutocrat would even dare to award his or her undiluted estate to progeny.
9. *Costly Estate and Tax Battles*. Rather than the novels of Austen and Balzac, Piketty would have benefited from reading Dickens' *Bleak House*, which describes how legal fees inexorably consumed a patrimony. It bears mention that tax authorities pay special attention to the wealthy, pursuing perceived tax infractions at great expense (in time, money, and distraction from their task of earning more taxable income) to the affluent.

⁹In his seminal white paper, Kinnel (2005) showed that U.S. mutual fund time-weighted returns beat the mutual funds' dollar-weighted returns (actually enjoyed by the funds' investors) by an average of 2.8 percent a year due largely to investors' passion for chasing past winners and shunning recent losers. A 2014 study by JP Morgan and Dalbar Inc. suggests that the average investor earned 2.5 percent from 1994 to 2013 versus 9.2 percent for the S&P 500 and 5.7 percent for bonds, suggesting a 5 percent annual shortfall relative to a 60/40 portfolio. Some have challenged the methodology, hence the results. But we know of no studies that fail to show a shortfall.

¹⁰Even in Japan, South Korea, and Singapore where fertility rates are around 1.3, a 25 percent dilution in wealth in every generation is to be expected.

We applaud the successful pursuit of tax abuse, but we hear less about the abusive pursuit of legitimate tax management.

10. *Spending*. And lest we forget, heirs *spend*—sometimes a lot.

Suppose Piketty is right and the elite can, indeed, earn a 5 percent real return on their invested assets. If each of the aforementioned 10 factors costs an average of just 1 percent a year of return, the “dynastic” r , or retained r , is *minus* 5 percent. This force cuts real net worth in half every 14 years and closer to 70 percent over each generation. As we shall see, this is the norm among the hyper-wealthy. In our collective experience, among mere multimillionaires, an average cost of 2 percent or more—*per factor each year*—is closer to the truth, in which case hereditary wealth evaporates faster than a puddle in the Sahara.¹¹

We can think of no better metaphor for the evaporation and generational fissuring of hereditary wealth than the sorry fate of the Rokeby estate, currently occupied by the tenth and eleventh generations of Astor heirs who are scattered among the complex’s rabbit warren of shabby apartments and whose “occupations” include organic farming, puppet making, and memoir writing. The career of the estate’s current patriarch, Richard Aldrich, educated at Johns Hopkins and Harvard, was summed up by his younger brother thusly: “You’ve never worked a day in your life” (Aldrich 2013: 51; Green 2013). A small trust fund, coupled with paying boarders and documentary producers, provides for a semblance of upkeep, but the grounds have likely seen their last generation of Astors.

This rapid fading of hereditary wealth corresponds, more or less, to what we’ve observed on the front lines of money management. A majority of our clients acquired their wealth the old-fashioned way, building wealth through innovation, invention, and business acumen. Whereas a substantial minority did inherit, in no case was that wealth transmitted beyond two generations. Some of our clients’ offspring will wind up in “the 1 percent,” but very few of their grandchildren will. Let’s turn from Piketty’s (and our own) anecdotal evidence to the empirical evidence found in the evolution of the many vast fortunes of the Forbes 400.

¹¹This is one area where the hyper-wealthy do have an advantage. A family with \$20 million of inherited wealth can dissipate it in no time at all. A family with \$1 billion or more would need to work much, much harder to waste it all in a decade or two!

The Forbes 400

As Piketty points out, the Forbes 400 list is far from a perfect measure of the wealth accumulation of society's most affluent; nonetheless, Piketty references the list to demonstrate how wealth concentration has increased over the last three decades. According to Forbes 400 data, the share of billionaires' private wealth has risen from 0.4 percent in 1987 to 1.5 percent in 2012 (Piketty 2014: 432–36). Piketty sees the growth in the threshold for extreme wealth and naively assumes that it's the same people getting richer; nothing could be further from the truth.

Figure 2 illustrates how the wealth cutoff—in both nominal terms and in 2014 dollars—for the Forbes 400 has steadily risen since the list began in 1982. Achieving membership in the Forbes 400 in its inaugural year required an estimated net worth of \$75 million; in 2014, a net worth of \$1.5 billion was needed to make the cut. Even net of inflation, the price of admission rose 8-fold over the 32 years since the list has been published.

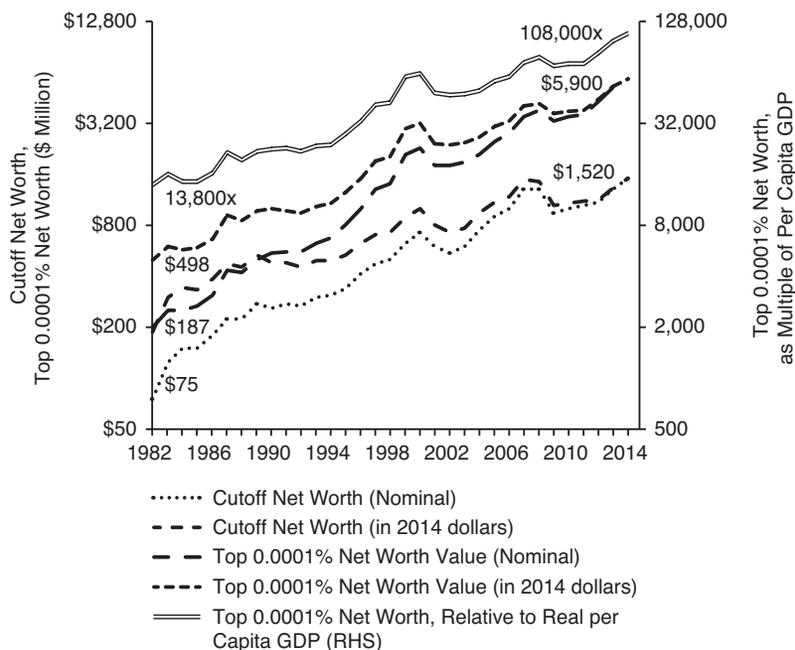
The Forbes 400 contains slightly more than one one-millionth of the U.S. population. We can thus normalize these results for population growth, to a constant share of the U.S. population.¹² In 1982, when the U.S. population totaled 231 million, Stephen Bechtel, with a net worth of \$200 million (\$498 million in 2014 dollars), ranked 231st on the list. He, and everyone above him on the list, can be considered the one-in-a-million. In 2014, when the U.S. population had reached 318 million, Ray Lee Hunt ranked 318th on the list, boasting a net worth of \$5.9 billion. In real terms, the price of admission to one-in-a-million status rose 12-fold, from 1982 to 2014.

This observation is not inconsistent with Piketty's more formal, and inclusive, data. But are the hyper-wealthy one-in-a-million getting richer? Yes and no. As a class, they are. The top line on the graph in Figure 2 documents their progress: their wealth rose from 13,800 times U.S. per capita GDP in 1982 to 108,000 times U.S. per capita GDP in 2014.¹³ But the 32 years of the list's existence encompass the

¹²Of course, the list includes considerably more than one in a million, as almost all of the Forbes 400 represent the wealth of a family, not of an individual.

¹³One should be careful not to fall into the trap of thinking this means that, if the members of the one-in-a-million group have wealth that exceeds per capita GDP 100,000-fold, they have one-tenth of the wealth. This is a comparison of wealth with GDP, roughly akin to comparing net worth with income.

FIGURE 2
THE RICH GET RICHER:
THE GROWING WEALTH OF THE FORBES 400



SOURCE: Research Affiliates based on data from *Forbes* and Global Financial Data.

largest equity bull market (1982–2000) and the largest bond bull market (1982–2012, and perhaps beyond) in U.S. capital markets history. Greater wealth concentration over this period was a direct consequence of this dual stock-bond bull market and goes hand-in-hand with a plunge in forward-looking r , the return on invested capital.

When an individual makes a sufficiently noteworthy contribution to society—whether by invention, innovation, or entrepreneurial risk-bearing—and it hoists them into the Forbes 400, only monumental continuing achievement keeps them there. Idlers, even if in the past they were hard-working, highly competent people who played a brilliant hand, will not linger long on the list. Their wealth dissipates into society at large.

Piketty dismisses the accuracy and validity of the Forbes 400 (and other lists that rank the wealthy) because the super-affluent do not

advertise and verify the true amount of their wealth. It's a fair critique. However, it's equally fair to note that the hyper-wealthy are not that hard to find. Granted, the 1982 version of the list is suspect; the first effort will have missed many wealthy families.¹⁴ But we can reasonably assume that the accuracy of the list has improved with each passing year. *Forbes* and others will do their level best to unearth those who are secretive about their fortunes. Once found, these wealthy individuals are easy to track; consequently, their *fading* fortunes, the central feature of our analysis, are easy to document.

If dynastic wealth accumulation were a valid phenomenon, we would expect little change in the composition of the *Forbes* roster from year to year. Instead, we find huge turnover in the names on the list: only 34 names on the inaugural 1982 list remain on the 2014 list, and only 24 names have appeared on all 33 lists.¹⁵ However, as John Maynard Keynes succinctly noted, "In the long run we are all dead." Wealth, as entitling as it may be in other respects, does not offer a means of escape from this general rule. The average age of the original 1982 *Forbes* listee was 62. Many passed on—and passed on their wealth—long before 2014.

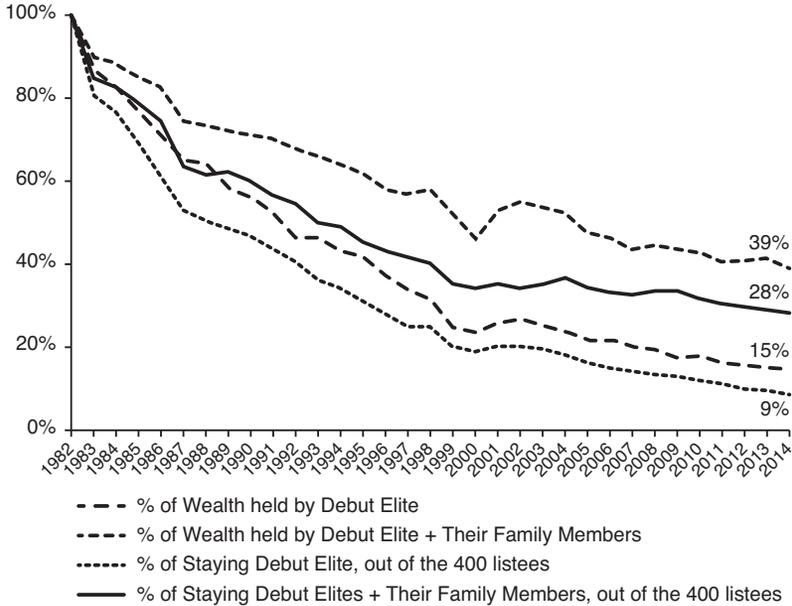
So, let's look at descendants, those with the same surname and women who retain the surname as a middle name, except for those who are clearly unrelated.¹⁶ The 2014 list includes elites and/or their descendants from 69 inaugural families, of whom only 36 inaugural families from 1982 have consistently made *all* subsequent lists. The inaugural descendants' aggregate wealth is equal to 39 percent of

¹⁴*Forbes'* first effort to compile the list was demonstrably incomplete, but not badly so. Figure 2 shows that the change in the wealth cutoff for admission to the list had its biggest year-over-year jump in 1983, yet surprisingly few of the largest fortunes were actually missed in 1982. The main oversight would appear to be the Bass family, with collective wealth of \$2.5 billion in 1983 (split five ways); followed by the Koch family, with just over \$1 billion; and the Milliken and Ford families, each with \$790 million to \$900 million (split three or four ways). It's safe to assume that they would all have made the 1982 cut had they not been "flying under the radar."

¹⁵Some debut elite were dropped from the list in certain years and reappeared in later years; therefore the number of "all-time survivors" will be less than the 34 remaining debut elite as of 2014. It also bears mention that mortality ensures that none of the debut elite will be on the 2082 list, so our assessment including heirs is more relevant.

¹⁶This method will obviously miss a modest number who marry into different last names and do not retain the family name as a middle name (as is common practice in America's elite families).

FIGURE 3
EROSION OF THE 1982 FORBES 400 WEALTH SHARE IN
SUBSEQUENT LISTS



SOURCE: Research Affiliates based on data from *Forbes*.

the total wealth represented on the 2014 list, implying that the other 61 percent is “new wealth”—fortunes newly created in the past 32 years.¹⁷ Figure 3 traces the erosion of the 1982 Forbes 400 from subsequent lists. The top line shows the proportion of the aggregate wealth held by the inaugural elite and their progeny who remained on the list in the years between 1982 and 2014. The solid line shows the number of the inaugural elite and their heirs who remained on the list in subsequent years.

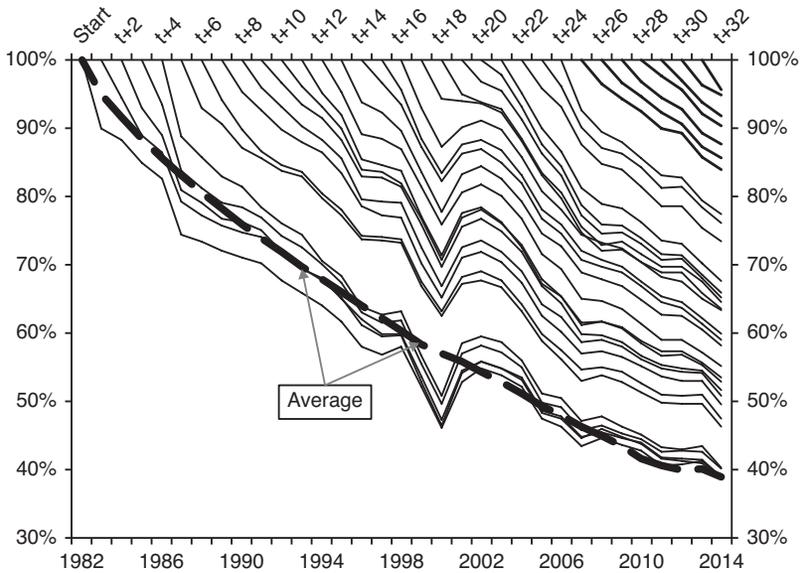
The first-year erosion of 1982 wealth was aberrantly large: 10 percent versus an average of about 4 percent. This would seem to

¹⁷Note that some family members know best to take the money and spend it, while some are gifted in creating new wealth with their share of the family fortune. Therefore, attributing 61 percent of wealth to “new wealth” could be an underestimate.

suggest that 10 percent of the wealth on the 1983 list was newly minted *in a single year*. If instead the true new wealth in 1983 was 4 percent, the same as the average year, it would indicate that the sleuths at *Forbes* may have missed a handful of hyper-wealthy in 1982, roughly 6 percent of total Forbes 400 wealth. That’s not a bad miss for the first try. It suggests that maybe the cutoff in 1982 should have been around \$100 million, not \$75 million.

The same pattern of wealth erosion, or “fall from grace,” that we saw in Figure 3 has repeated itself throughout the history of the list, as shown in Figure 4. The chart plots the percentage share of the Forbes 400 wealth held by surviving members (i.e., those remaining on the list) and their families in each year the list has been compiled. The fall from grace is essentially identical to the pattern established in 1982, with one extreme exception. Around the peak of the tech bubble in 1999 and 2000, many prior listees suddenly and dramatically fell off the list as dozens of newly

FIGURE 4
EROSION OF THE 1982–2013 FORBES 400 WEALTH SHARE IN
SUBSEQUENT LISTS



SOURCE: Research Affiliates based on data from *Forbes*.

minted tech billionaires surged on. When the tech bubble burst and the tech billionaires' wealth collapsed, some of the old-money hyper-wealthy reappeared.

If we average across all of the years, we find a remarkably stable relationship, as shown in the heavy dashed line in Figure 4, which ties to the time scale on the top of the graph. Each cohort of Forbes 400 families owns less than half of all Forbes 400 wealth just 23 years later, on average. This does not mean that the hyper-wealthy are losing 3 percent of their wealth every year. It means that the existing and established hyper-wealthy are displaced by newcomers at a rate of 3 percent of their collective wealth, each and every year. Half of the wealth of the 2014 Forbes 400 has been newly created in one generation.

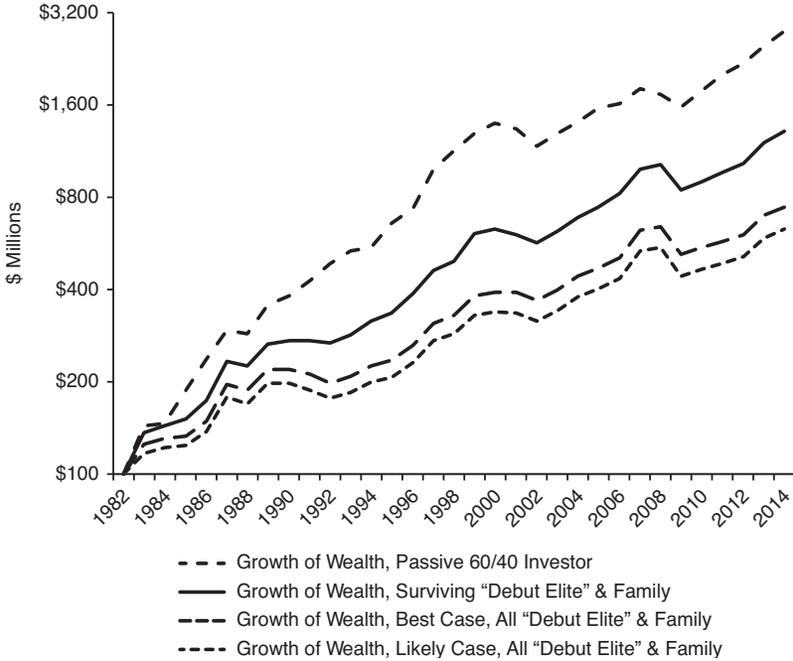
Yes, the rich have (collectively, not individually) been getting richer, but not for the reasons that Piketty rues. The reason the rich are getting richer is a combination of the newly rich creating wealth, matching the old wealth in each generation, while the older rich—over the 32-year span that we analyze—have benefited from the largest bull market in history, with rising valuations as a consequence of falling future yields on capital. Capital is *worth* more in part because it *earns* less. Falling yields deliver rising valuation multiples and rising asset prices.

We can use these same data to examine with surprising precision how quickly the rich get richer. Consider Figure 5, which compares the growth of wealth from 1982 to 2014 of a passive 60/40 investor to the growth of wealth of the list's surviving debut elite and family members as well as to the best case and likely case of the debut elite and their families.

Suppose the typical Forbes 400 family in 1982 had put their fortune into a passive portfolio, invested 60 percent in the S&P 500 and 40 percent in the Barclays Aggregate (formerly Lehman Aggregate) Bond Index.¹⁸ The top line in Figure 5 traces the return trajectory of the 60/40 portfolio. Since mid-1982, bond yields have tumbled from

¹⁸*Forbes* estimates wealth as of August of the previous year, so we're using a July 31 "fiscal year" to measure the 60/40 performance. This presumably has particular relevance for families whose wealth is measured in publicly traded stock holdings. Results are not materially different if we use calendar years, but the correlation of 60/40 returns with changes in average family wealth, for the surviving families, soars from 0.19 to 0.73 when we use this peculiar fiscal year.

FIGURE 5
COMPARATIVE RETURN SERIES:
FORBES 400 WEALTH ACCUMULATION VS. 60/40 STRATEGY



SOURCE: Research Affiliates based on data from *Forbes* and Ibbotson Associates.

the mid-teens to just over 2 percent and stock market valuations have soared from 16 years' worth of dividends (a yield of 6.3 percent) to 52 years' worth of dividends (a yield of 1.9 percent), delivering an 11.0 percent annualized real return over the 32-year period the *Forbes* 400 has been in existence. With compounding and—please humor us, as this appears to be Piketty's assumption—without spending and taxes, every \$100 million of starting wealth would have grown 28-fold, to nearly \$2.8 billion. Such is the impact of a secular bull market.

The handful of 2014 survivors from the inaugural 1982 list—just 69 families—did *less* well, growing their wealth 13-fold as depicted by the solid line in Figure 5. We can think of these 69 surviving families as the *Forbes* 400 analogues of Gates and Bettencourt, cited as

typical by Piketty. The growth in the wealth of these 69 families from 1982 to 2014 was a consequence of entrepreneurial ventures supplemented by additional innovations and inventions, not a result of clipping coupons. Over this period, these families are still led by the visionaries who created the wealth in the first place. After the visionary is gone, the progeny typically cannot fill his or her shoes, and, absent the founding entrepreneur, the family fortune inevitably evaporates.

We take two approaches to defining the wealth erosion of the 77 percent of the 297 inaugural Forbes 400 families who no longer appear on the 2014 list. An analysis of their fates is enlightening. One approach, the “best case” approach, is to truncate a family’s wealth at the cutoff point for the first year in which the family did not make the list, as if they missed being included in the list by just a dollar. The second approach, a more relevant “likely case” result, is to assign each family a return on wealth, in the year they exited the Forbes 400, that matches the average return on wealth of the families who lost ground in that year. These rates of return, products as they are of the real world, reflect the ravages of spending and taxes. For any family that failed to remain in the 400, either of these outcomes can be included through the year of the family’s departure and ignored thereafter.

When the 77 percent of non-surviving families are counted in the calculation of the growth of wealth, we find a less-than-impressive result, especially relative to the 28-fold growth that a passive 60/40 investor could have achieved. The growth in wealth of the full roster—the 23 percent who survived and enjoyed a 13-fold growth in wealth and the 77 percent who fell off the list—suggests a “best possible” average outcome of a 7-fold increase in wealth and a “most likely” average outcome of a 6-fold increase in wealth over the 32 years, shown respectively by the two bottom lines in Figure 5.

Net of spending and taxes, the most likely scenario equates to a 5.9 percent average annual growth in wealth, about 5.1 percent per year *less* than the return earned by the 60/40 investor who faces no tax or spending obligations, a return that Piketty presumes is so easy to beat. True, the 11 percent annualized return of the 60/40 portfolio exceeds Piketty’s hypothetical norm for the hyper-wealthy, but it was earned in the context of the greatest secular bull market in liquid stock and bond markets in world history. And it occurred in the

context of the greatest decline in forward-looking real capital market yields in world history.¹⁹

What does the 5 percent return shortfall relative to passive 60/40 investor (11 percent minus 5.9 percent) mean? It represents the annual *wealth transfer* from the hyper-wealthy to society at large—a direct consequence of their spending, charitable giving, paying taxes, and so forth. There is a vigorous debate about the extent to which efforts to accelerate this redistribution reduce the incentives for the next generation of entrepreneurs, inventors, and innovators to step in and achieve their own fortunes, and in so doing create their own productivity marvels, technological advances, and legions of new jobs. Redistributionists should be careful of what they wish for.

What of Piketty's thesis that inherited wealth is on the march? At least in the United States, the opposite seems true, even with a conservative definition of inherited wealth.²⁰ Indeed, with each passing generation, the 4 percent wealth erosion is, if anything, accelerating.

Over the past 32 years, an average of just 26 percent of newcomers' wealth, representing an average of just 1.5 percent of the aggregate wealth of the 400 families, was inherited; much of this wealth was subsequently dissipated. Since 2005, in terms of headcount, the silver spoon crowd has comprised just 10 percent of the newcomers and just 15 percent of the newcomers' wealth in the Forbes 400. Further, a large part of the already meager accumulation of inherited Forbes 400 assets was likely due to the historically high stock and bond returns of the past three decades. Going forward, it is likely to be even less impressive.

¹⁹A comparison is even more extreme with the S&P 500, which transformed each \$100 into just over \$4,000 in 32 years, if there was no spending or taxes. Even if all of the income is spent, if a Forbes 400 centi-millionaire in 1982, ranked 229th, simply invested in the S&P 500, such wealth in 2014 would be \$1.8 billion, growing 18-fold (nearly 6-fold net of inflation), and the investor would have enjoyed over \$400 million in pretax spending in the interim. This is even better than results for the "surviving elite and family" (13-fold) and starkly better than the overall average for the "debut elite and family" (6-fold). So much for the superior investment acumen of the super-wealthy.

²⁰We broadened the definition of inherited wealth by assuming all family members of the elite (for example, those who have the same last name) have inherited a portion of the family fortune. This has obvious "Type 1" errors, missing those heirs who lose the last name, and "Type 2" errors, failing to credit next-generation entrepreneurs for their own successes, if they happened to also be descendants of wealth.

It bears repeating: we do not dispute the growing concentration of private wealth in the coffers of the wealthiest 1 percent. We do contest Piketty's explanation of why it is happening. Were this development a result of unearned investment returns and dynastic accumulation, as postulated by Piketty, all three of us, even with our diverse political orientations, would be alarmed. But even allowing for the imperfections in the compilation of the Forbes 400, the transitory nature of the list clearly demonstrates that wealth accumulation is not primarily a product of inheritance. Rather, the accumulation is largely due to entrepreneurial activity and is redistributed within society at a measurable 4 percent annualized pace. Thus, we view the increasing pace of wealth concentration as being of much less serious societal concern.

Some of the Forbes 400 are building great fortunes. They cannot easily do so without creating greater wealth for society at large. The rest are presumably dissipating great fortunes—recycling them back to society at large—through spending and giving. It is not unreasonable to ask: What part of this picture needs fixing?

Where Are the Astors, the Vanderbilts, the Rockefellers?

Another test that the Forbes 400 data allow us to perform—albeit with gaping statistical flaws—is an examination of the legendary fortunes of yesteryear. The Forbes 400 list confirms that the Vanderbilt anecdote is more relevant to the transient nature of fortune than Piketty's reliance on the more recent fortunes of Gates or Bettencourt. Gates' wealth is estimated at approximately half of 1 percent of the nation's GDP. That's impressive. At least eight such fortunes were created in the 19th century, those of Stephen Girard, Stephen Van Rensselaer, John Jacob Astor, Cornelius Vanderbilt, Alexander Stewart, Jay Gould, Frederick Weyerhaeuser, and Andrew Carnegie. Not one has descendants listed in any of the Forbes 400 lists.

The Rockefellers, who achieved supreme wealth early in the 20th century, scored 13 seats on the 1982 *Forbes* debut list, with collective wealth of \$7 billion in inflation-adjusted 2014 dollars. As of 2014, only one Rockefeller (David Rockefeller, who turned 100 in June 2015) remains, with a net worth of about \$3 billion.²¹ The du Ponts,

²¹This figure is less than half of the wealth the family collectively owned back in 1982, and only about 1 percent of his grandfather's (John D. Rockefeller) wealth in real terms—according to Wikipedia—three-quarters of a century ago.

once owning the extraordinarily wealthy gunpowder monopoly in America, scored 25 slots on the *Forbes* 1982 list, and yet from 1999 to date not a single family member remains.

Let's move beyond anecdotal evidence, and get as scientific as the rudimentary data at our disposal will permit. In addition to the legendary names just mentioned, many other uber-rich clans have prospered throughout history. We use the various wealth lists collected and published by Kevin Phillips (2002) to build a roster of the legendary rich of past generations, which represents 76 distinct families.²²

We pose two questions, which the *Forbes* 400 history allows us to examine. First, which of these families were able to pass on dynastic wealth that lasted until 1982, let alone until today? Second, for those who survived until the advent of the *Forbes* list, and using heroically optimistic assumptions for those who did not,²³ what was the annualized rate of decay of these fortunes? Answering these two questions permits a direct assessment of the dynamism of inherited legendary wealth. Our analysis of the *Forbes* data suggests that descendants of only 29 of the 76 legendary rich families on our list²⁴ ever made it onto any of the *Forbes* 400 lists.

Based on Phillips' lists, Figure 6 shows the evolution of wealth for the top 10 families in 1918, 1930, 1957, 1968, and *Forbes*' first list in 1982. Phillips' lists comprise the 25 to 30 wealthiest Americans in each of the years for which he compiled the list. We focus on the extremes of wealth, the top 10 wealthiest families on each list.²⁵ If family wealth is divided by per capita GDP, we can trace the progress

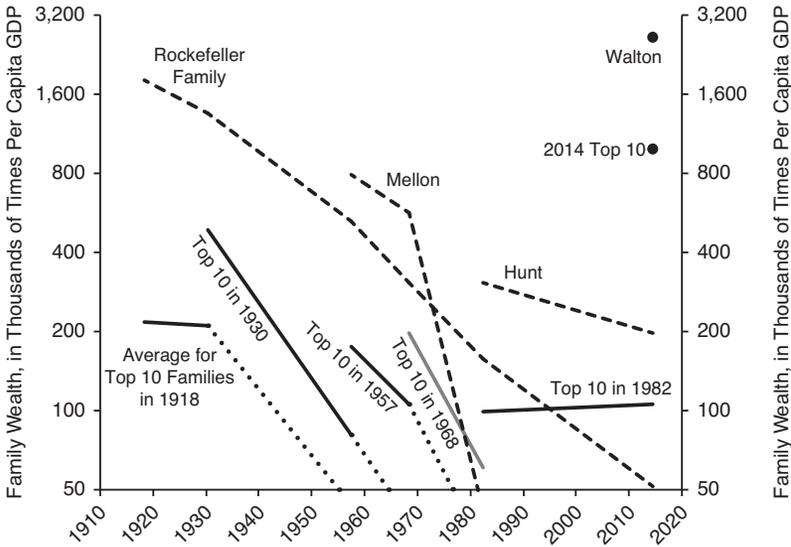
²²Phillips consulted several data references including *Forbes*, Lundberg (1937), *Fortune* magazine and the *New York Times Magazine* to sort out the following wealth lists: Top 30 Richest of 1918, Top 29 Richest in 1930, Top 25 Richest of 1957, and Top 30 Richest in 1968.

²³We assume that the 1982 fortune misses the cutoff for the 1982 *Forbes* 400 list by \$1, for all families that failed to make any of the *Forbes* lists. The cutoff wealth for the 1982 *Forbes* 400 list was \$75 million.

²⁴For this set of descendants list, we check *every individual name* to make sure they are legitimately related to the wealthy legend. Of course, our method will miss a small number of descendants who married into different families and chose not to keep their original family name in any part of their new names. But, we also fail to credit those who inherited wealth and built their own entrepreneurial fortunes with the latter source of success.

²⁵In this illustrative example, for any top 10 families that failed to make any of these lists in the subsequent year (shown in dashed lines), we assume their fortune misses half the cutoff for the 1930, 1957, and 1968 lists and the exact cutoff for the *Forbes* 1982 and 2014 lists by \$1.

FIGURE 6
 SUSTAINABILITY OF INTERGENERATIONAL WEALTH,
 EVOLUTION OF TOP 10 LISTS (1918–2014)
 FAMILY WEALTH RELATIVE TO PER CAPITA GDP



SOURCE: Research Affiliates based on data from Kevin Phillips and *Forbes*.

of these families relative to the average American; an upward-sloping line means that the elite family is becoming richer faster than the average American. It turns out that situation is very rare.

The wealthiest man in the world in 1918 was John David Rockefeller, with an estimated net worth of \$1.35 billion. This was a whopping 2 percent of the U.S. GDP of \$70 billion at that time, nearly two million times our per capita GDP, at a time when the nation was the most prosperous in the world. An equivalent share of U.S. GDP today would translate into a fortune of over \$300 billion. The expression “rich as a Rockefeller” had real meaning in 1918.

Are the Rockefellers of today richer than the Rockefellers of 1918? In nominal dollar terms, yes. But a 2014 dollar is not the equivalent of a 1918 dollar. Adjusting for growth in per capita GDP, as shown in Figure 6, the Rockefeller family, represented by the sole remaining family member who makes the Forbes 400 list in 2014, David Rockefeller, has fallen from nearly two million times per capita

GDP to 51,000 times per capita GDP. That's still awfully wealthy, but it represents a 97 percent erosion in wealth measured relative to the prosperity of the average American. This works out to 3.6 percent erosion in Rockefeller family wealth, relative to the average American, year after year from 1918 to 2014.

As we write this, the Rockefeller family is vacating their space in the Rockefeller Center. Writing in the *New York Times*, reporter Sam Roberts opined, "While there was one John D., there are now hundreds of Rockefellers. So in a sizzling real estate market, even the Rockefeller family must worry about the rent" (Roberts 2014).

Second wealthiest in 1918? Andrew Carnegie's colleague, Henry Frick. Following his death in 1919, his family fell clear off the top 30 list by the time of the 1930 list. A few decades on, who remembers the Fricks except aficionados of the Frick Collection museum in New York City? Rounding out the 1918 top 10 list were the families of Carnegie, Baker, Harkness, Armour, Ford, Vanderbilt, Green, and Harriman. Most of us are familiar with the Fords, Carnegies, Harrimans, and Vanderbilts, but many would be hard pressed to identify the Bakers, Harknesses, Greens, and even Armours.

As it happens, by 1930—on the heels of the Roaring Twenties, no less—5 of the 1918 top 10 elite families had lost so much of their wealth that they did not rank in even the top 30 of the 1930 list of ultra-wealthy. By 2014, only David Rockefeller remained on the Forbes 400, to represent all of the wealthiest families in America in 1918. Even he was far removed from the top 10, top 30, or even top 100.

The change in the average wealth of all families in the top 10 roster of 1918 is represented by the line (solid and dotted) at the bottom left of Figure 6.²⁶ While the average wealth of the families had diminished slightly by 1930, even with the monumental bull market of the 1920s, the dashed line shows that subsequent decades were far less kind, as wealth declined precipitously compared to the growing wealth of the average American measured in per capita GDP.

For the top 10 families of 1930, by the time the next top 10 list was compiled in 1957, only 3 of the families were wealthier (in notional terms), 7 were poorer, and 5 had lost so much net worth they had

²⁶We use a geometric average of wealth for 1918 and 1930 for these families, so that the one or two families at the top of the list do not dominate the average.

dropped out of the top 25. Net of inflation, the average family had lost five-sixths of its wealth. In the years from 1957 to 1968, the wealthy seem to have fared better, but only in notional terms. Only 3 of the 1957 top 10 families failed to make the top 30 in 1968, while the other 7 families on the 1957 list had achieved higher nominal wealth by 1968. But, net of inflation, the average family lost ground, relative to the average American by about 40 percent. The top 10 families in 1968 exhibited a similar pattern, with a gradual decrease in nominal value and—in a period of rising inflation—a plunge in both real value and relative to U.S. per capita GDP.

Finally, 8 of the top 10 elite from 1982 still remain on the 400 list, and 6 families remain in the top 10. From 1982 to 2014, the 1982 top 10 elite families' growth in wealth has uncharacteristically kept pace with—not exceeded—the average American's income growth, as measured by per capita GDP. This relatively robust survival of the 1982 top 10 list was helped considerably by an unprecedented 32-year bull market for stocks and bonds, which came at the cost of a corresponding crash in r , the forward-looking return on capital.

Another way to examine the dynamism of legendary wealth is to observe how fast it has fallen in past generations. Piketty's core thesis is that the rich know how to get richer. If they do, our evidence would suggest that they're not trying. For the 10 wealthiest families of 1918, the average erosion of wealth relative to the prosperity of the average American was 5.3 percent a year between 1918 and their disappearance from subsequent top 10 lists, suggesting a half-life in relative wealth of 13 years. The average wealth erosion for the 10 wealthiest families of 1930, 1957, and 1968, until they were last evident on any list, was 6.6 percent, 5.3 percent, and 8.7 percent, respectively.²⁷ These figures correspond to a half-life of wealth—the length of time it takes for half of the family fortune to be redistributed within society through taxation, spending, and charitable giving—of 10 years, 13 years, and (remarkably) 8 years, respectively.

Let's now examine the 1982–2014 time span covered by the Forbes 400 survey. In expanding the survey from 30 families to 400, we find the coattails of once-great wealth. Consider Henry Frick, the second wealthiest man in the world in 1918, whose fortune of

²⁷These numbers were estimated using the same method and assumptions we used in Table 1 so as to ensure consistency across analysis.

\$225 million faded fast, so fast that his heirs were off the top 30 list by 1930. His granddaughter, Helen Clay Frick, with \$150 million, the entry level of wealth for the 1984 list, just managed to make the list that year, the last time a Frick descendant appeared. During the 66 years from 1918 to 1984, in which one-third of the notional value of the Frick fortune was dissipated into society at large, U.S. per capita GDP rose 20-fold from \$743 in 1918 to \$14,707 in 1984. Relative to the average American's economic progress, the Frick fortune shrunk by 97 percent, the same magnitude of decay the Rockefeller family experienced, albeit in 30 fewer years.

The attentive will note that the Walton family registers the top rank on the 2014 *Forbes* 400. Not Bill Gates? No. We're looking at families. The Walton family collectively has wealth of \$140 billion, according to the data sleuths at *Forbes*. The Koch family ranks second with \$87 billion. Gates falters into third place with a mere \$80 billion, and the Mars family ranks fourth with its \$69 billion chocolate empire. By inventing a mass distribution model that offers deeply discounted pricing to the middle and lower-middle classes, by dint of slashing the cost of every step in the process of bringing product to the end consumer, it would seem that Sam Walton fostered the closest thing we now have to a dynasty.²⁸ Our data suggest that it will not last many generations, but it is an impressive accomplishment.

Our next analysis illustrates the dynamism of inherited legendary wealth after the originators of wealth are gone. While alive, the founders of great wealth typically continue to build their fortunes, but the progeny of the wealth originator generally do not share his or her one-in-a-million talent and are unable to generate similar levels of new wealth.

Table 1 tallies the wealth erosion of the 25 to 30 families on each of the Phillips lists. Fueled by the doubling of valuation levels in the immense bull market of the 1920s, the average growth in wealth of the ultra-rich, from 1918 to 1930, slightly outpaced the income growth of the average American by an annualized 1.9 percent. As the progeny of the ultra-rich assumed the reins, the wealth dissipated. By the time the families disappeared from Phillips' lists

²⁸We leave it to the pundits on the left and the right to argue over this interesting tidbit that seems to have gone largely unnoticed. We find it interesting that the left finds the Walmart business model so deeply offensive, when the customers are the main beneficiaries of that business model, and those customers are often the working poor.

TABLE 1
ANNUALIZED AVERAGE GROWTH IN WEALTH RELATIVE
TO PER CAPITA GDP GROWTH

List Year	Wealth Erosion, Relative to PCGDP, through Year				
	1930	1957	1968	1982	2014
1918	1.9%	-2.7%	-2.5%	-4.2%	-4.0%
1930		-6.0%	-4.7%	-6.2%	-5.7%
1957			-4.7%	-6.6%	-5.5%
1968				-9.7%	-7.8%

NOTE: Ending wealth for dropouts is assumed to be half the cutoff for the 1930–68 lists, and exactly the cutoff for the Forbes 400 lists.

SOURCE: Research Affiliates based on data from Kevin Phillips and *Forbes*.

(or by 2014 for the single exception that did not), the annualized rate of wealth erosion was around 4 percent a year. For the newer hyper-rich families included on Phillips' lists of 1930, 1957, and 1968, respectively, the pace of erosion accelerated. Compare, for example, as shown in Table 1, the erosion in wealth relative to U.S. per capita GDP of 6.2 percent and 5.7 percent in 1982 and 2014, respectively, for the families on the 1930 list with the 9.7 percent and 7.8 percent rates of erosion for the families on the 1968 list. Perhaps the lessons of the Great Depression, freshly etched into the psyches of the progeny of the "Class of 1918," called for a frugality forgotten by later generations. It bears repeating that these rates of wealth erosion are based on *best-case* assumptions about end-point wealth when families disappear from our radar screen.

The legendary wealth of the robber barons was steadily replaced through the 20th century by the fortunes of the nouveau riche. As shown in Table 2, two-thirds of the wealth of the top 30 families in 1930 was still owned by families on the 1918 list. This means that one-third of the 1930 wealth was new, created by new entrepreneurs, innovators, and employers of legions, such as Andrew Mellon, on his way to becoming the wealthiest man in the world, and the descendants of Samuel du Pont de Nemours, on their way to building the eighth-largest fortune in the nation a half-century later. By 1957, only one-third of the wealth of the top 25 families was owned by those

TABLE 2
SHARE OF WEALTH ON LATER “TOP 30” LIST

List Year	Share of Wealth in Later “Top 30” List, through Year				
	1930	1957	1968	1982	2014
1918	66%	33%	16%	5%	0%
1930		57%	39%	6%	0%
1957			69%	33%	0%
1968				39%	8%

NOTE: For *Forbes* lists (1982 and 2014), this table shows the share of the top 30 wealth owned by descendants of legendary wealth. If they are on the 400 list but not in the top 30, they count as zero.

SOURCE: Research Affiliates based on data from Kevin Phillips and *Forbes*.

from the 1918 list, and by 1968, a half-century later, the fraction had fallen to one-sixth. By 2014, none of the top 30 fortunes in the United States was owned by a descendant from the 1918 list, nor any descendants of the 1930 or 1957 lists.

The rotation in the top 30 lists, documented in Table 3, seems to average 4–6 percent a year since 1968, considerably faster than in the previous half-century. This suggests that every generation breeds a new generation of super-entrepreneurs and super-innovators who achieve great success, in most cases by advancing society’s wealth alongside their own. As they pass on, and pass wealth on to the next generations, that wealth is returned to society through taxes,

TABLE 3
IMPLIED ANNUAL ROTATION IN TOP RANKS OF WEALTH

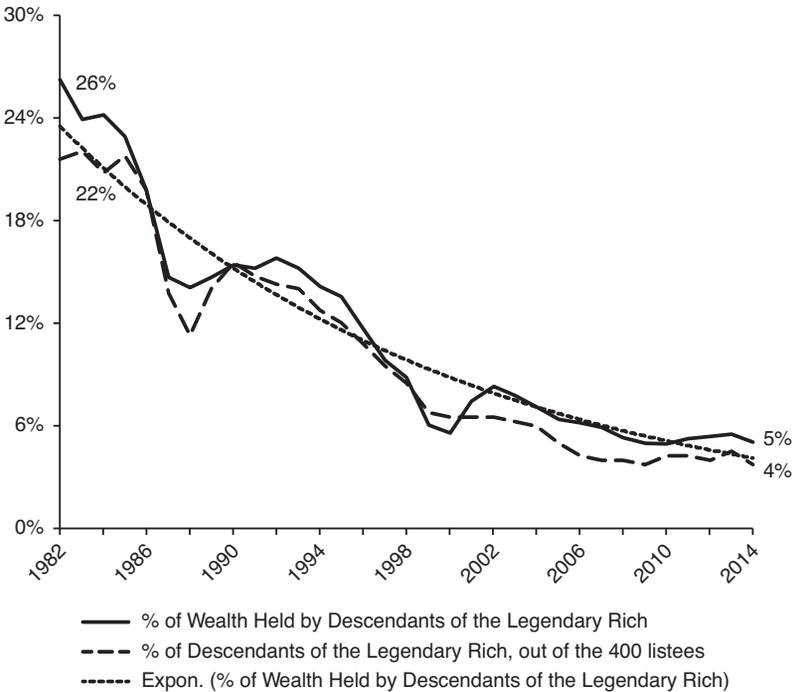
List Year	Annual Rotation in “Top 30” Wealth, through Year				
	1930	1957	1968	1982	2014
1918	–3.4%	–2.8%	–3.6%	–4.7%	–4.7%
1930		–1.7%	–2.1%	–5.3%	–5.3%
1957			–3.4%	–4.3%	–4.3%
1968				–6.5%	–4.4%

SOURCE: Research Affiliates based on data from Kevin Phillips and *Forbes*.

charitable gifts, and spending. Dynastic wealth creation, apart from occasional examples in which one additional generation produces one additional round of growth, simply does not exist. Subsequent generations cannot even keep pace with the average American's prosperity as measured by per capita GDP growth.

Figure 7 traces the decay of the legendary wealth of the families on the 1918, 1930, 1957, and 1968 Phillips lists during the 32 years spanned by the *Forbes* 400 list. The dashed line shows the number of descendants of the legendary rich as a percentage of the 400 on the *Forbes* list in successive years. The solid line shows the proportion of the aggregate wealth held by the privileged children of legendary wealth with the passage of time. The rate of decay in dynastic wealth, relative to the creation of new wealth by new elite,

FIGURE 7
THE EROSION OF INHERITED LEGENDARY WEALTH



SOURCE: Research Affiliates based on data from Kevin Phillips and *Forbes*.

averages 5.4 percent a year. This rate of decay compares to the overall decay of wealth for Forbes 400 members of 3 percent a year when measured relative to the aggregate wealth of the list. Those who inherit wealth dissipate it faster than the wealth creators.

Rags to Riches and Back Again in Three Generations

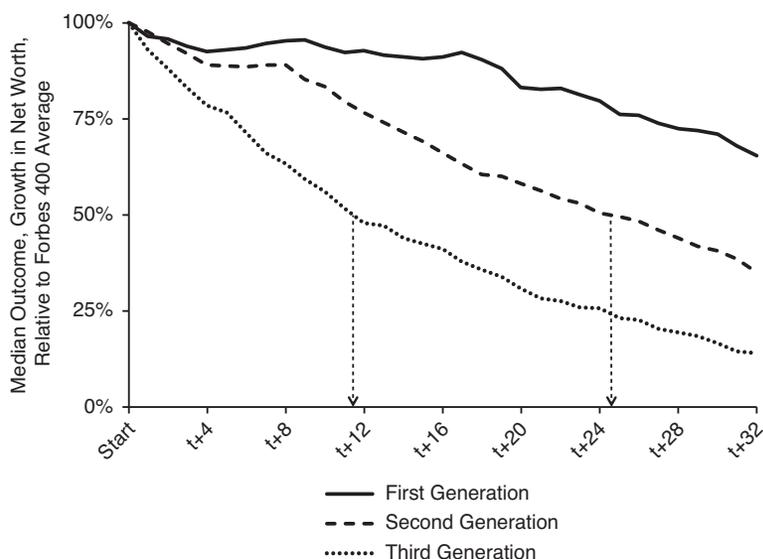
Our final test looks at the dynamism of the wealth erosion by generations. Do the second and third generations dissipate inherited wealth faster than those who create the wealth in the first place? We find that the ancient Chinese proverb “wealth does not pass three generations” is demonstrably accurate. We focus on “the Richest of the Rich”—those listed as the top 30 wealthiest individuals in Forbes 400 lists from 1982 to 2013. This is partly for consistency with the earlier lists from Phillips, which spanned 25 to 30 ultra-wealthy individuals or families, and partly because it is challenging to track down precisely which generation an individual represents.²⁹

We can track the erosion of wealth of members of the top 30, partitioned into the three generations, averaged across all of the years, as long as they are alive and remain anywhere on the Forbes 400 list, whether they are on the top 30 or not.³⁰ Figure 8 shows that, among top 30 hyper-wealthy, if they are first-generation creators of the wealth, their share of Forbes 400 wealth erodes very slowly in subsequent years, falling by barely one-fourth in a quarter century. For the second generation, wealth is halved in 24 years, and in just 11 years for the third generation. Relative to the rapid rotation of wealth in the Forbes 400, the first, second, and third generations lose ground at an average rate of 1.1 percent, 3.2 percent, and 6 percent, respectively.

²⁹It’s labor-intensive to assess whether someone on the *Forbes* list was the originator of the wealth, or second generation, or third generation, or later. Because the earlier lists from Kevin Phillips included up to 30 individuals or families, we opted to focus on the top 30 on each of the *Forbes* lists, so that we could gauge the individual’s correct generation. In the very few instances that we could not confirm genealogy through Wikipedia and other sources, we assume that a top 30 *Forbes* elite is second generation if the *family* name, but not the individual’s name, was first seen in 1957 or 1968, or any of the prior Forbes top 30 lists, and third generation if the *family* name was first seen in 1918 or 1930.

³⁰We aggregate the sole fourth generation example, who made the Forbes top 30 exactly once, with the third generation.

FIGURE 8
AVERAGE EROSION OF TOP 30 WEALTH, BY GENERATIONS

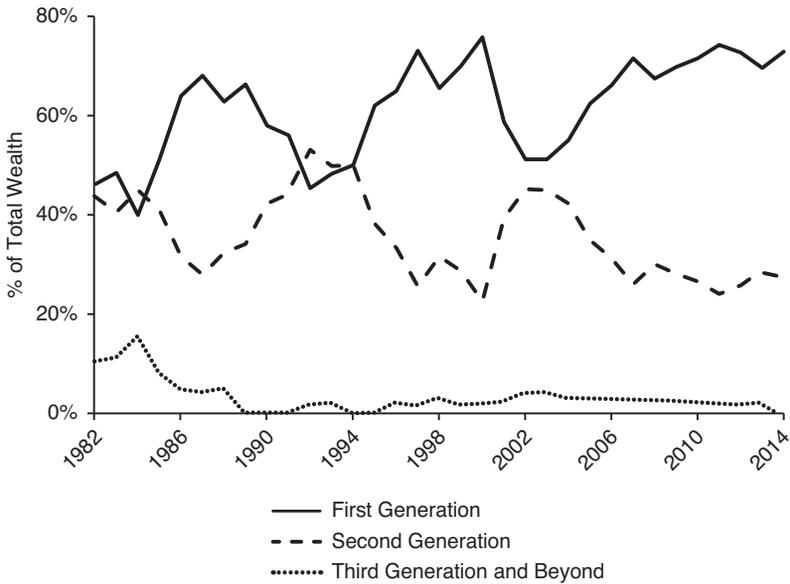


SOURCE: Research Affiliates based on data from Kevin Phillips and *Forbes*.

Figure 9 further demonstrates the fallacy of Piketty's narrative. Collective second-generation wealth from the early 1980s through the early 1990s was sometimes just as large as collective first-generation wealth, as a share of top 30 wealth. No more. In recent years, first-generation wealth—wealth earned by creating products that people want and jobs that people need—has comprised over 70 percent of the top 30 wealth list, while second-generation and third-generation wealth has comprised less than 30 percent and about 2 percent, respectively. Dynasties? By the third generation, they're in free fall. In the history of mankind, no great wealth has ever escaped the eventual "fall from grace."

The founder of a fortune possesses a one-in-a-million talent. His or her progeny, most particularly after the second generation, are unlikely to inherit the same highly attuned business acumen. Absent such genius, the challenge of growing, much less maintaining, the family fortune, buffeted by the headwinds of taxes and the machinations of competitors, regulators, and others who want to take market share or expropriate the wealth outright, is a near impossibility.

FIGURE 9
AVERAGE SHARE OF TOP 30 WEALTH, BY GENERATIONS



SOURCE: Research Affiliates based on data from Kevin Phillips and *Forbes*.

The Cause of Income Inequality

If there’s a “sleeper” in *Capital in the 21st Century*, it has to do with the sources of *income* inequality, not *wealth* inequality. As we have seen, there’s a rapidly rotating cast of entrepreneurs in the ranks of the hyper-wealthy, with old money dissipating surprisingly quickly as new fortunes are created. If we hasten this process, we hasten the inevitable: great wealth is recycled into the macroeconomy with a half-life of a generation or less. If we adopt policies aimed to accelerate the redistribution of wealth and, in so doing, trigger an unintended consequence by lessening the incentives for entrepreneurialism, innovation, and invention, the costs may be *much* larger than the “benefits” wrought by the small marginal increase in the already vigorous redistributive process that we document.

That said, there is a concurrent—and not unrelated—hollowing out of the opportunity set for the unskilled worker, for the marginally skilled worker, and perhaps soon for the moderately and significantly skilled worker. In theory, it is a good thing if society can produce the

same goods and services with less effort, as a consequence of technological innovation, setting the stage for rising efficiency and time-leveraging productivity enhancements. But how is that bounty to be shared? Back to Ayn Rand versus Karl Marx: Societies must decide with care how to allow the benefits to spread throughout society without eroding the incentives that drive these innovations in the first place.

Corporate executives make up nearly three-fifths of the top 0.1 percent of the income pie. Even more remarkably, as the share of national income going to this group quadrupled over the past quarter-century—from 2 percent to 8 percent—fully 70 percent of the rise accrued to corporate executives (Bakija, Cole, and Heim 2012). *Income* is now a path to the Forbes 400. We have no qualms about paying entrepreneurial rewards (i.e., vast compensation) to executives who create substantial wealth for their shareholders or who facilitate path-breaking innovations and entrepreneurial growth.

None of the authors would begrudge the well-earned billions of Steve Jobs and countless other visionaries who have profited from inspirational leaps that have bettered the lives of millions, nor to executives who do the same. But an abundance of research shows little correlation between executive compensation and shareholder wealth creation (let alone societal wealth creation). Nine-figure compensation packages are so routine they only draw notice when the recipients simultaneously run their companies into the ground, as was the case with Enron, Global Crossing, Lehman Brothers, Tyco, and myriad others. It's difficult for an entrepreneur to become a billionaire, in share wealth, while running a failing business. How can even mediocre corporate executives take so much of the pie?

Bertrand and Mullainathan (2001) cleverly disentangled skill from luck by examining situations in which earnings changes could be reasonably ascribed to luck (say, a fortuitous change in commodity prices or exchange rates). They found that, on average, CEOs were rewarded just as much for “lucky” earnings as for “skillful” earnings. The authors postulate what they term the “skimming” hypothesis: “When the firm is doing well, shareholders are less likely to notice a large pay package.” A governance linkage is also evident: The smaller the board, the more insiders on it, and the longer tenured the CEO, the more flagrant “pay for luck” becomes, while the presence of large shareholders on the board serves to inhibit skimming. Perhaps shareholders should be more attentive to governance?

Conclusion

When great wealth is achieved through entrepreneurialism, innovation, and invention, society benefits, jobs are created, and life becomes easier and better. For generations, this process has fueled American exceptionalism. When great *income* is achieved through entrepreneurialism, innovation, and invention, society again benefits for the same reasons. We find it puzzling that Piketty underplayed what even he recognizes as the major driver of growing American income inequality: the massive appropriation of the wealth of corporations by their executives. When it is objectively deserved, terrific; when it is not, it siphons resources out of the macroeconomy and hollows out the opportunity set for the populace at large.

A second driver of the “politics of envy” is the perception—and reality—that children of privilege get a head start on becoming the elite of the future, usurping the potential opportunity of others in the population to become the next Henry Ford or Steve Jobs. Each of us—libertarian, centrist Republican, and centrist Democrat—would be thrilled to find a way to double or triple the number of future entrepreneurs and innovators by granting those who are not born into privilege a similar opportunity to blossom. We have different views on whether government is more likely to play a positive or negative role in such an endeavor if empowered to do so. We all recognize that the next Bill Gates is unlikely to emerge from squalid poverty, and we agree on the benefits to society if that were more plausible. We all agree that the hollowing out of the middle class is real and is a serious problem, which is better addressed by improving opportunities for the have-nots to better their lot than by aggressively redistributing from the haves. It is well beyond the scope of this article, however, to propose answers to society’s challenges as they relate to bettering the opportunity set for the middle class and for the poor.

Instead of focusing on access to opportunity, Piketty focuses on a deeply flawed narrative of dynastic wealth, while overlooking the fact that most immense pools of wealth are first generation, newly created by those who have also just created great wealth for society, and ignoring the fact that the wealthy, especially after this first generation, are masters at redistributing—or, to be more frank, dissipating—their own wealth. When someone has achieved monumental success, it’s tempting to encourage redistribution.

When someone has inherited wealth, earned by a previous generation, or has built great wealth from lofty income without having themselves built a great business, envy or a sense of fairness may lead some to say, “Let’s redistribute it.” Dare we forget the trivial fact that “fairness” is subjective?

The point of this research is that, whether we are governed by acolytes of Ayn Rand or Karl Marx, *redistribution will occur, no matter what policies are pursued*. The only question is whether, in an effort to accelerate the process, we stifle the innovation and entrepreneurial spirit that achieves great wealth *by creating great societal wealth*, which as we have shown will be redistributed into the macroeconomy with surprising speed, by the wealthy and their offspring.

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FINANCE AND CAPITAL IN THE 21ST CENTURY

Robert C. Jones

In Thomas Piketty's controversial, ambitious, but ultimately flawed book, *Capital in the Twenty-First Century*, he claims that: (1) the return on capital (r) has exceeded the growth rate of the economy as a whole (g); (2) this relationship ($r > g$) has produced ever-greater concentrations of wealth and income; and (3) raising taxes, especially on capital, is the best way to reduce these inequalities. He concludes with an impassioned plea for economics to aspire to a higher "political, normative and moral purpose," while lamenting modern efforts to treat it as a science.

Because finance is essentially the study of capital and capital markets, this article evaluates Piketty's claims from the perspective of financial theory, using the scientific method. Is Piketty's theory of capital internally consistent? Does the data support his hypotheses? What are the policy implications? To briefly preview, I find that his theory of capital confuses cause and effect, the data do not support his hypotheses, and his policy prescriptions would likely prove counter-productive.

Cato Journal, Vol. 35, No. 3 (Fall 2015). Copyright © Cato Institute. All rights reserved.

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Why Is $r > g$?

In financial theory, the internal growth rate¹ (g) is a function of the return on capital (r) and the reinvestment (or savings) rate (s):

$$(1) \quad g = r * s$$

where $s = (1 - t) * (1 - c)$.

The reinvestment rate (s) is the percent of income that gets saved and reinvested—that is, what’s left after taxes (t) and consumption (c). This reinvested income earns the marginal return on capital (r), resulting in additional income, or income growth. Equation 1 is an accounting relationship that holds for a company, an investment portfolio, or the economy as a whole.²

Taxes are clearly a net loss for individuals, companies, and (taxable) investment portfolios, reducing their reinvestment and growth rates dollar for dollar. Conversely, for the economy as a whole, taxes represent a transfer of wealth within the economy: If they are reinvested at marginal returns above those available to the original owners—a really BIG if—they may even contribute to overall economic growth. If, however, they are invested poorly, or consumed, the economy will have less capital accumulation and slower economic growth—but, perhaps, more consumption spending and higher standards of living for the recipients.

Clearly, however, since no company, portfolio, or economy reinvests all of its income every period, g will necessarily be less than r , often quite substantially (ignoring random changes in price-to-book ratios). This is not unusual, problematic or, as Piketty claims, a “fundamental force of divergence” or “the fatal flaw of capitalism.” Instead, the math dictates that the return on capital is and always will be greater than the economic growth rate (except for short-term variations caused by changes in the price-to-book ratio). It’s not the return on capital—but its growth and use—that matters.

¹Growth can also come from external sources, such as outside capital and immigration.

²Technically, Equation 1 applies to internal growth in the book value of capital. To the extent that market-to-book ratios vary randomly, with no secular trend, this has no impact on equilibrium analysis. That is, g and r may not conform to this relationship in any given period, due to fluctuations in the price-to-book ratio, but will on average over time.

Note that Equation 1 is identical to Piketty's "second fundamental law of capitalism": $\beta = s/g$. In Piketty's terminology, β is the capital/income ratio, the primary metric he uses to assess inequality (a high ratio implies more inequality). But the inverse of the capital/income ratio is simply the return on capital ($r = \text{income/capital}$), or the amount of income an economy generates from its capital base. Since Piketty's savings rate (s) is equivalent to the reinvestment rate, or what's left after taxes and consumption, Piketty's second fundamental law is a simple rearrangement of Equation 1.³

Piketty's has the algebra right, but the dependent variable wrong: he confuses cause and effect. In Piketty's second fundamental law, an economy's savings rate (s) and growth rate (g) are independent variables that jointly determine its return on capital (since $\beta = 1/r$, the fundamental law also says that $r = g/s$). In Equation 1, the return on capital (r) and reinvestment rate (s) are the independent variables that jointly determine an economy's internal growth rate (g). Equation 1 is more consistent with accounting theory and economic logic: An economy's return on capital (r) reflects its technology—how much income it can generate from its capital base—which logically determines its growth rate, not vice versa.

Piketty also confuses cause and effect when he speaks of the return on capital (r) and growth rate (g) as if they were independent, exogenous variables that together create inequality (via $r > g$). In accounting theory, g is a function of r and the reinvestment rate (s , which itself is a function of r). Thus, contrary to Piketty's assertion that $r > g$ is a "contingent historical proposition," in financial theory, it's an accounting necessity.

Testing Piketty's Hypotheses

Piketty offers two main hypotheses, but never formally states or tests either, so I will do so here.

Piketty's First Hypothesis

Piketty's first major hypothesis is that, due to $r > g$, capitalism inevitably produces ever-more concentrated pools of inherited

³The second fundamental law is $\beta = s/g$. Since $\beta = 1/r$, this means $1/r = s/g$. Rearranging leads to $g = r*s$, or Equation 1. Note that, as a result, Piketty's fundamental law also applies to the book (or normalized) return on capital, and therefore has the same caveats mentioned in footnote 1.

wealth. He believes that the United States may be entering an era of “patrimonial capitalism” with rigid class structures and plutocratic government that “looks like old Europe prior to 1914.” He fears we are headed toward a Dickensian future in which “a small group of wealthy but untalented children controls vast segments of the US economy and penniless talented children simply can’t compete.”⁴

Piketty’s fears are misguided for two reasons: (1) He mistakes the return on capital (r) for the growth of capital (g), as discussed above; and (2) he fails to account for differential returns (r) and reinvestment rates (s) across generations and types of investors. The returns on large pools of *private* capital are often taxed three (or more) times: at the corporate, personal, and estate levels. Across generations, they are also “consumed” through poor stewardship, fragmented inheritances, and charitable giving. Accordingly, per Equation 1, the growth of private inherited capital will likely be slow or negative across generations.

The data confirm that inherited wealth is a relatively small percentage of total wealth, and is declining in importance. Wolff and Gittleman (2011) find that inherited wealth declined from 29 percent to 19 percent of total U.S. capital between 1989 and 2007. Looking at just the top 1 percent, inherited wealth fell from 27 percent to 15 percent of capital over the same period. (This may reflect the accelerating pace of “creative destruction,” as new capital makes old capital obsolete.) In addition, since inherited wealth is a greater percentage of total wealth outside of the top 1 percent, it actually *reduces* inequality. There is no reason or evidence to suggest that private, inherited pools of capital will grow faster than national income or wealth, even if $r > g$ (as it must be in equilibrium).⁵

Conversely, the last half-century has seen the emergence of a new class of dominant investors: public institutions. These include sovereign wealth funds; private, public, and union pension funds; and foundations and endowments. The largest of these institutions dwarf the largest private capital pools: The wealthiest individual in

⁴Piketty usually refers to Balzac and Austen to support his economic theories (he’s clearly not a quant), but “Dickensian” conveys the point better than “Balzacian” or “Austenian.”

⁵See Arnott, Bernstein, and Lu (2015) for a more thorough discussion of “The Myth of Dynastic Wealth.” Dynastic wealth is not growing faster than the general economy; in fact it is declining (dissipating into the economy via taxes, spending, charitable giving, etc.) at a rate of 3.1 percent per year.

the world is Bill Gates with roughly \$76 billion in net worth as of 2013 (most of which he has pledged to charity), while the largest pension fund, the Government Pension Investment Fund of Japan, is \$1.3 trillion (17 times larger). In addition, there are 35 pension funds and 15 sovereign wealth funds that control more capital than Bill Gates. *If capital is becoming increasingly concentrated, it's doing so in the hands of public institutions.*

Importantly, many of these institutional pools are semi-permanent (i.e., they don't naturally dissipate over time), tax exempt, well diversified, and managed by professional fiduciaries for the benefit of workers, charities, universities, governments, and the general public. Given their lower levels of consumption (c) and taxes (t), plus their professional stewardship (higher r), these institutional pools are likely to continue to grow much faster than private pools over the decades ahead. It's no accident that the Carnegie, Ford, and Rockefeller foundations live on long after the personal fortunes of their creators.

Rather than producing an ever-more concentrated cadre of rentiers and wealthy plutocrats, then, Western capitalism is producing ever-greater concentrations of wealth in pools that are managed by professional investors for the benefit of the public at large. It's these technocrats, not Piketty's plutocrats, who finance our economy, allocate capital, pick winners and losers, and ultimately fund the research, innovations, businesses, and entrepreneurs who drive economic growth. I think it's far more likely that this trend will continue to shape the face of capital in the 21st century, not the 19th century portrait of plutocrats painted by Piketty (say that five times fast).

Piketty's Second Hypothesis

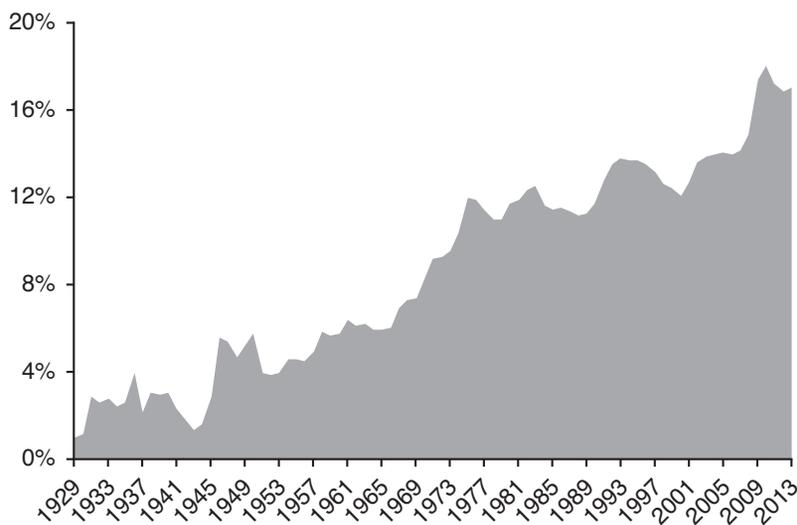
Piketty's second troubling hypothesis is that the income and wealth distributions have grown more unequal over time and are now at "dangerous" levels. He further claims that this represents a clear market failure that requires a forceful policy intervention (seizing private capital). He bases his conclusions on trends in the capital/income ratio (β), which has grown to historically high levels in recent years. But as we've already seen, a high capital/income ratio equates to a low return on capital ($r = \text{income/capital}$)—often because valuations are high following a period of strong returns—which will reduce capital growth going forward (i.e., it's self-correcting, per Equation 1).

What does the evidence say? Is inequality dangerous and growing worse as Piketty claims? Piketty's data show inequality is

high and rising for both wealth and income, but his data are incomplete and misleading. In particular, his income data exclude the impact of taxes, government transfer payments, and corporate fringe benefits (like health insurance and pension contributions), while his wealth data exclude Social Security, Medicare, Medicaid, and pension funds. That is, *the measures he uses to assess inequality exclude the impact of existing programs to address inequality*. As such, Piketty's data and analyses are misleading.

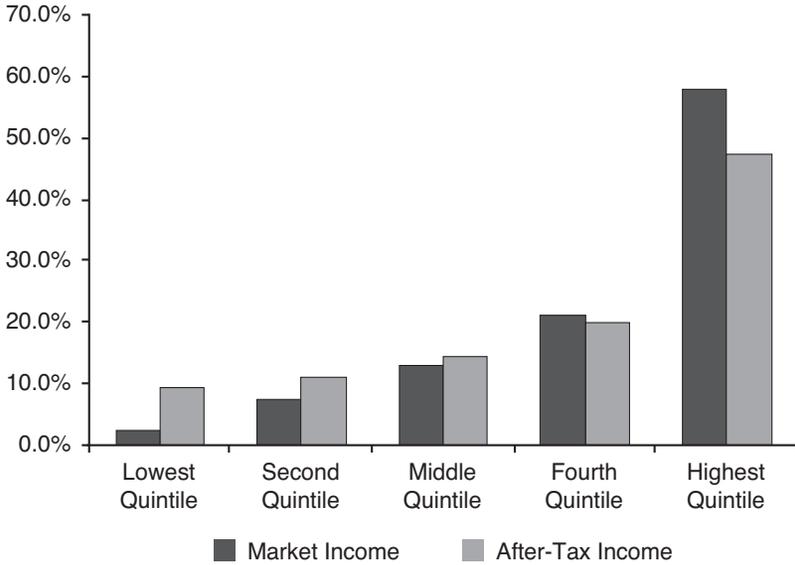
A recent CBO study (2013) looks at the U.S. income distribution from 1979 to 2010, after accounting for taxes, transfer payments, and non-cash fringe benefits—a measure the CBO calls simply “after-tax income.” Since government transfer payments have grown significantly over time, and now exceed 15 percent of total income (see Figure 1), excluding them can seriously distort measure of inequality. Using after-tax disposable income, as opposed to market income, shows that inequality is far less extreme (see Figure 2) and has actually declined this century. Burtless (2014) shows that, from 2000 to

FIGURE 1
GOVERNMENT SOCIAL BENEFITS AS A PERCENTAGE OF
TOTAL U.S. PERSONAL INCOME, 1929–2013



SOURCES: U.S. Dept. of Commerce, National Income and Product Accounts; Burtless (2014).

FIGURE 2
 MARKET INCOME AND AFTER-TAX INCOME SHARE
 (PERCENT), BY INCOME GROUP, 2010



SOURCE: Congressional Budget Office.

2010, the bottom quintile of the income distribution saw after-tax disposable incomes *increase* by 20 percent; the middle quintile was up 12 percent; while the richest 1 percent saw disposable incomes *decline* by 4 percent.

Market income can also be misleading when tax rates change. When rates are high—such as in the postwar years that Piketty sees as the golden age of income equality—high earners are more likely to hide, delay, or extend income recognition, making their market incomes appear lower than they actually are. Conversely, when tax rates decline, like they’ve done a few times since 1982, high earners will be more likely to report income in a timely manner. (Similar measurement issues exist on the low end of the distribution when benefits are means tested.) Thus, the income distribution can *appear* more equal in the earlier period, even if the actual distribution changes little, or indeed grows more equal over time. Thus, Piketty’s data can be an unreliable gauge of income equality whenever tax rates change—as they’ve done repeatedly over the period that Piketty studies.

In addition, Piketty's data use floating cohorts, comparing today's winners and losers to those in prior years. If we look at actual individuals (fixed cohorts), we find considerably more convergence over time: yesterday's losers often become today's winners and vice versa. For instance, Rank and Hirschl (2001) found that, between ages 25 and 60, 12 percent of Americans had spent at least one year in the top 1 percent; 56 percent had spent at least one year in the top 10 percent; 73 percent found themselves in the top quintile for at least a year; and 54 percent of individuals had spent at least one year below the poverty line (usually shortly after they entered the labor force). Thus, in sharp contrast to Piketty's largely irrelevant analysis of pre-tax market incomes for floating cohorts, when we use after-tax disposable income for fixed cohorts, *income inequality declined substantially between 2000 and 2010*.⁶

Taxes and transfer payments also reduce economic beta (or risk) for the poorest Americans. For example, during the Great Recession⁷ (2007–09), the lowest income quintile had flat disposable incomes, the middle quintile was down 1.4 percent, and the top 1 percent saw their incomes decline by more than 30 percent (and far more using fixed cohorts). The data also show that income for the highest earners is much more volatile than incomes for the middle or bottom quintiles. Over the longer term (1979–2010), after-tax income levels for the ex post winners (the top 1 percent in 2010) have indeed grown much faster than for other groups. From the perspective of financial economics, however, this likely reflects the ex post winners taking on much greater ex ante risk—that is, the winners earned a hefty risk premium, while those who tried and failed (a much larger group) ended up in lower income categories. These large rewards for the winners encourage the efforts of winners and losers alike.

Piketty's U.S. wealth dataset is also misleading, primarily because it excludes pension assets and the present value of expected Social Security, Medicaid, and Medicare payments.⁸ Since these public savings vehicles (or PSVs) represent the lion's share of retirement and

⁶I haven't seen any studies using data after 2010, but I suspect the upper income groups saw faster growth as a result of their higher beta to the economy.

⁷This is an oxymoron if ever there was one.

⁸Reynolds (2014) also finds that Piketty's wealth data suffer from a variety of methodological flaws that render them "worthless."

health savings for most people, excluding them can seriously distort the measured wealth distribution. Accurately accounting for PSVs would significantly enhance the measured wealth of the middle and lowest wealth quintiles, and significantly reduce measured inequality. Society developed these programs, and their payroll taxes, to force people to save for health care and retirement.⁹ To exclude them when calculating the relative wealth of different groups is either extremely sloppy or intentionally deceptive.

Edward Wolff (2007) estimates the U.S. wealth distribution after accounting for pensions and Social Security, but not Medicare and Medicaid. He finds that the Gini coefficient for U.S. wealth drops 20 percent as a result (from 0.83 to 0.66).¹⁰ Accounting for Medicare and Medicaid assets, plus foundations and endowments (which generally help the needy), would likely reduce the Gini coefficient considerably further. Thus, excluding PSVs, as Piketty does, grossly overstates the degree of U.S. wealth inequality. In particular, private wealth has grown more unequal *precisely because* governments and employers are now the primary source of retirement and health savings for most Americans.

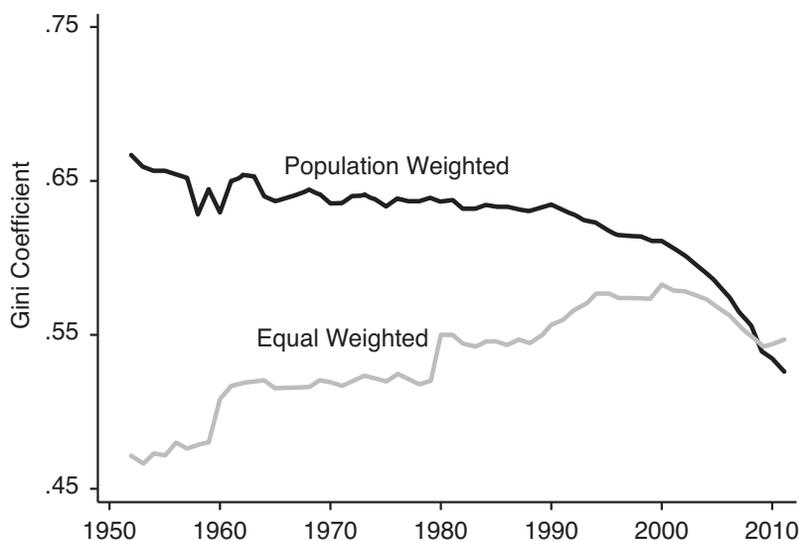
Finally, the global evidence also shows declining inequality, especially since the fall of the Berlin Wall in 1989, when many of the world's developing nations began to embrace free trade, private property, and market economies. Because three of these nations are among the most populous on earth (China, India, and Indonesia), the population-weighted global Gini index has fallen precipitously since 1989. Per Milanovic (2012), and reproduced in Figure 3, the population-weighted global Gini index drifted modestly but consistently lower between 1950 and 1989, falling from 0.67 to 0.64. After 1989, however, it fell much more quickly, to 0.52 by 2010. Inequality between nations is clearly in rapid decline (at least for large nations with market economies).

Milanovic also finds that roughly 60 percent of the variation in individual incomes globally is explained by where you live (location),

⁹It probably seemed like a good idea at the time, but since the government never invested the proceeds, these PSVs are grossly underfunded. Most people would likely be better off if they had saved the same amounts and invested on their own.

¹⁰The Gini coefficient measures the relative equality of a distribution, with 0.0 representing perfect equality and 1.0 representing complete inequality (perfect concentration).

FIGURE 3
GLOBAL GINI INDEX, 1950–2010



SOURCE: Milanovic (2012).

which is obviously greater than the percent explained by your social class, education, intelligence, effort, gender, and parental circumstances combined. This means that national institutions are the primary determinants of relative income. In particular, the correlations between the Fraser Index of Economic Freedom and per capita income and wealth are high and statistically significant (see Gwartney, Lawson, and Hall 2014). Thus, the decline in global inequality is largely due to the expansion of free trade in the developing world.

Policy Implications

Piketty uses faulty data and bad economics to argue that inequality is reaching dangerous levels, and that we need a global wealth tax to fix the problem. But Piketty's medicine could easily prove worse than the imagined disease. To see why, it's time to introduce a second equation from Finance 101:

$$(2) \quad r = rfr + \sum(rp).$$

Here r is the required return on capital (also called the cost of capital), which is a function of the risk-free rate (r_{fr}) and various risk premiums (rp). The risk-free rate is the return that investors require to invest in riskless securities rather than consume or distribute capital. The risk premiums are the additional returns that investors require for accepting various non-diversifiable risks (such as those due to credit, duration, markets, currencies, or investment styles.)

Capital markets drive the return on capital toward the cost of capital, primarily through adjustments in the price-to-book ratio. If capital returns exceed the cost of capital, the price-to-book ratio will increase (prices will be bid up) to bring the return on capital back down to the cost of capital, and vice versa. Piketty's concern about the high capital/income ratio (β) amounts to concern about the low cost of capital ($r = \text{income/capital}$). But why is that a problem? A low cost of capital means there will be more capital investment, greater capital accumulation, more new businesses, and ultimately faster growth. It also means lower returns for passive rentiers—who pay a higher premium to book and thereby earn lower yields—and higher returns for the original innovators and entrepreneurs—who took greater risks (since most fail) and thereby earned the premium to book. These are hardly dangerous problems that require an invasive policy response.

Piketty's main policy proposal is for an annual global wealth tax that confiscates 2 percent to 5 percent of assets annually from the largest investment pools (presumably excluding PSVs). But per Equation 2, such a wealth tax would increase the cost of capital by roughly 2 percent to 5 percent, as consumption would become more attractive relative to saving, leading to a higher risk-free rate (r_{fr}). A higher cost of capital means higher borrowing costs, less investing, slower capital accumulation, fewer new ventures, less risk-taking, slower growth, and more consumption, especially by the wealthy. It could easily produce the type of permanent slow-growth economy, with vastly unequal consumption, that Piketty fears.

Are there ways to promote greater equality that don't adversely impact the economy? Financial theory offers one obvious approach: risk sharing. If wages were more sensitive (had higher beta) to company results, they'd be more volatile, but also have higher expected values. Profits would be proportionately less volatile, with lower expected values. It is no accident that employees who receive more of their pay in the form of bonuses, profit shares, options, and other

risky contracts usually earn considerably more than those with guaranteed contracts. Risk sharing would also better align the interests of owners, managers, and employees for the benefit of all.

Another simple way for the general public to increase its beta to the economy, and thereby its expected share of national wealth, is to invest some of the Social Security and Medicare trust funds in equities and other risky assets. These assets are society's nest egg, accumulated through forced tax-and-savings plans that were first imposed in the 1930s. If the government had invested those assets from day one, the trust fund would now own roughly 15 percent to 20 percent of the nation's productive capital.¹¹ But it's never too late: Social Security and Medicare are long-term, growing liabilities that should be funded with long-term, growing assets. By also converting to a defined contribution system, we could largely eliminate cross-generational subsidies.

Another way to promote equality is to eliminate tax subsidies and preferences by: (1) simplifying or eliminating the corporate income tax, with all of its special preferences and subsidies,¹² and (2) simplifying the individual tax schedule by eliminating deductions and aligning tax rates on capital gains and ordinary income. This would put capital income (profits) and labor income (wages) on the same tax footing, put consumption and investment on a closer footing, improve aggregate utility, and reduce rents on K Street. (Lobbyists would still flock to Washington to influence regulations that affect them, but not to rig the tax code in their favor.) It would also reduce the distorting effect of taxes on economic decisions, and eliminate much of the huge, and hugely unproductive, tax-avoidance industry.

Note that aligning tax rates is fundamentally different from Piketty's suggestion to raise taxes on capital. The goal of tax rate equalization is to eliminate tax subsidies so economic decisions will

¹¹These calculations assume that all of the Social Security Trust Fund's annual cash flows were invested in a 60/40 (indexed) U.S. bond-stock portfolio. With these assumptions, the value of the fund would be about \$10 trillion–\$12 trillion as of the end of 2013 (depending on whether any of the equities were invested in small-cap stocks). Its actual value at year-end 2013 was about \$2 trillion (which reflects investing solely in Treasury bonds). As of year-end 2013, the value of all U.S. assets (excluding housing) was \$66 trillion. Sources: official Social Security website; FRED Federal Reserve Bank of St Louis; U.S. Treasury; Schiller (2000); *Ibbotson S&P 500 Classic Yearbook*.

¹²Sheila Blair, head of the FDIC from 2006 to 2011, made this same recommendation in a recent article in the *Wall Street Journal* (Blair 2014).

reflect individual preferences and scarcity (i.e., supply and demand), not state coercion. This will result in greater utility and wealth for all. (The absolute level of tax rates is a separate consideration.)

To promote global equality, we should promote economic freedom. As Gwartney, Lawson, and Hall (2014) have shown, freer economies have much higher income levels for the poorest 10 percent. Although the poor's *share* of income isn't much different than in other nations, this measure of income excludes fringe benefits, taxes, and transfer payments. Since these tend to be higher in wealthier (freer) economies, adding them would significantly increase the share of *disposable* income accruing to the poorest 10 percent. In addition, the many social benefits of economic freedom—longer life expectancy, lower infant mortality, stronger individual (especially women's) rights, lower birthrates, etc.—are generally shared broadly across society. The evidence is compelling: expanding economic freedom is the best way to reduce global poverty and inequality.

Finally, there is the important question of whether promoting equality is a valid public policy goal. Mayor (2015) argues that the economy is not a zero-sum game (as have most economists), and that the wealthy end up creating far more wealth for society as a whole than they keep for themselves (assuming trade is voluntary). Hence, the richer the winners are, the better off we all are. In addition, people pursue happiness in a variety of ways: Some pursue greater income or wealth, but many others pursue power, fame, artistic expression, scientific achievement, family time, athletic prowess, physical fitness, spiritual growth, or recreation (to name but a few). Should we redistribute all of these? Why is income different? Should we promote equality along all of these dimensions regardless of personal preference? People will be happier when they can make their own choices and pursue their own dreams. When it comes to happiness, choice matters more than wealth—which may explain why the American public continues to rate inequality as a minor concern despite the philippics of Piketty and a plethora of political pundits.¹³

Nor is redistribution necessarily good (or bad) for the economy as a whole. When you take from the rich to give to the poor, you essentially convert savings to consumption.¹⁴ The Keynesian view is that

¹³See Quartz and Asp (2015).

¹⁴Consumption taxes are designed to neutralize this effect.

more consumption promotes growth by increasing trade. This is axiomatic (increased trade = growth). But demand-driven growth has limits: Eventually resource constraints limit consumption, leading to inflation. To create real growth, an economy needs to expand resources, which requires capital, which requires forgoing consumption for the sake of investment. So is redistribution good or bad for the economy? It *might* be good (or not) if the economy is operating below capacity and capital is abundant. If capital is scarce, and technology is advancing rapidly, the economy will often be better off if people save more and consume less. In any case, it's probably better to let private individuals (the market) decide how much they want to save or consume; the political process does not lend itself to smart or timely economic decisions.

Capital in the 21st Century

Piketty offers up a grim vision for the future: a modern Jane Austen novel, with slow growth, an oligarchy of wealth, and rigid class structures. I've argued that his forecasts are based on misleading data and faulty analyses. But if Piketty is wrong, what should we expect going forward? Where *is* capital headed in the 21st century?

My crystal ball is as cloudy as Piketty's, but the images I see in the fog are a lot less gloomy.¹⁵ A continuation of recent trends seems most likely: Inheritances will continue to fall as a percent of national wealth, while public institutions (PSVs) will become ever-more dominant. Directly inherited wealth will continue to fragment through taxes, charitable giving, consumption, bad stewardship, and split inheritances. Public institutions will continue to grow larger due to their professional management, semi-permanent status, and tax preferences. These PSVs will become the largest owners of virtually all mature companies (as they often are now), and their assets will pass from generation to generation, anonymously and collectively.

In this way, some of Marx's and Piketty's forecasts may actually come to pass—just not in the way either expected: Through PSVs, the public will indeed come to own the means of production (per Marx), and these *collectively* inherited assets will indeed “control vast

¹⁵Some fascinating books covering the optimistic case include Ridley (2010), Diamandis and Kotler (2012), Brynjolfsson and McAfee (2014), and Bryce (2014).

segments of the U.S. economy” (per Piketty). But, contrary to Piketty, these assets (PSVs) will continue to be managed by professional fiduciaries for the benefit of the general public, not by talentless children to satisfy their plutocratic pleasures. (It also looks like Marx was probably wrong about the state “withering away,” but who knows? A lot can happen in the next 100 years.)

New wealth (creative destruction) will continue to soar due to opportunities created by the accelerating advances in human knowledge, technology, energy, and information processing. Perhaps most bullish: billions of the world’s poor will emerge from poverty to enter the global network, bringing a plethora of new talents, skills, and ideas with them. Simple statistics would argue that there should be a few “world changers” among them—say, a Jobs for health care, a Ghandi for the Middle East, or an Einstein for artificial intelligence. First-generation fortunes will remain concentrated in first-generation companies, even if they are occasionally ones that are as crucial to the economy as Microsoft or GAFA (French for Google, Apple, Facebook, and Amazon). This new wealth will indeed be concentrated in the hands of the innovators and early investors who create it, but most of them will stay out of public life, the occasional Soros or Koch notwithstanding.

Depending on estate tax rates, charitable inclinations, numbers of dependents, and quality of stewardship, the second and third generations of new wealth will often lead lives of unearned leisure, but the total numbers will remain relatively small, with rapidly declining influence over a few generations. Neither the wealth creators nor their descendants will represent much in the way of plutocratic risk. If necessary, however, society can and will adopt steeper estate tax rates to limit any plutocratic propensity that might arise.¹⁶

Instead, efforts to influence legislation will continue to come primarily from businesses, labor unions, consumer groups, and other special interests (like the NRA or Sierra Club). These groups represent the interests of various constituents who are significantly affected by government actions. They do not represent the interests of wealthy plutocrats in any direct fashion. In any case, the best way to reduce plutocratic risk is to reduce the reach of government; the

¹⁶If so, it should proceed cautiously and incrementally: per evolutionary theory, providing for one’s direct descendants is among the most powerful of all human motivations.

more the state determines success in business, or in life, the more resources people will devote to influencing government policies. (Unsurprisingly, most politicians like it that way; they would prefer to extend the reach of government.)

There will continue to be large disparities in market incomes because there will continue to be large disparities in how the market values different skills. As the developing world embraces universal education, private property, and free markets, both demand and supply will grow for all types of different skill sets. New technologies promise to do the same. In fact, there are so many amazing advances going on in so many diverse areas—materials, biotech, nanotech, energy, medicine, robotics, transportation, and artificial intelligence—that the Internet revolution may someday seem tame by comparison. The highest-paid skills will continue to be those that are hardest to obtain and most in demand. Although the distribution of market incomes will remain top heavy, society will continue to use tax policy, PSVs, and transfer payments to help the ever-smaller pool of those in need.

Globally, the success of private property and free markets will become increasingly obvious to people everywhere. Enlightened despots (e.g., China) will promote free markets to remain relevant on the global stage; endangered despots (e.g., North Korea) will try to hang on, but their citizens will nonetheless gain access to the global network and demand change. As economic freedom expands across the developing world, today's poor nations will improve along all of the dimensions noted in the *Economic Freedom of the World Reports*. Birthrates will decline due to lower infant mortality rates and expanding women's rights (two features of freer economies). By the end of the 21st century, public institutions (PSVs) will own much of our increasingly intelligent capital base, and their yields will be able to cover most of our basic needs—including, perhaps, managing capital—freeing ever-more time for humanity to pursue its passions. By then, we will all be rentiers, at least for our basic needs. We stand at the dawn of a new era.

I said it was optimistic, but who could have foreseen the world of 2000 back in 1915? And there are certainly some disaster scenarios that could emerge (most of them involving excessive government debt). My point isn't that I'm right and Piketty's wrong—although I believe I'm less wrong—but rather that the future is uncertain. If we impose grand, invasive policies using flawed analyses of faulty data,

we will likely get bad results. In fact, even if we base policies on sound analyses of reliable data, we may still get bad results: market reactions are uncertain and often nonlinear. Markets and economies adapt quickly to any new environment, often in unintended ways, as agents continue to pursue their individual and varied objectives. The state should be slow to enact large-scale market interventions unless it can convincingly demonstrate that there has been a market failure,¹⁷ and that potential solutions have been thoroughly tested on smaller samples (i.e., use the scientific method, with market efficiency as the null hypothesis).

Conclusion

Piketty's economic analysis is faulty because he mistakes the return on capital for the growth of capital. Across generations, institutional capital is taxed less (lower t), consumed less (lower c), and probably invested better (higher r) than private capital. Per Equation 1, it should continue to grow faster as well.

Piketty's inequality data is misleading; it ignores the impact of existing programs to address inequality. The distribution of *disposable* income (after taxes, transfer payments, and fringe benefits) is more equal, and has *not* become more skewed in recent years. The same holds for the distribution of wealth after adjusting for pensions and public savings vehicles (PSVs). Global inequality is also declining rapidly as developing nations pursue market economies.

Piketty's global wealth tax would likely prove counterproductive. It would raise the cost of capital, leading to less investment and, quite possibly, the type of slow-growth economy with vastly unequal consumption that Piketty fears. Nor is it clear that promoting equality is a valid goal for public policy. A more effective way to promote equality would harness market forces: risk sharing, eliminating tax preferences, and economic freedom. Incomes would be more equal if wages were more sensitive to company results, while wealth would be more equal if PSVs had a higher beta to the market. Eliminating tax preferences should also reduce inequality. Finally, there is compelling evidence

¹⁷Many market "failures" are really just market outcomes that someone doesn't like (e.g., CEO pay). Others are really government, social, or cultural failures. For instance, reduced social mobility is largely a failure of public education, or the result of cultural and social barriers, not a market failure per se.

that, in freer economies, the poor have higher incomes *and* higher income shares (and enjoy numerous other social benefits as well).

Piketty's predictions for slow growth and ever-greater inequality are speculative; there is also a compelling case for faster growth and declining inequality over the century ahead. Given this uncertainty, it makes no sense to enact invasive policies (asset seizure) to address a market failure that may not even exist. Markets are usually efficient, but always unpredictable: interventions rarely work as planned, and often produce unintended consequences.

But perhaps the area where I disagree with Piketty most is on the role of science in economics. History shows that the scientific method is the only reliable guide to knowledge; economics should embrace it. A scientific approach would start with accepted theory (i.e., market efficiency) as the null hypothesis; use statistical analysis of evaluate alternative hypotheses (market failures); and, if found, use trial-and-error on small samples to develop effective solutions (and new theories). Instead, Piketty uses misleading data and flawed analyses to propose a draconian solution to a nonexistent problem. His global wealth tax would likely produce uncertain, unintended, and possibly ugly consequences. In an effort to achieve a higher "political, normative and moral purpose," Piketty has abandoned scientific reasoning and sound economics.

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CENTRAL BANK STRESS TESTS: MAD, BAD, AND DANGEROUS

Kevin Dowd

In my youth it was said that what was too silly to be said may be sung. In modern economics it is put into mathematics.

—Ronald Coase

One of the most important aspects of the remarkable transformation of central banking following the onset of the 2008 global financial crisis is the growth of regulatory stress tests for the larger banks. The relevant regulator—typically the central bank—uses these to determine the ability of the banks to withstand stress, and uses the results of the tests to assess the overall financial health of the banking system. A key purpose of the stress tests is to reassure the public that the banking system is sound.

When putting banks to such a test, the relevant authority starts by imagining some stress scenario(s) to which banks might be exposed—these are effectively just guesses pulled from thin air—and uses a bunch of models based on a bunch of further guesses to determine how the scenario(s) will affect the banks' capital adequacy (i.e., their ratio of capital to assets) over the course of the

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stress period. It then passes or fails individual banks according to whether their capital ratio has remained above some minimum by the end of that period. To take a typical example, in its latest (2014) stress tests, the European Central Bank (ECB) assumed a single scenario, took the capital ratio to be the ratio of Common Equity Tier 1 (CET1) capital to risk-weighted assets (RWA), and selected a minimum required ratio of 5.5 percent measured in terms of the CET1/RWA ratio. Any bank that maintained a CET1/RWA ratio of at least 5.5 percent by the end of the stress period was then deemed to have passed, and any bank whose capital ratio fell below this minimum was deemed to have failed.

These regulatory stress tests are the ultimate in the appliance of financial “rocket science” to the banking system, and many of the models themselves are derived from the physical science models used so successfully in real rocket science. However, by their very nature, all these models—the financial models and the stress tests themselves—are impenetrable black boxes to any outsider, and we are asked to take their reliability on trust. The analogy with rocket science, though appealing and even comforting, then breaks down in two critical respects:

- Real rocket science is grounded in the science of physics, and the laws of physics are well established. By contrast, so-called financial rocket science is merely a set of beliefs and practices based on sets of convenient assumptions that ape some of the assumptions made in physics, but are wide of the mark as descriptions of how financial markets really work.
- We know that the methodology underpinning real rocket science actually works because it is scientifically tested, but we have no such assurance with its financial and central bank equivalents. Indeed, going further, we can say, with confidence, that we know that the methodologies underpinning both financial models and regulatory stress tests do not work: the stress tests provide an extremely unreliable radar system.

My purpose in this article is to spell out this latter claim—or, more precisely, to assess the methodology of regulatory stress testing both by reference to first principles and by reference to its track record. The results are shocking.

Financial Risk Models Are Worse than Useless

The first point to appreciate is that central bank stress tests are based on models of financial risk—models that predict potential losses and their associated probabilities—and these models are not so much useless as worse than useless. More precisely, the stress tests are dependent on risk models because they make use of risk-weighted asset measures that are dependent on the risk models. These models are useless at predicting financial losses and worse than useless as risk management tools because of their gameability and the false risk comfort that they provide.

Consider the foundations of risk modeling. The first is the standard assumption that financial returns (or losses) follow a Gaussian (or normal) distribution. A nice example illustrates that this assumption is impossibly implausible for the large losses that really matter. Back in August 2007, Goldman Sachs' hedge funds were experiencing enormous losses. "We're experiencing 25-sigma [standard deviation] events, several days in a row," explained their CFO, David Viniars (Larsen 2007), the suggestion being that Goldman had been very unlucky as opposed, e.g. to merely being incompetent. Financial commentators were quick to pour scorn on this lame excuse, and 25-sigma events were being likened to events one would expect to see on one day in 10,000 or 100,000 years. That's a long waiting time for events that actually happen quite frequently in financial markets.

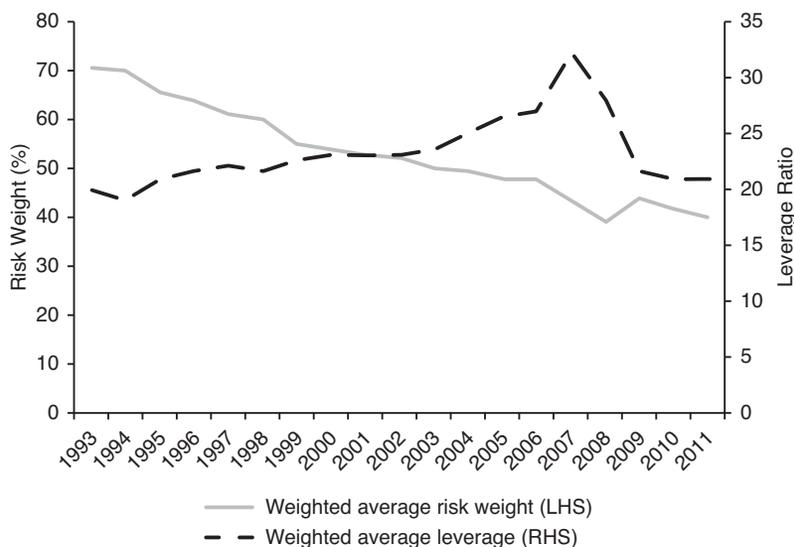
However, under the Gaussian distribution, the waiting time to observe a single-day 25-sigma event is much, much longer than even 100,000 years. In fact, the waiting time is $1.3e^{135}$ years: 1.3 with 135 zeros inserted after the decimal point (Dowd et al. 2008: 3). To put this number into perspective, the number of particles in the known universe is believed to be somewhere in the region of $1e^{80}$, which is literally infinitesimally smaller. To recycle an old Richard Feynman joke, a number like $1.3e^{135}$ is so large that the term "cosmological" hardly suffices; perhaps we should describe it as "economical" instead. Thus, the Gaussian distribution massively underestimates the risks of the really big losses that truly matter.

A second pillar of risk modeling is the Value at Risk (or VaR) risk measure. This tells us the maximum likely loss that can occur on a position at a certain level of probability, for example, on 99 times out of 100. In plain English, this definition boils down to the worst we

can do if a bad event does not occur. Unfortunately, it tells us nothing about the loss we might experience if a bad event *does* occur—and it is the very high losses that we should worry about; the VaR is blind to the risks that matter, the ones that can wipe a bank out.

A third problem with the risk models is simply that they don't work. One could give many examples (see, e.g., Dowd 2014: 6–8), but Figure 1 suffices. The continuous dark plot shows banks' average risk weight, which includes the impact of risk models; the dashed line shows a primitive metric, bank leverage, the ratio of bank assets to capital, which ignores risk models. The risk-weight plot suggests that risks were continually falling; the leverage plot shows that they were rising up to 2008. As Bank of England economist Andrew Haldane (2011: 3) noted, “While the risk traffic lights were

FIGURE 1
AVERAGE RISK WEIGHTS AND LEVERAGE, SELECTED BANKS,
1993–2011



NOTES: The sample consists of Deutsche Bank, HSBC, BNP Paribas, Barclays, Citigroup, UBS, BAML, BONY, Commerzbank, ING, JPM, LBG, Santander, State Street, UniCredit, and Wells Fargo. Data are not available for the remaining G-SIBs. The leverage ratio is defined as total assets relative to Tier 1 capital.

SOURCES: Bank of England, *The Banker*, Bloomberg.

flashing bright red for leverage [as the crisis approached], for risk weights they were signalling ever-deeper green.” The risk weights were a contrarian indicator for risk, indicating that risk was falling when it was, in fact, increasing sharply.

There are a host of reasons why the models failed so badly, but only one that matters: gaming. The models were being used not to manage risks, but to game the risk-weighting system. No model can take account of the ways in which it will be gamed, and market players have strong incentives to game the models used to control them.

So why does bad modeling persist? The reason is that banks want bad models because they understate their risks, and the regulatory system endorses bad models because it is captured by the banks.

Most risk modeling is then just a game: banks pretend to model risks, but they are really gaming the risk numbers. This game even has a name: risk-weight optimization. You fiddle with the models to get low risk numbers and you come up with clever securitizations to game the risk-weighting rules.¹ The lower the risk number, the lower the capital requirement, and the more capital can be siphoned off and distributed as dividends or bonuses.

In short, the real (though seldom publicly stated) purpose of risk modeling is to use capital regulations to decapitalize banks, and when they go bust, the bankers play dumb and lobby for a bailout. It is perhaps no wonder, then, that the risk models don't work: they are not intended to.

General Problems with Regulatory Stress Tests

Besides their dependence on risk models, stress tests carried out by central banks or financial regulators are subject to a number of other problems, any one of which on its own would be enough to render such exercises fatally flawed.

One problem is that these tests are essentially based on a single scenario.² Reliance on a single scenario violates good practice advice on stress testing and even common sense (see Finger 2008). Even if

¹A good example is the “how to destroy” securitization. The purpose of this securitization was to game the Basel capital rules to release capital and generate false profits (Kerr 2010, 2011).

²Strictly speaking, the Fed in its Comprehensive Capital Analysis and Review (CCAR) stress tests uses three scenarios, but of these only its “extremely adverse” scenario really matters.

the banking system is safe under the one scenario that you considered, how do you know that it will be safe against all the other scenarios that you did not consider? You don't. The odds of that scenario actually occurring are also vanishingly small: whatever you think might happen, something else generally does. No single scenario can possibly give you confidence that the banking system is safe.

Another problem is that central bank stress tests are typically undemanding, that is, insufficiently stressful. They are undemanding in two different ways:

- The stress scenario itself is typically only a mildly adverse scenario.
- The hurdle (or pass rate) is (always) low, and arguably very low.

To give an analogy, a stress test is like an exam, and a tough exam requires not only a tough exam paper but also a challenging pass mark. Central bank stress tests are then like having an exam with an easy set of questions and a very low pass mark.

A third fatal error with central bank stress tests is that they lack credibility. They lack credibility in part because the regulators who conduct them are prone to capture by bankers, who then pressure regulators to go easy on them in much the same way that students would pressure a weak teacher to give them an easy exam, and in part because of central banks' own dismal forecasting records—none of them saw the financial crisis coming and they have all made major forecasting errors in the period since the onset of the crisis.

Stress tests also lack credibility for another reason. Imagine that a central bank conducted a stress test that suggested that the banking system was very weak. The central bank could never reveal such a result, because to do so would undermine public confidence in the banking system and violate one of its most important tasks, which is to maintain that confidence. Remember, too, that one of the purposes of the stress tests is to promote confidence . . . whether that confidence is justified or not presumably being a different matter.

Revealing a "bad" result would also undermine confidence in the central bank itself, because it would raise awkward questions about its own competence. How could the banking system be so weak after all the resources devoted to rebuilding it, who should be held to account, and so forth? Of course, everyone understands that the central bank has a huge incentive to promote the message that the system is sound, and so the tests lack credibility because only a

reassuring answer is ever to be allowed. And, indeed, by curious coincidence, central bank stress tests *always* report that the banking system as a whole is sound, even if they sometimes report that individual banks are not.

Despite the fact that the principal purpose of central bank stress tests is to make the banking system more stable, those tests *inevitably* increase systemic banking risk:

- Such tests embody a regulatory risk standard—an “approved” way to manage risks—and any such standard is inherently counterproductive. In the absence of any standardization, different banks will have different approaches to risk management and this diversity will help to stabilize the system, with some buying in a crisis when others sell. But if all banks are pressured to standardize their risk management, then they will all act in much the same way and will all attempt to sell in a crisis. However, while an individual bank can sell in a crisis, the entire lot cannot. All assets have to be held by someone, and a collective attempt to sell only aggravates the crisis by exacerbating price instability. Moreover, *any* regulatory standard will have this destabilizing effect even if that standard is a good one when applied to any individual bank on its own.
- In practice, however, any such standard must inevitably be flawed—if only because no central bank has the incentives or information to produce a perfect standard—and in such cases the whole banking system will then be exposed to weaknesses in the “approved” risk management standard, and especially to the weaknesses in the “approved” models. They will then end up with the same flawed models with the same risk blind spots, and the entire system will be exposed to the dangers that the “approved” models fail to detect.

A Record of Repeated Failures

It is also instructive—indeed, grimly entertaining—to examine the track record of regulatory stress testing to see how this methodology actually works in practice.

The Freddie and Fannie Stress Tests

Let’s begin with the first modern stress tests: the Fannie and Freddie tests. Their origins go back to the early 1990s, when there

was concern over the solvency of these government-sponsored enterprises (GSEs). There were proposals to increase their capital requirements, but Fannie managed to head off such pressure by means of an audacious coup. It commissioned former Fed Chairman Paul Volcker to examine the matter, and he concluded that Fannie was safe.

Fannie's chief executive could then claim that his business was safer than banking: "There are no unpleasant surprises because of the nature of our business. We don't have any see-through buildings, any Third World countries or any strip shopping malls. We just have those mortgages" (Hagerty 2013).

It then took nearly a decade for the rocket scientists to come up with model-based capital requirements that were not much higher than zero, and this when the GSEs were loading up on subprime mortgages, then known as "affordable housing." Fortunately, this was not a problem: The models said the subprime market was actually quite safe because modelers did not allow for any possibility of a housing downturn and the risks were diversified away.

As the details were being finalized, Fannie then scored another coup by commissioning a distinguished team of economists led by Joseph Stiglitz to carry out its own stress tests. The Stiglitz team came back with the reassuring conclusion that even under a decade-long "nuclear winter" scenario, the probability of Fannie or Freddie failing was essentially zero (Stiglitz, Orzag, and Orzag 2002).

The GSEs then went on a massive binge and effectively failed six years later when the government took them into conservatorships to avert impending collapse. The tests had been a spectacular failure.

So what went wrong? Well, part of the problem was that the stress-based capital requirements were way too low, but part of the problem was that the new system allowed the GSEs to game the system by loading up on risks that the models did not adequately capture. The GSEs' management teams were also working with contracts that encouraged excessive risk-taking so the outcome should be no surprise. They were also gaming the GSEs' government-sponsored status: They would tell Congress not to worry because the government was not on the hook, then tell Wall Street not to worry because the government *was* on the hook. There was also all the political meddling as well (see Morgenson and Rosner 2012). Or, to quote the book *Alchemists of Loss*, Fannie and Freddie

leveraged more than would have been possible without the government's quasi-guarantee, used taxpayers' money to lobby like crazy to ensure they were not properly regulated and collapsed thankfully into the arms of the taxpayer as soon as the consequences of their own ineptitude became clear. It is indeed astonishing to consider how they managed to turn the soundest product in financial markets, the home mortgage, into a speculative casino, causing collateral damage of many times their own losses [Dowd and Hutchinson 2010: 190].

And all of which was missed by the stress tests.

The Fed's Stress Tests

The next important player to enter the stress-testing game was the Federal Reserve. Its first stress tests were carried out under the relatively light Supervisory Capital Assessment Program in 2009, followed by the CCAR in 2011, which has since become an annual event.

The CCAR is a highly aggressive program in which banks are required to prove the adequacy of their models relative to the Fed's models. Each CCAR has been more extensive and demanding than the previous one. Then in 2013, the CCAR was supplemented by additional stress tests mandated by Dodd-Frank, and in 2014 U.S. banks were subject to even more stress tests under Basel III.

Critics pointed out that the Fed's tests were reliant on the Fed's scenarios that were not particularly stressful, and were conditioned by political factors such as the Fed's reluctance to face up to the problems posed by the big zombie banks and the still unresolved problems in real estate markets. The tests were also blind to risks credibly identified by outside observers, for example:

- The risks of a eurozone collapse were ignored until the 2012 CCAR, and the eurozone had nearly collapsed the year before.
- The CCAR still ignores the biggest risk of all—that created by enormous off-balance sheet activities.

When I was researching *Math Gone Mad*, I interviewed some of the senior managers of a major U.S. bank. They told me that much of its normal activity had to stop because of the need to feed the models demanded by the Fed, and both its management and its IT systems were overwhelmed by compliance issues. The bank was

forced to make huge investments in models and modelers it didn't need, and then had to take more risks to recoup the costs. It also had to call a halt to further acquisitions because it couldn't assess the regulatory risks in potential purchases. Its whole business model became warped by the models, right down to the level of individual loans. And the models themselves couldn't be challenged.

Banks have no choice but to manage to what they perceive the Fed's models to be, otherwise they fail the tests. The result is the banks end up with much the same unreliable models, they then make much the same mistakes, and the U.S. banking system ends up with much greater systemic risk—a risk that none of the models pick up.

Over time, the tests also become routine and the results increasingly predictable. Stress testing then becomes a meaningless but very costly and very counterproductive compliance exercise. In fact, there is now a flourishing consultancy industry that specializes in how to pass the tests. The consultants are former Fed officials—the same ones who used to conduct the stress tests themselves. The very process of repeated stress testing over time has made the tests themselves futile. Put all this together, and you have lots of jobs for risk modelers, but the net effect is a growing systemic risk that the models cannot see. But let's not be too hard on the Fed—when it comes to screwing up stress testing, the Fed is only an amateur. Let's look at other countries.³

The Icelandic Stress Tests

Consider Iceland. In 2004, the three largest Icelandic banks had assets equal to 100 percent of GDP. They then embarked on a massive expansion and by the end of 2007 their assets were 900 percent of GDP—a world record. credit default swap (CDS) spreads were now suggesting that there might be a problem.

Fortunately, an IMF stress test in August 2008 suggested there was nothing to worry about—the system was resilient. So did a bunch of other regulatory stress tests. The banking system then collapsed unexpectedly in October: The stress tests had missed the imminent collapse of the entire Icelandic banking system!

³The discussion of the U.K. and European stress tests is drawn mainly from Dowd (2015).

The U.K. Stress Tests

Then there are the new kids on the stress-testing block, the Brits. The first U.K. stress test was carried out last year. The message was that the banking system was sound.

The exercise was based on a single scenario, and a mild one at that: GDP growth falls to -3.2 percent before bouncing back, inflation rises to peak at 6.5 percent, long-term gilts peak just below 6 percent, and unemployment hits 12 percent. This is not particularly stressful by historical standards, and also pales in comparison to the output falls and unemployment rates in parts of the eurozone. The impact of this stress scenario is also very mild: The average CET1/RWA ratio drops a little from 10 to 7.3 percent and there is a fairly small drop in bank profitability.

The Bank of England also uses a very low “pass” standard—a 4.5 percent minimum ratio of CET1/RWA. This is lower than the 5.5 percent ratio that the European Central Bank used in its widely discredited 2014 stress tests, is lower than the 7 percent ratio already in force in the United Kingdom in 2014, and is well below the minimum capital requirements coming through under Basel III. Had the Bank carried out a test using these latter Basel minima, however, the U.K. banking system would have failed: same exercise, higher safety standard, opposite result.

The Bank also failed to carry out any tests based on leverage—the ratio of capital to total unweighted assets—which offers a much less gameable measure of a bank’s financial health. Even an undemanding test based on the Bank’s required minimum leverage ratio of 3 percent would have revealed how weak the U.K. banking system really was, and most of the banks would have failed.

The Bank’s failure to test against its own minima hardly inspires confidence. But then again, neither does the alternative. One might say that the Bank is damned because it didn’t, and would have been damned if it did.

A 3 percent test is the weakest of leverage ratio tests. It is lower than the 4 percent minimum that the Fed now uses for the CCAR and a fraction of the 15 percent-plus minimum that many experts recommend (see, e.g., Admati et al. 2010 and Admati and Hellwig 2013: part III). The 3 percent minimum is at least five times larger than the leverage test that the Bank failed to conduct—or, at least, to report. Had the Bank based its stress tests on this measure, December’s

comforting financial headlines would have been very different indeed. By this standard, the whole U.K. banking system would not so much be underwater as stuck in Davy Jones' locker at the bottom of the ocean. We can therefore safely dismiss the U.K. stress tests.

The European Stress Tests

The European stress tests are even worse. The first of these was carried out by the Committee of European Banking Supervisors in 2009. The outcome was uneventful: 22 large banks all passed. European regulators were quick to hail the “resilience” of the European banking system. Critics simply said that the stress test was too weak.

The fun starts with the second stress test conducted in 2010. This test covered the 91 largest European banks and only seven failed to meet the 6 percent minimum. Their combined shortfall was only €3.5bn—about 0.15 percent of GDP. This figure was a fraction of the estimates of independent analysts, and the stress test largely ignored the biggest risk of all—the risk of sovereign defaults. This risk was ignored, it turned out, because the EU was “committed” to ensuring that such defaults never happened—a classic case of policy make-believe undermining the exercise from its inception. Any doubts about its credibility were dispelled four months later when the Irish banking system collapsed. The Irish banks had all passed the stress test.

The 2011 stress tests were then carried out by the new European Banking Authority (EBA). The get tough EBA promised that its stress tests really would be credible and it would not repeat the mistakes of the earlier fiascos. There was now a much greater awareness of the sovereign debt problem and the EBA needed to prove itself. So what did it do? It came out with an aggregate shortfall of €2.5bn, even *less* than the widely discredited estimate from the year before. Any doubts about the credibility of that exercise were then dispelled three months later when the giant bank Dexia failed. Dexia had aced the test.

In the meantime, the EBA frantically revised its numbers. Its corrected estimate turned out to be over 45 times larger than the original—and even this was much less than independent estimates. Then the big Spanish bank Bankia failed; Bankia had also passed. Then the icing on the cake—the entire Cypriot banking system

collapsed in early 2013; the big Cypriot banks had also passed the test. None of the key agencies monitoring Cyprus—the EU, EBA, IMF, and BIS—even had Cyprus on any kind of watch list. So now the stress testers had a hat trick. Three national banking systems had failed after being signed off as sound.

The next major EU stress tests were conducted by the ECB in 2014 as part of its new mandate as Europe's super-regulator. A key driver behind the establishment of the eurozone banking union and the Single Supervisory Mechanism to govern it was the argument that national regulators were prone to capture and therefore an independent and more demanding regulator was required—namely, the ECB. The ECB promised that *its* stress tests really would be credible and it would not repeat the mistakes of the earlier stress-test fiascos. The ECB stress test was also to be buttressed by an asset quality review (AQR) to provide assurance that the new stress tests would be based on sound data given the glaring data problems that had plagued earlier stress tests. The new tests were also to have a stronger capital standard, an 8 percent CET1/RWA hurdle ratio—the standard minimum of 4.5 percent, plus a 2.5 percent CCB, plus a 1 percent G-SII requirement. Unfortunately, the 8 percent ratio soon attracted a lot of negative lobbying from interested parties—the banks and their national supervisors, who had been captured by them—and the hurdle ratio was eventually knocked down to 5.5 percent.

Twenty-five banks then failed the stress test with a combined shortfall of €25 billion. None of the biggest banks failed, and the banks that did fail were concentrated mainly in the southern fringe. For its part, the asset quality review produced asset quality adjustments of an additional €48 billion. The severity of the stress is apparent when one considers that the combined shortfall plus quality adjustment amounted to only about 0.3 percent of total bank assets, a number small enough to be rounding error. One wonders why they bothered. In any case, a chorus of experts dismissed the results on publication.

One problem was the adverse scenario, which was very mild. This scenario assumed that inflation would drop to 1 percent in 2014. But by the time the results were released inflation had fallen well below this level and much of the eurozone was already in deflation. When challenged about this at the press conference, ECB Vice President

Constancio's response makes satire redundant: "The scenario of deflation is not there because . . . we don't consider that deflation is going to happen," he said.

Independent experts estimated shortfalls nearly 30 times larger than the ECB's estimates (Acharya and Steffen 2014a, 2014b, Vestergaard and Retana 2013). These assessments are superior because they use standardized, easily replicable low-cost approaches and are credible because they are independent of the political influences and regulatory capture that compromise central bank stress tests.

Independent studies also suggest that the biggest risks are in the French and German banks, directly contrary to the ECB party line that the core eurozone banks are sound and that any problems lie primarily around the southern fringe.

The main reason for the discrepancy between their results and the ECB's is that they used leverage ratios that *revealed* the risks rather than RWA ratios that *hid* them. The implication is that these banks only appear strong because of their superior expertise in gaming the risk weights.

Consider the big French and German banks, Credit Agricole, BNP Paribas, SocGen and Deutsche.⁴ Each of these

- easily passed the ECB stress test,
- would easily have failed an undemanding 3 percent leverage ratio test,
- would produce enormous shortfalls under a severe (7 percent) leverage ratio test, and
- had very low ratios of risk weighted to total assets.

In sum, these banks are more risky, but better at making their risks invisible to the ECB test.

⁴Deutsche is a particular problem child. It is arguably the largest, most systematically important bank in the world, with a total balance sheet about the same size as world GDP. With deposits only 1 percent of its balance sheet, it is a gigantic hedge fund with a comparatively small bank attached. FDIC Vice Chairman Thomas Hoenig has been warning about it for years; two years ago, he noted: "It's horrible, I mean they're horribly undercapitalized. They have no margin of error." Recent investigations by the New York Fed also indicate a litany of serious problems in its U.S. arm, indicative of the firm worldwide. These include shoddy reporting, inadequate auditing and oversight, and weak technology systems, amounting to a "systemic breakdown" in controls (see Enrich, Strasbourg, and Henning 2014). Deutsche is, in short, a disaster waiting to happen.

It would therefore appear that that the stress tests had been driven and hence compromised by the desire not to offend powerful governments—especially Germany and France—who also had their own reasons to want test results suggesting that the problems lay on the fringes of the eurozone, and not right at its heart. That same message would have also suited the empire-builders at the ECB to reinforce the case for giving them yet more power. In any case, it would have suited no one for the ECB to suggest that some of Europe’s too-big-to-fail banks were, well, on the verge of failure, as that would have put the spotlight on them to come up with a solution to this most vexing of problems. And so the

suspicion lingers that undertaking the comprehensive assessment on the basis of risk-weighted assets and an only mildly adverse stress scenario were not “mistakes,” after all. More likely, it reflects substantial political pressures. It would have required courage and genuine independence for the ECB to identify several German and French banks as severely undercapitalized just days before it assumes bank supervisory responsibilities for all major eurozone banks [Vestergaard 2014].

In short, the ECB had been captured and its stress tests were no more credible than its predecessors’ had been.

Conclusion

The inescapable conclusion is that the methodology of regulatory stress testing is based on foundations that are indefensible and even risible. These include:

- Their dependence on discredited models of financial risk;
- Their reliance on a single scenario, against all good practice and common sense;
- Their tendency to rely on unstressful stress scenarios and very low pass marks;
- Their intrinsic lack of credibility because of regulatory capture, central banks’ own dismal forecasting records, and the politics that underlie and fatally undermine regulatory stress exercises; and
- Their reliance on “approved” models and risk management practices that increase systemic risk—and do so in a way that the models themselves cannot see.

If this does not persuade, consider their track record, which includes, among other embarrassing disasters, the hideously costly Fannie and Freddie stress-test fiasco and three national banking systems signed off as sound by regulatory stress tests, which then collapsed unexpectedly not long afterwards. In fact, with one exception, I am not aware of a single case in which a regulatory stress test correctly identified *in advance* a subsequent buildup of banking stress, which then allowed the relevant authorities the chance to counter it. The exception? The Northern Rock “war games” in the United Kingdom in 2005. This exercise identified a scenario very close to that which was to lead to the Northern Rock run in 2007—the first English bank run since 1866—but then the British authorities did nothing about it and were caught completely unprepared when their own scenario came to pass.

In not a single case did a regulatory stress exercise ever lead to any demonstrated benefit to the banking system. On the other hand, there are many cases where such exercises provided false comfort, lulling those involved to sleep in the face of imminent danger. Ironically, they generally did so when more conventional indicators—such as CDS or yield spreads, and leverage and other ratios—were clearly indicating red. But the stress tests said not to worry. So they didn’t and then disaster struck.

Stress tests operate like a cancer detection procedure that can’t identify most cancers, or a radar system that cannot see many of the hazards out there. We would never send out a ship or plane that relied on a radar that didn’t work; we really shouldn’t allow central banks or bank regulators to do the same with our banking systems either.

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CHINA'S POLITICAL-ECONOMIC INSTITUTIONS AND DEVELOPMENT

Chenggang Xu

After more than three decades of economic reform, China has transformed from being one of the poorest economies in the world to being the second-largest economy measured by nominal exchange rates, or the largest economy measured by purchasing power. As such, it is important to elucidate the determinants of China's future development.

This article will focus on China's institutions. I argue that although the size of China's economy is extremely important in terms of its impact on the global economy, it is misleading to ignore political and economic institutions. Indeed, forecasts based on extrapolating past trends could be erroneous (see Pritchett and Summers 2014). China was the largest economy in the world before the end of the 19th century but then lost ground to Western nations that established the rule of law and free trade. To understand China's past and future development, one has to examine its institutions.

The existing literature presents two contradicting views of China's future: one optimistic, the other pessimistic. The late economic historian and Nobel laureate Robert Fogel predicted that by 2040 the

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Chinese economy would account for 40 percent of global GDP while the U.S. share drops to 14 percent (Fogel 2010). His prediction is consistent with a standard growth model, which takes market institutions as given. Other authors, such as Gordon Chang (2001, 2011) and Zoe Zhang (2014) are less sanguine. They claim that China faces serious problems and may collapse because of political and economic crises.

Treating China as a monolithic entity can be misleading. Recent research has shown that Chinese counties where privately owned firms are concentrated experienced significantly higher growth rates—and less income inequality—than other counties (Guo et al. 2014). Another recent study found that China’s state-owned firms are significantly less efficient than their counterparts in 27 other transition economies, while China’s private firms are significantly more productive (Kim, Wang, and Xu 2014). Yet one of the major problems in China is that it is difficult for private firms to enter and to grow in many economic sectors due to institutional barriers and discriminations against the private sector. Meanwhile, state-owned firms obtain most of the resources from the government, which reduces their capital productivity and total factor productivity (TFP).¹

In the remainder of this article, I first compare China with other countries from a historical perspective and present cross-country data on distance from the “world frontier,” measured by the ratio between a country’s per capita GDP and that of the most advanced country, such as the United States.² This measure indicates the effects of institutions on long-term growth. Next, I provide an analysis of China’s institutions and their origin, and illustrate their effects on China’s economic performance. The concluding section argues that institutional reform is essential for China’s sustainability and stability.

Institutions and Development: Understanding China’s History

In the last 30 years, China has been on the path of returning to its historical status relative to other countries. President Xi Jinping has

¹Recently, the state sector has strengthened relative to the private sector. In China’s policy circle and media, this observation is summarized as “*guojin mintui*.”

²A ratio of 1 implies no distance from the world frontier, whereas a low ratio indicates a large distance. According to Gerschenkron (1962), everything else being equal, a more backward economy has a higher potential to grow than a more advanced economy.

referred to this development as “China’s dream,” and it has brought positive reactions and hope from the Chinese people. However, will China be able to return to its previous international status? Will China be able to achieve more than merely returning to its historical status? To understand how far China can continue to develop, we should first comprehend the reason China drastically declined since the late 19th century for nearly 100 years, and how China managed to catch up since 1978. We can then evaluate whether the particular catch-up mechanism of China is sustainable. I will argue that the outcome will depend on the underlying Chinese institutions.

China Is Returning to Its Historical Past

China has the second-largest economy in the world by nominal GDP level, but its status remains distant from its global status in 1850, when China was by far the largest economy in the world. Even more strikingly, 200 years ago, China’s GDP accounted for one-third of global GDP (Maddison 2003). Table 1 shows that China has returned to its historical status in 1890, as the world’s second-largest economy. However, by 1913, the United States far outpaced China in terms of GDP, and the United Kingdom, Germany, and Japan were undergoing rapid industrialization.

In June 1898, China attempted constitutional reform during the *Wuxu* Restoration, but that effort ended quickly, in September. Enlightened Chinese intellectuals and politicians advocated the so-called Hundred Day Reform. They believed that China’s imperial

TABLE 1
GDP, SELECTED COUNTRIES, 1850–2013
(PPP, BILLIONS, 1990 GEARY–KHAMIS DOLLARS)

	1850	1870	1890	1913	1950	1980	2000	2013
China	247	190	205	241	240	1,047	4,330	13,395
U.S.	43	98	215	517	1,456	4,231	7,942	16,800
U.K.	63	100	150	225	348	728	1,180	2,391
Germany	48	72	116	237	265	1,105	1,528	3,233
Japan		25	41	72	161	1,568	2,625	4,699

SOURCE: Maddison (2003); IMF, World Economic Outlook Database (2014).

TABLE 2
RELATIVE SHARES OF WORLD GDP, 1871

	GDP (PPP, \$, millions)	Percentage of World GDP
World	1,101,369	100.0
British Empire	265,000	24.1
Chinese Empire	189,740	17.2
U.K.	100,179	9.1
U.S.	98,374	8.9
Russian Empire	83,646	7.6
France	72,100	6.5
Germany	71,429	6.5
Japan (Meiji Era)	25,393	2.3

SOURCE: Maddison (2003).

institutions were major obstacles to development and were responsible for its rapid decline relative to the rising world powers. Table 1 shows the stagnation of the Chinese economy from 1890 to 1950, after decades of wars and the collapse of the Chinese empire subsequent to the failures of two constitutional reforms.

Table 2 lists the share of global GDP in 1871 and further elaborates my point. In 1871, one of the most devastating civil wars in Chinese history ended, and the Chinese Empire rapidly declined and eventually collapsed. If we only look at the statistics of 1871 without knowing the institutional background, China's global share of GDP (17.2 percent) looks even more impressive than today's (15 percent).

Development Level of China

Although China is the second-largest economy in the world, China's development level is still significantly below that of the world frontier. Based on per capita GDP, the development level of China is similar to that of Peru and is only about 19 percent that of the United States.³ The most important message of Tables 3 and 4 is that China has not made any progress since the Industrial Revolution (or since 1850), in terms of per capita GDP ranking and distance

³Measured by PPP, the 2013 per capita GDP of Peru ranks 86th, whereas China ranks 93rd (IMF 2014).

from the world frontier, regardless of its high share in global GDP in certain periods.

In 1850, the Chinese economy was the largest in the world and significantly larger than the combined economies of the next three highest-ranked nations. However, China ranked last among the 24 nations based on per capita GDP. Moreover, the development distance of China from the world frontier increased steadily and rapidly from 0.25 in 1850 to 0.05 in 1950 (a lower ratio means more backwardness). If backwardness always has advantages for catching up, then China's economy would have advanced rapidly since 1950, after the wars and the nation reunited. Yet, the gap only marginally narrowed from 0.05 in 1950 to 0.06 in 1980, because of the lack of progrowth institutions—namely, the rule of law and free markets.

Tables 3 and 4 also show cross-country historical data to illustrate the impediment caused by certain institutions to economic growth. A substantial part of China's contemporary institutions stem from the Soviet Union while others are inherited from the Chinese Empire, which may arguably be even worse in terms of fostering growth. The

TABLE 3
COUNTRY RANKINGS, GDP PER CAPITA, 1850–2013

	1850	1870	1913	1950	1980	2013
No. of Nations Ranked	24	48	51	132	132	187
France	8	10	12	16	8	23
Germany	10	12	11	20	13	15
Italy	11	16	18	24	18	31
The Netherlands	1	4	8	13	10	12
U.K.	2	2	4	11	20	21
U.S.	5	6	1	4	4	6
USSR/Russia		25	29	28	37	58
China	22	45	50	123	102	93
India		44	48	110	112	133
Japan		31	30	51	15	22
Hong Kong		34	31	40	24	7
Singapore		35	31	39	27	3

SOURCE: Maddison (2003); IMF, World Economic Outlook Database (2014).

TABLE 4
DISTANCE FROM THE WORLD FRONTIER, 1850–2013

	1850	1870	1913	1950	1980	2013
France	0.67	0.59	0.66	0.55	0.81	0.67
Germany	0.60	0.58	0.69	0.41	0.76	0.75
Italy	0.57	0.47	0.48	0.37	0.71	0.57
The Netherlands	1.00	0.86	0.76	0.63	0.79	0.79
U.K.	0.98	1.00	0.93	0.73	0.70	0.70
U.S.	0.76	0.77	1.00	1.00	1.00	1.00
USSR/Russia		0.30	0.28	0.30	0.35	0.34
China	0.25	0.17	0.10	0.05	0.06	0.19
India			0.13	0.06	0.05	0.08
Japan			0.26	0.20	0.72	0.69
Hong Kong			0.24	0.23	0.57	0.99
Singapore			0.24	0.23	0.49	1.22

NOTE: The distance is the ratio between the per capita GDP of a nation (PPP, 1990 Geary-Khamis dollar) and that of the world frontier level, which is the highest national per capita GDP achieved in each year (for 2013, I used the U.S. level as the frontier because all nations with higher per capita GDP than that of the United States are small city-states, which may result in problems regarding comparison).

SOURCE: Maddison (2003); IMF, World Economic Outlook Database (2014).

USSR (for the years before the Soviet era, the area is defined by the USSR geography) is included in Tables 3 and 4 to illustrate the extent of Soviet achievement in terms of economic development. The USSR was a super power at an aggregate level.

However, due to its institutions, the USSR's distance from the world frontier has not significantly improved compared with the tsarist Russian Empire. To illustrate this point, an important fact is that the USSR's research and development expenditure as a percentage of GDP was the highest globally at the peak of the Soviet Union's power, and was significantly higher than that of the United States and Japan. However, the Soviet Union failed to narrow technological and economic gaps from the frontier economies. After more than seven decades of Soviet central planning, the country only produced two of the world's 200 most important inventions and innovations (Kornai 2014).

An extensive literature explains the adverse effects of Soviet institutions and Chinese imperial institutions on economic growth. Yet, Tables 3 and 4 show that the current development level of China is significantly lower than that of the USSR and far lower than that of the Chinese Empire in 1850 in terms of distance from the world frontier.

Effects of Constitutionalism on Long-term Growth

Empirical evidence indicates that constitutionalism is a determining factor of long-term growth (e.g., North 1990, Acemoglu and Johnson 2005, Acemoglu and Robinson 2012, Acemoglu et al. 2014). I use constitutionalism to refer to institutionalized rules that limit the power of government, particularly its power to violate property and political rights. The key element of constitutionalism is the separation of powers and political pluralism—also known as the rule of law.⁴

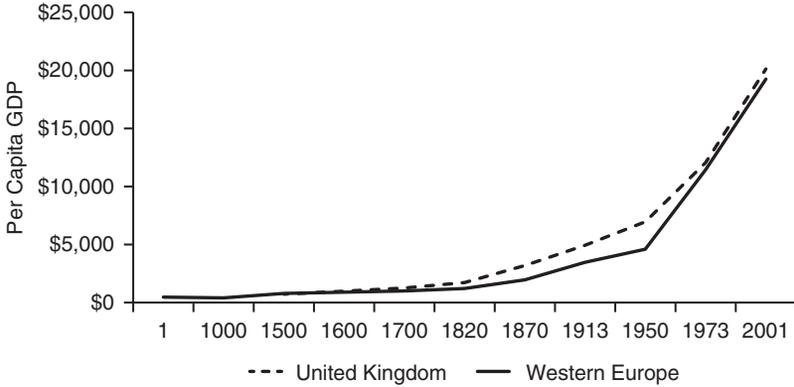
Based on a 60-year post-war dataset and a strict definition of democracy as adherence to constitutional rules and the rule of law, Acemoglu et al. (2014) provide cross-country evidence that democracy determines long-term economic growth. This evidence is consistent with the observation that all the developed economies in the world today (i.e., all members of the Organization for Economic Cooperation and Development) follow constitutional rules and thus the rule of law.

In the following paragraphs, I provide three figures to illustrate that industrialization occurred after the establishment of the rule of law, not the other way around. The same observation is true for the early sustainable catching up and modernization in other countries. This sequence of historical events indicates the causality between institutional change and long-term growth.

Figure 1 shows that the divergence of per capita GDP (measured in terms of purchasing power parity, 1990 Geary-Khamis dollars) between the United Kingdom and the rest of Western Europe started from the Glorious Revolution of 1688—that is, constitutional rule preceded the Industrial Revolution (North 1990). The convergence between the United Kingdom and Western Europe occurred after World War II, following the establishment of the rule of law in all Western European nations.

⁴I am purposely not using the term “democracy” because different authors use that term in different ways to include a variety of institutions.

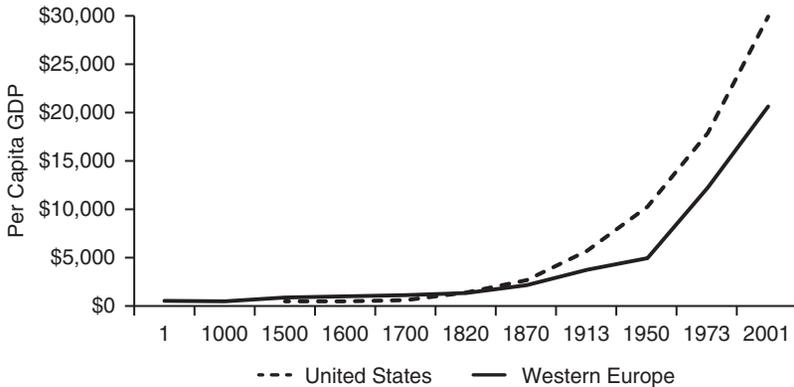
FIGURE 1
U.K. vs. WESTERN EUROPE:
CONSTITUTIONALISM AND INDUSTRIALIZATION



SOURCE: Maddison (2003).

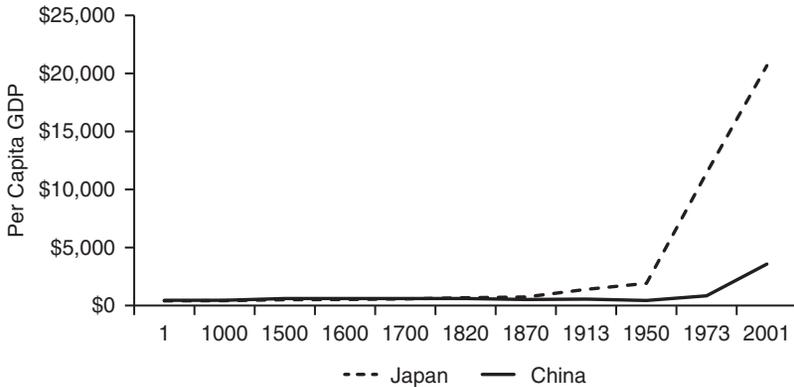
Figure 2 shows a similar historical trend to that of the United States versus Western Europe. Under British colonial rules, American settlers did not have full constitutional rights enjoyed by U.K. citizens and did not have a representative in Parliament. As such, they did not have the right to determine taxes, and King George III denied them ownership rights over land obtained after

FIGURE 2
U.S. vs. WESTERN EUROPE:
CONSTITUTIONALISM AND INDUSTRIALIZATION



SOURCE: Maddison (2003).

FIGURE 3
JAPAN VS. CHINA: MEIJI RESTORATION AND GROWTH



SOURCE: Maddison (2003).

the seven-year British–French war (Linklater 2002). The establishment of constitutional rule (independence) in the United States led to the Industrial Revolution and divergence from Western Europe, as shown in Figure 2.

The last case in this group of historical cases compares China with Japan. The focal point is the Meiji Restoration. Enlightened Chinese scholars since the late 19th century have agreed on the importance of the Meiji Restoration in explaining the divergence between China and Japan. Figure 3 confirms that intellectual agreement and indicates that the development levels of China and Japan were similar before the Meiji Restoration occurred. However, following the Meiji Restoration, Japan developed rapidly while China remained stagnant. The gap between the two economies has rapidly widened for 100 years, particularly after 1950. This gap reflects not only the rapid catching up of Japan to the world frontier but also the backwardness and stagnation of the Chinese economy relative to the rest of the world until 1980.⁵

⁵Given the major negative impacts of Mao Zedong’s “Great Leap Forward” and “Cultural Revolution,” China’s average GDP growth rate from 1952 to 1978 was only 4.4 percent (Perkins and Rawski 2008), which was considerably lower than the growth rate of Japan in the same period.

These three figures illustrate the fundamental importance of constitutionalism in determining long-term growth.⁶ After China's defeat by post-Meiji Japan at the end of the 19th century, enlightened Chinese intellectuals and politicians realized the vital importance of constitutionalism (*xianzheng*) to the economy and launched two constitutional reforms imitating those of the Japanese and those of the British, but they all failed. Russia also launched similar reforms in 1905, but failed; the Bolshevik Revolution then ensued.

China's Regionally Decentralized Authoritarian (RDA) Regime

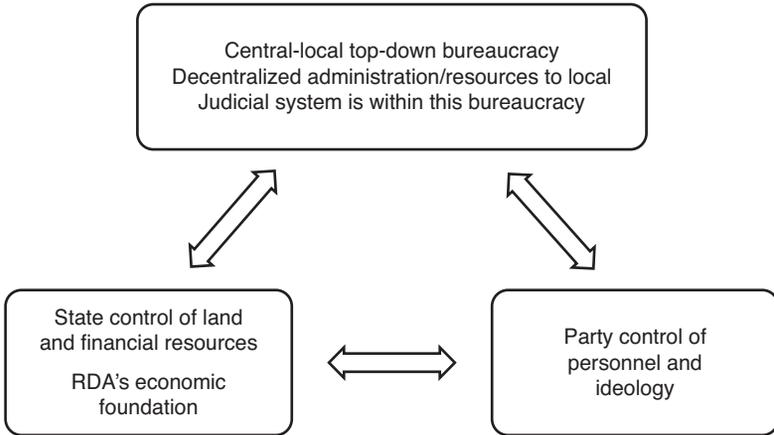
Understanding how Chinese institutions operate poses a great challenge to economics and political science. To address that challenge, I characterize the governing institution of China as “regionally decentralized authoritarianism (RDA)” (Xu 2011). As an institution, RDA is highly centralized in terms of political power and personal control, in which the Chinese Communist Party (CCP) is at the core. Yet, RDA is highly decentralized in terms of administrative implementation and economic resource allocation. This combination of a high degree of centralization and decentralization accounts for the uniqueness of the RDA regime, which has evolved over the long imperial history of China and the transplantation of Soviet institutions in the early period of the People's Republic of China. The RDA regime relies on two powerful mechanisms—regional competition and regional experimentation—that are responsible for the success of reforms since 1978, as well as the serious social-economic-political problems in China, including those related to gradual growth, sustainability, and stability.

Governance Structure of China's RDA Regime

Figure 4 illustrates the governance structure of RDA, which I call “an institutional trinity” because this structure comprises three basic institutional building blocks. The building block in the center is the party-state bureaucracy that is responsible for centralized political and personal control by the party and the central government. The party-state bureaucracy is also involved in decentralized administrative

⁶For cross-country empirical evidence on this issue, see Acemoglu et al. (2014) and Persson and Tabellini (2008).

FIGURE 4
GOVERNANCE STRUCTURE OF CHINA: AN INSTITUTIONAL
TRINITY OF THE RDA REGIME

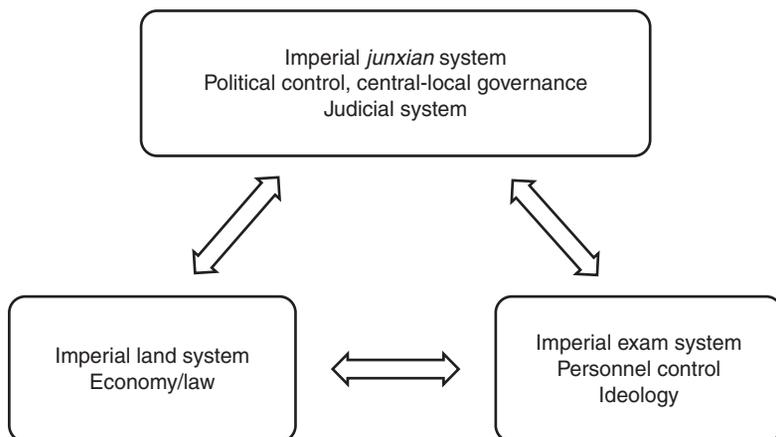


implementation and resource allocation at the local level. The judicial system is also an integral part of the same top-down bureaucracy. The building block on the lower left in Figure 4 shows the complete state control over land ownership and financial resources. State ownership of land is both an important economic and legal foundation of the RDA regime. The building block on the lower right shows the CCP's control over personnel and ideology. The power of centralized control over those matters allows a high degree of decentralization under an authoritarian regime.

To comprehend the behavior and predict the future of the RDA regime, it is important to understand the origin of this regime. For this purpose, Figure 5 illustrates a stylized governance structure of the Chinese Empire (581 to 1911).

The governance structure of the Chinese Empire is similar to the current RDA regime. The resemblance of the unique features of currently governing Chinese institutions and those that prevailed in history is even more notable compared with institutions in other countries. The building block in the middle of Figure 5 represents the imperial *junxian* system, a top-down bureaucracy from the imperial court that governed all local governments. In this system, the emperor exerted political control and the judicial system was an integrated part of such control. The building block on the lower left corner denotes the imperial land system, in which the emperor had

FIGURE 5
GOVERNANCE STRUCTURE OF IMPERIAL CHINA:
AN INSTITUTIONAL TRINITY



ultimate control rights over all land, particularly for political purposes. The building block on the lower right corner denotes the imperial examination system, which had dual functions: controlling personnel and controlling ideology. The Chinese Empire is the first in human history to establish a systematic ideological control institution by the state. The critical institutional difference between the current RDA regime and the imperial system is the CCP, which has replaced the imperial court and penetrated the entire society. Indeed, the RDA regime, by strictly regulating ideological and personal matters, is even more centralized than the Chinese Empire.

Incentive Problems in the RDA Regime

The adverse effects of Chinese imperial and Soviet institutions on economic growth, entrepreneurship, and innovation are well recognized. Among the major issues in these regimes are the incentive problems of subnational government bureaucrats. For instance, the Soviet Union failed in its reform attempts because of unresolved incentive problems. The challenging question is, if the RDA institutions stem from the Chinese Empire and the USSR, how do we explain China's remarkable reforms and growth during the past three decades? In the following, I present a brief summary of the basic points.⁷

⁷For a lengthier discussion, see Xu (2011).

One of the features of the RDA regime that differentiates Chinese from Soviet institutions and other authoritarian regimes is the manner by which China is decentralized. In the RDA regime, each subnational government, including provincial levels and municipal levels, is self-contained in terms of government functions. The sections of each subnational government report to a local leader instead of upper-level sections or central ministries. A similar governance structure applies to all levels of government—from the central to the county level. Therefore, upper-level bureaucrats regularly appoint and assess all subnational government bureaucrats in the RDA regime to determine job tenure. Moreover, all subnational governments, including county governments, exhibit self-contained powers to perform tasks without directly referring and reporting to central ministries, as long as these subnational governments fulfill the assessment criteria. The self-contained powers allocated to each subnational government create conditions for regional tournament competitions and experimentations. These mechanisms are the key factors to understanding China's past and future, including the reforms in the last three decades.

In contrast to reforms in the Soviet Union, economic reforms in China resolved incentive problems by implementing regional tournament competitions. These competitions include the assessment of subnational bureaucrats based on how well they meet their GDP growth targets compared with the performance of other subnational governments. Regional tournament competitions are powerful and effective mechanisms that aid in resolving incentive problems when the objective of the competition is well defined and measured, which is a strong condition that can rarely be satisfied. Moreover, local governments are encouraged via regional competitions to conduct reform experiments.

Even when the conditions of tournament competitions are satisfied, the functions of this powerful machine depend on the objectives of the CCP. During the Great Leap Forward campaign at the end of the 1950s and the Cultural Revolution from 1966 to 1976, regional competitions and experiments led to catastrophic consequences. Thus, another factor beyond the RDA governance structure may explain why China's fast catching up only began in the late 1970s. The critical factor that determined the timing of the turning point was the political change at the end of the Cultural Revolution in 1976. The devastation caused by the Cultural Revolution led many party-state leaders and bureaucrats to call for changing the objectives

of the CCP from revolution or class struggle to economic development, which happened officially in 1978. Since that time, highly motivated local governments have used regional experimentations to introduce all major reforms.

Nevertheless, how far China can develop without constitutionalism—that is, without thoroughly reforming the RDA regime—is a grave challenge. Regional tournament competitions and regional experimentations worked well in the early stages of Chinese reforms because the CCP assigned subnational governments a single objective—to increase economic growth at all costs. However, the role of any government involves multiple dimensions. Imposing a single objective (fast growth), without reforms that protect property rights and personal freedom, leads to socioeconomic problems such as widening inequality gaps, environmental degradation, and corruption.

Realizing those problems, in the last decade the Chinese government has attempted to replace the single target of GDP growth with numerous assessment indicators as targets of subnational governments. The problem is that regional tournament competitions will not function if multiple objectives replace the well-defined objective of GDP growth. Tournament competitions with multiple targets often result in a race to the bottom instead of a race to the top. Furthermore, local governments can easily manipulate targets that are not market based and are difficult to verify independently. Faced with reality, pragmatic subnational governments have often quietly stuck with enforcing a single objective, the GDP growth rate.

The RDA Regime and Economic Performance

In the standard growth model, national income (GDP) or output is determined by several inputs, including capital (K), land (L), human capital (H), and efficiency (A). Thus,

$$(1) Y = F(A, K, L, H).$$

This standard neoclassical growth model implicitly assumes that no institution is substantially different from the market. This assumption may arguably represent the reality in Western Europe, North America, Japan, South Korea, and Taiwan, or in OECD nations in general. However, the neoclassical model is inappropriate for understanding developing and underdeveloped economies because it fails to explain the persistence of underdevelopment.

The fact that China's institutions differ substantially from those of Japan, South Korea, and Taiwan during their catch-up stages means that the neoclassical growth model needs to be adapted to account for China's RDA regime. Indeed, the government directly or indirectly allocates a substantial amount of capital, land, and human capital (the state ultimately owns all land and most banks, and also controls migration and universities). Hence, Equation 1 needs to be modified so that

$$(2) Y = F [A(G), K(G), L(G), H(G)],$$

where G is government, which includes institutions and policies.

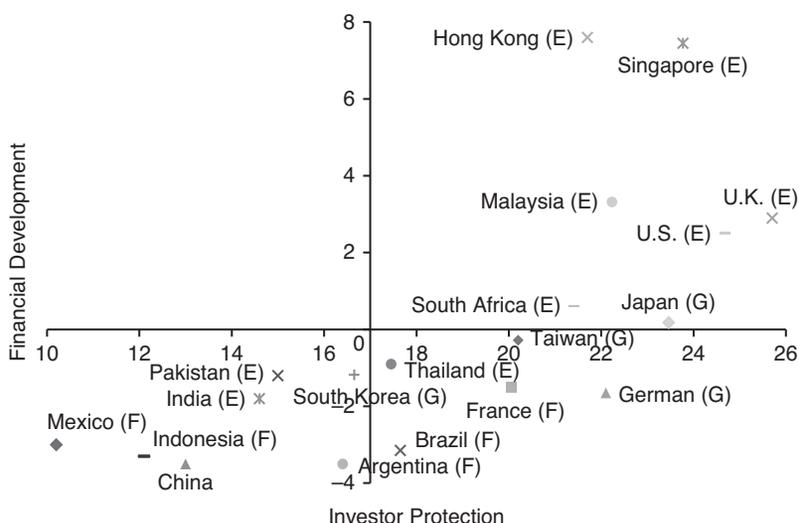
Effects of the RDA Regime on Financial Development

If most resources were in private hands and traded in markets, and if a rule of law exists, then the incentive problems of subnational government bureaucrats may not significantly affect the economy. However, that is not the case in China. The RDA regime strictly controls the financial market, which is one of the major channels through which institutions affect long-term economic growth and development. Figure 6 illustrates that "external finance" (financial development) is positively correlated with "investor protection" (safeguarding property rights).

One of the major findings of the literature on financial development is that well-functioning securities markets require legal protection of private property rights and an independent judiciary to enforce contracts and resolve disputes. China jump-started securities markets in the early 1990s without those institutions. To avoid the worst problems under the RDA regime, China implemented specific policies to mobilize the incentives of subnational governments and resolve serious information problems. These policies and incentives are linked to regional competitions and regional experimentations (Pistor and Xu 2005, Du and Xu 2009). The markets grew rapidly in the early years but still are hampered by the lack of market-friendly institutions, especially private ownership and the rule of law. Indeed, China still ranks among the lowest in terms of financial development, as seen in Figure 6.

Even though China started from an extremely low level of financial development and the real economy grew rapidly, the improvement in financial development has been very limited over the last decade. Table 5 shows that improvement in financial

FIGURE 6
INVESTOR PROTECTION AND FINANCIAL DEVELOPMENT



NOTES: The vertical axis measures the level of financial development (external finance normalized by GDP); the horizontal axis measures the degree of investor (shareholder) protection—that is, the security of property rights governing stock markets.
SOURCE: Allen, Qian, and Qian (2005).

development from 2001 to 2011, measured by private-sector credit as a percentage of GDP and by stock market capitalization as a percentage of GDP, has been marginal at best. This lack of progress is associated with the absence of major reform in institutions, including legal institutions and other institutions that control resources.

This observation is also consistent with that in other studies pertaining to the overall distortions and wastage in capital allocation in China (Hsieh and Klenow 2009).

Effects of the RDA Regime on Fiscal and Social Stability

The Chinese Constitution does not recognize any private ownership of land. Article 10 of the PRC Constitution states:

Land in the cities is owned by the state. Land in the rural and suburban areas is owned by collectives. . . . The state may, in

TABLE 5
FINANCIAL DEVELOPMENT IN CHINA, 2001–11

	Domestic Credit to Private Sector (% of GDP)	Stock Market Capitalization (% of GDP)
2001	111.26	42.27
2002	118.85	34.42
2003	127.15	35.01
2004	120.09	34.88
2005	113.28	32.15
2006	110.73	59.74
2007	107.49	125.23
2008	103.69	110.05
2009	127.19	79.23
2010	129.50	83.71
2011	127.09	58.74

SOURCE: World Bank, Global Financial Development Database (2013).

the public interest, appropriate or requisition land for its use in accordance with the law, while making compensations. No organization or individual may appropriate, buy, sell or unlawfully transfer land in other ways. The right to the use of land may be transferred in accordance with the law.

This article implies that the ultimate control rights of collectively owned lands are also in the hands of the state. In fact, collective or individual peasants possess no legal rights to rent or sell land or houses to urban citizens.

State ownership of land implies the deprivation of citizen opportunities for investment, wealth, and income, as well as obstruction of development and growth of small and medium enterprises and the service industry. However, our focus in this article is the political and economic consequences of complete land ownership on the relationships between the central and local governments and between the government and the citizens, as well as how this relationship destabilizes the economy.

Since the 1994 fiscal reform, the share of local government revenue has decreased dramatically and steadily. However, the overall responsibilities of local governments in public service and their

TABLE 6
DISTRIBUTION OF BUDGETARY EXPENDITURES BY
GOVERNMENT LEVEL, 2007
(PERCENTAGE OF TOTAL)

Government Level	All Budgetary Expenditures	Education	Health
Central	23.0	5.5	1.7
Provinces	17.7	15.0	17.2
Municipalities	22.2	18.8	26.2
Counties-towns	37.1	60.7	54.9

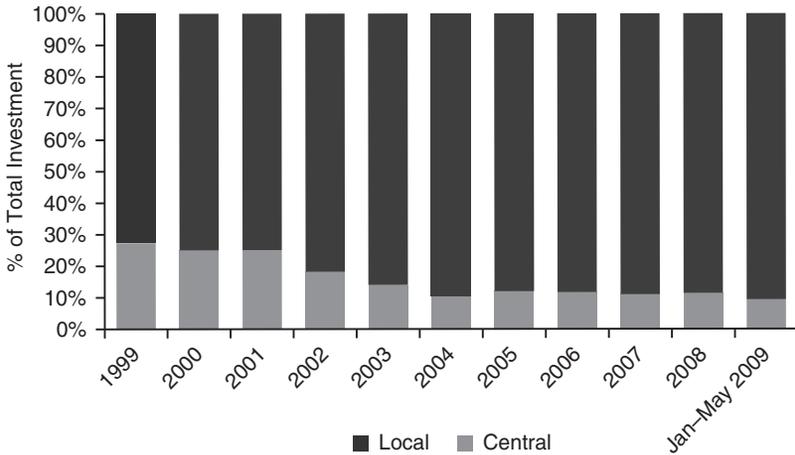
SOURCE: Wong (2013).

expenditures remain unchanged. Table 6 shows that city and county governments provide most of the public services in China.⁸ Local governments have assumed most of the responsibilities in infrastructure investments. The share of local governments' infrastructure expenditures has steadily increased from 72 percent in 1999 to more than 90 percent in 2009, as seen in Figure 7. Therefore, almost all of China's local governments are in deficit.

A local government will likely fail in regional competitions if its financial problems remain unresolved. One of the major purposes of opening up—that is, legitimizing the housing and land markets since 1998—is to solve the fiscal revenue problem of local governments. The central government requires local governments to solve fiscal problems by using the land within their respective jurisdictions, including selling and renting such lands. Thus, local governments become aggressive in taking away lands from peasants and urban citizens. Table 7 shows that the largest source of fiscal revenue for municipalities is land, which accounts for more than one-third of the total revenue, based on the national average. By comparison, gross transfers (i.e., revenues from the central government) account for only less than one-eighth of their total revenue.

⁸Table 6 shows only budgetary expenditures, which count for less than half of the total expenditures of local governments. If the nonbudgetary expenditures of local governments were included, their total expenditures would be significantly higher.

FIGURE 7
CENTRAL AND LOCAL GOVERNMENT INFRASTRUCTURE
INVESTMENTS, 1999–2009



SOURCE: CEIC, Credit Suisse estimates.

TABLE 7
REVENUE SOURCES, PREFECTURE-LEVEL
MUNICIPALITIES, 2010
(RMB, BILLIONS)

Revenue Source	All Prefectural Cities	Percentage of Total
Ordinary Budget Revenues	1,296.38	29.9
Gross Transfers Including Tax Rebates	504.65	11.6
Land Revenues	1,513.72	34.9
Government Funds Excluding Land	174.82	4.0
Social Security Fund	847.04	19.5
Comprehensive Budget	4,336.61	100.0

SOURCE: Wong (2013).

Under the RDA regime, local governments are allowed neither to issue debts in the market nor to borrow from banks. However, companies, particularly those backed up by governments, are allowed to borrow from banks and find borrowing easier than others. Under regional competitions and regional experimentations, some local governments invented the Urban Development Investment Corporation (UDIC) to use lands in their jurisdiction as collateral to borrow from banks. UDICs act on behalf of local governments and invest in infrastructure. Many local governments have implemented this “financial innovation” since 2004, and UDICs have become a substantial part of China’s urbanization since 2009.

Local government borrowings from banks via UDICs have grown extremely rapidly, by about 20 percent per year over the last several years. The outstanding debts of local governments have gone from 15 trillion RMB in 2010 (\$2.46 trillion) to 30 trillion RMB (\$4.92 trillion) at year-end 2013, which is from 27 to 60 percent of GDP. These debts are closely related to the shadow-banking sector. For example, the total 2013 borrowings of local governments from shadow banking were more than twice that in 2012 (Casey 2013, Zhang 2014).

Many local governments fail to pay their debts because of investments in unproductive projects, such as luxury office buildings. Based on an investigation by the state auditor, 151 out of 223 UDICs run by 36 local governments resorted to new loans to pay for their previous debts (Casey 2013). Given that many of these debts are backed by land, the value of the collateral is likely wiped out when the land prices come down. The central government currently allows local governments to issue short-term debts to repay their matured debts. However, without institutional reforms to address the fundamental problems, with rapidly accumulating debts, and given the size and increasing rate of local government debts, the aforementioned method could create conditions that would lead to nationwide fiscal, financial, and other economic crises.

Instability related to the state ownership of land goes beyond financial and economic matters. The strong incentives of local governments to increase fiscal revenues by land conversion, which is legal under constitutional rules, have created conflicts with farmers. A large number of peasants substantially lose when their land is confiscated. The prevailing compensation principle, codified by the central government, is based on the land’s value for crop production, not

its market value in alternative uses. Government officials can change land use at any time using “forced demolition” (*qiangzhi chaiqian*) to obtain land from peasants for development and revenue. This process has led to numerous social conflicts in China. National legislators have discussed rules to reduce forced demolitions, but local governments retain the legal power to impose forced demolitions under the PRC Constitution provision for state ownership of land.

Conclusion: Institutional Reform Is the Key to China's Future

The land problem and the local debt problem discussed in this article illustrate serious incentive problems faced by China. The operation of the whole government bureaucracy faces fundamental challenges when the objective of the government is changed from growth to the “China Dream,” which implies a large number of dimensions.

Facing multiple objectives, regional competition suffers from a serious race-to-the-bottom problem. Instead of a race to the top, required by regional competition, local governments compete in rent seeking and attempts to develop new financing approaches, which may undermine stability.

The rapid deceleration of the Chinese economy also is caused partly by failed incentives of local governments. One of the direct reasons for this decline involves the structural problems of the Chinese economy accumulated for more than a decade. Those problems include low and declining domestic demand (consumption) and household income as percentages of GDP, declining household savings as a percentage of total savings, and the strengthening trend of monopolistic powers of the state sector. In addition to these structural problems, the other institutional problems of China, such as entry barriers imposed on private firms, are also major contributing factors.

Regional competition and experimentation historically led to catastrophic disasters in the Great Leap Forward movement. Provinces, cities, and counties competed against each another, resulting in the distortion of information and chaos. Driven by regional competition, local governments experimented with the people's commune system, which the central government then endorsed and promoted nationwide. In this context, regional competition and experimentation resulted in a race to the bottom, with devastating disasters, including one of the greatest famines in human history.

There is a claim that the market-oriented reform plan passed during the Third Plenum of the CCP's 18th Congress in November 2013 is comparable to the reform launched in 1978. Market-oriented reforms, however, always face serious obstacles and resistance from special interests and existing institutions. Initiatives and efforts from subnational bureaucrats, therefore, are necessary to implement such reforms. Reforms can only occur when many local bureaucrats are highly motivated. There is nothing in the current reform program that addresses the incentive problems under the RDA regime.

If the incentive problems remain unresolved, reform is unlikely to occur. Resolving the incentive problems should be the most important reform target. In the RDA regime, most bureaucrats are only accountable to their superiors, not to citizens. In turn, their superiors have to rely on information obtained from local bureaucrats to conduct assessments. The RDA regime is the source of the problem and should be the major target of reform.

One of the biggest challenges for China's leaders is to limit the power of government by adhering to a genuine constitutionalism and rule of law. In addition, competitive local elections are the key to resolve bureaucratic incentive problems and to get rid of corrupt officials.

Despite its ranking as the second-largest economy in the world, China is still only at about the level of Japan in the 1950s in terms of distance to the world frontier. China is returning to its world status in the late 19th century but is far from becoming a developed economy (as measured by per capita income). World history since the Industrial Revolution indicates that no country will become a developed economy without the rule of law. In this regard, China is not and cannot be an exception. Serious socioeconomic problems in China further correspond to consequences of the RDA regime, in which the government controls land and other resources. However, no checks and balances, as well as separation of powers, are in effect to limit the power of government. For that reason, it is essential for China's future to establish the rule of law or what F. A. Hayek (1960) called "the constitution of liberty."

Replacing the RDA regime with one based on constitutional rules to confine the power of the government to the safeguarding of persons and property would protect citizens' rights and be the surest path toward a brighter future.

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TRUST AND THE GROWTH OF GOVERNMENT

John Garen and J.R. Clark

An important part of post–World War II economic history is the growth of government. In the United States, much of this growth has taken the form of an increased scope of federal involvement in the economy via income redistribution programs and in regulatory activity. However, it has been accompanied by a large decline in trust of government. Pew Research Center (2010) reports that respondents who indicate that they trust government “most of the time” or “just about always” fell from 76.6 percent in 1966 to 21.5 percent in 2010.¹ A good deal of anecdotal evidence is consistent with the simultaneous growth in and mistrust of government (e.g., see Lewis 2010, who discusses the decline of trust and civic life in Greece as government has grown).

The decline in the public’s trust of government, given its increased importance in society, has caused great unease among many

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¹Many more details are in Pew Research Center (2010). For other discussions of trends in measures of trust in government for the United States, see Nye, Zelikow, and King (1997) and Hunter and Bowman (1996).

commentators. A concern often raised is that trust is an important aspect of social capital and its decline may detract from the performance of government, as well as in the ease and efficacy of economic and social interactions. Moreover, the simultaneous growth in government and deterioration in trust in government presents something of a paradox: How does a mistrusted institution grow and become so large? This article develops a framework to understand this paradox as well as related issues.

To do so, we utilize key findings in the economics, psychology, and experimental literatures that illuminate the interrelationships among trust in government, productivity, rent seeking, and government growth. A good deal has been written about each of these phenomena separately—and the fundamentals that underlie them—and this has produced a number of important findings. We bring many of these findings together in a unifying framework regarding trust, reciprocity, and cooperation; social capital and productivity; and rent seeking and political economy/public choice to understand equilibria and interactions among them.

A basic outcome from our modeling is the mutual dependence of the public's mistrust in government and the extent of political/rent-seeking activity fostered by government. It seems straightforward that trust in government is a declining function of government actions that generate rent seeking and reward special interests—and indeed this is an aspect of our model. However, a less apparent implication is the feedback mechanism that generates greater rent seeking as the degree of mistrustfulness grows; essentially, the returns to rent seeking are relatively higher in a mistrustful environment. It is this feedback effect that leads to a situation where government growth and mistrust might perpetuate one another. Thus, an initial small change in government policy that encourages rent seeking can produce mistrust and multiply itself, leading to further growth in government activity and mounting mistrust. This may help provide an explanation of the historical comovement of government size and mistrust in government.

Good government activity also occurs and we incorporate it into our model. However, it is simply not plausible for government growth to be regarded as predominantly good while leading to less trust in government. Thus, much of our focus is on government action that fosters rent seeking/political activity and rewards interest groups.

Extensions of our basic model also contribute to models of Leviathan, i.e., how government growth may sustain itself and rarely reverse. Important frameworks in this regard are developed by Higgs (1987), Olson (1982), and Caplan (2003), but ours brings in the role of the public's trust in government. In particular, a version of our model has two equilibria—where one equilibrium is good, with high trust and low rent seeking, and another is bad, with the converse—in which an economy can become trapped in a big government/high rent-seeking/low trust equilibrium. Once policies are adopted that move the economy from the former to the latter equilibrium, moving back is difficult. A return to the original policies is insufficient; the economy remains in a bad equilibrium. There is a “trust trap” that impedes a reversal in the growth of rent-seeking government and the decline in trust.

The article begins with a review of the literature indicating the importance of citizen trust and cooperation with government in order that the latter may function effectively. Many functions of good government—such as property rights and contract enforcement, general law enforcement, and dealing with externalities—raise productivity, and a cooperative public enhances and enables this to occur. This relates to ideas regarding the importance of social capital. Another strand of the literature considers several key findings in the trust and reciprocity research. Generally speaking, individuals are more likely to be cooperative with other individuals or institutions if they are perceived to be acting in a fair manner and/or are a legitimate authority. Trust and cooperation decline with the extent of rent seeking that the government encourages.

Next, we present a model based on the above findings as well as on a political economy/public choice-style model of politicians. In particular, we model government/politicians as self-interested individuals who find it in their interests to reward rent seeking/lobbying activity. Formally, the approach is comparable to that of Grossman and Helpman (1994) regarding trade protection where special interest groups end up being disproportionately favored. Similar to that article, our framework has politicians that may offer favors in return for political support. This distorts citizen effort away from productive activity in the private sector toward political/rent-seeking activity. The latter results in welfare costs and generates mistrust and a growing government necessary to support the rent seeking. Mistrust, in turn, erodes cooperation and social capital, lowers productivity, and

induces a substitution away from productive activity and toward rent seeking. More welfare-reducing government activity ensues, followed by another round of erosion of trust. Thus, we have the mutual reinforcement of government growth and mistrust.

After formulating our basic model, we provide details regarding the subsequent rounds of declining trust and increased rent seeking. The mutual dependence of trust and political activity/rent seeking has similarities to other articles that model the codetermination of attitudes and economic outcomes.² Our framework, however, explicitly brings the behavioral/experimental literature into rent-seeking models to understand broad patterns of trust and government activity.

Next, we present a model with two equilibria and show how a “trust trap” can emerge where once the economy moves to the low trust, high rent-seeking equilibrium, it cannot easily move back. The final section offers some concluding thoughts.

Background and Supporting Literature

This section provides discussion of some general background literature, related models on the codetermination of trust and political activity, as well as literature specific to trust, reciprocity, and cooperation that are foundational to our model.

Some General Background

The ideas of trust and cooperation are closely linked to social capital, culture, and attitudes. There is large literature with many studies showing their importance to economic outcomes. For example, Knack and Keefer (1997) show that cross-country measures of trust are positively related to GDP growth and investment. Guiso, Sapienza, and Zingales (2006) show that differences in cultural attitudes translate into differences in entrepreneurship and savings. Greif (1994) contrasts the culture and practices of the Maghribi traders and the Genoese merchants, especially regarding contract enforcement, and suggests that these led to different growth rates. At a perhaps more fundamental level, Rosenberg and Birdzell (1986) maintain that the development of a moral system consistent with capitalism was an important ingredient to the growth of the

²See Clark and Lee (2001a, 2001b), Francois and Zabojnik (2005), Tabellini (2008), and Aghion et al. (2010).

Western world. McCloskey (2010, 2015) argues that favorable attitudes toward the bourgeoisie and civic virtue are much more important than previously thought.

Related Models

The mutual dependence of trust and political activity/rent seeking has similarities to other papers that model the codetermination of attitudes and economic outcomes. For example, Francois and Zbojnik (2005) discuss contract enforcement through kin and clan or through external methods (e.g., government). Tabellini (2008) is similar in this regard. In their models, parents “invest” in the honesty of their children based on expected success, where the degree of honesty in the populace and GDP are mutually dependent. Other notable papers that relate closely to our approach include Clark and Lee (2001a, 2001b). They emphasize that, while trust is important for government to function, the trust of the public is earned by good performance of the government, and they model this simultaneous relationship—that trust enables government action, but government action affects the degree of trust. This mutual relationship is evidently believed to be an important one and has been noted in the nonacademic literature. Galston and Kamarck (2008), in trying to revitalize progressive government, write, “Change you can believe in needs a government you can trust.”

In another closely related paper, Aghion et al. (2010) consider cross-country correlations of trust in government with government regulation. They find that governments that have heavy regulation, are the least trusted. In their article, there are two equilibria: a good one is where most people become civic and vote for little regulation, and a bad one is where they are not civic and vote for heavy regulation. In their model, heavy regulation reduces productivity but it is better than light regulation of an uncivil populace. In a cross-country sample with a mix of good and bad equilibria, one will find more government regulation coinciding with less trust. While similar to our model in the sense that certain behaviors are mutually reinforcing, the approach and focus are different.

Good Government, Trust, and Productivity

There are a number of functions of government that most agree are value increasing. These include establishing and enforcing

property rights and other personal rights, maintaining good contract law, promoting competition, and dealing with public goods and externalities. While these may raise value for several reasons, one reason is that they raise productivity. Better courts, clear property rights, low contracting costs, and a better public infrastructure raise productivity by, for example, enabling less time and effort to be devoted to private contract enforcement and property protection.³

Related to this, there is work regarding the importance of public cooperation in enabling government initiatives to be effective. This work is part of a larger literature illustrating many interrelated aspects of trust and cooperation, as well as with trust in government and the perceived legitimacy of government. In broad terms, it shows that legitimacy engenders more trust which, in turn, tends to induce cooperation.

Scholars in economics, political science, and psychology have contributed to this literature in the past couple of decades. We do not attempt to summarize this literature. However, in this subsection (and the next), we review several of the central ideas that are pertinent to our article.

Numerous people have argued that the public's trust in government is important. Benjamin Franklin (1787) is quoted as saying, "Much of the strength and efficiency of any government in procuring and securing happiness to the people, depends, on opinion, on the general opinion of the goodness of our government, as well as the wisdom and integrity of its governors."⁴ This view evidently is shared by many—the secular decline in measures of trust in numerous democratic governments around the world spawned a great deal of unease and study by political scientists.⁵ Moreover, Brennan and Buchanan (1984, 1988) express concern that the approach to modeling government adopted in the public choice literature may be detrimental to having favorable views of government and may erode trust in it.

³Though these aspects of government are productivity enhancing, they may have other positive effects on utility.

⁴Also see a related quote by Abraham Lincoln (1858): "With public sentiment, nothing can fail; without it, nothing can succeed. Consequently he who molds public sentiment goes deeper than he who enacts statutes or pronounces decisions. He makes statutes and decisions possible or impossible to be executed."

⁵Some examples are Nye, Zelikow, and King (1997), Hunter and Bowman (1996), Warren (1999), Dalton (2004), Blind (2006), Hetherington (2005), and Pharr and Putnam (2000).

A variety of reasons are given for the importance of trust in and cooperation with government. Many have to do with cooperation and involvement in the political process and civic activities (e.g., jury service, voting, volunteering, involvement in political campaigns, membership in political groups, and willingness to work for the government). The argument is that cooperation of the above type helps government run more effectively. Other arguments suggest that trust in government is important to attain honest tax reporting and voluntary compliance with laws.⁶ Governing is seen as being less costly and more effective with citizen cooperation.

An equivalent way to view this is to consider that trust in and cooperation with government enables and augments the productivity-enhancing effects of the functions of government noted above. Consider some examples of how this might work. Voluntary compliance with the known and accepted parameters of contract and property law limits disputes. This saves on transaction costs and enables resources to be utilized elsewhere. Similarly, cooperation with infrastructure projects, by refraining from challenging rights-of-way and engaging in other legal impediments, saves resources. Cooperation with police investigations makes it much easier to enforce laws and improves property rights. These cooperative attitudes enable government to work more easily and effectively and raise private-sector productivity.⁷

*Why Is There Trust and Cooperation?*⁹

In the above context, trust in and cooperation with government is much like a public good, with the former raising aggregate social productivity. Thus, one might expect the consequent free-rider problem, so it is natural to ask how cooperative attitudes arise in this setting. A great deal of work has been done in experimental labs trying to understand issues of trust, reciprocity, and cooperation. It is repeatedly verified in a variety of laboratory settings that people engage in some degree of reciprocal behavior—for example, trusting and

⁶Many of these arguments are implicit in the works cited in the previous footnote. More specifics are offered in Nye (1997) and Dalton (2004).

⁷There is a related and broad literature on social capital that discusses norms that assist in social cooperation. These can raise value in the private sector, in both commercial and noncommercial settings, by reducing transactions costs and utilizing embedded knowledge. For a short summary, see Fukuyama (2000).

cooperation or withdrawal of trust and punishment. These results hold in one-shot prisoners' dilemma games where the dominant strategy, from the perspective of narrow self-interest, is to neither cooperate nor punish. Such findings strongly suggest that behavior is in part determined by perceived fairness, i.e., "fair" behavior by the other party is rewarded and "unfair" actions are punished.⁸ Additionally, trust and cooperation are intertwined, with greater trust inducing more cooperation.

Fehr and Gächter (2000) suggest that the pattern of behavior shown in these experiments relates to how social norms might evolve or that the social norms in place affect the degree of cooperation. Regarding the latter, Henrich et al. (2001) report on findings from prisoners' dilemma games in various small societies. They find that that cross-societal variation in trust and reciprocity reflecting social norms helps explain the variation in cooperation. Similarly, Hayashi et al. (1999) indicate that "general trust" in the culture explains some of their experimental findings showing higher levels of cooperation in some societies.⁹

The experimental work deals with individual interactions, though many of these interactions are anonymous and so may help explain societal levels of trust and cooperation. The latter is the focus of the largely separate literature on trust in government discussed in the previous subsection. A subset of this separate literature discusses reasons for the decline in trust in government, both in the United States as well as other Western democracies. Various reasons are proposed, including the decline of the perceived effectiveness and legitimacy of government and affiliated public institutions.

For example, Blendon et al. (1997) note that the top four reasons given in a 1995 survey for mistrust of government are inefficiency/wasting money, spending on the wrong things, special interests being too influential, and the lack of integrity of politicians. Alesina and Wacziarg (2000) and Stevenson and Wolpers (2011)

⁸The literature on this topic is quite large. For a short and succinct summary of many of the issues and findings, see Fehr and Gächter (2000).

⁹Also, see Paldam (2009) for discussion and empirical work on the coevolution of economic development and generalized trust. Bjornskov (2006) also considers cross-country determinants of generalized trust.

find that better macroeconomic performance is associated with more trust in a country's government, presumably based on the idea that good government policy induces better economic performance. The former also suggest that greater welfare spending is associated with a polarized and dissatisfied electorate, especially by taxpayers and groups not favored by the programs. Pharr (2000) finds a negative relationship between misconduct by government officials and measures of trust in government in Japan. Likewise, Yamamura (2012) finds government size reduces trust among those likely to face the increased bureaucracy of larger government. These findings are also consistent with experimental studies on tax compliance. Andreoni, Erard, and Feinstein (1998) survey a number of studies that show participants are less tax compliant if they perceive tax dollars are wasted or believe that their taxes are unfair.

Psychologists have examined similar issues, and their literature has arrived at closely related findings. For example, Levi, Tyler, and Sacks (2008) consider why individuals comply with the law. They find cooperation is dependent on whether the state is viewed as an appropriate authority entitled to be obeyed. This, in turn, depends on whether the authority is judged to be competent, be fair, perform well, and be trustworthy.¹⁰ In work extending these basic findings, Nadler's (2005) results show that noncompliance spreads beyond the perception of a particular law and also generates noncompliance regarding seemingly unrelated laws. Thus, perceived illegitimacy of one law reduces the willingness to comply with the law in general.¹¹

Overall, these findings link to the idea of reciprocity and cooperation as a social norm and suggest that this norm is applied to government. If government is perceived to be effective, then this is reciprocated with trust and with cooperation. Conversely, if government is perceived to be ineffective, inefficient, or corrupt, this reciprocated with mistrust and noncooperation. The upshot is that individuals evidently gain utility through cooperation with persons or institutions that they judge as being worthy.

¹⁰Though this is a substantial literature, similar works in this vein are De Cremer and Tyler (2007) and Tyler (1990).

¹¹Also see Mullen and Nadler (2008).

Rent Seeking, Trust and Cooperation, and Social Equilibrium

This section develops a model of trust, cooperation, and government that is built on the results of the foregoing literature, as well as on more traditional models of rent seeking. We begin with a basic model of rent seeking by individuals in order to gain government favors. We then augment it with consideration of good government and how the mix of good government and rent-seeking activity affects the perceived legitimacy of and cooperation with government. The social equilibrium of rent seeking, productivity, and cooperation is then shown.

Government Spending, Government Intervention, and the Market for Political Support

Governments have significant power in allocating resources and in providing favors and assistance to individuals and interest groups. These may be in the form of taxes and subsidies, spending programs, regulation, or other forms of intervention. Naturally, individuals and interest groups desire to obtain this government support. In our model, effort in providing political support is the mechanism by which interest groups obtain government assistance. Thus, we take a public choice–style approach where self-interested politicians may seek payment for provision of favors. In exchange for government funding and favors, members of interest groups supply effort in generating political support for the government officials and/or programs providing the funds and favors. In a broad sense, a wage is paid for units of political support provided. A related approach is that of Grossman and Helpman (1994) where interest groups bid for trade protection.

Political support comprises a whole set of things that help politicians get elected: campaign contributions and assistance in raising such funds; helping convince the public of the importance of particular government programs; promoting the “jobs generated” by the program and its help to the affected community, industry, and occupation; favorable mentions in the media; and general endorsements of programs and candidates.

Rent seeking and *lobbying* are terms related to this type of activity and can be interpreted in a similar light. For example, politicians may

be willing to protect an industry or occupation from competition, and interest groups engage in lobbying to obtain this protection. One of the ways they do so is to provide political support to the politician by, for example, suggesting compelling ways that can convince the public of the efficacy of the protection and/or disguise its harm. The lobbyists that do this most effectively are more likely to obtain government assistance. In this interpretation, rent seeking is not simply lobbying for favors; it is asking for favors with the quid pro quo of supplying political support.

The types of programs just described lower welfare and simply redistribute resources in inefficient ways. But not all government activities have negative welfare effects, nor are all recipients of government funding merely engaged in activities simply to make the program look good in the eyes of the voting public. Olson (2000) considers the conditions under which government has more “encompassing” interests and is less inclined to cater to special interests. Besley, Persson, and Sturm (2010) show that more politically competitive governments are more likely to follow policies that favor general interests. However, substantial amounts of government programs do fit the rent-seeking description and, in order for trust in government to fall as government grows, they must play a critical role. Thus, we model these vis-à-vis value-enhancing government spending.

Choice of Productive Work and Political Support

A building block of our complete model is a basic model of the representative individual who may supply effort toward productive activity or toward political support activity. While couched in terms of an individual, the unit of observation may be considered an organization or interest group with the same sort of decision to make: how much effort to devote to political support activity versus productive activity.

Let the following definitions hold:

h = effort in productive activity, e.g., hours of work

$(1 - t)w$ = the after-tax return to productive activity, where t is the tax rate, though it may be an explicit or an implicit tax (e.g., unfavorable regulation)

s = effort in political support activity

r = the return to each unit of political support activity. This payoff may be in-kind returns and is assumed not to be subject to tax.

$C(h, s)$ = the utility cost of effort. Assume that there is increasing marginal cost of each type of effort ($C_{ii} > 0$, $I = h, s$) and $C_{hs} > 0$.

In the basic model, let the individual's utility function be

$$(1) U = (1 - t) wh + rs - C(h, s)$$

so that total utility is simply after-tax income from work plus the payoff from political support effort less the utility cost of effort.¹²

The first-order conditions for the utility-maximizing choices of h and s are:

$$(2) \partial U / \partial h = (1 - t) w - C_h = 0$$

$$(3) \partial U / \partial s = r - C_s = 0.$$

Each of these equations represents setting the marginal benefit of each type of effort equal to its marginal cost. As expected, when $(1 - t) w$ increases, h rises and s falls. Similarly, as r increases, s rises and h falls. An increase in the return to political support activity diverts effort toward that end and away from work effort. The converse holds for changes in the after-tax return to productive effort.

Aggregate political support is $S = \sum s_i$, where i indexes individuals. Total transfers due to political support activity are rS . As is well known, welfare is decreasing in this type of government activity since it generates only rent seeking and transfers of wealth.

Incorporating Good Government, Productivity, Trust and Cooperation

As noted above, there are a number of functions of government that most agree are value increasing, including establishing and enforcing property rights, maintaining good contract law, promoting competition, and dealing with public goods and externalities. Denote government spending and programs on these activities as G . In our framework, these are modeled as raising productivity. This is expressed in a simple way. Let $w = w(G)$, with $w_G > 0$ (i.e., greater G raises the productivity of work effort).

¹²The terms in the utility function are analogous to the payoff function for any organization (i.e., there is an after-tax return to allocating resources to production), a return to allocating resources to political support, and a cost of each.

The literature reviewed previously indicates that citizen cooperation with government enhances the productivity-augmenting effect of G . To express this in our model, we consider a single representation of the aggregate level of trust of and cooperation with the government denoted by L . This aggregate cooperativeness is the summation of the cooperation of each individual ℓ_i so that $L = \sum \ell_i$. Let the effectiveness of the G in raising productivity be dependent on the aggregate level of trust and cooperativeness. This is expressed in the following way: $w = w(G, L)$, with $w_G > 0$, $w_L > 0$, and $w_{GL} > 0$. The latter cross-partial conveys that the marginal product of G is increased by L .

It is aggregate cooperation L that raises productivity, not individual cooperation ℓ_i . We noted above that standard models suggest that the free-rider problem entails a general lack of cooperation. This is because each individual's cooperation is infinitesimally small relative to that of the populace at large and has no effect on aggregate L . But the literature shows that notions of reciprocity and fairness indicate that individuals evidently gain utility through cooperation with persons or institutions that they judge as being worthy. This is incorporated into our model in the following way.

Assume that individuals attain utility from trust and cooperation from the single-peaked subutility function $\beta \ell_i - \varphi(\ell_i)$, where ℓ_i is individual trust in and cooperation with government, $\beta > 0$, and $\varphi' > 0$. The coefficient β determines the utility gain from cooperation, and $\varphi(\ell_i)$ is the utility cost of cooperation. Let $\beta = G/(G + rS)$, where G is good government and rS represents payments for political support. If all government programs are expenditure based, then this is simply the ratio of spending on good government to total government spending. If programs are not all expenditure based, then β represents the expenditure equivalent.

Trust and cooperation generate more utility if β is larger (i.e., for a government that devotes a larger share of its activities to G), and more cooperation is forthcoming. A high value of β —indicating more good government—is reciprocated with trust and cooperation. Governments that generate a larger share of political activity—lowering β —lower the utility from cooperation and are “punished” with reduced trust and cooperation.

Trust, Political Activity, and Social Equilibrium

Putting the foregoing together yields an individual's utility function as

$$(4) \quad U = (1 - t) w (G, L) h + rS - C (h, s) + \beta \ell - \varphi (\ell).$$

The individual chooses h , s , and ℓ to maximize utility. The first-order conditions for the choices of h and s are as before. The choice of ℓ , assuming that each individual ℓ has an insignificantly small effect on aggregate L , is

$$(5) \quad \partial U / \partial \ell = \beta - \varphi'(\ell) = 0.$$

This implies that cooperation ℓ is an increasing function of β . Because the aggregate value of political support activity rS lowers β , cooperation declines with S (and increases with G).¹³

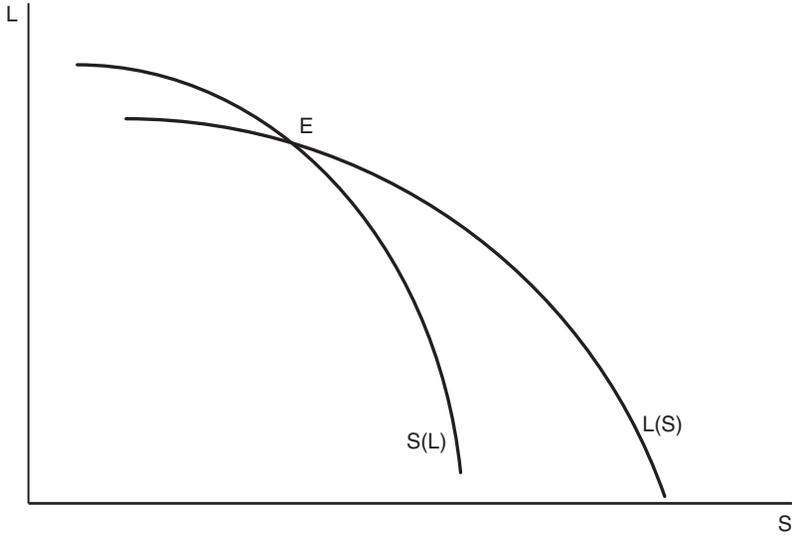
The results regarding the choices of h and s described above are hardly changed.¹⁴ The only difference is that aggregate cooperation L affects h and s . The reason is that a higher L improves the effectiveness of G in raising productivity and a lower L does the opposite. A lower L means that private-sector activities are more costly to arrange and enforce, lowering the returns to productive effort. This induces less h and more s . This, along with the ℓ function, can be expressed as $h = h(L)$, $s = s(L)$, and $\ell = \ell(S)$, where $h' > 0$, $s' < 0$, and $\ell' < 0$, and where other arguments of the functions are suppressed.

In aggregate, $H = \sum h_i$, $S = \sum s_i$, and $L = \sum \ell_i$. This implies an aggregate mutual dependence between L and S , that is, $L = L(S)$ and $S = S(L)$. The total amount of cooperation is a negative function of political support activity, and political support activity is a negative function of aggregate trust and cooperation. The final equilibrium L and S require that these relationships hold simultaneously. This is illustrated in Figure 1. Point E in Figure 1 at the intersection of the $L(S)$ and $S(L)$ loci shows the social equilibrium. Stability of the equilibrium occurs when the relative slopes of the two loci are as shown.

¹³Consistent with the psychology literature, we assume that the individual chooses a level of cooperation that applies broadly and does not tailor his or her cooperation toward particular programs.

¹⁴The simplicity in this regard is due, in part, to the separable utility function used in the analysis.

FIGURE 1
THE EQUILIBRIUM LEVELS OF COOPERATION AND
POLITICAL ACTIVITY



Government Behavior and Changing the Equilibrium: Growth in Government and Declining Trust

This section shows how the trust and rent-seeking equilibrium changes, resulting in a self-reinforcing cycle of greater rent seeking and less trust. We start by showing how greater powers for politicians to reward interest groups result in a higher return to rent-seeking activity. This, in turn, shifts the equilibrium.

The Politician's Choice of the Reward for Political Support

We suppose that an important motivation of politicians is that they seek to retain office, in part, for the benefits and perks of power.¹⁵ Increasing the return to S to stimulate political support can be beneficial to the politician in this regard even though it is welfare reducing. This is because welfare-enhancing policies sometimes translate into votes in a muted way and political support often

¹⁵There may be other motivations as well (e.g., to “do good,” to impose a viewpoint), but we implicitly hold these constant.

translates more strongly. There is no direct compensation to the politician for raising GDP, for example. It is likely that an effective way of retaining office is through generating other means of political support (e.g., favorable media mentions, endorsements, claims of job creation, and campaign contributions). Suppose that political support activity S generates benefits $f(S)$ to the politician by increasing the chances of retaining office and consuming the perks of power.

Thus, let the politician's utility function be the following:

$$(6) U^P = \theta f(S) + (1 - \theta) U$$

where U is the typical citizen's or organization's utility and $0 < \theta < 1$. Thus, politician utility is a weighted average of the support generated from political activities and the support received by raising the utility of the average individual in the economy. The latter is affected by r as well as G . We assume that the political system determines the weight θ , that is, how political support activities translate into favorable outcomes for the politician vis-à-vis average citizen utility. A higher θ indicates that the politician can more readily transform S into his or her benefit. Thus, it is a proxy for the power and discretion held by the politician.

Politicians choose r and G to maximize U^P . They do so recognizing that S depends on r . There is also a balanced budget constraint. If all government programs are budgetary in nature, paying r for each unit of S is a part of government spending and must be paid for by tax revenue. Total spending on political support is rS and is G on good government. If tax revenue derives solely from the tax t on productivity, it sums to twH . Then the government budget constraint is $twH = G + rS$, where H and S (and L) are at the social equilibrium.

It is straightforward to show that the utility per person falls when the return to political support activity r rises. This occurs for familiar reasons. This increase necessitates a rise in government spending. Thus, there is a standard Harberger welfare loss; the increased spending requires a tax increase, which reduces work effort and production. Additionally, there is a Tullock loss. A higher r induces more resources to be devoted to political support activity, which produces nothing but simply transfers wealth.

If the rewards for political activity and/or the means to support it are off budget, then a balanced budget need not hold. For example,

a restriction on entry into a market aids the incumbent firms in the market and raises prices to consumers, just as a tax on consumers and cash payments to incumbents would, but there is no direct budgetary consequence. Of course, this means of increasing r also is value reducing.

An increase in G can be welfare enhancing. There is still the Harberger loss associated with the increased taxation to pay for G , but if G raises productivity by enough to offset this loss, then this type of spending can raise value.

The first-order condition for politician utility maximizing choice of r is given by

$$(7) \quad \partial U^P / \partial r = \theta f'(S) \partial S / \partial r + (1 - \theta) \partial U / \partial r = 0.$$

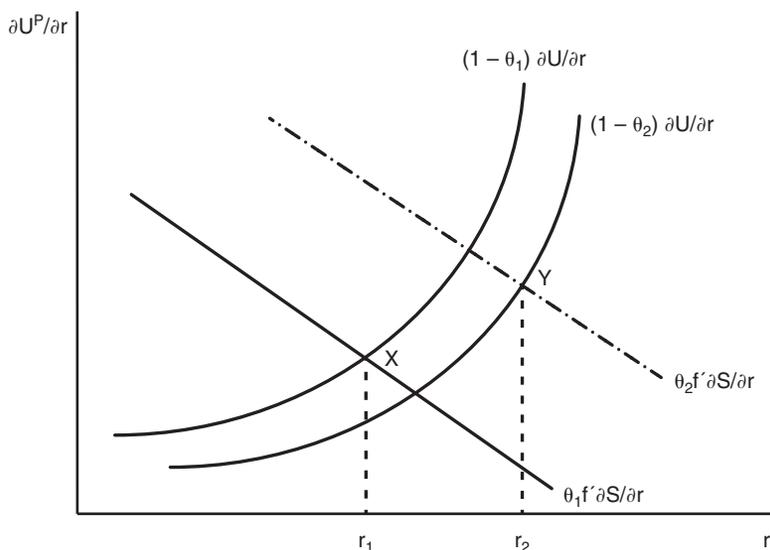
This is the usual marginal benefit equals marginal cost formulation. The marginal benefit of raising r is that it generates more political support, valued at $\theta f'$. The marginal cost is that it lowers citizen utility ($\partial U / \partial r < 0$), which carries the weight $1 - \theta$.¹⁶

If politicians were somehow constrained to act only in the interests of the public, the weight $\theta = 0$ and no value-reducing government would ensue. However, in our framework, political power and rational ignorance are likely to generate rewards to the politician for using that power to retain office. This implies that $\theta > 0$ and the $f(\cdot)$ function matters. Increased powers in the hands of the government raise θ and increase these rewards as well as the ability to remunerate people who help sustain it.

Figure 2 illustrates the effect of an increase in θ . Suppose $\theta = \theta_1$. The curve labeled $\theta_1 f' \partial S / \partial r$ shows the marginal benefit of increasing r , and the locus $(1 - \theta_1) \partial U / \partial r$ represents the marginal cost. Point X is the equilibrium. The politician selects the reward for political support activity at r_1 . Suppose that θ rises to θ_2 , shifting the marginal benefit function to $\theta_2 f' \partial S / \partial r$ and the marginal cost function to $(1 - \theta_2) \partial U / \partial r$. With the higher θ , the politician pays more attention to political support and less to citizen welfare. The equilibrium moves to point Y, corresponding to $r = r_2$. Naturally, the higher value of r implies a higher value of rS , which manifests itself either in the form of greater political support spending or in intervention to reward political support.

¹⁶We assume that $f(S)$ adds less to politician utility than S reduces individual utility, so there is a net loss of S .

FIGURE 2
 GOVERNMENT DETERMINATION OF THE REWARD FOR
 POLITICAL SUPPORT ACTIVITY

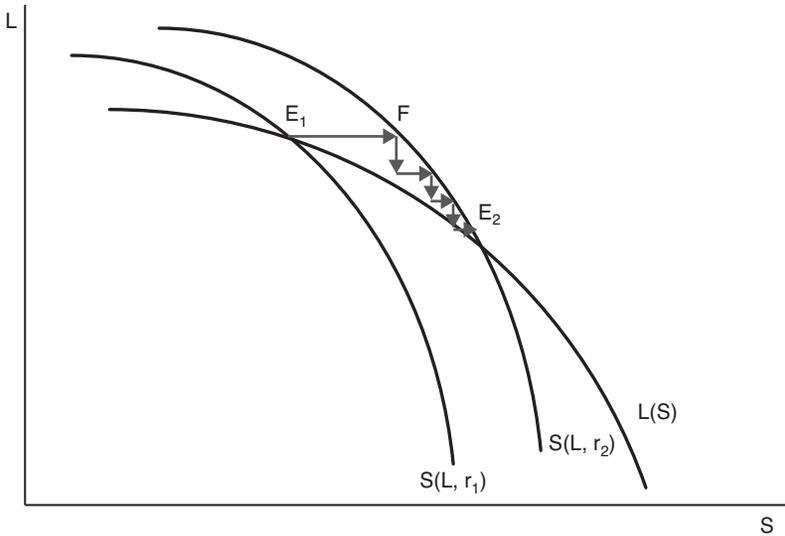


A Mistrusted But Bigger Government

We are now in a position to illustrate how a one-time increase in θ generates mistrust that leads to an even larger government. Note that our measure of government is $G + rS$. Increases in rS and in G may take the form of greater expenditures, but the former also can be in the form of greater intervention that transfers wealth.

As indicated above, an increase in θ raises the level of r selected by the politician as illustrated by the movement from X to Y in Figure 2. This, in turn, increases the amount of political support activity S , and the size of government rises and the value of β falls. Note that the value of G chosen by the politician also determines $\beta = G/(G + rS)$. An increase in θ raises the denominator by increasing rS . However, G may also change. The first-order condition for G is $\partial U^P/\partial G = (1 - \theta) \partial U/\partial G = 0$. Though this looks as if G is unaffected by an increase in θ , the higher rS can affect the level of G . The value of G may fall or rise, but the value of rS relative to G rises, β falls, and under plausible conditions, total government $G + rS$ rises.

FIGURE 3
INCREASED GOVERNMENT AND LESS TRUST



The new equilibrium is illustrated in Figure 3. It augments the loci of Figure 2. Suppose that the original level of r is r_1 . This entails the original S function given by $S(L, r_1)$ as shown in Figure 3. The increased θ results in an $r = r_2 > r_1$. The direct effect of this is to shift the S function to $S(L, r_2)$ as shown, i.e., more political support activity for each level of L . This is shown by the arrow emanating from point E_1 toward F . If there were no effect on public cooperation, this is the end of the story. Citizen utility is reduced—any movement on the graph to the south, east, or southeast from the original equilibrium lowers utility—government is larger, but there is no change in the level of trust.

However, more government spending on political support activities lowers β and undermines trust and cooperation with government. Thus, the society moves southeast on the L function. This, in turn, reduces the productivity-enhancing effects of G , lowers the return to productive effort, and—as illustrated by the arrows—generates further distortion of effort toward political activity. This causes further growth in rent-seeking government activity and reductions in trust. With the S and L loci as drawn, this spiral in government and mistrust eventually weakens and a new equilibrium is reached at point E_2 .

This equilibrium is where the size of government has grown to a multiple of its initial increase, accompanied by a lower level of trust

in government. Growing government occurs with increased mistrust, leading to higher equilibrium levels of both. Thus, putting together some basic building blocks of rent seeking and the psychology of trust, reciprocity, and cooperation yields a straightforward framework to help understand the pattern of trust in government and the growth in government.

Several other aspects of the experimental economics literature buttress our approach and findings, as well as suggest related outcomes. For example, a robust finding in public goods games is that strong free-riding emerges more frequently after several rounds of play (see, e.g., Isaac, Walker, and Williams 1994), suggesting that more free-riding occurs as more is learned about the game and the play of others. In our context, this indicates that, as more rent seeking emerges from government growth, individuals learn that mistrust is the appropriate response. This suggests that the longer-run response (i.e., after learning) of trust to government-induced rent seeking is much larger. In Figure 3, this makes the long-run $L(S)$ curve steeper, implying that the new equilibrium entails even lower levels of trust and more rent seeking than at point E_2 . Thus, the long-run effects are more severe than the short run.

Related to this, public goods experiments find that free-riding is more likely to occur as the benefits of free-riding rise. See, for example, Smith and Walker (1993) and Isaac and Walker (1988). In the setting of our model, a continued growth of government increases the resources available for rent seekers. This heightens rent-seeking activity and magnifies the corresponding decline in trust. In Figure 3, these suggest a flatter $S(L, r)$ function and a steeper $L(S)$ locus. Both lead to lower trust and raise rent seeking more than depicted in Figure 3 in response to a shift in the $S(L, r)$ function.

Additionally, the experimental literature shows that free-riding is more common when it is known that other players are free-riding (see, for example, Croson 2007; Fischbacher, Gächter, and Fehr 2001 on “conditional cooperators”; and the survey by Chaudhuri 2011). This effect is apparently stronger when “leaders” are free-riding (see Gächter and Renner 2014). This applies to our context in that if politicians are known to be encouraging rent seekers and lobbying, then the public will respond with a sharper reduction in trust as government grows. As before, this implies a steeper $L(S)$ function in Figure 3 and an equilibrium with yet more lobbying and mistrust.

Another factor that could be brought into the model that reinforces and magnifies these results is investment in human capital. An increase in the return to political activity induces more activity in that regard, but also generates more human capital investment into political skills. This makes the response of S to an increase in r much larger and generates a larger shift in the $S(\cdot)$ function, forcing the new equilibrium to be at an even lower L , a higher S , a larger government, and lower citizen utility.

Multiple Equilibria and the Trust Trap

A number of frameworks have been proposed suggesting that there is a “ratchet effect” in the size of government where it grows much more readily than it shrinks. For example, Higgs (1987) argues that crises generate more government activity and this greater government involvement becomes accepted by the public, thereby limiting any reversal of government growth. Olson’s (1982) analysis indicates that once distributional coalitions form, the complexity and level of government grows in certain ways that are not easily changed. In an agnostic framework, Caplan (2003) shows how bad government can be self-perpetuating.

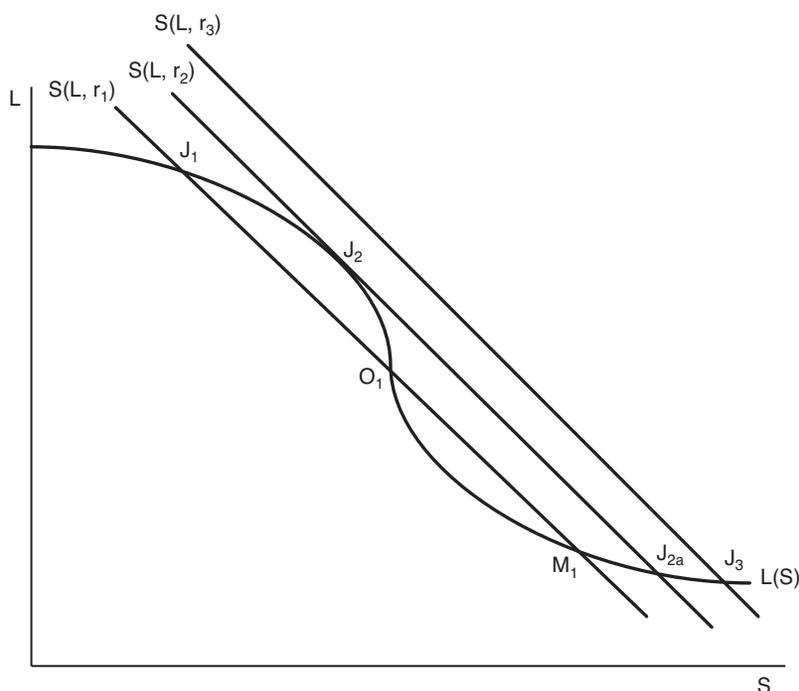
An extension of our model leads to a related outcome. We show how interactions of trust with rent seeking and government growth may lead to a low trust/high rent-seeking/big government equilibrium that is not readily reversed. This occurs when we have multiple equilibria, leading to discrete jumps in the equilibrium and a trust trap at a bad equilibrium.

Multiple Equilibria and Discrete Jumps

In the above figures, the curvatures of the two functions are such that the equilibria depicted are stable and unique. This situation does not necessarily have to occur. There are a number of possible other cases when the curvatures of the two loci differ and there are multiple equilibria, some of which are stable and some of which are not.

One that is of particular interest is where there is a movement from one stable equilibrium to another. Consider Figure 4 in this regard. This figure depicts equilibria in L - S space as in Figure 3, but with differently shaped functions. Assume that the $L(S)$ and $S(L, r_1)$ functions represent the initial situation. There are three equilibria: points J_1 , O_1 , and M_1 . Only points J_1 and M_1 are stable. The equilibrium at J_1 is a

FIGURE 4
DISCRETE JUMPS IN EQUILIBRIA

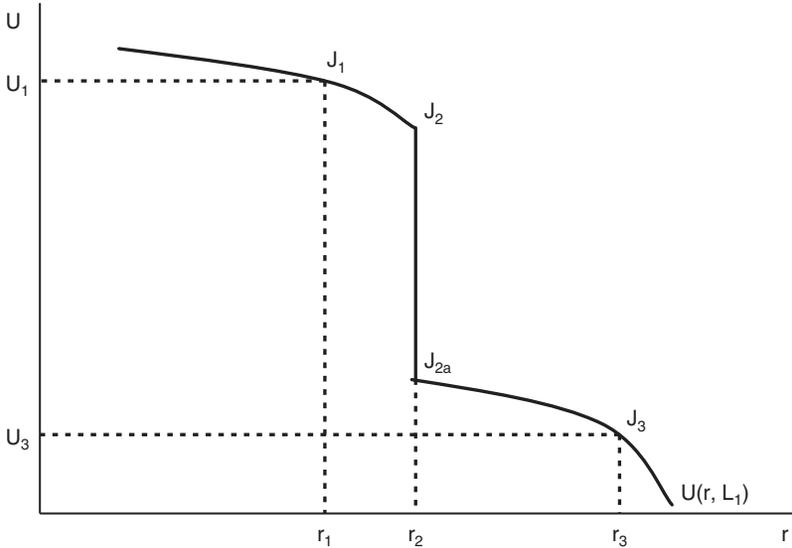


good one with high trust, low political activity, and high utility. Point M_1 represents a bad equilibrium with the converse.

Suppose that the initial equilibrium is at J_1 . Now, as above, consider an increase in θ that raises r from r_1 to r_2 . This shifts the locus $S(L, r_1)$ to $S(L, r_2)$, i.e., there is a higher level of S for each L . The new equilibrium moves to J_2 , with a somewhat lower L and a slightly higher S , and lower welfare. An infinitesimally higher θ and r shift the $S(\cdot)$ function infinitesimally further to the right, and the equilibrium makes a discrete jump to J_{2a} with drastically different values of L , S , and utility—lower, higher, and lower, respectively. A minor change in policy that enables government to slightly increase the reward for rent seeking induces a big growth in government and a large drop in trust. Any further increase in r —say, to r_3 , that shifts the $S(\cdot)$ function to $S(L, r_3)$ —causes smaller changes.

Figure 5 illustrates this in a different way. This figure graphs utility per citizen U on the vertical axis and the return to political activity r on the horizontal axis. The initial equilibrium at J_1 in Figure 4 is

FIGURE 5
 UTILITY AND A DISCRETE CHANGE IN EQUILIBRIUM:
 OFF THE CLIFF



also denoted as J_1 in Figure 5, with $r = r_1$ and $U = U_1$. An increase in θ that raises r to r_2 moves the economy to J_2 . An infinitesimally higher θ and r drop the economy “off a cliff” to J_{2a} with a drastically lower utility. Further increases in r lower utility, but not radically; e.g., a further increase of r to r_3 moves the economy to J_3 with a smaller reduction in U .

The Trust Trap

The transitional gains trap of Tullock (1975), and its variant in Clark and Lee (2003), indicates that government programs which generate investment in durable capital (human or otherwise) tied to those programs makes it especially difficult to undo those programs. Eliminating programs entails a loss to those who invested in the relevant capital specific to the program. These potential losers will suffer a capital loss and oppose any reform efforts. This issue can arise in the expanded version of our model that includes investment in human capital.¹⁷

¹⁷Full consideration of the transitional gains trap would have to consider a multi-period model.

However, another type of trap emerges in our model—a “trust trap.” In the setting with two stable equilibria, as in Figure 4, once the economy has slipped from a good equilibrium like point J_1 to a bad equilibrium like point J_3 , moving back to a good equilibrium is problematic. Simply undoing the policies that got the economy to the bad outcome is not sufficient. Returning to a good equilibrium entails lowering θ to a lower level than initially. If this does not occur, the economy is trapped in a bad equilibrium.

Companion Figures 6 and 7 illustrate this. These are expanded versions of Figures 4 and 5. In Figure 6, consider an economy where θ increases such that r rises from r_1 to r_3 . This shifts the $S(\cdot)$ function from $S(L, r_1)$ to $S(L, r_3)$ and the equilibrium from J_1 to J_3 —we move from a good to a bad equilibrium. In Figure 7, this also is denoted as a move from J_1 to J_3 in the (U, r) space. The economy goes “off the cliff.”

FIGURE 6
MOVING FROM A BAD TO A GOOD EQUILIBRIUM

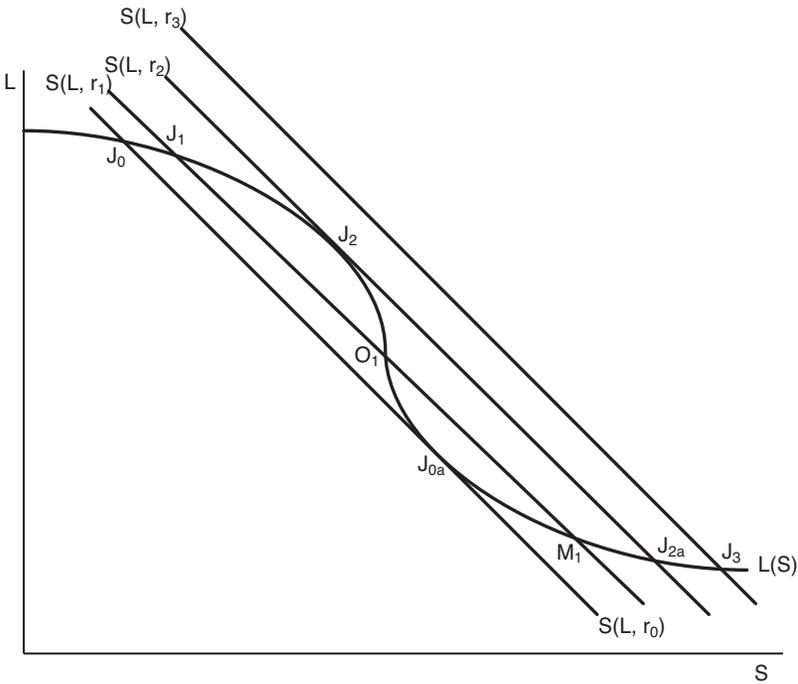
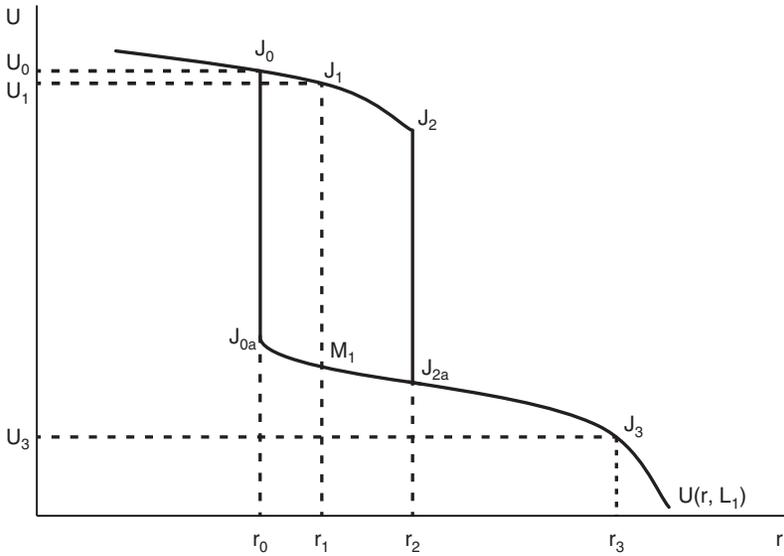


FIGURE 7
RESTORING A GOOD EQUILIBRIUM



Now consider undoing this move. Assume that reform moves θ back to its original level so that r is moved back to r_1 . The relevant $S(\cdot)$ function again is $S(L, r_1)$, but the equilibrium does not return to J_1 ; it stays in the bad region at point M_1 in Figure 6. In Figure 7, this is also labeled M_1 . There are only modest increases in trust and utility and a reduction in political activity.

In order to get back to the good region, the $S(\cdot)$ function has to shift in further. The value of r where utility moves discretely upward is (infinitesimally below) r_0 , corresponding to the $S(L, r_0)$ function where the equilibrium jumps discretely from point J_{0a} to J_0 in both Figures 6 and 7. If such a value of r is achieved, the equilibrium is at J_0 , which is better than the original J_1 , but it entails a more ambitious degree of reform than simply undoing what got the economy into the bad equilibrium in the first place.

There is an economic intuition to this. In Figures 4 and 6, the shape of the $L(S)$ function is such that it is inelastic for low values of S , becomes elastic, then returns to inelastic for high values of S . Starting from a low S , the value of L initially changes very little as S rises, but then hits a threshold where the $L(\cdot)$ function becomes elastic and L

drops off rapidly. Once this threshold is crossed, trust and cooperation move to low levels and the economy is in a bad equilibrium. To return to a good equilibrium, S must fall by enough to go back across this threshold, entailing a big increase in trust and cooperation. Small reductions in S are not sufficient; L is locally inelastic and so trust is mired at low levels and the economy remains in a bad equilibrium.

The range of values of r between r_0 and r_2 are those relevant for the trust trap. If one begins in a bad equilibrium, these values of r leave one trapped in the bad equilibrium, represented by the segment $J_{0a}J_{2a}$ in Figure 7. This is despite the fact that the same values of r , when starting from a good equilibrium, leave one trapped at a good equilibrium (along the segment J_0J_2). Thus, there is a wide range of values of r that leave one with a good outcome, but once a threshold is crossed to move to a bad equilibrium, an overlapping range of values of r leaves one in a bad equilibrium.

An outcome like this relies on the shape of the $L(S)$ function, i.e., the function that determines the relationship of trust and cooperation with authority. Though we do not bring empirical work to bear on this, this function having the requisite shape does not seem implausible. Such a shape simply says that, for authorities with a well-established (good or bad) reputation, some change in their behavior has little effect on citizen trust and cooperation. But once a tipping point is reached, citizen trust can change dramatically.

Research in the experimental economics literature speaks to the difficulties of getting out of a trust trap. For example, Gächter and Renner (2014) find that contributions in a public goods game are influenced by a “leader’s” contribution as well as prior beliefs about other’s contributions and the equilibrium of the game. If free-riding was common in past play, beliefs are strongly altered that lead to smaller contributions. Once these beliefs are established, it is difficult for a leader’s behavior alone to improve cooperation. This reinforces our findings regarding the trust trap. Getting out of the trap would seem to take a very strong commitment by key leaders to refrain from cheating, perhaps coupled with a sanctions mechanism for those who continue to cheat.

Conclusion

The concept of social capital has become a noteworthy one in economics and has linked together ideas in economics, psychology,

political science, and sociology. Public attitudes—including the degree of trust and cooperativeness—are aspects of social capital that contribute to an economy’s productivity. Thus, it is sensible that public policy analysts have paid considerable attention to them. Often lacking from their analysis, however, is the idea that the actions and nature of government are likely to be important in inducing cooperative attitudes and other aspects of social capital. A good deal of evidence suggests that this is the case. Building this into a model illustrates the mutually reinforcing nature of trust, government, and rent seeking—that is, bad government induces rent seeking that erodes trust and social capital, with the latter reducing the productivity of private enterprise relative to rent seeking, prompting further rounds of rent seeking and mistrust. Thus, we may observe the paradox of growth in both the size and mistrust of government.

Interestingly, our approach relates to the work of McCloskey (2010, 2015), who underscores the significance of maintaining or cultivating the appropriate attitudes/norms in a citizenry. While our model applies specifically to government and so has a different emphasis, both our approach and McCloskey’s indicate the importance of respect for (and cooperation with) institutions that are competent and productive. In our framework, such attitudes are critical but do not evolve alone; rather they are determined simultaneously with government activity. We suggest the appropriate attitudes in this respect are cultivated by a refrain from certain government activities; in particular, government that encourages rent seeking erodes the kinds of attitudes that are important.

An important initial motivation of this article is the negative association of trust in and growth of government in the United States in the post–World War II period and the possibility of falling into the “trust trap.” However, it seems that similar trends have occurred in developed countries worldwide. One may wonder why these phenomena seem to be relevant only after World War II. Outside the United States, a long-term mechanism at work may be the long, historical decline of monarchies and growth of democracies in the 19th and early 20th centuries. It may take a long period of adjustment for a populace and politicians to learn to “work the system” for political favors and rewards, so that these phenomena are relatively recent in appearing. Another possibility, for the United States and elsewhere, is that the Great Depression shook the public’s

confidence in markets and World War II increased it in government. This implies that more power was ceded to government, raising the parameter θ in the model and starting a shift toward more rent seeking.

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POLITICAL REGIME STABILITY AND ECONOMIC FREEDOM

Antonio Saravia

This article assesses the impact of political regime stability, as measured by political regime experience or the number of years a particular political regime has been in place, on the adoption of institutions of economic freedom. Following Gwartney, Lawson, and Hall (2014), this article broadly defines institutions of economic freedom as the formal and informal conventions determining the protection of private property, free competition, and freedom of exchange.

In a very influential article, Acemoglu and Robinson (2006) proposed that incumbent rulers have more incentives to adopt institutions of economic freedom when facing either very low or very high political competition (i.e., when they belong to highly entrenched autocratic regimes or when they face highly competitive democracies) but not when facing mild political competitive levels in between. In my interpretation of Acemoglu and Robinson's (2006) model, the implicit key variable in both of the cases conducive to the adoption of institutions of economic freedom is the expectation of political regime stability. Highly entrenched autocratic regimes have incentives to adopt such institutions because they expect themselves (or their dynasty broadly understood) to remain in power in the future. At the other extreme, incumbent rulers facing highly competitive democracies have incentives to adopt such institutions because

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highly competitive democracies generate expectations of intertemporal political competition.

I propose that history (particularly the extent of political regime experience embedded in the polity) plays a relevant role in forming expectations of political regime stability. In the case of autocracy, long-standing regimes are typically expected to remain stable in the future to a larger extent than new regimes. In the case of democracy, rulers and citizens develop expectations of democratic stability as they develop common democratic values. Such values develop through the slow and lengthy accumulation of a stock of civil liberties and political rights gained with democratic experience.

I test political regime experience as a determinant of the adoption of institutions of economic freedom as measured by the change in the Economic Freedom of the World Index (EFWI) (Gwartney, Lawson, and Hall 2014) over the five-year periods ending in 1985, 1990, 1995, 2000, 2005, and 2010. I find strong support for the argument that both democratic and autocratic experience are positively associated with larger changes in EFWI.

Background and Context

While political and economic freedom have been increasingly adopted in the world in recent decades, neither one of these trends has been a necessary nor a sufficient condition for the other. Indeed, within the last three decades, some countries adopted institutions of economic freedom while adopting or strengthening their democracies, others adopted such institutions without modifying their autocratic regimes, and others were unable to do so despite having opened their political systems.¹

The aforementioned evidence is not surprising. Although largely studied, the relationship between political and economic freedom still poses a challenging puzzle. Conventional wisdom has long suggested that political freedom is a condition for economic freedom (e.g., see Hayek 1944 and Friedman 1962). First, many of the institutions needed for political freedom—such as an independent judiciary, civil

¹The world average of EFWI increased from 5.31 in 1980 to 5.67 in 1990, 6.59 in 2000, and 6.81 in 2010 (Gwartney, Lawson, and Hall 2014). Similarly, the world average of the democratic index produced by the *Polity IV Project* (Marshall, Gurr, and Jaggers 2014) increased from 3 in 1980 to 4.17 in 1990, 5.18 in 2000, and 5.73 in 2010 (both indices are measured on a 0 to 10 scale).

liberties, and private property rights—carry the seeds of economic freedom. Second, through the generation of political competition, political freedom induces incumbent rulers to adopt Pareto-improving institutions (Barro 1973). Third, political freedom, and the resulting system of checks and balances, reduces rent-seeking behavior (see Aslund, Boone, and Johnson 1996; North 1990; and Rodrik 1999).

An important study providing evidence on the Hayek-Friedman hypothesis is that of Lawson and Clark (2010), which finds “relatively few instances of societies combining relatively high political freedom without relatively high levels of economic freedom.” It has also been shown that the causality may go in the other direction—that is, economic freedom may determine political freedom. Two important studies making this argument are Farr, Lord, and Wolfenbarger (1998) and Wu and Davis (1999). Using different econometric methodologies, both studies find that economic freedom may indirectly determine political freedom by first determining economic well being or development (as measured by GDP per capita).

While appealing at both positive and normative levels, several authors have contested the aforementioned view and posed that autocratic regimes may be more conducive to economic freedom, particularly at the beginning of the liberalization process when layoffs and cuts in entitlements are common (see Edwards 1991, Sen 1999, and Fidrmuc 2000). The cases of Pinochet’s Chile, Chiang Kai-shek’s Taiwan, and some of the Persian Gulf countries, among others, have been commonly used as evidence of this proposition. Additionally, as argued in the public choice literature, given that politicians tend to favor key interest groups that can guarantee reelection, political freedom may not provide the incentives for incumbent rulers to adopt institutions of economic freedom (see Rowley, Tollison, and Tullock 1989; Alesina and Perotti 1994; and Block 2002).

Reconciling both views, Acemoglu and Robinson (2006) have suggested that the relationship between political and economic freedom may not be linear because the adoption of institutions of economic freedom not only increases economic output (and, consequently, the incumbent ruler’s share of economic output), but also creates political turbulence that increases the probability that the incumbent ruler is replaced. If the incumbent ruler belongs to a highly entrenched autocratic regime, however, this effect is not binding and the ruler feels secure enough to adopt institutions of economic freedom. At the other extreme, if the incumbent ruler faces a highly competitive

democracy, the ruler may be *forced* to adopt institutions of economic freedom while fiercely competing for office—a result consistent with Barro’s (1973) political principal-agent paradigm. It is only when the incumbent ruler faces mild levels of political competition, therefore, that the optimal choice may be to not adopt institutions of economic freedom in order to reduce the probability of being replaced.

An important insight of Acemoglu and Robinson’s (2006) model is that, in both of the extreme cases conducive to the adoption of institutions of economic freedom, the implicit key variable is the expectation of political regime stability. Highly entrenched autocratic regimes have incentives to adopt such institutions because they expect themselves (or their dynasty broadly understood) to remain in power in the future. At the other extreme, incumbent rulers facing highly competitive democracies have incentives to adopt such institutions because highly competitive democracies generate intertemporal political competition—that is, the adoption of efficient institutions increases the probability of staying or regaining power in the future through new elections. Indeed, the longer the political regime is expected to remain stable, the higher the incentives for incumbent rulers to adopt institutions of economic freedom as the discounted value of their future share of economic output increases.

Importantly, the expectation of political regime stability also makes citizens less prone to threaten the regime even if the adoption of institutions of economic freedom negatively affects them in the short run. Workers who lose their job as the result of privatization, for example, would be less willing to instigate a coup or a revolution if they expect the regime to remain stable. This effect further strengthens the incentives for incumbent rulers to adopt institutions of economic freedom, generating a virtuous cycle.²

²The idea of “political regime stability” advanced here is inversely related to the idea of “regime uncertainty” advanced by Higgs. Studying the duration of the Great Depression, Higgs (1997) referred to regime uncertainty as the uncertainty of private owners regarding the definition of property rights in the future. Regime uncertainty à la Higgs, therefore, reduces private owners’ incentives to invest and undertake productive activities. Inversely, of course, regime certainty generates the opposite incentives as private owners can safely expect to earn the returns of their investment and productive activities. Here, I refer to political regime stability as the expectation that the political regime (democracy or autocracy) will continue in place in the future. In this sense, political regime stability also provides incumbent rulers with the incentives to *invest* in the adoption of institutions of economic freedom. These institutions will increase the economic pie, and incumbent rulers can safely expect to have the opportunity to earn their share of the economic pie in the future.

While several variables may affect the expectation of political regime stability, I propose that history plays a relevant role in this regard. In the case of autocracy, long-standing regimes are typically expected to remain more stable in the future than new regimes. The longer the duration of an autocratic regime, the stronger the signal it sends regarding its reach and dominance, and the more citizens expect the regime to remain stable in the future.³ In the case of democracy, rulers and citizens develop expectations of democratic stability as they develop common democratic values (Clague et al. 1996, Gerring et al. 2005, Persson and Tabellini 2009). Such values, however, do not form overnight or in a vacuum but through the slow and lengthy accumulation of a stock of civil liberties and political rights gained with democratic experience.⁴

Several authors have studied political regime experience as a determinant of economic performance. Some of the most relevant studies include Clague et al. (1997), Grier and Munger (2006), Gerring et al. (2005), Gerring et al. (2011), and, as noted, Persson and Tabellini (2009). Although most of these studies argue that political regime experience affects economic performance through the adoption of institutions of economic freedom, *none test this connection explicitly*. Gerring et al. (2005), for example, assume that as countries accumulate democratic experience they also accumulate “political capital,” understood as the overall health of the polity and defined by some of the same components that Gwartney, Lawson, and Hall (2014) use to define economic freedom—for example, low corruption levels, high bureaucratic quality, and the rule of law. Similarly, Persson and Tabellini (2009) assume that, by generating expectations of democratic stability, long democratic experience helps to improve the country’s “investment climate” characterized by the rule of law and also defined by the main components of Gwartney, Lawson, and Hall’s (2014) definition of economic freedom. My aim is to fill this gap in the

³One check of the validity of this argument is provided by Clague et al. (1996), who find a negative correlation between the elapsed duration of an autocrat’s rule and the likelihood of a coup d’état.

⁴Persson and Tabellini (2009) report empirical evidence suggesting that democratic experience reflects the extent to which rulers and citizens develop common democratic values. Using data from the World Value Surveys for the late 1990s for a large cross-section of countries, they find that the agreement of citizens with the question “Democracy may have problems but is it better than any other form of government?” is strong and positively correlated to their own indices of democratic experience.

literature by formally testing for the influence of political regime experience, for both democratic and autocratic countries, on the adoption of institutions of economic freedom.

An important exception in the aforementioned literature is the study by Clague et al. (1996) which finds that property and contract rights are positive and significantly correlated with the age of democratic and autocratic regimes using data from 1930 to 1990. Clague's (1996) study is closely related to the present study as property and contract rights constitute central elements of economic freedom. However, my article expands on Clague's (1996) results by using a systematic measure that encompasses all elements of economic freedom and reflects the overall state of the institutional environment.⁵ Although this article also differs from Clague (1996) in the choice of political regime indicators, econometric methodology and, of course, the period of study (my data covers the period from 1980 to 2010), my results are consistent with his.

Model and Data

As several authors have documented, the adoption of institutions of economic freedom is a slow and gradual process that requires the evolution of a complex structure of norms, conventions, and expectations (de Haan and Sturm 2003; Leonida, Ansaldo, and Navarra 2007). Thus, to better capture the adoption of institutions of economic freedom using indices such as EFWI, one must look at periods spanning several years. While there is, of course, no magic number, periods spanning five years provide a reasonable time horizon to conduct this exercise. Explaining changes in EFWI over increasingly longer periods of time introduces increasing noise. As time goes by, the change in EFWI is likely to be influenced by an increasing number of factors, events, and variables other than the ones capturing political regime experience. An additional operational advantage of using changes over five years is that one can use EFWI data from 1970 to 2000, which, for that period, are available only every five years.⁶

⁵Besides measuring property and contract rights, EFWI also includes indicators of the freedom to trade internationally, the size of the government, and the extent of regulation.

⁶Studying the effects of contemporaneous levels of democracy on the adoption of institutions of economic freedom, Lundstrom (2002) finds that using changes in EFWI over 5, 10, or 20 years produces qualitatively similar results.

The specification is, therefore, as follows:

$$\Delta EF_{i,t-(t-5)} = \alpha_0 + \alpha_1 PRE_{i,t-5} + \alpha_2 PRC_{i,t-5} + \alpha_3 EF_{i,t-5} + \alpha_4 CV_{i,t-5} + \varepsilon_{i,t} + \nu_i$$

where $\Delta EF_{i,t-(t-5)}$ is the change in the level of economic freedom in country i over a five-year period (from $t-5$ to t); $PRE_{i,t-5}$ is the measure of political regime experience in country i at period $t-5$; $PRC_{i,t-5}$ is a measure of the political regime's current level or index of democracy or autocracy in country i at period $t-5$; $EF_{i,t-5}$ is a measure of the initial level of economic freedom in country i at period $t-5$; and CV is a vector of control variables that include $GDPpc_{i,t-5}$, the level of GDP per capita in country i at period $t-5$, and $GDPpcg_{i,t-5}$, the growth rate of GDP per capita in country i at period $t-5$.

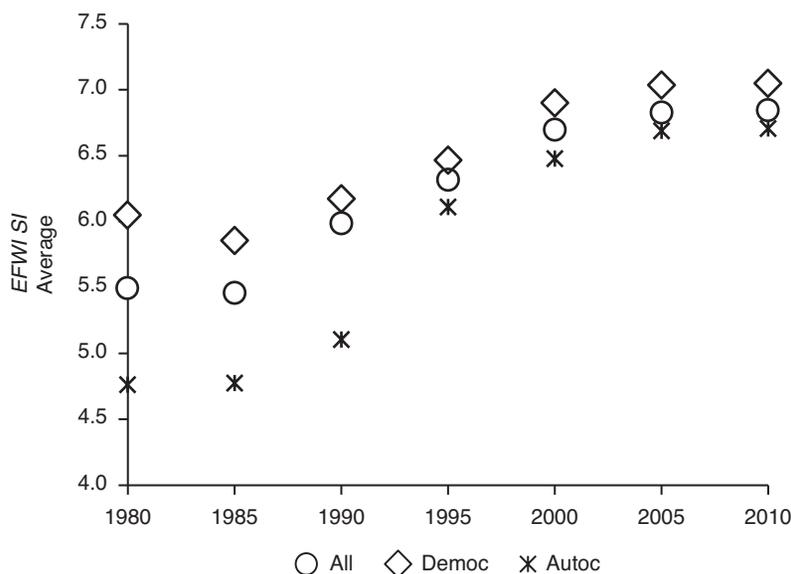
Notice that the independent variables are all observed at period $t-5$ corresponding to the starting point of the change in the level of economic freedom. Thus, the specification minimizes endogeneity biases due to potential contemporaneous simultaneity between EF and independent variables PRC , $GDPpc$, and $GDPpcg$. Notice as well that given that the dependent variable measures the change in EF , it is important to control for the initial level of EF , $EF_{i,t-5}$.

Following the discussion in the previous section, one would expect α_1 to be positive and significantly different from zero for both democratic and autocratic countries. In contrast, one would expect ambiguous results for α_2 (as indicated earlier, the relationship between current levels of political and economic freedom remains largely unresolved). One would also expect α_3 to be negative and significantly different from zero as decreasing marginal returns set in for countries presenting higher initial levels of EF .

Economic Freedom (EF)

The indices of economic freedom most frequently used in the literature are the EFWI produced by the Fraser Institute (Gwartney, Lawson, and Hall 2014) and the Index of Economic Freedom (IEF) produced by the Heritage Foundation and the *Wall Street Journal* (Miller, Holmes, and Kim 2014). Data for the EFWI are available every five years from 1970 to 2000 and yearly thereafter until 2012. Data for the IEF are available yearly from 1995 to 2014. Given that the main interest resides on the effect of political regime experience, the length of the historical time series is important for the empirical

FIGURE 1
 AVERAGE LEVEL OF *EFWI SI*, 1980–2010,
 SELECTED COUNTRIES



NOTE: The sample includes 93 democratic and 44 autocratic countries.

exercise. Thus, I will measure the adoption of institutions of economic freedom using the EFWI as it is the index with the longest historical coverage.

The EFWI measures the level of economic freedom in five areas: size of government; legal structure and security of property rights; access to sound money; freedom to trade internationally; and regulation of credit, labor, and business. The EFWI's Summary Index (*EFWI SI*) aggregates the information in these five areas into a single value measured on a 0 to 10 scale, where 10 is the highest level of economic freedom.

The adoption of institutions of economic freedom is, indeed, a slow and gradual process. Figure 1 shows the evolution of the average level of *EFWI SI* for the countries and periods in the samples used in the baseline model.⁷ The figure shows the averages for all countries and, separately, the averages for democratic and autocratic countries as defined below. Notice that the average *EFWI SI* for all countries

⁷The samples of countries used in the analyses are available upon request.

remained virtually constant from 1980 to 1985 and then increased by less than half a point in each of the next five-year periods.

It is also important to note that democratic countries presented an average *EFWI SI* more than one point higher than that of autocratic countries in 1980, 1985, and 1990. That gap dramatically decreased in 1995, however, and has remained at less than 0.4 points in the most recent five-year periods. In other words, within the sample, autocratic countries have essentially caught up with democratic countries in terms of *EFWI SI* levels in the last two decades.

Political Regime's Current Level of Democracy or Autocracy (PRC)

Data on political regime type are derived from the *Polity IV Project* produced by the Center for Systemic Peace (2014), and, alternatively, the *Freedom in the World Country Ratings* produced by the Freedom House (2015).

The *Polity IV Project* reports indices of the level or extent of democracy (Democ) and autocracy (Autoc), each on a 0 to 10 scale, from 1800 to 2013. Both of these indicators aggregate measurements of the competitiveness of political participation, the openness and competitiveness of executive recruitment, and the constraints on the chief executive. While the Democ and Autoc indices do not share any categories in common, many countries have mixed regime traits and, therefore, can have middling scores on both indices. To unify these scores, the *Polity IV Project* generates the index *Polity2*, which is computed by subtracting the Autoc score from the Democ score. As a result, *Polity2* ranges from +10 (strongly democratic) to -10 (strongly autocratic). I use *Polity2* as the measure of *PRC*.

As is customary in this line of research (e.g., see Boix, Miller, and Rosato 2012; and Mainwaring and Pérez-Liñán 2013), I define country *i* as democratic in period $t-5$ if *Polity2* is greater than or equal to 5. Conversely, I define country *i* as autocratic in period $t-5$ if *Polity2* is less than or equal to -5.

To test the robustness of the results, I alternatively use the *Freedom in the World Country Ratings*, which reports indices of political rights (PR) and civil liberties (CL), each on a 1 to 7 scale, from 1972 to 2014. If the average of these two indices is greater than or equal to 1 and less than 3, the *Freedom in the World Country Ratings* classifies the country as “Free” in that period. If the average of the two indices is strictly greater than 5, the country is classified as

“Not Free.” Finally, if the average of the two indices is greater than or equal to 3 and less than or equal to 5, the country is classified as “Partly Free” in that period. I use the average of the PR and CL indices (hereafter *FHA*) as the alternative measure of *PRC*. Consistent with the literature, I define country *i* in period $t-5$ as democratic if it is classified as “Free.” Conversely, I define country *i* in period $t-5$ as autocratic if it is classified as “Not Free.”

While using the $t-5$ lagged value of *PRC* minimizes a potential endogeneity bias, it does introduce another complication. Take the case of a country that was characterized as democratic in period $t-5$ but underwent important political changes within the next five years (e.g., a coup d'état) and, as a result, was characterized as autocratic in period t . In that case, drawing a relationship between the change in *EFWI SI* over the five-year period and the value of *PRC* at period $t-5$ will not be warranted. Clearly, the country's democratic condition at $t-5$ has drastically changed during the period in which we observe the change in *EFWI SI*. To avoid this problem, I eliminate from the sample any country characterized as democratic at $t-5$ but not characterized as such at any period between then and t . Similarly, I eliminate from the sample any country characterized as autocratic at $t-5$ but not characterized as such at any period between then and t . As a result, the exercise considers only countries consistently characterized as democratic or autocratic over the five-year periods analyzed.

Political Regime Experience (PRE)

The measure of political regime experience is the variable *Durable*, included in the *Polity IV Project*, which reports “the number of years since the most recent regime change (defined by a three-point change in *Polity2* over a period of three years or less) or the end of a transition period defined by the lack of stable political institutions (denoted by a standardized authority score).”⁸

To test the robustness of the results, I alternatively use the variable *Duration* from Boix, Miller, and Rosato (2012), which “equals the number of consecutive years the country has had the same regime type.” Data are available from 1800 to 2007.

⁸Note that, based on this definition, the variable *Durable* will revert to 0 if the country transitions from one type of autocratic regime to another. For example, the overthrow of a monarchy by a communist regime will restart the count of *Durable* even though both types of regime could be labeled as autocratic.

Control Variables

Following previous empirical literature on the adoption of institutions of economic freedom (e.g., Clague et al. 1996; Adserá, Boix, and Payne 2003; and de Haan and Sturm 2003), I use the level of GDP per capita and its growth rate at period $t-5$ as control variables. More developed countries, or countries growing at a faster pace, may be inclined (or face less popular resistance) to adopt institutions of economic freedom. To some extent, these variables also capture the overall state of the economy at period $t-5$. Typically, more developed countries, or countries growing at a faster pace, do so because they enjoy macroeconomic stability and higher levels of education. Data for *GDPpc* and *GDPpcg* are derived from the Penn World Table (Feenstra, Inklaar, and Timmer 2015).

Regression Results

To maximize the number of observations, the regression analysis covers changes in *EFWI SI* over the five-year periods ending in 1985, 1990, 1995, 2000, 2005, and 2010. Depending on the variables used to capture *PRC* and *PRE*, my samples vary from 44 to 93 countries.

The baseline models, for both democratic and autocratic countries, capture *PRC* and *PRE* using the variables *Polity2* and *Durable*, respectively. Thus, the baseline models maximize data consistency, as both political variables are derived from the same database (i.e., the *Polity IV Project*). Tables 1 and 2 present the descriptive statistics for the variables used in the baseline models for democratic and autocratic countries, respectively.⁹

Table 3 presents the fixed-effects unbalanced panel regression results for the sample of democratic countries. The results for the baseline model are displayed in Column 1. Columns 2 through 4 test the robustness of the results by alternatively using the variables *Duration* and *FHA* to capture *PRE* and *PRC*, respectively. Notice that the Hausman test favors the used of fixed over random effects in all four regressions. The results in Column 1 show strong support for the theoretical arguments presented in the previous section: *Durable* is positive and significantly correlated with Δ *EFWI SI*. The coefficient of *Durable* indicates that, other things equal, one additional year of democratic experience during the period of study was

⁹Correlation matrices underlying all of the regressions are available upon request.

TABLE 1
DESCRIPTIVE STATISTICS: DEMOCRATIC COUNTRIES

Variable	Definition	# Obs	Mean	Std. Dev.	Min	Max
$\Delta EFWI SI_{t-(t-5)}$	Change in the Economic Freedom of the World Summary Index over a 5-year period	358	0.06	0.13	-0.34	0.99
<i>Durable</i> $t-5$	Democratic experience: Number of years of uninterrupted democracy up to $t-5$	369	32.17	38.03	0	196.00
<i>Polity2</i> $t-5$	Democratic index at period $t-5$	369	8.51	1.68	5.00	10.00
<i>EFWI SI</i> $t-5$	Economic Freedom of the World Summary Index at period $t-5$	358	6.53	1.18	2.47	8.84
<i>GDPpc</i> $t-5$	GDP per capita at constant 2005 US\$	369	13,614.48	14,936.48	143.78	80,925.22
<i>GDPpcg</i> $t-5$	GDP per capita growth rate at $t-5$	369	2.62	3.30	-11.50	15.41

TABLE 2
DESCRIPTIVE STATISTICS: AUTOCRATIC COUNTRIES

Variable	Definition	# Obs	Mean	Std. Dev.	Min	Max
$\Delta EFWI SI_{t-(t-5)}$	Change in the Economic Freedom of the World Summary Index over a 5-year period	98	0.05	0.13	-0.25	0.57
<i>Durable</i> $t-5$	Autocratic experience: Number of years of uninterrupted autocracy up to $t-5$	126	23.51	14.88	0.00	79.00
<i>Polity2</i> $t-5$	Autocratic index at period $t-5$	126	-7.52	1.25	-10.00	-5.00
<i>EFWI SI</i> $t-5$	Economic Freedom of the World Summary Index at period $t-5$	98	5.27	1.21	2.99	7.74
<i>GDPpc</i> $t-5$	GDP per capita at constant 2005 US\$	126	6,093.20	13,186.60	191.78	81,947.24
<i>GDPpeg</i> $t-5$	GDP per capita growth rate at $t-5$	126	3.04	5.84	-12.84	25.11

TABLE 3
REGRESSION RESULTS FOR DEMOCRATIC COUNTRIES,
DEPENDENT VARIABLE Δ *EFWI SI*

	(1)	(2)	(3)	(4)
<i>Durable</i> $t-5$	0.003*** (0.001)	0.003* (0.001)		
<i>Duration</i> $t-5$			1.9e-04 (4.54e-04)	0.004*** (0.001)
<i>Polity2</i> $t-5$	0.017* (0.009)		0.013 (0.009)	
<i>FHA</i> $t-5$		0.013 (0.02)		0.006 (0.018)
<i>EFWI SI</i> $t-5$	-0.117*** (0.009)	-0.069*** (0.011)	-0.103*** (0.008)	-0.082*** (0.011)
<i>GDPpc</i> $t-5$	-1.81e-06 (1.62e-06)	-3.69e-06** (1.60e-06)	1.08e-06 (1.43e-06)	-4.69e-06*** (1.46e-06)
<i>GDPpcg</i> $t-5$	9.41e-04 (0.002)	-0.001 (0.002)	5.34e-04 (0.002)	-1.46e-04 (0.002)
Constant	0.59*** (0.078)	0.457*** (0.070)	0.589*** (0.080)	0.485*** (0.061)
R-squared within	0.441	0.298	0.416	0.334
Hausman	33.68***	8.67*	24.09***	12.4**
Countries	93	65	93	70
N	358	255	358	282

NOTES: Standard errors in parentheses. Statistical significance: * <0.1 , ** <0.05 , *** <0.01 .

associated with a 0.003 larger change in *EFWI SI* over five years. To better assess the magnitude of this coefficient, consider that the standard deviation of the variable *Durable* was 38.03 years and the standard deviation of the variable Δ *EFWI SI* was 0.13 points (see Table 1). Thus, a coefficient of 0.003 indicates that, other things equal, one standard deviation higher value of *Durable* was associated with a 0.885 standard deviation higher value of Δ *EFWI SI*.

As an illustration of this result, take the cases of Colombia and Moldova that were almost one standard deviation apart in terms of the variable *Durable* in 2005. As per this variable, Colombia had 48 years of democratic experience that year while Moldova had

only 14. According to the coefficient found in Table 1, such difference in terms of democratic experience would have been associated with a 0.8 standard deviation higher value of $\Delta EFWI SI$, and that was, in fact, approximately the case. Due to several reforms implemented in the late 2000s, which included a reduction of the fiscal deficit and the design of business-friendly regulations, Colombia experienced a 0.085 change in $EFWI SI$ from 2006 to 2010. Moldova, on the other hand, experienced a 0.002 negative change in $EFWI SI$ during the same period. The difference in these two values was 0.7 of a standard deviation of $\Delta EFWI SI$.

Notice as well that the current level of democracy is positive and significantly correlated with $\Delta EFWI SI$ although, as we shall see, this result is not robust. Additionally, and as expected, the initial level of $EFWI SI$ is negative and significantly correlated with $\Delta EFWI SI$, confirming that decreasing marginal returns in the process of increasing EF eventually set in. I also find that $GDPpc$ and $GDPpcg$ are not significantly correlated with $\Delta EFWI SI$.

The positive and significant relationship between democratic experience and $\Delta EFWI SI$ is confirmed in two of the three regressions used to test the robustness of the results. The only regression in which α_1 , although positive, is not significantly different from zero is the one in Column 3 in which I use *Duration* and *Polity2* to capture *PRE* and *PRC*, respectively. On the contrary, the positive and significant correlation between the current level of democracy and $\Delta EFWI SI$ is not confirmed in any of the robustness tests. As already mentioned, the ambiguous results regarding the effects of the current level of democracy on the adoption of institutions of economic freedom are expected and consistent with previous literature.

The robustness tests also show that the initial level of $EFWI SI$ is consistently negative and significantly correlated with $\Delta EFWI SI$. I also find that $GDPpc$ becomes negative and significantly correlated with $\Delta EFWI SI$ in two of these additional regressions. This last result could be capturing the fact that wealthier countries typically enjoy higher initial levels of economic freedom and, therefore, tend to present smaller increases in this variable. The robustness tests confirm that $GDPpcg$ is never significantly correlated with $\Delta EFWI SI$.

Table 4 presents the fixed-effects unbalanced panel regression results for the sample of autocratic countries. As in Table 3, the results of the baseline model are displayed in Column 1 in which I use the variables *Polity2* and *Durable*. Columns 2 through 4 test

TABLE 4
REGRESSION RESULTS FOR AUTOCRATIC COUNTRIES,
DEPENDENT VARIABLE Δ *EFWI SI*

	(1)	(2)	(3)	(4)
<i>Durable</i> $t-5$	0.008*** (0.003)	-0.001 (0.001)		
<i>Duration</i> $t-5$			0.012*** (0.003)	0.008*** (0.001)
<i>Polity2</i> $t-5$	0.016 (0.025)		0.004 (0.022)	
<i>FHA</i> $t-5$		0.080** (0.032)		0.064** (0.026)
<i>EFWI SI</i> $t-5$	-0.148*** (0.023)	-0.085*** (0.020)	-0.187*** (0.024)	-0.158*** (0.021)
<i>GDPpc</i> $t-5$	2.86e-06 (2.98e-06)	6.91e-07 (3.8e-06)	3.29e-06 (2.69e-06)	2.78e-06 (3.27e-06)
<i>GDPpcg</i> $t-5$	-0.004 (0.002)	0.001 (0.002)	-0.003 (0.002)	0.001 (0.002)
Constant	0.769*** (0.244)	.047 (0.224)	.443* (0.244)	0.047 (0.184)
R-squared within	0.486	0.298	0.572	0.466
Hausman	17.65***	5.26	33.93***	32.68***
Countries	44	45	44	46
N	98	123	98	128

NOTES: Standard errors in parentheses. Statistical significance: * <0.1 , ** <0.05 , *** <0.01 .

the robustness of the results by alternatively using the variables *Duration* and *FHA*.

Again, the results show strong support for the theoretical arguments presented in the previous section: *Durable* is positive and significantly correlated with Δ *EFWI SI*. The coefficient of *Durable* indicates that, other things equal, one additional year of autocratic experience during the period of study was associated with a 0.008 larger change in *EFWI SI* over five years. To better assess the magnitude of this coefficient, consider that the standard deviation of the variable *Durable* for autocratic countries was 14.88 years and the standard deviation of the variable Δ *EFWI SI* was 0.13 points. Thus,

a coefficient of 0.008 indicates that, other things equal, one standard deviation higher value of *Durable* was associated with a 0.916 standard deviation higher value of Δ *EFWI SI*. Thus, autocratic experience seems to have had a stronger impact on Δ *EFWI SI* than democratic experience did in the years covered by the analysis. This result is consistent with Figure 1, which showed that autocratic countries made larger improvements in *EFWI SI* from the 1980s to the 1990s and 2000s.

As an illustration of this result, take the cases of China and Morocco, which were almost one standard deviation apart in terms of the variable *Durable* in 1995. As per this variable, China had 46 years of autocratic experience that year while Morocco had only 30. According to the coefficient found in Table 2, such difference in terms of autocratic experience would have been associated with a 0.985 standard deviation higher value of Δ *EFWI SI*. That was, in fact, approximately the case. China embarked on large economic freedom reforms in the second half of the 1990s, which translated into a 0.134 change in *EFWI SI* from 1996 to 2000. Morocco, on the other hand, experienced a 0.02 negative change in *EFWI SI* during the same period. The difference in these two values was 1.1 standard deviations of Δ *EFWI SI*.

Notice as well that the current level of autocracy is not significantly correlated with Δ *EFWI SI*. Also, as expected, the initial level of *EFWI SI* is negative and significantly correlated with Δ *EFWI SI*. As in the case of democratic countries, I also find that *GDPpc* and *GDPpcg* are not significantly correlated with Δ *EFWI SI*.

The positive and significant relationship between autocratic experience and Δ *EFWI SI* is confirmed in two of the three regressions used to test the robustness of the results. The only regression in which α_1 is not significantly different from zero is the one in Column 2 in which I use *Durable* and *FHA* to capture *PRE* and *PRC*, respectively. The nonsignificance of the coefficient of the current level of autocracy is confirmed when using *Duration* and *Polity2* to capture *PRE* and *PRC*, respectively. However, when using *FHA* to capture *PRC*, I find a positive and significant relationship between the latter variable and Δ *EFWI SI*. Again, the ambiguous results regarding the effects of the current level of political freedom (in this case the lack thereof) on the adoption of institutions of economic freedom are expected and consistent with previous literature. The robustness tests also show that the initial level of *EFWI SI* is

consistently negative and significantly correlated with $\Delta EFWI SI$. Finally, in the case of autocracies, I never find a significant relationship between $GDPpc$ or $GDPpcg$ and $\Delta EFWI SI$.¹⁰

As a final exercise and further test of the robustness of the results, I ran regressions pooling all countries (democratic and autocratic) together.¹¹ Table 5 shows the results. In Column 1, I pooled together the countries defined as democratic and autocratic as per the cut-off values defined above for the *Polity2* variable. In Column 2, I pooled together all countries for which data were available (this includes countries that were not characterized as democratic or autocratic at $t-5$, i.e., countries for which their *Polity2* values at $t-5$ fell between -5 and 5). As the two columns show, the coefficient of *PRE* is always positive and significantly correlated with $\Delta EFWI SI$.¹² All of the regressions reported in the article have also been run using clustered standard errors; the results are qualitatively identical in every case.¹³

Conclusion

In this article, I find that both democratic and autocratic experience are positively associated with larger changes in EFWI. In the baseline model, other things equal, one standard deviation higher value of *Durable*, measuring democratic experience, is associated with a 0.885 standard deviation larger change in *EFWI SI* over a five-year period. Similarly, other things equal, one standard deviation higher value of *Durable*, measuring autocratic experience, is associated with a 0.916 standard deviation larger change in *EFWI SI* over a five-year period.

¹⁰Notice as well that the Hausman test favors the use of fixed over random effects in three of the four regressions. The regression in which the Hausman test favors random effects is the one in Column 2, the only case in which *PRE* is not significantly correlated with $\Delta EFWI SI$. Although not shown in the table, I ran the random effects regression for the model in this column and found that the results remained qualitatively similar.

¹¹To this end, I ran a Chow test that indicated that one could not reject the hypothesis that the coefficients of *PRE* for the separate regressions for democratic and autocratic countries were equal (i.e., pooling all countries together was warranted).

¹²Although in these columns the coefficient of *PRC* is also positive and significantly correlated with $\Delta EFWI SI$, this result is not robust when the sample is split between democratic and autocratic countries.

¹³The results are available upon request.

TABLE 5
REGRESSION RESULTS POOLING
DEPENDENT VARIABLE $\Delta EFWI SI$

	(1)	(2)
<i>Durable</i> _{<i>t</i>-5}	0.003*** (8.4e-04)	0.002*** (7.4e-04)
<i>Polity2</i> _{<i>t</i>-5}	0.013*** (0.002)	0.012*** (0.002)
<i>EFWI SI</i> _{<i>t</i>-5}	-0.114*** (0.008)	-0.11*** (0.007)
<i>GDPpc</i> _{<i>t</i>-5}	-1.51e-06 (1.35e-06)	6.00e-07 (1.34e-06)
<i>GDPpcg</i> _{<i>t</i>-5}	-5.98e-04 (0.001)	-5.76e-04 (0.001)
Constant	0.622*** (0.039)	0.627*** (0.038)
R-squared within	0.418	0.375
Hausman	68.15***	81.21***
Chow	0.49	0.87
Countries	117	126
N	456	527

NOTES: (1) Democratic and autocratic countries; (2) All countries.
Standard errors in parentheses. Statistical significance: * < 0.1, ** < 0.05,
*** < 0.01.

I also find ambiguous results for the relationship between current levels of democracy and autocracy and changes in *EFWI SI*. These results are consistent with evidence documented in previous literature that current political regime types are poor predictors of the adoption of institutions of economic freedom. Additionally, I find that the initial level of *EFWI SI* is negative and significantly correlated with changes in *EFWI SI*, which indicates that decreasing marginal returns in the process of increasing economic freedom eventually set in. I also find that, in general, GDP per capita and its growth rate are not significantly correlated with changes in *EFWI SI*.

The results of this article suggest that political regime stability, as measured by political regime experience, matters more than the type of political regime itself in the slow and lengthy process of adopting institutions of economic freedom. In fact, contrary to the conventional wisdom suggesting that political and economic freedom go hand in hand, within the period and sample covered by my empirical exercises, autocratic experience had a bigger impact on the adoption of institutions of economic freedom than democratic experience. While the intention of this article is not to derive a policy implication in favor of a particular type of political regime, the results shed light over a mechanism through which long-established autocracies (democracies) may command a higher probability at establishing institutions of economic freedom than recently established democracies (autocracies).

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A CRITIQUE OF MAZZUCATO'S ENTREPRENEURIAL STATE

Alberto Mingardi

Mariana Mazzucato's *The Entrepreneurial State* (2013) vigorously argues that industrial policy, rather than market forces, is the key factor in fostering innovation. For Mazzucato, the RM Phillips Professor in the Economics of Innovation at the University of Sussex, profit-seeking companies do little more than free-ride on government-funded research and development activities.

Though Mazzucato claims she is building on existing evidence of the effectiveness of government research and development spending, in actual fact her evidence is shaky. She adopts a very extensive definition of industrial policy that includes the unintended consequences of government intervention, and focuses only on 20th century America in making her case for what she deems to be a general law. Moreover, she ultimately fails to prove that the specific government interventions that she hails as beneficial were purposefully directed to achieve the particular outcome in question.

This article shows why Mazzucato's claims for the necessary role of government in promoting an innovation-oriented economy are unconvincing. The fundamental problem is that her work is based on a peculiar line of economic thinking that does not consider the inevitability of tradeoffs while dealing with scarce resources, and does not acknowledge the role of demand and of consumers in a modern market economy.

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The Idea of the Entrepreneurial State

Books tell stories, and stories do not necessarily need to be well crafted or carefully told to become immensely popular. Sometimes it is enough that they resonate with deeply rooted preconceptions. This might be the case with *The Entrepreneurial State*. Mazzucato's influential and award-winning work has been widely acclaimed as a turning point in scholarship on innovation (e.g., Upbin 2013 and Madrick 2014). Martin Wolf (2013) argued that the book provided a successful justification for the role of government in promoting innovation, which he claimed had unduly "been written out of the story." Based on *The Entrepreneurial State*, Wolf deduced that our "failure to recognize the role of the government in driving innovation may well be the greatest threat to rising prosperity." Lack of adequate government funding for research and development (R&D), he suggested, could slow the pace of innovation.¹

Mazzucato is an effective public speaker and an accomplished writer, and her reputation rests on debunking the alleged myth of innovation emerging from market interactions. She argues that profit-seeking private entrepreneurs get too much credit for innovation, whereas the government is routinely blamed for stifling technological progress by overregulating the private sector.

Mazzucato believes this narrative is highly ideological and lacks empirical grounding. To the contrary, she argues that much path-breaking innovation is due neither to flashy start-ups nor to farsighted venture capital investors. In fact, she maintains, government is often the most farsighted and the least risk-averse of investors. Industrial policy, rather than free markets, deserves to be credited with the development of some of the most exciting contemporary technologies—from life-saving drugs to the iPhone.

In singing the praises of industrial policy, Mazzucato focuses on the United States. This is a strategic decision: The United States embodies the idea of a free-market economy to many people, so proving that its industrial success owes more than is commonly acknowledged to government policy would, in Mazzucato's eyes, show that we need government to provide "mission-oriented directionality" to R&D activities. By contrast, Mazzucato shies

¹For a critical reaction to Wolf's review, see Kealey (2015).

away from confronting the numerous cases of self-styled industrial policy experienced in Europe.

The supposed success of American-style industrial policy is meant to prove that it is government that bets heavily on new technologies, thereby shaping the markets of the future. This thesis, strictly speaking, is far from new. Others have argued that “the Federal government has encouraged innovations and their diffusion throughout the private market economy throughout most of our history” (Uselding 1993: 163). But Mazzucato’s work is distinguished by her stated belief that government intervention is not only propitious, but actually necessary for innovation to emerge.

Given the publishing success of, and critical acclaim for, Mazzucato’s work, it is worth examining her arguments closely. Do they hold up to scrutiny? Does she succeed in making the case for industrial policy as the engine driving innovation? Or is she simply telling a story that resonates with ingrained prejudices?

In 2012, President Barack Obama claimed that the private sector owed government more gratitude than it typically grants, in what came to be known as his “you didn’t build that” speech (Obama 2012). Indeed, it could be argued that none of us, not even the most creative individuals, would come to much without the cooperation of others. Nevertheless, to assert that every innovation owes its existence to the government is a very bold claim, and in this article I will contend that Mazzucato’s book may inadvertently demonstrate its absurdity.

I will argue that Mazzucato’s work is filled with self-contradictory statements. She presents an idyllic vision of industrial policy, yet she refuses to claim success for industrial policy where it was proudly implemented—that is, in most European social democracies. Instead, she aims to prove that industrial policy was decisive in the United States, including in cases when there was no openly stated industrial policy being pursued.

I will place her efforts within the context of the “discursive battle” she wants to fight, and subsequently examine her key claims that should—if her core argument is to succeed—prove the providential nature of industrial policy. I will show that she mistakes unintended consequences for intended ones, and will highlight the way her vision of the modern economy unjustifiably excludes any role for the consumer.

The Myth of the Entrepreneurial State as an Answer to Austerity

Mazzucato's critics must acknowledge, at least, that she does not hide her motives. Her work is intended as a contribution to the battle of ideas on the role of government in society—and, in particular, as intellectual ammunition for the opponents of fiscal austerity. Her key assertion is that the current European crisis is not a fiscal crisis. Contrary to those advocating austerity, she argues there is no need for retrenchment in public spending. Indeed, she holds that the commonly held vision of the European crisis as a fiscal crisis is basically a construct of ideologues interested in fostering a narrative of government “as cumbersome, and only able to correct ‘market failures’” (Mazzucato 2013: 6).

Accordingly, Mazzucato aims to correct this narrative by providing “an exciting vision of the State’s role” (Mazzucato 2013: 4). If the public sees the state as a major source of innovation, it will not support what she considers an unwarranted rollback of public functions. It is noteworthy that Mazzucato sees a government that corrects market failures—a category ample enough to include interventions in health care, education, competition policy, environmental regulation, energy, and much more besides—as tantamount to a minimal state.

The Entrepreneurial State is an expanded version of a monograph originally published by the British think tank Demos (Mazzucato 2011). In her book, Mazzucato sets out “to convince the UK government to change strategy: to not cut State programs in the name of making the economy ‘more competitive’ and ‘more entrepreneurial,’ but to reimagine what the State *can* and must do to ensure a sustainable post-crisis recovery” (Mazzucato 2013: 2). The problem, as she sees it, is that in recent years “the State has not had a good marketing/communications department” (Mazzucato 2013: 20).

In Mazzucato's view, economists tend to adopt an ideological approach that places an excessive emphasis on government failures, while forgetting that state intervention can be motivated by “visions” and “ambitions” that may foster a more innovative economy. These economists, Mazzucato writes, also assume that the legitimate role for government is limited to the correction of market failures. This framework, which she associates with the public choice school,

is deemed to be ill-suited to providing a *historical* account of how innovation developed, or to offering *normative* guidance on how our societies can continue to innovate.²

In a recent article, Mazzucato (2014: 8) neatly summarized her argument:

The market failure framework is problematic for addressing societal challenges because it cannot explain and justify the kinds of transformative mission-oriented investments that in the past “picked” directions, coordinated public and private initiatives, built new networks, and drove the entire techno-economic process, thus resulting in the creation of new markets—not just in the fixing of existing ones.

It is worth noting that the way Mazzucato describes opposing schools of thought is sometimes rather curious. For one thing, she broadly equates the market-failure approach to government policy with free-market economics, which is not obviously an apt comparison.³ Moreover, while it is true that public choice theory does not persuasively explain innovation, that goal is plainly not what public choice theory sets out to achieve. On the other hand, public choice theory offers a very good way of understanding how policymaking actually works.

In order to succeed in her own argument, Mazzucato needs to prove two things: first, that there is a treasure trove of examples showing that government intervention is ubiquitous in the history of modern capitalism (a point that won't be controversial); and second, that a particular kind of government intervention—industrial policy—has, consistently with its own declared goals, been effective in fostering innovation.

Is the historical evidence that Mazzucato provides robust? Or is it just an *ex post* rationalization of a patchwork of policies that were not necessarily put in place to promote a particular research program? The following sections will attempt to answer those questions.

²Mazzucato (2014) seems to base her view of public choice on Tullock, Seldon, and Brady (2000).

³For a survey of “free-market responses” to market failure, see Tabarrok (2002).

Industrial Policy

Mazzucato doesn't just claim that government intervention can stimulate people's ability to innovate. She wants to prove that government intervention is a necessary component of an innovation-fostering economy. Her focus is almost exclusively on technological innovation.⁴

Industrial policy is the hero of Mazzucato's story. But this story is not as straightforward as it appears, since in many respects it suffers from the "is-ought" problem—that is, it makes too many claims about what ought to be based on statements of what is.

Mazzucato asserts that government has already shown its ability to play an entrepreneurial role. She maintains that "most of the radical, revolutionary innovations that have fuelled the dynamics of capitalism—from railroads to the Internet, to modern-day nanotechnology and pharmaceuticals—trace the most courageous, early and capital-intensive 'entrepreneurial' investments back to the State" (Mazzucato 2013: 3).

The reference to railways is astonishing and yet perfectly emblematic of her approach. For while contemporary *grand projets* such as high-speed trains are indeed financed by government, railways as an "innovation"—or, rather, when they were an innovation—were very much the creation of the private sector. At a certain point, railways in Italy, the United States, and England, where they were pioneered, were nationalized. This fact alone should suggest that government was not an early investor in railways companies.

This digression points to one of the major problems with Mazzucato's book. She claims to have found a new regularity, a ubiquitous generalization: it takes a strong government to produce an innovative economy. However, it is difficult to claim the status of a regularity with evidence from only the last 50 years.

To put it bluntly, government expenditure expanded at such a pace during the 20th century (from about 10 percent of GDP to more than 40 percent in virtually all Western democracies) that it would be surprising if it didn't happen to produce some innovative ventures along the way.⁵ With such extraordinary growth, it is

⁴When she briefly touches upon the Japanese case, however, Mazzucato also mentions organizational innovation (Mazzucato 2013: 37).

⁵On the growth of government and its pace, see Tanzi and Schuknecht (1999).

improbable that public spending wouldn't end up in the neighborhood of innovation-producing business at one point or another.

But what about the 19th century? Wasn't industrialization fueled by innovations and discoveries, and yet largely independent of huge public investments in R&D? The Industrial Revolution took hold in Britain first, and there government spending was basically centered on providing national defense and on servicing the debt contracted to wage wars (Hartwell 1981). Indeed, as Mokyr (1999: 46) notes, "Any policy objective aimed deliberately at promoting long-run economic growth would be hard to document in Britain before and during the Industrial Revolution. . . . In Britain the public sector by and large eschewed any entrepreneurial activity."

Whatever the merits of the generalization that public spending is needed to foster innovation, Mazzucato cannot convincingly draw such a conclusion by referring only to a tiny bit of history—least of all that bit of history which is, perhaps not by chance, the one in which public spending overflowed society in general.

Moreover, to prove her point, Mazzucato should persuasively show that the innovations she claims are due to government intervention are the result of "intelligent design." It is clear that she believes this to be the case, as she argues against the opposite view: "We are constantly told that the State should have a limited role in the economy due to its inability to 'pick winners,' whether the 'winners' are new technologies, economic sectors or specific firms" (Mazzucato 2013: 18). In her perspective, however, the role government should exercise is precisely "directionality (choosing areas of change, rather than just 'facilitating' it)" (Mazzucato 2014: 4) in R&D investments. Her narrative is one of "a confident state that was able and willing to courageously envision the *direction* of change-defining missions and to organise institutional structures across public agencies and departments" (Mazzucato 2014: 7).

Her book offers many examples of the role public policies played in promoting innovation. And yet, these innovations may often be considered as positive externalities of public intervention, as opposed to carefully designed outcomes of such industrial policies. This is problematic if you are eager to defend a government that picks winners: Surely you should first demonstrate that it did actually pick winners, because this is the "mission-oriented directionality" on which Mazzucato's case hinges.

The heart of Mazzucato's work lies in the fourth and fifth chapters of her book, devoted respectively to "The U.S. Entrepreneurial State" and to "The State Behind the iPhone." To properly assess Mazzucato's work, one must confront the examples she provides in those chapters.

Did Government Invent the Internet?

In order to argue that the United States has an entrepreneurial state, Mazzucato presents four supposed government success stories: the Defense Advanced Research Projects Agency (DARPA), the Small Business Innovation Research (SBIR) program, orphan drugs regulation, and nanotechnologies. What these examples share, according to Mazzucato, is "a proactive approach by the State to shape a market in order to drive innovation" (Mazzucato 2013: 73). The idea is that government agencies envisioned innovation, and then pursued it. Private companies, at best, grabbed the low-hanging fruit later on.

It is a fact that, after World War II, basic research in the United States was largely nationalized, in a manner consistent with the "permanent war efforts" that absorbed the country's attention during the Cold War. For Mazzucato, after the Manhattan Project "it became the government's business to understand which technologies provided possible applications for military purposes as well as commercial use" (Mazzucato 2013: 75). In that regard, DARPA not only funded research, it "funded the formation of computer science departments, provided start-up firms with early research support, contributed to semiconductor research and support to human-computer interface research, and oversaw the early stages of the Internet" (Mazzucato 2013: 76). Mazzucato sees DARPA as a model of efficiency. It had a "dynamic and flexible structure, . . . increased the flow of knowledge across competing research groups, . . . [and] DARPA officers engaged in business and technological brokering" (Mazzucato 2013: 77). But how did those remarkable successes come about?

Mazzucato is rather parsimonious with administrative and organizational details and doesn't explain what the criteria for distributing grants were, what DARPA's assistance really entailed, or how offices were organized. She aims to convince us that "the key is that the

government serves as a leader” (Mazzucato 2013: 79), but this is stated, rather than explained.

The main argument for such a statement seems to lie in DARPA’s widely acknowledged “invention” of the Internet. The key question, here, lies in the intentionality behind innovations. Did the American government ever envision something similar to what turned out to be the commercial Internet?

It cannot be denied that the federal government supported universities to develop the ideas and the hardware that formed the building blocks of the Internet, such as the FTP (file transfer protocol) and TCP/IP (transmission control protocol/Internet protocol) standards. The fundamental idea behind the Internet is that of “packet switching,” a digital networking communications method in which data is transmitted in suitably sized blocks, called packets. This concept was developed by two MIT researchers, Joseph Carl Robnett Licklider and Leonard Kleinrock, who eventually worked on ARPANET, the network that became the basis for the Internet. With the benefit of hindsight, perhaps DARPA just picked the right guys for the job (Chandler 2005: 170).

It is also worth remembering that the TCP/IP router was developed (for ARPANET) by a private business, Cisco (Chandler 2005: 172), while the optical fibers that made it possible for Internet to reach millions of houses were developed by Corning Glass Works, another private enterprise. Two further points should not be overlooked: the government grants that allegedly led to the invention of the Internet were essentially defense spending, and those grants were channeled through the U.S. university system.

Historian Price Fishback (2007: 516) admits that “no one can deny the vast repercussions of militarily motivated activities” in the development of the Internet. He goes on to say, “The military’s role was clearly sufficient to develop the early technologies, but arguably it was not necessary. The credit for these technologies should go to the actual people performing the research” (521). The relevant question is thus whether the development of the Internet took place as the result of some “mission-oriented directionality” on the part of government, or if it is better seen as merely a positive externality of public intervention.

According to Fishback (2007: 519), “The military funding contributed spillover benefits to the development of the commercial

Internet” by not trying to tightly control the projects, by encouraging wide dissemination of research results, and by funding small firms. This suggests there was little “mission-oriented directionality” behind the creation of the Internet.

Furthermore, in defending DARPA and claiming the government did indeed invent the Internet, Mazzucato gives the impression that she views American universities as homogeneous and ready to march on the government’s orders. This might be closer to the truth insofar as the continental European university system is concerned, but it is not an accurate way to characterize American universities.

Like Mazzucato, Nathan Rosenberg (2000) points out the important role played by American universities in developing prototypes, and more generally in basic research. However, unlike Mazzucato, he acknowledges that they are very responsive to the needs of the economy and of society at large, showing greater flexibility than their European counterparts.

The “competitive environment” in which U.S. universities operate (Rosenberg 2000: 38) could be an explanation for their high research productivity. It certainly is relevant to note that government funding is channeled through institutions that compete with one another to attract capital (either public grants or private donations), as well as to attract the best factors of production (teachers), and also to gain customers (students).

Here, as so often in her book, Mazzucato simply assumes that if something goes right, government must be responsible. But in the real world the mere existence of government money doesn’t account for the different nuances of institutions. Government money channeled through a competitive setting may have very different effects than government money spent following a strictly hierarchical, top-down logic.

Can Industrial Policy Be Decentralized?

While discussing DARPA, Mazzucato speaks of a “decentralized form of industrial policy” (Mazzucato 2013: 78). But this is an oxymoron dressed up as a terminological innovation: in reality, either it is “industrial policy” or it is decentralized. Even if we adopt a very loose definition of industrial policy, we must agree that we have industrial policy only when “the government deliberately attempts to promote industry” (Robinson 2009: 3). Of course, it is possible that,

as with any other human action, a certain policy may have unintended consequences that are considered positive. However, unintended consequences are just that: unintended. And though Mazzucato proclaims the “mission-oriented directionality” behind government-driven innovations, she sometimes confuses unintended consequences, or by-products, with intended ones.

One example Mazzucato provides to demonstrate the efficiency of decentralized industrial policy in an entrepreneurial state is the SBIR program. Launched under President Reagan, SBIR provides “more than \$2 billion per year in direct support to high-tech firms” (Mazzucato 2013: 80). It can be viewed as providing taxpayer-funded venture capital (Wallstein 2001: 8), albeit in a very peculiar way: The federal government simply requires all government agencies with an R&D budget over \$100 million (including the military) to spend 2.8 percent of their budget to promote innovation by small- and medium-sized businesses.⁶

That SBIR has a “unique role” and “has fostered development of new enterprises, and has guided the commercialization of hundreds of new technologies” (Mazzucato 2013: 80) is something Mazzucato’s readers must take on a leap of faith. *The Entrepreneurial State* fails to offer a single example of a new technology that took off because of a SBIR grant. Furthermore, it is difficult to understand how the SBIR program can fit any reasonable definition of industrial policy: Requiring federal agencies with extramural R&D budgets that exceed \$100 million to spend money does not signal “mission-oriented directionality (and ‘routes’ within directions).” In fact, it adds up to little more than forcing some public bodies to sign checks.

As Mazzucato sees it, the fact that the SBIR program is now larger and finances more projects than it did some 20 years ago is due to the retreat of private venture capital, which in her view is “increasingly short-termist, focused on pursuing capital gains” (Mazzucato 2013: 81). This is tantamount to arguing that whenever a public program gets bigger, this is because it is needed and successful in fulfilling

⁶Scott Wallstein (2001) argued that SBIR crowded out private investments in R&D. Mazzucato doesn’t examine the possibility of such a phenomenon because “Keynesians have argued against the idea that State spending crowds out private investment, by emphasizing that this would only hold in a period of full resource utilization” (Mazzucato 2013: 24).

those needs. But this, to put it mildly, is not a very realistic view of how government operates.

Indeed, contrary to Mazzucato, Vito Tanzi (2012: 41–42) has suggested a fundamental law of public expenditure over long periods of time: “Most government programs that are created have a tendency to grow almost continuously and spontaneously over the years and to become more expensive with the passage of time.” What if SBIR funds have increased not because they are needed, and not because they are successful, but rather because that’s just what government programs tend to do?

The Entrepreneurial State endorses a vision of politics and public administration in which the government does what it must, and any suspicion concerning its inefficiency is, at best, a self-fulfilling prophecy. If Mazzucato chastizes the private sector’s short-termism, she seems convinced that decisionmakers that allocate resources for and within government are uniformly intelligent and farsighted.

Nevertheless, it is hard to avoid the impression that this is a post hoc ergo propter hoc farsightedness—that is, one based on the realization of beneficial outcomes, even though those outcomes were not intended by government in the first place. A clear example of this is provided by the chapter in which Mazzucato attempts to convince us that the iPhone is a product of U.S. government intervention. To show how touchscreen devices are something we owe to industrial policy,⁷ Mazzucato argues that it was government funding that allowed a young PhD student at the University of Delaware, Wayne Westerman, to complete his degree and go on to cofound FingerWorks, which “revolutionized the multi-billion dollar mobile electronic devices industry” (Mazzucato 2013: 103).

Can we really argue that if somebody at a certain point transforms his own doctoral thesis (Westerman 1999) into an entrepreneurial idea, the latter is the product of industrial policy? Is this really the case just because his university was government-funded and his PhD was partially funded by a scholarship from the National Science Foundation, like some 2,000 others every year?

Another arrow in Mazzucato’s quiver is the 1983 law on orphan drugs, which allowed small pharmaceutical companies and

⁷Insofar as the evolution of touchscreen devices is concerned, there were actually plenty of developments, both private and government-funded, well before the iPhone was conceived (see Buxton [2007] 2014).

biotechnology firms “to improve their technology platforms and scale up their operations, allowing them to advance to the position of becoming a major player in the biopharmaceutical industry” (Mazzucato 2013: 81).

Once again, we have to ask whether this is actually industrial policy. The idea that inspired the orphan drugs law is that, under normal circumstances, it would be uneconomical to spend the hundreds of millions or billions of dollars to develop, test, and seek approval for a drug to treat conditions that affect a patient population of under 200,000 people. Therefore, the government provides a mix of “incentives” to overcome the very market failure it itself assumes. This is not only the case in the United States; orphan drugs legislation has been implemented, following the U.S. example, in other countries, as well as by the European Union since 1999.

In the United States, the incentives primarily amount to a slight extension of the market exclusivity provisions that apply to all approved drugs and to tax credits for R&D spending. The market exclusivity extension (which is not a patent extension) gives the manufacturer the exclusive right to sell the orphan drug for seven years after FDA approval, even if the patent has expired. This compares to an existing five years of market exclusivity for nonorphan drugs. However, if the remaining patent life of the orphan drug after FDA approval is longer than seven years, the market exclusivity is essentially worth nothing.

On the top of that, there is a relatively small amount of direct research funding from government available. For fiscal year 2014, the U.S. government allocated a mere \$14.1 million for orphan drug research grants, with the typical grant to an individual developer being around \$100,000.⁸

Mazzucato presents her book as a “discursive battle” against a notion that sees the State’s active role limited to the correction of market failures. She contrasts the “‘market failure approach,’ in which the State is simply remedying the wedge between private and social returns” with a “‘systems of innovation’ approach, which looks at R&D spending in a more holistic way” (Mazzucato 2013: 9).

And yet one of the success stories Mazzucato presents to make her case, the Orphan Drug Act, is actually a very clear case of an attempt

⁸See www.federalregister.gov/articles/2012/08/06/2012-19086/clinical-studies-of-safety-and-effectiveness-of-orphan-products-research-project-grant-r01.

to overcome a market failure: lawmakers thought that a certain good was provided in a suboptimal quantity by free enterprise, and thus intervened to realign the incentives.⁹

What About Entrepreneurs?

Mazzucato's work can be understood as an attempt to solve the great riddle of the modern capitalist economy: where does innovation come from? McCloskey ([2010] 2011: 52) has argued that "the path to the modern" economic world "was . . . about discovery, and a creativity supported by novel words." Entrepreneurship played a central role in the development of the modern economy. According to Kirzner (2000: 96), a certain "propensity for entrepreneurial discovery and innovation" finds fertile grounds in a market economy, where proper incentives, a certain set of institutions, and a welcoming culture allow it to develop.

Mazzucato has her own explanation for the tremendous success of modern innovation: government investment in R&D of new technologies. But such an all-encompassing explanation seems to be extremely economical with details.

Consider, for example, the comparison she draws between the experience of Japan and that of the United States in the 1970s and 1980s, building on a paper by Freeman (1995). Japan's economic rise is explained "as new knowledge flowing through a more horizontal economic structure, consisting of the Ministry of International Trade and Industry (MITI), academia and business R&D" (Mazzucato 2013: 37). In the 1970s, Japan invested 2.5 percent of its GDP in R&D while the Soviet Union invested 4 percent. Yet Japan "grew much faster . . . because R&D funding was spread across a wider variety of economic sectors, not just those focused on the military and space as was the case in the Soviet Union" (Mazzucato 2013: 37). Although Mazzucato recognizes that "the Soviet Union did not have, or permit, business enterprises to commercialize the technologies developed by the State" and that "Japan had strong user–producer linkages" (Mazzucato 2013: 37)—which is to say, it had a market economy in which the supply of goods and services responds to

⁹Given the "regulatory intensity" of the pharmaceutical sector, it could be argued that the special privileges given to producers of orphan drugs merely offset sources of hindrance to production that were manufactured by government itself. However, this is not the proper place to develop such an argument.

demand—she considers this “structural” difference of little importance when compared with the “directionality” that strong coordination by government authority impressed on the Japanese economy. Can the existence of private businesses, seeking profits and market shares, really be considered an irrelevant detail?

It may also be worth noting that, until 1991, the Japanese government “was funding less than 20 percent of its R&D and, remarkably, less than half of its country’s academic science—an extraordinary exception to the average OECD government, which was funding around 50 percent of its R&D and 85 percent of its country’s academic science” (Kealey 2008: 287).

Perhaps Mazzucato should have paid more attention to the different ways in which government money was allocated in the two countries, which she herself reports. In the Soviet Union, over 70 percent of R&D spending was allocated to the military and space sectors. In Japan, those two business sectors accounted for less than 2 percent of R&D (Mazzucato 2013: 39). Such a radically different proportion may have something to do with the fact that the recipients of government grants in Japan were private enterprises that depended more on consumers buying their products than on specific subsidies from the state. It hardly needs to be stated that this was not the case in the Soviet Union.

Paradoxically, Mazzucato’s emphasis on breakthrough innovation is conducive to a minimization of the role of private enterprises. Instead of proving the institutions of a market economy socially beneficial, innovation to her proves their irrelevance. In her perspective, the private sector at best repackages and markets innovations that were already developed by government. This is basically her view of Apple, and also the main reason she advocates higher corporate taxes: so that private enterprise can “give back” what it obtained from government intervention. What is most striking, however, is that Mazzucato apparently considers this “last mile” of innovation extremely banal.

The Entrepreneurial State points out a number of instances in which innovations that ultimately ended up being used by Apple in its devices crossed the great river of public spending. Mazzucato asks, “Did the U.S. Government ‘Pick’ the iPod?” (Mazzucato 2013: 109), and answers in the affirmative.

But this is hard to accept. On the one hand, the technologies behind those products may have benefited from public spending, but

they were at best an unintentional consequence of government-funded research and development. “Luck” and “design” are not synonyms, and they do not become synonyms just because we are talking about industrial policy. On the other hand, Mazzucato does not and could not demonstrate that the development of some particular technologies (like GPS) happened because government planners forecast their eventual point of arrival.

What private business does, in a market economy, is order factors of production in a way consistent with its attempt to meet and anticipate consumer demand. Breakthrough innovation doesn’t happen in a vacuum and is seldom realised just because of brilliant ideas and new technological achievements. “Gadgets” alone are not the be-all and end-all of innovation. To be successful, they must also create excitement among buying customers, meet a demand, and thus cause a readjustment of the factors of production. Technological progress doesn’t add new products to the shelves by itself.

F.A. Hayek (1955: 98) once commented that “compared with the work of the engineer that of the merchant is in a sense much more ‘social,’ i.e., interwoven with the free activities of other people.” The entrepreneur’s role is not to create new inventions but to anticipate and meet consumers’ demands. Innovations, in turn, are useful because of the needs and desires they may satisfy. Government is typically a bad entrepreneur not because some economists or political philosophers deem it to be, but because the conditions under which it operates are radically different from those facing private entrepreneurs. Market-driven economies are dynamic; they have to be to survive. State-driven economies, or what Nobel laureate economist Edmund Phelps (2013: 127) calls “social economies,” are “fatally lacking in dynamism.”

Occasionally, Mazzucato seems to be concerned with a slightly different—and perhaps more serious—problem: the alleged stagnation of innovation in our times. She remarks that “long-term basic and applied research is not part of the strategy of ‘Big Business’ anymore” (Mazzucato 2013: 178). But she doesn’t seem concerned with the specific problems that may have slowed down dynamism. Investor and writer Peter Thiel, for example, suggests that relatively recent technological innovation came from “the world of bits” rather than the “world of things,” because overregulation hinders the latter more than the former (Thiel 2014).

Mazzucato tries to dismantle the very idea that government activity can be an obstacle to innovation. However, to persuasively demonstrate that government is key to innovation, Mazzucato should discuss how government planners and engineers are selected and appointed, as well as the incentives that enable a government bureaucracy to “crowd in” innovation in the economic process. Unfortunately, she doesn’t touch upon these problems at all.

It should be clear by now that Mazzucato’s state is not really “entrepreneurial” in the way we normally use the word. Entrepreneurial activity entails discovering not just new technologies, but new needs, new consumer preferences, and better ways to coordinate the factors of production in order to satisfy them. Mazzucato claims that the government is better at picking winners than the market, but she doesn’t quite explain what race these so-called winners are competing in. She does not consider at all the fact that entrepreneurs need to respond to feedback mechanisms, whereas public spending, typically, does not. Her view of progress is one in which demand has no role whatsoever.

The Missing Consumer

In her “discursive battle,” Mazzucato carefully avoids looking into any counterargument or potential falsification of her thesis. In her view, “We just haven’t developed the accurate metrics needed to judge its [the State’s] investments fairly” (Mazzucato 2013: 19). Moreover,

What is ignored is that, in many of the cases that the State “failed,” it was trying to do something much more difficult than what many private businesses do: either trying to extend the period of glory of a mature industry (the Concorde experiment or the American Supersonic Transport project), or actively trying to launch a new technology sector (the Internet, or the IT revolution) [Mazzucato 2013: 18].

The implication of this becomes clearer when Mazzucato confronts the case of two solar energy businesses, Solyndra in the United States and Suntech in China:

Shifts in global solar markets prevented Solyndra from capitalizing on its investments. Before Solyndra could exploit the economies of scale provided by its increasing manufacturing

capacity, the cost of raw silicon collapsed. The cost of competing C-Si PV technology also fell even more drastically than predicted as a result of Chinese development and investment in the technology. Despite the government's support and \$1.1 billion obtained from its business investors, Solyndra declared bankruptcy in the fall of 2011 [2013: 129–30].

Many commentators have seen in the Solyndra bankruptcy a spectacular demonstration of government's inability to make complex investments in new technologies by picking winners—that is, a dismal failure of industrial policy (Jenkins 2011, Taylor and Van Doren 2011). By contrast, Mazzucato is convinced that the fault lies with the rats escaping the sinking ship: the problem appears “when the business community [runs] out of patience or tolerance for risk” (Mazzucato 2013: 130).

Mazzucato's reasoning is as follows: “Real” innovation needs years to develop and—under conditions of fundamental uncertainty—the time innovation needs to come to fruition can't be precisely defined. Therefore, an investor with a limited time horizon will be inclined to withdraw too early and in so doing jeopardize the possibility of true innovation. Mazzucato accepts that some people interpret the inability of a business to score profit as proof that a technology “can't compete,” but regards such a perspective as “against the historical record, which suggests that all energy technologies have needed and benefited from lengthy development periods and long-term government support” (Mazzucato 2013: 159).

If impatient investors are the bogeyman of Mazzucato's story, the hero is the Chinese government, which nationalized Suntech's assets, aiming “to protect the interest of thousands of workers, the public banks backing the firm, and the State” (Mazzucato 2013: 154). Here, finally, Mazzucato sides with something we can unambiguously recognize as industrial policy. Such an industrial policy implies a defense of the way factors of production are employed today, thereby picturing it is the best possible way, against traumatic reallocation due to bankruptcy.

This, ultimately, is why Mazzucato assumes that government can “create new products and new markets.” Essentially, government can stay put, regardless of returns on investments. But don't tradeoffs exist for government too? Plainly, if government is supporting a certain innovation or a certain company, it won't be able to use the

same resources to support other activities or companies—nor will the private sector, where those resources inevitably originate. Mazzucato’s arguments float around in a rarefied atmosphere in which private investors allocate scarcities in an imperfect way, while government doesn’t care about the existence of scarcity at all. But this is just another sense in which Mazzucato’s entrepreneurial state is not really entrepreneurial at all.

Of course, it is possible that private investors will misallocate their resources, but private misallocation has the obvious advantage for society at large of being *private*. In stark contrast, government resources are taken out of everybody’s pocket. Mazzucato doesn’t even consider this simple fact.

Mazzucato is not blind to the existence of opportunistic behavior, but she sees it only when it supports her personal preference for government intervention. Taking an unacknowledged public choice perspective, she shows great suspicion of corporate interests. In particular, she dismisses Big Pharma’s protest against hyperregulation as cheap talk, on the grounds that, in her view, the industry tends to relocate not where taxes are lower and rules easier, but to places where it can receive subsidies of some sort.

Mazzucato also claims that “only Apple’s shareholders are allowed to benefit financially from the company’s recent and current success, even though many at the base directly contribute to it” (Mazzucato 2013: 171). Once again, this echoes President Obama’s “you didn’t build that” speech. The suggestion is that those who somehow didn’t manage to innovate in a vacuum should pay higher taxes as recompense.

If government is actually behind so many innovations that are eventually brought to market by private business, then it is intolerable, in Mazzucato’s view, that those private companies make money, and then decide to relocate here or there, finding the most favorable tax jurisdiction, without “giving back” to the authorities resources that could go to fuel government R&D and propel a virtuous circle. This is why Mazzucato proposes a familiar set of policy solutions: direct government investment in innovative businesses, a bigger role for government banks, and a “golden share” over patents that come out of research financed by the public sector.

According to Mazzucato (2013: 156), “One of the biggest challenges for the future, in both cleantech and whatever tech follows it,

will be to make sure that in building collaborative ecosystems, we do not only socialize the risks but also the rewards. It is only in this way that the innovation cycle will be sustainable over time, both economically and politically.”

Mazzucato gives little consideration to the impact the taxes needed to support these “collaborative ecosystems” might have on private enterprise or consumer demand. Yet taxes are a production cost for business. Can we assume that the price of a certain good is completely independent from its production costs? If not, higher taxes may eventually become higher prices for consumers, with a dampening effect on the consumer demand that drives private innovation. Similarly, is it realistic to imagine that private businesses will continue to fulfill their central role in innovation, even as their profits are squeezed by higher taxes? Incentives matter, in innovation as in everything else.

Mazzucato does not tackle this problem, but she seems to believe that the costs of her proposals should be sustained because the lack of a proper government R&D infrastructure might have *higher* costs, substantially undermining our ability to innovate. This assertion is as convenient as it is unclear. Mazzucato does not attempt to quantify the social cost of any deficiency in government R&D. In this sense, Mazzucato belongs to that group of thinkers who, to quote McCloskey (2014: 77), never think it necessary to offer evidence that their “proposed state intervention will work as it is supposed to” or that “the imperfectly attained necessary condition for perfection before intervention is large enough to have much reduced the performance of the economy in aggregate.”

Conclusion

Mazzucato doesn’t really explain how government bureaucracy can lead innovation with “mission-oriented directionality.” Furthermore, she doesn’t appear to see innovation as anything other than technological progress per se. The fact that innovations should become “products,” available to benefit flesh-and-blood human beings, doesn’t seem to be particularly relevant to her argument.

Of course, if we assume that we can pay for all possible research projects, then we can safely assume too that financing everything will lead, at some point, to some results. But the U.S. Treasury does not

work like Mary Poppins' bag. So how does this all fit into a world of scarce resources and inevitable tradeoffs?

In such a world, the dreary judgments of investors help at least in figuring out which kind of technological advancements promise to be of use to consumers, and which do not. Consumers are not mere passive subjects: their preferences and needs influence production too. In this respect, Mazzucato's construction of the almighty entrepreneurial state seems to miss something fundamental. Her lack of consideration of the role consumers play in a market economy points to a conception of economic life similar to the race between the United States and the Soviet Union to send the first man into space. Like those cold warriors before her, Mazzucato overlooks the fact that innovation is not just about technological progress for its own sake, but rather about making people's lives better and easier. In the end, Mazzucato's entrepreneurial state, for all its progressive zeal, seems ill-suited to that important task.

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REGULATING REGULATORS: GOVERNMENT VS. MARKETS

Howard Baetjer Jr.

Quis custodiet ipsos custodes?

—Juvenal, *Satires*

Regulation by market forces works better than government regulation. It does so because of the way each process is itself regulated, or not. Government regulatory agencies are in practice unregulated monopolies unaccountable to the public in any meaningful way. By contrast, the process whereby market forces regulate industries is itself effectively regulated by market forces.

To regulate is to make regular and orderly, to hold to a standard, to control according to rule, as a thermostat regulates the temperature in a building. Market forces do this continuously as competing businesses offer what they hope will be good value, customers choose among the various offerings, competing businesses react to those customer choices, and then customers choose again. That process is the market's regulator.

The public seem unaware of this regulation by market forces. In the semantics of the day, "regulation" means "government regulation" only. It means restriction by statute. When people complain

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that we are overregulated, they don't mean that we have an excess of the desirable aims of regulation: regularity and predictability in markets, and decent quality and reasonable prices for the goods and services we buy; they mean that government agencies impose too many restrictions and mandates on us, and that we chafe under the burdens they impose.

Yet because the public, blind to the market regulation all around them, believe government regulation to be the only means to attain the desirable ends of regulation, they grudgingly accept a vast array of meddlesome, wrongheaded, and often counterproductive government mandates and restrictions we would be better off without.

Government regulation is not the only kind of regulation. We should stop talking about regulation versus deregulation, about regulated markets versus unregulated markets. There are no unregulated markets, because market forces regulate. We should start talking about the choice we face between government regulation and regulation by market forces. And we should notice and show others that regulation by market forces works better. What follows explores why.¹

Market Forces Regulate

Most of the regulation that occurs in a market economy is regulation by market forces. To take the most obvious example, market forces regulate market prices. In healthy industries, market forces are the only regulator of prices. The terms of exchange offered by some restrict the terms of exchange others can offer in any realistic hope that they'll be accepted. If the Giant supermarket near my home is charging \$2.00 a pound for red peppers, the nearby Eddie's Market will not be able to charge a whole lot more than \$2.00 a pound and still sell many peppers. Neither will other grocery store chains or the farm stands that open nearby in the summer. All will charge nearly the same price. There is strong regularity to the prices of red peppers at any place and time. This regulation is accomplished

¹Israel Kirzner (1985) investigates the problems with government regulation as (implicitly) compared to regulation by market forces in "The Perils of Regulation: a Market-Process Approach." This article is deeply indebted to that work. But notice that Kirzner, too, uses "regulation" to mean "government regulation" only.

by each seller's reaction to the actions of his customers and competitors. In short, market forces regulate prices.

The same goes for quality. Customers won't buy peppers that aren't fresh and firm as long as they think they can get better peppers at another store. Grocers might wish they could sell peppers that are getting soft, but customers, along with the self-interested actions of other stores, won't let them. Their customers' choices and competitors' actions constrain—regulate—even the quality of produce they can offer for sale—let alone actually sell—because discerning customers spurn stores whose produce is consistently shabbier than that offered nearby. Stores in competitive markets cannot afford to put off these customers, so they maintain decent quality, even if they would prefer not to. In this manner, market forces regulate quality.

The example demonstrates a key fact: there is no such thing as an unregulated market, so long as the market is competitive and market entry is legal. Markets, by their nature, can never be unregulated. They are inherently self-regulating. The actions of every market participant constrain and influence the actions of other market participants in ways that make actions more or less predictable.

Thus, we face a choice not between regulation and deregulation, but between distinct categories of regulation: government regulation and regulation by market forces. The question naturally arises: Which process serves us better? That in turn depends on which of these processes is itself better regulated. Government regulation and regulation by market forces have quite distinct, and in some ways diametrically opposed, processes for their own regulation.

The process of government regulation is itself poorly regulated, because government regulatory agencies are legal monopolies, regulated by political bodies which are, in turn, poorly regulated as well. This political process of regulation, in which ultimate accountability is to the public as voters, is ineffective at assuring the quality of regulation itself. The process of regulation by market forces, by contrast, is itself well regulated because the enterprises that set standards of quality and safety in this process are themselves regulated by market forces. This market process of regulation, in which accountability is ultimately to the public as consumers of the regulated goods and services, is much more effective at assuring the quality of regulation.

Government Regulatory Agencies Are Unregulated, Unaccountable Legal Monopolies

Government agencies that regulate quality and safety are legal monopolies. Those they regulate are required to abide by the regulatory agencies' decisions; the regulated have no freedom to use different quality-assurance services from some competing entity instead. Government regulatory agencies are thus free of regulation by market forces and therefore not directly accountable to the public they are supposed to serve. They are indirectly accountable to the public through the political process, but that process puts such distance between the public and the government regulator as to leave that regulator effectively unregulated.

Consider some examples:

- Taxicab service is regulated by public service commissions (PSCs). Taxicab and limousine companies may not decline to follow the standards set by the PSCs and sign on instead with alternative enterprises with different standards of quality and different methods of quality assurance; the PSCs face no competition as they impose their standards, be they sensible or silly, cost effective or wasteful. The PSCs have a monopoly on the service of assuring the quality and safety of taxicabs and limousines.
- Bank capital is regulated by a web of agencies including the Federal Reserve ("the Fed") and the Federal Deposit Insurance Corporation (FDIC). Banks may not decline the attentions of the Fed and FDIC and instead choose to be inspected and certified as safe by, say, independent associations of banks that mutually guarantee one another's deposits. Hence the Fed and FDIC face no competition as they impose their standards, good or bad, systemically stabilizing or destabilizing. They have a monopoly on the service of assuring the soundness of banks and the safety of depositors' money.
- Drugs are regulated by the Food and Drug Administration (FDA). Pharmaceutical companies may not choose any other agency to test their products and certify their safety and effectiveness (at least for on-label use). The FDA faces no competition in setting these standards, even though the standards it imposes and the processes it mandates are excessively strict,

time-consuming, and expensive. It has a monopoly on the service of assuring the quality and safety of drugs.

- Government schooling is regulated by boards of education and state departments of education. Government schools may not set their own standards for curriculum and teacher performance, nor embrace a different kind of curriculum, such as the Montessori approach. They may not choose to be accredited by some independent enterprise maintaining different standards. School boards face no competition in standard setting for government schools. They have a monopoly on the service of assuring the quality of K–12 (government) schooling.

Of course, the regulatory agencies discussed above do not have monopolies in the sense that no other provider of quality assurance is allowed to operate. For example, some taxi companies may distinguish themselves by enforcing particularly high standards of cleanliness and punctuality; banks could join associations that certify their exceptionally large capital cushions; and name-brand drug manufacturers try to distinguish their products as better than generics. In all these cases, however, the government regulator is the only quality assurer to whose standards all the enterprises in the industry must by law conform. Additional, optional requirements over and above what the government requires are allowed, but the government's requirements are mandatory for all. In this sense government regulators have monopolies.

The legal monopoly status of government regulatory agencies such as the PSCs, the Fed and FDIC, the FDA, and school boards is a problem. It means that when and if these agencies do a bad job of assuring quality in their industries, the public is stuck, because there are no systemic forces to improve the agencies' performance or replace them with better quality-assurance providers. And, often, the government agencies do a very poor job indeed.

First, consider taxis and other city ride services. Entrepreneurs have recently used smartphone and GPS technology to create new city ride services. All one must do to summon an Uber car is to push a button on one's smartphone. The Uber software signals the nearest available Uber car and shows it approaching on a smartphone map. The rider gets in, gives the driver a destination, rides there, gets out, says thank you, and walks away. Uber charges the rider's credit card, pays the driver, and takes its percentage of the fare. The service is not

much more expensive in money (under normal circumstances) than a regular taxi, and it's less expensive in time and hassle. The public loves it.

Yet in many places city and state regulatory agencies have responded to this marvelous innovation with obstruction and restriction. The Maryland Public Service Commission, for example, has proposed regulating Uber as a taxi operator and preventing Uber from using its "surge pricing" system that ensures prompt service in all areas of the regions Uber serves. Virginia officials sent letters to Uber and Lyft, ordering each to cease and desist until each obtained proper authority. In Europe, many city governments have banned Uber altogether.

This interference with the growth of Uber is regulation against the public interest. The regulatory system that produces this response is broken. A properly functioning regulatory system—one tuned to delivering to the public highly valued bundles of features, as judged by the public—would leave the field open to Uber. Indeed, it would establish conditions that encourage disruptive innovation by Uber and others like it, and would not restrict their operation in any way unless a serious problem comes to light that cannot be addressed judicially. There may be no such problems.

Second, consider bank capital regulation. The Basel capital adequacy rules imposed by the FDIC, the Fed, and other bank regulators likely contributed to the housing boom of the early 2000s, and almost certainly helped generate a financial crisis in 2008 out of the housing bust. Those government regulator-imposed rules assigned relatively low risk weights to private-label mortgage-backed securities (i.e., ones not issued by Fannie Mae or Freddie Mac) rated AAA or AA by the "Big Three" credit rating agencies. This meant banks could decrease their regulatory capital requirement for a given dollar value of assets by increasing their holdings of mortgage-backed securities and decreasing their holdings of, say, business loans. Many did just that: "U.S. banks overall invested three times as heavily in AAA-rated, privately-issued securities as did non-bank investors" (Baetjer 2013: 266; see also Friedman and Krauss 2011 and Kling 2009).

In consequence, the housing bust disproportionately weakened banks. The banking system is not naturally fragile; bank regulation has made it fragile (White 2013; Calomiris and Haber 2014). Regulations intended to assure banks' capital adequacy have reduced

it instead. The system that produces such regulation is broken. A properly functioning system of bank regulation would select out destructive rules such as the Basel rules and replace them with better ones. It would select out whole regulatory bodies and replace them with better ones. But there is no such selection in the current government-monopoly system.

Third, consider FDA regulation of pharmaceuticals. The delays and expense of new drug approval are notorious. The FDA's obstruction of the flow of possibly beneficial drugs has even been expressed in popular culture. In the movie *Dallas Buyers Club*, FDA agents are the bad guys; they prevent AIDS patients from getting drugs they want to use. Michael Mandel of the Progressive Policy Institute put it like this: "The FDA, for all the best reasons in the world, has turned into a perfect machine for squelching disruptive innovation." Economists Daniel Klein and Alexander Tabarrok (2001) carried out a thorough review of academic writing on the FDA and found that "FDA regulation of the medical industry has suppressed and delayed new drugs and devices, and has increased costs, with a net result of more morbidity and mortality. A large body of academic research has investigated the FDA and with unusual consensus has reached the same conclusion."

A properly functioning system of pharmaceutical regulation would strike an appropriate balance—indeed, different balances for people with different risk tolerance—between confidence of drug safety and efficacy on the one hand, and speed to market, rapid innovation, and low cost of testing on the other.

Finally, consider regulation of K–12 education by government school bureaucracies. Even before the publication of *A Nation at Risk* (National Commission on Excellence in Education 1983), which asserted that, "If an unfriendly foreign power had attempted to impose on America the mediocre educational performance that exists today, we might well have viewed it as an act of war," American government schooling was stubbornly mediocre. Since then nothing material has changed. There are some superb government schools, but there are also many in poor areas that are atrocious, and even the average government school produces mediocre education at high cost (Schaefer 2010). For example, Baltimore City Public Schools spent \$15,464 per child in the 2010–11 academic year. Meanwhile, the median tuition charged by private schools attended by students receiving partial scholarships from

the Children's Scholarship Fund (CSF) Baltimore was \$5,050 (Baetjer 2013: 314–15). And these are schools considered so much better by the children's parents that they willingly pay out-of-pocket to send their children there! The numbers are not directly comparable because many of the CSF Baltimore schools include only grades K–8, while the Baltimore City Public Schools include high schools, which are more expensive. Nevertheless, the numbers suggest that Baltimore could get better schooling for less than half of what's spent in government schools, if only the quality of those schools were decently regulated.

A properly regulated system—or perhaps we should say a properly regulated *market* offering a wide range of approaches to K–12 education—would quickly weed out bad schools and teachers, and reliably weed out mediocre schools and teachers over time. It would foster innovation in curriculum, school organization, and use of information technology. It would lower costs and increase choice.

In all the cases outlined above, government regulators are doing a demonstrably bad job. They are service providers, providing the important service of assuring quality in their respective fields. But they are not assuring quality. In the cases of city rides and schooling they are actively blocking innovations that improve quality (ride sharing in the former and school choice in the latter). The question is, why? Why aren't these regulators held to account and pressured to assure the quality they are supposed to assure? In short, why aren't these regulators better regulated?

The answer, from a systemic standpoint, is that they themselves, being government-granted monopolies with a captive “client” base, are in practice unregulated. There is no robust regulation of their performance. There is no quality-assurance regulation of the job these regulators do. They are not accountable to the public in a meaningful way, at least through the official regulatory channels. In theory, government regulatory agencies are regulated by the political process, but the political process is so ineffective at regulating regulators that the regulators are *de facto* unregulated.

Take schooling as an example. How does government regulation of schooling work? Suppose, somewhere in the country, instruction of children is poor. Suppose further that the problem is not lack of money, but that the schools are like those in Baltimore, where per pupil funding is nearly the highest in the state, and far higher than the average tuition in private-sector schools in the same area.

Who is immediately responsible for regulating the quality of instruction? The principals are. It's their job to make sure the teachers do a good job. But not all principals do a good job of making sure the teachers do a good job. They may allow the poor instruction to continue because they lack the necessary authority, or experience, or competence, or motivation, or support from their own superiors. Whatever the reason(s) may be, when principals don't do a good job, who is accountable? Who or what regulates the performance of principals?

The school board does. It hires the principals; it is supposed to make sure the principals are getting good performance from teachers so that students can learn. But suppose the school board does a bad job—how is its performance to be regulated? A bad school board might not recognize the problems in its schools. Its members might have personal connections with poorly performing principals. Or they might be doing the best they can, but be so tied down by the teachers' union contract that they can't require the changes they think are needed. Or, despite the best will in the world, they might simply not know what to do to improve a mediocre school district. Whatever the reason, in such cases the unsatisfactory performance of the school board must not be tolerated. The school board itself must be regulated, held accountable, and required to do a better job. Who or what is to do that?

In most states, school board members are democratically elected, so the citizens of the district, in their capacity as voters, are responsible for regulating school board quality. If a particular board is doing a poor job, then vote it out and vote in a good board—one that can recognize problems in its districts and schools, resist the temptation to hire (or not fire) personal friends, stand up to teachers unions, and, most essentially, know enough about teaching, learning, and management to regulate well the schools it oversees. But voters as a whole are unlikely to be sufficiently well informed and motivated to hold school boards to account at the ballot box. Most voters have no school-age children of their own. Voters realize that any one person's vote is most unlikely to decide an election, and researching different candidates' qualifications takes time. Hence it does not make sense for most voters to inform themselves of candidates' qualifications. They are “rationally ignorant.”

In some states, state departments of education take responsibility for regulating the school boards. In extreme cases, some state

government bureaucracy takes over underperforming schools or school districts and installs new management. But that begs the same question. State departments of education may also perform well or badly, for the same reasons school boards do. Who or what regulates the state departments of education? Well, the state legislatures do. And if a state legislature is doing a poor job of regulating the department of education, the citizens, in their capacity as voters, must vote out the legislators who are not regulating the departments of education well and vote in new legislators who will.

We could consider the regulatory role the federal government has taken on with President Bush's "No Child Left Behind" policy, President Obama's "Race to the Top" policy, and the current push to implement "Common Core." The essential structure of government regulation of schooling remains the same, however, no matter how many layers of government overseers are added on. Government schooling is regulated in a monolithic, top-down manner by a chain of political authority. Teachers are regulated by principals, who are regulated by school boards, who are regulated by state departments of education, who are regulated by state legislatures, who are regulated by voters.

Where, in all this, are the parents, the people with the most knowledge of their children's needs and the greatest incentive to see them educated well? Ultimately parents do have some decisionmaking authority over the government schools their children attend. But what a dreadfully attenuated kind of control the parents exert. Only once every two years do the parents have any actual choice to make that affects this political structure, and that choice is generally among a handful of candidates who may know or care little about education, and whose positions on a host of issues other than education they must also consider. Parents' votes are diluted by the votes of non-parents who also vote, and each voter's vote has a vanishingly small chance of deciding the election.

In this process of government regulation of schooling, each higher level of authority is further and further distant from the students, classrooms, and teachers. At every remove from principal to school board to department of education, the regulators have less and less knowledge of the students, the teachers, the school's culture, and teaching itself. At every remove, the incentives to act become more about politics and less about learning. This is a deeply flawed way to regulate the quality of schooling.

This political process for regulating school quality, for exerting pressure on teachers, principals, and schools to improve, lacks any process for self-improvement. It is undisciplined, irregular, lacking in quality control. It lacks any agency or process that forces the poor teachers and principals and school boards to improve and replaces them if they don't. The system does not assure quality. It is, in short, very poorly regulated.

The same can be said of the other industries considered above. By impeding the expansion of ride-sharing services such as Uber and Lyft, state and municipal PSCs are not assuring quality in city transport, but blocking quality improvement. What is supposed to regulate their performance? The state legislatures are. And if the state legislatures fail in their job of assuring the quality of the PSCs' performance, then, again, it's up to the voters to turn out the legislators at fault. But the majority of voters are either rationally ignorant or rationally irrational (Caplan 2008), so this is no check whatsoever and the PSCs are effectively unregulated.

With banking and pharmaceuticals we have the same difficulties but on a national scale. When officials in the FDA drive up the cost of drugs and stifle innovation with excessive caution, and when bank regulators in the Fed and FDIC make the banking system more fragile by imposing capital regulations that herd banks into similar investments, what is supposed to regulate their performance and push them to improve their regulating? Congress is. But if Congress does no more than tinker with the status quo and thereby fails in its job of assuring the quality of pharmaceutical and bank capital regulation, who or what is to regulate Congress? Again, the ultimate responsibility lies with voters, who are rationally ignorant or rationally irrational. This means that, like school boards and PSCs, the FDA, the Fed, and the FDIC are effectively unregulated. They have no accountability to consumers of medicines or banking services as consumers, rather than as voters.

Toward a Theory of Regulation by Market Forces

The alternative to monopolized regulation by government agencies is decentralized, competitive regulation. It works through an ongoing process of action and response between goods and service providers and their customers. In response to experience, competing businesses offer goods and services with various different

characteristics, including different standards of quality and safety, which they hope will attract customers. Then customers choose among the various offerings, rewarding with profits (monetary, reputational, and/or psychic) those whose standards and prices satisfy them best, and punishing with losses (again, monetary, reputational, and/or psychic) those whose overall value falls short. The competing businesses then respond to this response from their customers. Those that have experienced losses work to improve their standards or else go out of business; the others work to maintain their standards or improve on them to increase their competitive advantage. Customers respond again in their turn, and so the process goes.

This process obviously applies to final goods and services such as the red peppers discussed above. Businesses selling them must meet the current standard of quality in order to stay in business. But the process also applies to another useful kind of product—the service of quality assurance. Enterprises that sell or provide assurance of safety and quality—call them quality-assuring enterprises (QAEs)—are subject to the same kind of regulation by market forces as are goods and service providers. They compete for clients or customers by establishing and offering different standards for product quality and safety and/or different approaches to assuring that those standards are met. The customers of these QAEs are the goods and service providers whose products will be more attractive to customers if the products come with reliable assurance of quality and safety. Those QAEs that give their customers (the goods and service providers) better packages of quality assurance at reasonable prices will win business, earn profits (or improved reputation), and expand. Those that give their customers worse packages of the same will lose business, make losses, and contract.

Direct Regulation by Customer Choice;

Indirect Regulation by QAEs

Regulation by market forces thus occurs in both a direct and an indirect manner. Enterprises are directly regulated by their (potential) customers' choices and their competitors' actions. Such regulation is always present in a free market. For many product or service characteristics, no regulator other than customer choice is necessary, because customers can directly evaluate them. Examples include

price, color, freshness, location, size, and whether or not the product actually functions properly (e.g., a lawn mower or toaster).

For other product characteristics, however, such as quality and safety, direct regulation by customer choice is insufficient for potential customers because they cannot easily judge quality and safety for themselves, or cannot judge it before actually using the good or service for a while and thus exposing themselves to danger. They would like to know ahead of time, for instance, that a taxi company they call will provide a safe ride in a clean car, that a bank they choose will keep their deposits safe, that the medicine they take will be safe and effective, or that a school they choose will teach their children well. Lacking the ability or opportunity to assess quality ahead of time in cases like these, potential customers need to rely on assurances of quality and safety based on the experience and knowledge of others. In some cases a formal or informal certification of quality is a necessary feature of the product for customers. As Daniel Klein (2002) has pointed out, where there is a demand for assurance, supply will arise to meet it.

Goods and service providers, too, may want outside assurance of the quality and safety of their products. For example, drug makers and banks may want outside examiners to judge how safe their drugs or capital standards are. They might not be sure how their products stack up against their competitors' offerings in these respects. Or they may find it difficult to assure their customers of the quality and safety of their products. In such cases some outside assurance is valuable to providers as well.

Hence the emergence of QAEs of one kind or another. These establish and (try to) maintain standards that good or service providers in an industry must meet as a condition of earning that QAE's public assurance that its standards have been met. That assurance is a valuable feature of the good or service to which it applies, and both goods and service providers and their customers are willing to pay for it.

The regulatory service provided by QAEs is itself regulated by competition among QAEs for the business of companies in the industry they regulate. This means that regulation by market forces is recursive, with customer satisfaction directing the whole process. This contrasts with government regulation in that the *de facto* regulator—that which constrains and directs the enterprises in an industry—is not a monopoly entity with power to coerce, but a web

of market forces, consisting of competing standard setters selected directly or indirectly by the choices of the consumers of the good or service being regulated.

Categories of Quality Assurance

There are many kinds of suppliers of quality and safety assurance (Klein 2002). This article considers three main kinds: membership in a network or association in which membership is contingent on quality; third-party certification; and insurance.

Network Membership. A ubiquitous type of QAE is a network with a public identity, such as an association, franchise, or brand. This kind of QAE sets standards that its members must meet in order to carry the brand name or join or stay in the network. Network membership is an indirect kind of certification. By accepting any particular good or service provider into the network, the network effectively certifies the enterprise as having met its standards. The enterprise takes on the reputation of the brand or network, and its customers can then rely on that reputation. Network membership is a desirable feature of the product that customers value more or less highly as they accumulate experience with the products offered by network members and the network's reputation accordingly improves or degrades. For customers, dealing with members of established networks reduces information costs: they don't have to assess an individual enterprise within a network because they can rely on their own and the public's assessment of the network instead. The more difficult it is for customers to assess quality on their own, the more valuable this quality-assurance function becomes.

We can observe regulation via network membership in the city ride industry today, where Uber is a QAE with a strong regulatory function. Uber sets standards for various aspects of its ride-sharing business, such as the kinds and conditions of cars that may be used, the insurance coverage drivers must have, drivers' backgrounds and legal records, and the minimum average customer ratings that drivers must maintain. Uber's customers can count on those standards being met. For aspects of the service that customers care about, Uber's competitors, such as Lyft and traditional taxi companies, are constrained to maintain standards of their own that at least approximate those of Uber if they are not to lose market share. If the traditional taxicab industry were not so heavily restricted in the minutiae of the business, individual taxicab companies might also differentiate

themselves by forming associations that maintain particular standards of quality to which their competitors would have to respond. Of course, such differentiation along quality lines would be much more likely if the associations were allowed to benefit from their investments in higher quality by charging more, which they are currently not permitted to do.

A similar kind of regulation via network membership can and did work in banking. Before being crowded out (in the United States) by the Fed, the FDIC, and other government regulators, bank capital and bank soundness were regulated by the market-imposed necessity of membership in a clearinghouse association. Because clearinghouse membership so greatly reduces any bank's cost of operation (absent such membership, the bank would have to redeem banknotes and checks with every other bank individually), in free-market banking every bank must maintain membership in one or more clearinghouse associations. Every bank in a clearinghouse association wants reliable assurance that other banks in the association are solvent and liquid and therefore able to meet their clearing obligations. Accordingly the banks in the associations set capital and liquidity standards for themselves and enforced them with periodic examinations of member banks' books (Selgin 1988: 28). Clearinghouse associations were QAEs for the banking industry, and would probably be so again if banking regulation were left to market forces.²

Regulation via network membership is also visible in K–12 schooling in the United States today, both in the fully private sector and in the charter school sector, which is free of much of the government regulation on traditional government or “public” schools. Networks of schools such as Montessori schools, traditional Catholic schools, and Christo Rey schools, and charter school chains such as the KIPP (Knowledge is Power Program) schools, Uncommon Schools, and Green Dot Schools establish and maintain particular standards of quality. These networks and enterprises each set standards for many aspects of schooling—for teacher-student ratios, curricula, length of school day, teacher performance, class size, facilities, and the like. No school is allowed to be a KIPP school, for example, and enjoy the

²Of course many banks did fail before the Fed and FDIC, and there were periodic banking crises. As Selgin (1988) and Horwitz (1992) among others have shown, however, these problems resulted from legal restrictions on the banks, such as prohibitions on branching and requirements that they back their notes with government bonds.

benefits of the KIPP name, network, and proprietary techniques unless it meets these standards. Furthermore, the owners of the KIPP brand may tighten or loosen its standards, add new ones, or drop old ones as they see fit in response to profit or loss or the advent of new technologies and community needs.

The standards set by QAEs such as Uber in ride service, clearinghouse associations in banking, and KIPP in schooling can and must change over time in response to customer desires and competition from other standards set by competitors. In this they differ from standards set by government regulatory bodies, which face no competition in their particular domains.

Note that the quality-assurance role played by brands and networks (as opposed to that played by certifiers) need not be the network's main function. It comes as a byproduct of its trying to please customers by maintaining desirable standards and, in the case of clearinghouse associations, protecting its members from losses. Nonetheless, any brand or network's standards of quality and safety become an element of the market environment to which other enterprises must adjust themselves.

Third-Party Certification. Another kind of quality-assuring enterprise is a third-party certifier. Third-party certification is particularly valuable for products and services that have important aspects of quality which the customers cannot easily discern, even while using the product. This is the familiar problem of asymmetric information. Riders in taxis and Uber cars can readily judge the cleanliness of a car and how quickly drivers answer requests for service. Likewise, parents of school children can, given a little time, judge the attitudes of teachers and how well their children are learning. But most bank customers cannot judge a bank's capital adequacy, and users of a medicine cannot judge its long-term side effects or interactions with other drugs without facing unacceptable risk. Users of electrical appliances cannot judge their fire safety. For products such as these, some expert, third-party judgments are wanted.

Sometimes quality assurance is an enterprise's primary business. Examples abound. For example, the National Institute for Automotive Service Excellence (ASE) certifies auto mechanics for a wide range of specialties, and individual vehicle makers also certify mechanics as competent to work on their particular brands. Various companies certify gemstones. Diplomas, degrees, and

certificates certify competence in a host of fields from medicine to plumbing. Eminent among enterprises whose primary business is certification is Underwriters' Laboratories (UL), which certifies the safety of thousands of potentially dangerous products, including insulation, electrical devices, and bulletproof vests. These third-party certifiers set standards that outside applicants must meet in order to gain their certifications. The certification itself, once granted, becomes a feature of the product or service that, as long as the certifier maintains its good reputation, makes the product more valuable in the eyes of potential customers. It can increase sales and hence profitability. In other cases, "certification" is less explicit and direct; it's an ancillary function of an enterprise. Doctors or medical teams at a hospital, for example, may primarily treat patients, but secondarily and simultaneously research different treatments, publish the results, and thereby in effect certify (or not) the treatments they evaluate.

What manner of certification do we find in the four industries we have been considering? I know of no private-sector certifier of taxicab drivers or taxicab companies. In the past, such certification might have been more trouble than it was worth, in part because PSCs license companies and drivers, and in part because a rider can directly judge the quality of taxi service, so no certification would have been worth its expense. In the era of the Internet, however, virtually every rider becomes an inspector and certifier, because riders can rate the quality of service in real time at trivial cost. Uber's app invites riders to rate their drivers and the cleanliness of the cars, and Uber denies drivers access to the service if their customer ratings fall below a high level.

Clearinghouse associations would (and did) regulate banking in a hybrid manner, offering both membership in a trusted network and a kind of certification. The bank examinations that clearinghouse association members imposed on one another out of concern for their own safety were a kind of certification test. The fact that a bank is a member in good standing effectively certifies that the bank has passed examination. It seems conceivable, too, that in a mature free-banking system, third-party examination companies might emerge to which the clearinghouse associations would contract out the work of bank examination. Were that to happen, the bank examination specialist would be a third-party certifier in the full sense.

With respect to the drug industry, the case of UL is instructive. UL is a nonprofit enterprise created initially by insurance companies that wanted to know how safe were the products sold by the companies they insured. Insurance companies need, and will pay for, the same kind of information about the drug companies they insure. Accordingly, if the FDA's legal monopoly on certifying drugs were to be eliminated, some UL equivalent(s) would likely be created to test and certify drugs. In practice, however, if new drug testing and certification were free of the FDA monopoly, much would probably be carried out in a more distributed and small-scale way than by big enterprises such as UL. As Klein and Tabarrok (2003) document, a vast amount of the testing and certification of drug efficacy today is done outside the scope of government regulation. Regulation by market forces is the only kind of regulation that exists for *off-label* uses of drugs that have been approved by the FDA for some specified ("on-label") use. How effective and safe a drug might be in treating an off-label use is explored by physicians and hospitals, often working with scientists and medical researchers. They offer their customers—their patients—new kinds of treatment based on theory or evidence that the drug might be effective in a particular off-label use. Patients—customers—respond, both in the sense of choosing whether or not to give the care provider repeat business, and also in the physiological sense of responding for better or worse to the treatment. If the treatment is successful, or promising, physicians who have tried it write it up and submit it to a kind of certification process carried out by peer reviewers, attendees at conference presentations, researchers, and other doctors and hospitals which try the treatment. These are all in effect certifiers of the treatments described in the studies and presentations. There is even a standard reference work, the *U.S. Pharmacopeia Drug Information (Pharmacopeia)* which "uses expert committees to compile and evaluate the dosing, indications, interactions, pharmacology/pharmacokinetics, and side/adverse effects of drugs for both labeled and off-label uses" (Klein and Tabarrok 2003).

For schools, there are various accrediting boards. As suggested above, parents are pretty well able to judge the quality of the schools their children attend, given enough time, so third-party certification in this industry is not extensive and may not be especially valuable. To the extent that it is, however, we would expect that independent accreditors would arise in a free market for schooling.

Insurance. A third kind of QAE is an insurance company. Assuring the quality and safety of the goods and services produced by the companies it insures is not the main purpose and product of an insurance company, of course. Nevertheless, in order to protect itself from paying excessive damages, an insurance company has a strong interest in assuring itself that the goods and services its clients provide are reasonably safe. Insurance companies that insure taxicab companies and ride-sharing companies such as Uber will want to assure themselves that the cars used are in good repair and that the drivers are competent and law-abiding. Companies that might insure bank deposits in a free market for banking would want to assure themselves that the banks were adequately capitalized. Companies that insure pharmaceutical companies certainly want the drugs their clients sell to have been carefully tested for safety. Companies that insure schools want to know that the buildings are fire-safe and sanitary. Insurance companies therefore will inspect and test the products and processes of their clients (or contract out this inspection and testing, as they do to UL). Consequently the riders, depositors, medicine-takers, and schoolchild parents of insured institutions can all free-ride on the self-interest of their insurance companies.

Market Forces Regulate Market Regulators

QAEs in effect regulate their industries by setting the standards producers must meet to gain credibility with customers. In turn, QAEs are themselves regulated by market forces. Final customers drive this regulation. Their choices provide profit-and-loss feedback to goods and services providers (GSPs), and based on that feedback GSPs choose or reject QAEs' services. As long as the quality assurance a QAE provides is sufficiently valuable to GSPs' customers, GSPs will pay for it and that QAE will flourish. Otherwise the QAE will fail. In this manner consumers' choices regulate the QAEs and thus, indirectly, the standards they set.

In a free market any number of certifiers, brands, or networks may exist in an industry at the same time, and each may—probably will—maintain different standards. This variety is a crucial feature of regulation by market forces because these are the variations among which the market process selects, clearing away regulations that are too costly and putting in place regulations that create value overall.

It is important to note that under regulation by market forces, any producer is free to switch QAEs or go it alone outside any brand or network and without any certification or insurance.

- Drivers who contract with Uber are free to reject Uber's terms and work with Lyft instead. Under regulation by market forces they would also be free simply to cruise as independent taxis.³
- Banks could withdraw from any clearinghouse association they found oppressive and join a different one, or start their own.
- Pharmaceutical companies could pick and choose the quality-assuring enterprises they employ, probably using different certifiers for different drugs. We can imagine quality-assuring enterprises competitively developing specialized expertise and testing technologies targeted at certain classes of drugs.
- A school not doing well in one network or brand might be taken over—bought out—by a schooling enterprise of another brand (e.g., KIPP), or renounce any brand and go independent.

Freedom of exit, including freedom to go without external quality assurance, is another crucial characteristic of regulation by market forces (and a fundamental difference from government regulation by legal monopolies whose “services” GSPs are required to use). The profitability and growth of GSPs that try to go it alone are likely to suffer, however, in industries where large numbers of their potential customers want the kind of information only a QAE can provide. Importantly, GSPs that do not choose to join a particular network or get their products certified are still regulated by market forces, in that they still must respond to the expectations of quality those networks and certifiers create in industry customers. They must pretty closely meet the standards established by their competitors who do join the networks or gain the certifications, in order to sell their own products successfully.

The process of regulation by market forces selects for the standards and the standard-setters (QAEs) in the same way it selects for the goods and services produced and those who produce them. That's logical, because a QAE's product *is* its standards. QAEs are a subset of GSPs; they provide the service of setting standards and

³Congestion problems may arise when anyone is free to operate a taxi in cities where roads are a publicly owned commons. Some government regulations might be necessary on government-owned roads (See Klein 1998).

evaluating and certifying the quality of the GSPs' products. Just as competition among GSPs for their customers' business regulates the price and quality of final products, competition among brands, networks, and certifiers regulates the price and quality of the regulation QAEs provide.

*Regulation by Market Forces Weakens as Markets
Become Less Free*

Regulation by market forces weakens as a market becomes less free. Imagine a grocery store with a legal monopoly on red peppers. Such a store, lacking competition or potential competition, could charge a fairly wide range of prices, and offer a fairly wide range of quality of its red peppers, and still be able to sell them. After all, its customers would have nowhere else to turn. The same would apply if there were many competing grocery stores, but restrictions on the importation of red peppers as to quantity or place of origin. In such cases the pressure to maintain quality and hold down price—the regulation of quality and price—would be reduced.

It is the very freedom of the market that makes regulation by market forces tight. Competing grocery stores are free to sell red peppers; red pepper customers are free to take their business elsewhere or go without. Similarly, where the service sold is quality assurance, competing QAEs must be free to enter the business if they are to discipline other QAEs and maintain pressure for better standards. And customer GSPs must be free to take their business elsewhere or go without. Where such freedom reigns, the quality and cost of regulation are themselves tightly regulated. But salutary regulation by market forces weakens as markets become less free.

Hence a paradox: the less a market is restricted by government, the more it is regulated by market forces. The less government restricts market forces, the more market forces regulate. The more government restriction, the less market discipline, and vice versa. There is a direct tradeoff between the two modes of regulation.

For illustration, consider the current controversy over ride-sharing companies such as Uber and Lyft. Those companies' high standards of responsiveness and convenience are putting pressure on traditional taxicab companies to improve. In effect, the higher performance standards of Uber and Lyft are regulating traditional taxicabs: if the taxicab companies in an area served by Uber and Lyft don't

improve their responsiveness, they stand to lose business. But if the cab companies can get the ride-sharing companies restricted by government in the ways taxis are restricted, that market regulation will ease up or disappear.

Consider K–12 schooling. Government schooling is of low quality because its quality-assurance process lacks market forces—its regulator is unregulated. But schooling in general does have freedom of entry for private-sector schools that compete with government schools. Private-sector schools, regulated by market forces, generally offer better quality at lower cost per student. Parents with enough wealth have freedom of exit from any particular school system by moving to another area. The growth of the school choice movement—charter schools, privately funded scholarship programs, education savings accounts, and tuition tax credit programs for companies that donate to scholarship-granting organizations—is also bringing more market forces into schooling.

All these market forces in schooling regulate government school quality from the outside to a certain degree, arguably more effectively than school boards do. The higher standards maintained by the charter and private-sector schools are compelling traditional government schools to improve or lose students and, ultimately, they fear, funding. When public outcry about the appalling failures of government schools gets loud enough, and the contrasts with private, parochial, or charter schools get embarrassing enough, the political apparatus lurches into motion and once again attempts to improve quality. The more school choice is limited by government policy, however—that is, the more completely a region's schools are dominated by government regulation—the weaker is this regulation by market forces and the easier it is for schools to stay mediocre or worse.

Why Market Forces Regulate Better than Government Agencies

To review the argument so far: Government regulatory agencies face no competition in providing their “services,” and their “clients” are required to use that “service”; the political process that oversees regulatory agencies’ performance is so ineffective that the agencies are essentially unregulated; and the alternative—quality and safety regulation by market forces—is a process that is itself effectively regulated by market forces. The following sections explore some of the

practical consequences of the differences between these two modes of regulation, which explain their very different effectiveness.

Systemic Learning

Government regulation differs from regulation by market forces in the amount of knowledge used in establishing, evaluating, and adjusting regulations. Monopoly regulators don't know what to require and what to ignore, or what new, less-costly processes they might use in evaluating quality and safety. This is not surprising. None of us can know for sure what to do to make the world a better place in the absence of a process that gives us both feedback from those we are trying to serve and an incentive to pay attention to it. Given that it lacks such a process, government regulation tends to be ill-informed and stagnant. Part of the problem is that government regulators face no competition; their "customers" have no one to turn to if those regulators do a bad job of regulating. Consider the following:

- City riders unsatisfied with the performance of taxis regulated by the PSC are forbidden from turning to taxis regulated in some other, better way, because taxi companies are not permitted to turn to other regulators.
- Small businesses frustrated at their inability to get a loan from their local banks, because such loans are deemed too risky according to the Fed's models, are forbidden to turn to other banks whose different regulators allow such loans in keeping with different judgments of risk. Why? Because all banks must comply with the Fed's risk regulation; there are no other bank regulators to choose.
- Sick people whose doctors believe a particular drug might be a good treatment for them may not use that drug until it has been approved by the FDA. Their doctors and insurance companies may not rely on the judgment of independent researchers that assess drug safety; no judgments other than those of the FDA count.
- Parents unsatisfied by the teaching standards at their children's government school cannot move their children to a better-regulated school unless they either physically leave the poor-performing district or else strand their tax dollars and pay again for a private-sector school, because all government schools in a district are regulated the same way.

By contrast:

- In response to pressure from their customers, competitors, and the media, Uber and Lyft are actively tuning their requirements for driver background checks, insurance, and surge pricing algorithms based on their customers' feedback and media attention. These standards are evolving with experience.
- In banking free of government regulation, different banks with different tolerance for risk and different ability to assess it would make different kinds of loans. Profit-and-loss feedback would tell banks and their clearinghouse associations which kinds of loans and which kinds of overall asset profiles are riskier, calling for more capital to back them. These standards, enforced by clearinghouse associations as conditions of membership, would evolve with experience. Clearinghouse associations whose standards are too strict would lose members to more liberal competitors, and those whose standards are too loose would lose members by attrition as weak or troubled banks were bought out by stronger ones.
- If doctors and hospitals were free to try new treatments according to their own judgment, new drugs and treatments would be regulated in the same way off-label uses of drugs are regulated now: that is, "by the consent of patients and the diverse forms of certification made by physicians and medical institutions" (Klein and Tabarrok 2003: 6).
- Schooling could be regulated almost entirely by market forces, even if governments continued to pay for schooling through a voucher system or some other mechanism for letting parents, rather than school boards, decide which schools receive their children's schooling dollars. In such a system parents unsatisfied with one school could put their children in another, better-regulated school. These choices would shape the evolving quality standards all schools must meet to stay in business.

This market process of feedback and discovery of what regulation is truly valuable to those who use goods and services is lacking in government regulation.

Incentives to Learn

The monopoly status of government regulatory agencies means that they get paid regardless of how badly their regulations serve and

satisfy the public. Officials in PSCs do not get paid by the satisfied-customer-mile. Officials in the Fed and FDIC don't get paid according to how efficiently banks get depositors' funds to credit-worthy borrowers. Officials in the FDA do not get paid according to the value of new drugs brought to market. School board members do not get paid according to how much children learn. Payments for government regulation are not made by the free choice of the regulated enterprises, as guided by the free choices of those enterprises' customers. Instead, the regulators get paid out of tax revenues, whether they do a good job or not.

This unconditional financing is unlike that for firms competing with each other and even private-sector monopolies, which lack the power to force customers to buy what they are selling. A government regulatory agency's revenue is paid out of taxes. Such an agency can provide a "product" its regulated enterprise "customers" actually find detrimental to their business—because it reduces the value they deliver their customers—and still get paid.

Because government regulators' funding is disconnected from their performance, government regulators lack a financial incentive to regulate well and to make improvements where they can. They have weak incentives to try out different standards and processes, and to eliminate regulations made obsolete by technological change. There is nothing in government regulation that rewards regulators for increasing the value they deliver to customers of the enterprises they regulate. Hence government regulators generally don't focus on the value delivered to customers.

Even if a particular government-monopoly regulatory agency should wish to engage in trial-and-error discovery, that agency can try out only what it conceives. It has only its own ideas and knowledge to rely on. There is no trial-and-error learning through new entrants' offering a better package of regulation, because the regulator is not a dynamic system of providers; it's one provider. There is no way for government regulators to learn from competitors by observation, because they have no competitors. The monopoly privilege necessarily reduces discovery of better approaches to regulation.

The most important means by which market processes help people identify the best discoverable ways to provide a good or service—profit and loss—is entirely absent from government regulatory services. In competitive markets, enterprises often do not know why customers value their products, or even what their customers are using their

products for. Nevertheless, if they are earning profits they know they are doing something right, and are encouraged to do more of that kind of thing. Likewise they may not perceive how their product is failing to satisfy customers, or what their competitors are offering that they are not. Nevertheless, mounting losses tell them unmistakably that they are doing something wrong and, ultimately, force them to improve or to close down. Monopoly government regulators, lacking this profit-and-loss feedback, can never really know whether the regulatory services they provide are benefiting or harming the public on net.

Special Interest Influence

Monopoly government regulators also face perverse incentives to block innovation by maintaining regulations that hurt the public but benefit politically powerful insiders. This is the problem of rent seeking and regulatory capture. It is well enough understood that it will not be reviewed here in detail, beyond pointing out examples from the industries considered above.

- Taxicab companies around the world are protesting the growth of ride-sharing enterprises such as Uber and Lyft, and demanding that disruptive newcomers be restricted by the same regulations the taxis face. Such regulation would protect the profitability of the established taxi companies but hurt everyone else.
- The Basel I bank capital rules assigned zero risk weight to the bonds of all sovereign governments, regardless of their financial health. This absurd rule likely resulted from pressure on the Basel committee from sovereign governments who want no restraints on their borrowing.
- Government school administrations and teachers unions fight the advance of school choice—charter schools, vouchers, and tax credit programs that would expose government schools to more competition—on the grounds that all schools directly or indirectly funded by taxes should meet certain requirements on curricula and teacher qualifications. However, the real purpose of such resistance to competition in schooling is not to promote the well-being of school children, but to protect the flow of taxpayer dollars to the school systems and teachers unions.

Special interest influence depends on the monopoly power of the government regulatory agency to impose its standards. By contrast,

special interests cannot obstruct the establishment of better regulatory standards when regulation is by market forces, because in a free-market enterprises can opt out of bad regulation and choose a better alternative. Established taxicab companies cannot hamstring Uber and Lyft with senseless and costly restrictions as long as Uber and Lyft can keep themselves free of regulation as taxicabs. Banks would have no incentive to hold disproportionately large quantities of risky government bonds if their capital cushions had to meet the evolved standards of a clearinghouse association, rather than the one-size-fits-all Basel standards. Schools would be free to hire effective teachers without union cards and education degrees if their funding came from pleasing parents rather than pleasing the public school bureaucracy.

In other words, if regulation were by market forces, the special interests would lose their power to influence it in their favor.

Protection of “Turf” and Jobs

Another reason government regulation falls short of regulation by market forces is that there are strong incentives for government regulation to persist even when it is demonstrably bad. Government regulators don’t want to learn from experience that their regulations obstruct progress; they want to keep their jobs. If Uber and imitators are allowed to flourish unmolested, the old-fashioned taxi business will likely wither to insignificance. What, then, would be the point of an old-fashioned taxi regulator? The very success of Uber makes government regulation of city ride services look superfluous and anachronistic, as it may be. But regulators don’t like being seen as bureaucratic waste, so they are working to pull ride-sharing services under their control. When the financial crisis made manifest the failure of bank regulation to keep banks sound, the regulators’ response was not to say, “We have shown ourselves inadequate to our task; we should be relieved of our duties.” On the contrary, they asked for and received more authority to interfere with banking through the Dodd-Frank Act. The FDA has made medicine more expensive and less accessible for decades, but it does not close itself down. Charter schools operate outside the control of school boards, and voucher and tax credit programs let parents move their children to independent schools outside of the control of school boards. Accordingly, it is no surprise that the school boards fight charters, vouchers, and tax credit programs despite mounting evidence that competition regulates better than school boards do.

Conclusion

Regulation by market forces is imperfect, of course, but it is superior to government regulation in a number of important ways. The most crucial difference is that while government regulates through agencies that have a monopoly on the “service” they provide, market forces regulate through a dynamic, distributed, and competitive *process* in which both goods and service providers and quality-assurance enterprises respond to consumer choices. This means that while government regulations have to be *designed* based on the limited, centralized knowledge of legislators and bureaucrats, the standards imposed by market forces are free to *evolve* through a constant process of evaluation and adjustment based on the dispersed knowledge, values, and judgment of everyone operating in the marketplace.

Incentives and accountability also play a central role in the superiority of regulation by market forces. First, government regulatory agencies face no competition from alternative suppliers of quality and safety assurance, because the regulated have no right of exit from government regulation: they cannot choose a better supplier of regulation, even if they want to. Second, government regulators are paid out of tax revenue, so their budget, job security, and status have little to do with the quality of the “service” they provide. Third, the public can only hold regulators to account indirectly, via the votes they cast in legislative elections, and such accountability is so distant as to be almost entirely ineffectual. These factors add up to a very weak set of incentives for government regulators to do a good job. Where market forces regulate, by contrast, both goods and service providers and quality-assurance enterprises must continuously prove their value to consumers if they are to be successful. In this way, regulation by market forces is itself regulated by market forces; it is spontaneously self-improving, without the need for a central, organizing authority.

We live in a time when regulation has become synonymous with restriction, and government-monopoly regulatory agencies increasingly strangle the life out of enterprise and entrepreneurship, from boardrooms to classrooms and everywhere in between. Yet, advocates of free markets should resist calling for “deregulation,” since that term is too commonly taken to mean “no regulation at all.” Instead, their stated goal should be the replacement of government

regulation with a far more robust and effective guarantor of quality and safety: regulation by market forces.

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NEW LEGAL CHALLENGES TO
U.S. AGRICULTURAL CARTELS:
THE *HORNE* DECISION

Trevor Burrus

Farm policy, although it's complex, can be explained. What it can't be is believed. No cheating spouse, no teen with a wrecked family car, no mayor of Washington, D.C., video-taped in flagrante delicto has ever come up with anything as farfetched as U.S. farm policy.

—P. J. O'Rourke (1991: 145)

U.S. agricultural policy is a complex mish-mash of carve-outs, cartels, and cronyism. Consequently, much of the agricultural world exists in the shadows: too obscure to attract genuine interest from laymen, and too boring to command the attention of any but the most hardened academics and policy wonks. Moreover, except when the Farm Bill occasionally comes up for reauthorization, the media rarely pays attention to what's going on in American agricultural policy.

Some of this complexity may be by design. According to Cato Institute adjunct scholar Daniel A. Sumner, Norfleet Sugg, former executive secretary of the North Carolina Peanut Growers Association and later head of the Agricultural Council of America,

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once explained that “the peanut program is so complicated; there’s only three people in the world that actually understand how it works. It’s my job to keep it that way” (Sumner 2012).

Sumner believes the programs are complicated by design: “Every time somebody proposes one more complicated government program, I can’t help but think part of that is, the less the average taxpayer or the average analyst can figure out what this thing is about, or the average congressman for that matter, they throw up their hands and think, well, the industry must know what they’re talking about.”

Occasionally, certain silly agricultural programs get exposed, and the disinfecting power of sunlight helps slightly purify our foolish agricultural code. That’s what happened at the Supreme Court in 2015, when, for the second time, the justices heard a challenge to the despotic powers of the Raisin Administrative Committee (RAC).

The RAC is one of several government-created agricultural cartels formed around certain commodities and certain regions. How many are there? Well, when questioned by the Supreme Court at oral argument, even the deputy solicitor general couldn’t say for sure. “I think there’s scores of them,” he said, in a shocking display of ignorance before the highest court in the land.¹

The RAC was created under what’s called a “marketing order,” a New Deal relic that proves that, no matter how silly the government program, once it is in place it is nearly impossible to remove. The 47-member RAC meets in an office in Fresno, California, and decides, among other things, how many raisins should be sold on the open market each year. They then can take the “excess” raisins from farmers and offer them nothing in return.

Usually, those who benefit from government-enforced supply controls and anticompetitive policies are reticent to challenge the hand that feeds them. Raisin growers and handlers (those who prepare, pack, and distribute raisins) have historically been no different, and the RAC has been generally free to operate its cartel without pushback. That is, until it met Marvin and Laura Horne, two raisin farmers who became fed up with the RAC’s commands. The Hornes

¹Tr. of Oral Argument at 57, *Horne v. U.S. Dept. of Agriculture*, 135 S. Ct. (2015) (No. 14-275).

took the RAC to the Supreme Court twice, and when the dust had cleared they won resounding 9-0 and 8-1 victories and forever changed the ability of the RAC and other similar entities to take farmers' property without paying for it.

This is the story of the Hornes' case and its implications. But it is also the story of backward and antiquated agricultural policies that came out of the New Deal. Finally, it is the story of a laudable type of civil disobedience, and the incredible tenacity of the Hornes in their fight against government power and entrenched interests.

New Deal Command-and-Control Policies

The RAC can be seen as the product of two New Deal policies. One is the push toward cartelization that dominated much of New Deal thinking; the other is the doctrine of pricing parity.

More specifically, the RAC came from a 1949 amendment to the 1937 Agricultural Marketing Agreement Act (AMAA). The AMAA sought to create "orderly" marketing conditions via heavy-handed government controls. In part, this entailed cartelizing various industries and allowing them to govern themselves.

President Franklin D. Roosevelt had a strange tendency to think that cartels were the answer to the perceived shortcomings of free markets (see Powell 2004). The first major New Deal program, the National Industrial Recovery Act of 1933 (NIRA), empowered businesses to create "codes of fair competition" in order to "encourage national industrial recovery, to foster fair competition, and to provide for the construction of certain useful public works." The law allowed for "the organization of industry for the purpose of cooperative action among trade groups," the "united action of labor and management under adequate governmental sanctions and supervision," and the "eliminat[ion] of unfair competitive practices" (NIRA §1).

In practice, this meant that industries were allowed to make the rules for themselves and their competitors, including setting prices, wages, hours, bookkeeping practices, as well as other, more industry-specific limitations. Those who violated the industry code could be either fined or thrown in jail. In one instance, Fred Perkins, a battery manufacturer in York, Pennsylvania, was sent to jail for refusing to raise his employees' wages. His attempts to explain that he could not remain in business while paying the mandated wage and that his

employees preferred the lower wage to being out of a job fell on deaf ears (Folsom 2008: 53).

Some may object to my characterization of these New Deal organizations as “cartels,” but in order to see this one only need look at the text of the NIRA. Section 5 of the NIRA says that any code of fair competition “shall be exempt from the provisions of the antitrust laws of the United States.” Similar language is found in the AMAA. These clauses highlight the fact that such collusion, if undertaken outside the auspices of the government, would blatantly violate antitrust laws.

In *ALA Schechter Poultry Corp. v. United States* (295 U.S. 495 [1935]), the Supreme Court unanimously struck down the NIRA both as a violation of the Commerce Clause and as an unconstitutional delegation of legislative power. Writing for the Court, Chief Justice Charles Evans Hughes wrote: “We are of the opinion that the attempt, through the provisions of the Code, to fix the hours and wages of employees of defendants in their intrastate business was not a valid exercise of federal power” (295 U.S. at 550).

But Roosevelt’s commitment to command-and-control “solutions” to the nation’s economic woes would not be shaken by the Supreme Court. One month before he signed the NIRA, Roosevelt signed the Agricultural Adjustment Act (AAA). The AAA’s goal was to restore “farm purchasing power of agricultural commodities or the fair exchange value of a commodity based upon price relative to the prewar 1909–14 level” (Rasmussen, Baker, and Ward 1976). This doctrine, called “parity,” was a keystone of the New Deal and would also become part of the RAC’s purpose.

In *United States v. Butler* (297 U.S. 1 [1936]), the Court ruled the AAA unconstitutional, striking another blow against a cherished Roosevelt program. The Court found that the taxing provisions of the AAA were an unconstitutional expansion of the federal taxing power. As Justice Owen Roberts wrote for six justices:

The act invades the reserved rights of the states. It is a statutory plan to regulate and control agricultural production, a matter beyond the powers delegated to the federal government. The tax, the appropriation of the funds raised, and the direction for their disbursement are but parts of the plan. They are but means to an unconstitutional end [297 U.S. at 68].

Although both the NIRA's cartelization schemes and the AAA's pricing parity schemes fell at the Supreme Court, both form part of the backdrop to the RAC.

The AMAA of 1937 was explicitly passed to recover some sections of the AAA that did not depend upon the unconstitutional expansion of the taxing power. As the preamble of the law read: "The following provisions of the Agricultural Adjustment Act, as amended, not having been intended for the control of the production of agricultural commodities, and having been intended to be effective irrespective of the validity of any other provision of that Act are expressly affirmed and validated, and are reenacted without change."²

The Act's "marketing agreements" were similar to the cartelization provisions of the NIRA but without the broad scope of delegated legislative authority. The Act empowered the secretary of agriculture to maintain "orderly marketing conditions" in certain agricultural commodities. This included maintaining parity pricing as well as a variety of other constraints.

As amended, the AMAA is a collection of convoluted jargon, carve-outs, and bizarre forays into price fixing. Its prolix commandments and switchback logic are merely a taste of the head-scratching nature of American agricultural policy. For example, a set of 1985 amendments (7 U.S.C. 608c [5]) to the Act's long section on milk marketing orders lists the "minimum aggregate dollar amount" of the adjusted price for milk in over 40 different marketing-order regions, which not only include general regions like "Nebraska–Western Iowa" (\$1.75) but also more specific areas such as "Paducah, Kentucky," (\$2.39) and "Fort Smith, Arkansas" (\$2.77). One cannot help but think back to the Emperor Diocletian's "Edict on Maximum Prices" from 301 A.D. (Erim et al. 1970).

At one point, while discussing apples, the Act explains that marketing-order provisions will apply to fruits "but not including apples, other than apples produced in . . ." followed by a list of 20 states. A few lines later, we are told that they will apply to "apples produced in the States named above except Washington, Oregon,

²AMAA, 7 U.S.C. 601 et. seq., www.ams.usda.gov/AMSV1.0/getfile?dDocName=STELPRDC5067868.

and Idaho.” Reading between the lines, one can almost see the back-room deals and logrolling trades.

The complicated nature of American agricultural policy is not just an example of poor draftsmanship or an object lesson in the vagaries of logrolling, it is a boon to those who are the direct beneficiaries. And hidden in the AMAA is the authorization to create the RAC.

After World War II, the American raisin industry found its productive capacity was outstripping demand. During the war, both the U.S. government and other allies purchased large amounts of the relatively nonperishable dried fruit. It was a good time to be a raisin farmer (Nef 2000: 9–13).

Like those during the New Deal who sought to guarantee 1909–14 prices, postwar raisin farmers seemed to believe that the prices they enjoyed during the war should be maintained for their benefit. After a series of meetings, the growers prepared a proposal to create a raisin marketing order and submitted it to the U.S. Department of Agriculture. The proposal was discussed at a public hearing and a referendum of raisin producers was held. Federal Raisin Marketing Order 989 for Raisins Produced from Grapes Grown in California went into effect in August 1949.

Enter the Hornes

[W]e are growers that will pack and market our raisins. We reserve our rights under the Constitution of the United States. . . . [T]he Marketing Order Regulating Raisins has become a tool for grower bankruptcy, poverty, and involuntary servitude. The Marketing Order Regulating Raisins is a complete failure for growers, handlers, and the USDA. . . . [W]e will not relinquish ownership of our crop. We put forth the money and effort to grow it, not the Raisin Administrative Committee. This is America, not a communist state.

—Marvin and Laura Horne³

³Letter to the secretary of agriculture and the RAC; in 2002, the Hornes explained their grievances to the secretary of agriculture and to the RAC. Cited in *Horne v. U.S. Dept. of Agriculture*, 133 S. Ct. 2053, 2059 n.3 (2013).

Marvin and Laura Horne have been farming raisins on a vineyard in Kerman, California, since 1969. In 2001, being fed up with the overbearing actions of the RAC, the Hornes created Raisin Valley Farms in order to try to avoid mandatory compliance with the AMAA. Because the AMAA only applies to raisin “handlers” (those who package and sell the raisins), the Hornes believed they had devised a way to get their goods to market without going through a traditional handler (*Horne v. U.S. Dept. of Agriculture*, 133 S. Ct. 2053, 2058 [2013]).

The USDA disagreed, however, and ruled that the Hornes’ reorganization of their farming practices did not exempt them from complying with the dictates of the RAC. Nevertheless, the Hornes continued to protest the RAC. They did not pay assessments for the 2002–03 or 2003–04 seasons, and they refused to allow “RAC inspection of the raisins they received for processing, denied the RAC access to their records, and held none of their own raisins in reserve” (133 S. Ct. at 2059).

The USDA went after the Hornes. The government argued that, because the Hornes were handlers for the purposes of the AMAA, they owed 47 percent of their 2002–03 crop and 30 percent of their 2003–04 crop. For the 47 percent the government offered no compensation, and for the 30 percent they offered a fraction of the value. The Hornes protested their classification as handlers and also raised a few affirmative defenses, including the claim that the taking of their raisin crop was in violation of the Fifth Amendment’s prohibition on the taking of “private property for public use without just compensation.”

A long legal battle commenced, starting first in administrative law courts. An administrative law judge (ALJ) ruled that the Hornes were “handlers” for the purposes of the statute. The Hornes appealed that ruling to a judicial officer, who upheld the ALJ’s determination and assessed fines of \$483,844 for the value of the raisins and \$202,600 in civil penalties (133 S. Ct. at 2059).

The Hornes then sought judicial review of the USDA’s decision in federal district court. Again, the judge agreed that they were “handlers” for the purposes of the statute. The judge also ruled that the reserve requirement did not constitute a physical taking. “[I]n essence,” wrote the court, “the Hornes are paying an admissions fee or toll—admittedly a steep one—for marketing raisins. The Government does not force plaintiffs to grow raisins or to market the

raisins; rather, it directs that if they grow and market raisins, then passing title to their ‘reserve tonnage’ raisins to the RAC is the admissions ticket” (133 S. Ct. at 2016).

On appeal to the United States Court of Appeals for the Ninth Circuit, the panel upheld the determination that the Hornes were handlers. It also concluded that it lacked jurisdiction to resolve the Hornes’ takings claim. Essentially, the court ruled that, before bringing a takings claim, the Hornes had to terminate their present case, pay the fines, and then file a separate suit in the Court of Federal Claims. The Hornes appealed this ruling to the Supreme Court, and, in November 2012, the Court agreed to hear the Hornes’ case.

Writing for a unanimous Court, Justice Clarence Thomas overturned the Ninth Circuit. A raisin farmer can raise a takings claim as an affirmative defense in an action initiated by the USDA, Thomas held, and the Ninth Circuit had jurisdiction to hear that claim without a separate filing in the Court of Federal Claims (133 U.S. Ct. at 2063).

Although it was a victory before the highest court in the land, the Supreme Court’s decision only meant that the Ninth Circuit would hear the case again—this time on merits of the Hornes’ takings claim. Even though the Hornes’ saga was now a decade old, they would have to return to the Ninth Circuit to argue that the RAC’s reserve requirement was an unconstitutional taking under the Fifth Amendment.

Again, the Ninth Circuit wasn’t amenable to the Hornes’ arguments. In an odd opinion, the court’s ruling distinguished takings of real property (land) from takings of personal property. Because the court held that personal property is accorded less protection than real property, it held that the reserve-tonnage requirement was not a *per se* taking.⁴ That distinction, as the Cato Institute’s Center for Constitutional Studies pointed out in an amicus brief supporting the Hornes, has no basis in the Fifth Amendment’s Takings Clause, which simply reads, “nor shall private property be taken for public use without just compensation.” The Ninth Circuit further reasoned that Marketing Order 989 merely imposed a condition (the reserve requirement) on raisin growers in exchange for a benefit (orderly marketing conditions), and therefore was not a taking. After all, the Ninth Circuit said, the Hornes could avoid the reserve requirement by “planting different crops.”

⁴Home v. U.S. Dept. of Agriculture, 730 F. 3d 1128, 1143 (9th Cir. 2014).

The Ninth Circuit's strange opinion was quickly appealed and the Supreme Court agreed to hear the Hornes' case for a second time. This time they would get to the heart of the matter—namely, whether under the Fifth Amendment's Takings Clause, the RAC owes farmers compensation when it confiscates raisins.

Return to the Supreme Court

Almost 15 years after their fight against the RAC began, the Hornes found themselves in the Supreme Court for a second time. On June 22, 2015, the Court ruled 8-1 for the Hornes.

Writing for the majority, Chief Justice John Roberts made short work of the Ninth Circuit's dubious distinction between real and personal property: "Nothing in the text or history of the Takings Clause, or our precedents, suggests that the rule is any different when it comes to appropriation of personal property. The Government has a categorical duty to pay just compensation when it takes your car, just as when it takes your home" (*Horne v. U.S. Dept. of Agriculture*, 135 S. Ct. 2419, 2423 [2015]).

For Roberts and the seven other justices in the majority, the reserve requirement was "a clear physical taking. . . . Actual raisins are transferred from the growers to the Government. Title to the raisins passes to the Raisin Committee." Both Justice Sonia Sotomayor's dissent and the government argued that it would be odd to call the reserve requirement a taking when the government could legally prohibit the sale of the raisins, which would produce essentially the same outcome. While "[a] physical taking of raisins and a regulatory limit on production may have the same economic impact on a grower[.]" wrote Roberts, "[t]he Constitution . . . is concerned with means as well as ends."

Having found that the reserve requirement was a taking, Roberts went on to clarify that the Ninth Circuit's argument that the Hornes could "plant different crops" was constitutionally misguided: "'Let them sell wine' is probably not much more comforting to the raisin growers than similar retorts have been to others throughout history. In any event, the Government is wrong as a matter of law."

Although eight justices agreed that the reserve requirement was a taking, three of those justices disagreed about how much compensation the Hornes were owed. Justice Stephen Breyer, joined by Justices Ruth Bader Ginsburg and Elena Kagan, wrote

separately to say that the Hornes' case should be sent back to the lower courts to determine how much the loss of their raisins would have been offset by the benefits of higher prices and "orderly marketing conditions."

The Chief Justice, however, thought such a move unnecessary: "The Hornes should simply be relieved of the obligation to pay the fine and associated civil penalty they were assessed when they resisted the Government's effort to take their raisins. This case, in litigation for more than a decade, has gone on long enough."

Conclusion

In the aftermath of the decision, some commentators wondered whether the Hornes' case was a significant blow against New Deal agricultural programs. While an important constitutional decision, it is not the death knell for our byzantine agricultural policies. The government eventually answered the Court's question about how many programs operate like the RAC: seven—California almonds, dates, dried prunes, walnuts, tart cherries grown in seven states, and spearmint oil produced in five states.

Those programs, like the RAC, maintain prices with mandatory reserve requirements for which compensation is not guaranteed. Most marketing order programs, however, do not operate in that fashion. The Hornes' victory will only directly apply to those programs and it will not do so automatically. Future dissidents will have to bring their own cases.

More broadly, the Hornes' case affirms two important principles for all future takings cases. First, a direct physical taking is a *per se* taking. Second, the government cannot make a taking a condition for entering a lawful profession such as raisin farming. Finally, the Hornes' case is an important moral victory, albeit small, against the costly New Deal agricultural policies we continue to live under.

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AMERICAN PROSPERITY REQUIRES CAPITAL FREEDOM

J. Christopher Giancarlo

The Cato Institute was named after Cato's Letters, essays first published from 1720 to 1723 under the pseudonym of Cato, commonly known as Cato the Younger, who lived in Rome from 95 to 46 BC and was an implacable foe of Julius Caesar and stubborn champion of (lowercase "R") republican principles.

In our lifetime, the Cato Institute seeks to increase public appreciation for "principles of individual liberty, limited government, free markets and peace." It is the application of those principles to American capital markets and capital formation that we are here to discuss today.

What Happened to American Prosperity?

It is not a matter of opinion but a matter of economic fact that everywhere there are free and competitive markets, combined with free enterprise, personal choice, voluntary exchange, and legal protection of person and property, you will find the underpinnings of broad and sustained prosperity. These elements, wherever and whenever deployed, lift millions of people out of poverty.

Cato Journal, Vol. 35, No. 3 (Fall 2015). Copyright © Cato Institute. All rights reserved.

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Here at home, these elements are under attack by critics of our financial markets. These critics have lost sight of the fact that global capital markets remain the engines of rising standards of living and prosperity. These critics talk about separating markets from risk, as if they have no idea that risk and prosperity are invariably linked. They say risk can be extracted from the marketplace through centralized economic planning and direction. They say income inequality can be reduced through increased political control over people's economic choices. They say wealth redistribution should be tolerated by passing on to our children and grandchildren additional trillions of dollars in federal debt.

Meanwhile, these critics of free markets hardly ever talk about regaining broad and durable prosperity. Yet, prosperity was the common state of the American experience for us and generations before us.¹ And Americans still want prosperity to be the default state for their children. What we have today is just not good enough.

In fact, what we have today is simply the worst U.S. recovery from any recession since the Great Depression. Last year, the managing director of the International Monetary Fund, Christine Lagarde, dubbed current economic conditions the “new mediocre” (Lagarde 2014). That is a mild description for the state we are in. During the first quarter of this year, the U.S. economy actually shrunk by 0.7 percent. GDP has not grown by more than 2.5 percent for the past half-dozen years—the slowest rate of growth since the United States began compiling reliable economic statistics a century ago. That is less than the average annual U.S. economic growth rate and substantially less than a typical postrecession rate of growth (Lacker 2015, Walker 2013).²

The official U.S. unemployment rate has fallen steadily during the past few years. Yet, this recovery has created the fewest jobs

¹The annual growth rate of gross domestic product (GDP) in the United States averaged 3.24 percent from 1948 until the first quarter of 2015, reaching an all-time high of 13.40 percent in the fourth quarter of 1950 and a record low of -4.10 percent in the second quarter of 2009 (www.tradingeconomics.com/united-states/gdp-growth-annual).

²Jeffrey M. Lacker, president of the Federal Reserve Bank of Richmond, noted that in the half century before the 2008 recession began real GDP grew at an average annual rate of approximately 3.5 percent. Dinah Walker noted that the economic expansion following the 2008 recession has been the weakest of the post-World War II era, with GDP rising about half as much as in the average post-World War II era recovery.

relative to the previous employment peak of any recovery (Ferrara 2013). In this year's first quarter, the labor force participation rate hit a 36-year low of 62.5 percent. The number of Americans not in the labor force hit a record high of 93.7 million people. Part-time work and long-term unemployment are still well above levels from before the financial crisis (Kosanovich and Sherman 2015, Timiraos 2014). One in three Americans between the ages of 18 and 31 are living with their parents (Fry 2013), and, in one out of five American families, no one has a job (U.S. Department of Labor 2015).

Worse, middle-class incomes continue to fall during this recovery, losing even more ground than during the recession. Real disposable personal income is well below its projected prerecession levels. The number in poverty has also continued to soar to about 50 million Americans. That is the highest level in the more than 50 years that the census has been tracking poverty (Ferrara 2013). Income inequality has risen more in the past few years, while the prospect of working in a secure full-time job has greatly diminished in this new mediocre economy (Pofeldt 2015).³

As a former business executive, I can tell you that the plethora of federal regulations is a major drag on the U.S. economy. Mark and Nicole Crain (2014) report that regulations now cost the U.S. more than 12 percent of GDP, or \$2 trillion annually; the average manufacturing firm spends almost \$20,000 per employee per year to comply with federal regulations; and for manufacturers with fewer than 50 employees, the per-employee cost rises to almost \$35,000. Is it any wonder that the rate of hiring is so abysmal? In a recent survey by PricewaterhouseCoopers (2014: 4), CEOs of American companies overwhelmingly cited overregulation as a barrier to capital investment that would otherwise stimulate job creation and wage growth.

Still, Americans remain an aspirational people despite the economic frustration of the past several years. Yet, they are increasingly worried they may soon fall out of their economic class (Allstate-National Journal 2013). I agree with Governor Jack Markell of Delaware, who recently wrote that Americans need jobs, not

³Forty percent of the U.S. workforce is now made up of workers not in traditional full-time employment, but in part-time, temporary, contract labor or other contingent work (Pofeldt 2015).

populism (Markell 2015). Americans want robust economic growth, not excuses based on bad winter weather. If we are to meet our obligations to the next generation of Americans, we must address head-on the challenges of the new mediocre and take steps to replace it with broad-based prosperity and full-time job creation.

Importance of Free and Competitive Capital Markets

The answer lies in economic freedom and opportunity: the same combination of ingredients that invariably leads to more prosperity—even for the poor—than does centralized political planning (see Lawson 2008).

Capital markets such as the stock and bond markets play an essential role in economic growth by marshaling resources and deploying them in productive ways. They serve as a link between savers and investors by shifting financial resources from surplus and waste to deficit and production. They allow the rational allocation of goods and resources, spurring expansion of trade and industry. And, yes, regulators have a key role to play in capital markets by making sure they are well ordered and not manipulated by bad actors, misconducted by fraud, or misused for political purposes.

Adequate trading liquidity is the lifeblood of successful financial markets. In essence, liquidity is the degree to which a financial instrument may be easily bought or sold with minimal price disturbance by ready and willing buyers and sellers. The United States has long enjoyed some of the world's deepest and most liquid financial markets for trading U.S. Treasury and other debt, equity, and derivative securities. The health of the U.S. economy is strongly tied to such deep liquidity, which is essential for overseas investors to continue to transact in our markets. If U.S. trading markets become shallower or less liquid, overseas investors may reduce activities in U.S. markets, imperiling American economic health.

Why Financial Derivatives?

The use of risk-hedging instruments, namely commodity futures, swaps, and other derivatives, is one of the key reasons Americans find plenty of food on the shelves. Many of our agricultural producers hedge their prices and costs of production in the futures markets. But such futures and other derivatives markets are not just beneficial for agricultural producers. They impact the price and availability of

the warmth in our homes, the energy used in our factories, the interest rates we pay on our home mortgages, and the returns we earn on our retirement savings. Well-functioning derivatives markets allow users to transfer the risks of variable production costs, such as the price of raw materials, energy, foreign currency, and interest rates, from those who cannot afford them to those who can. In short, derivatives serve society's need to help moderate price, supply, and other commercial risks. Thus, derivatives free up capital for other purposes and boost economic growth, job creation, and prosperity.

It is true that derivatives, like any other engineered product ever known to man, can serve both useful as well as harmful purposes. I concur with the thrust of Gretchen Morgenson and Joshua Rosner's book *Reckless Endangerment* that the 2008 financial crisis arose from an inferno of complex derivative products used for unfettered risk-taking overseen by feckless regulators amidst the government's deliberate degrading of mortgage-lending standards and the creation of a housing and credit bubble (Morgenson and Rosner 2011).

Yet, I also agree with scholar Peter Wallison that the combination of complex derivatives, bank leverage, and unwitting regulators alone would not have caused the depth and scope of the 2008 financial crisis. No, it required the federal government's encouragement of banks and other financial institutions to originate and hold enormous and opaque amounts of nontraditional, subprime, and Alt-A mortgage obligations to further the social goal of increased homeownership.⁴ When home values began to fall and lenders anticipated nonpayment of these toxic mortgages, it triggered a crisis of confidence in trading counterparties in securitized mortgage and credit markets and the bursting of a double bubble of housing prices and consumer lending. It led to a full "run on the bank," with rapidly falling asset values preventing U.S. and foreign lenders from meeting their cash obligations. The result was a financial crisis that was devastating for far too many American businesses and families.

⁴In his recent book, *Hidden in Plain Sight: What Really Caused the World's Worst Financial Crisis and Why It Could Happen Again*, Peter J. Wallison extensively documents how the financial crisis was directly caused by U.S. government housing policies, as a result of which over half of all U.S. mortgages were subprime or otherwise low quality—a fact that was grossly undisclosed to market participants and the American public (Wallison 2015).

However, seven years later, the standard press and political narrative has been that the financial crisis was primarily about deregulated banks engaging in excessive trading leverage through derivatives. The role of toxic mortgages has been almost, but not entirely, forgotten.

Uncoordinated Regulations Draining Liquidity from U.S. Financial Markets

Arising from that incomplete narrative of the financial crisis are many new financial-sector regulations that are disproportionately focused on capital adequacy of banks and financial institutions without corresponding attention to housing-finance reform. Most of the new regulations have the effect of reducing the ability of medium and large financial institutions to deploy capital in trading markets. Combined, these disparate regulations are already sapping global markets of enormous amounts of trading liquidity. Many of these new rules were cobbled together in the Dodd-Frank Act, the European Union's European Market Infrastructure Regulation⁵ and Markets in Financial Instruments Directive II,⁶ the Basel III accords,⁷ and the regulations by other overseas authorities. These reforms have ostensible and varied merits, and each has a supporting constituency. Yet, U.S. and overseas regulators continue to promulgate almost all of these rules in an uncoordinated and ad hoc fashion with a paucity of predictive analysis as to their impact on global trading markets.

The Commodity Futures Trading Commission's contribution to this liquidity-depleting mixture includes its flawed swaps-trading rules, about which I have written extensively in a CFTC white

⁵Regulation 648/2012, 2012 O.J. (L. 201) (EU) was intended to enhance the stability of the over-the-counter derivative markets throughout the EU states. The regulation entered into force on August 16, 2012. See <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32012R0648>.

⁶Directive 2014/65, 2014 O.J. (L. 173) (EU). Available at <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32014L0065&from=EN>.

⁷Basel III (or the Third Basel Accord) is a global, voluntary regulatory framework on bank capital adequacy, stress testing, and market liquidity risk. The members of the Basel Committee on Banking Supervision agreed upon this framework in 2010–11. The third installment of the Basel Accords was developed in response to the deficiencies in financial regulation revealed by the financial crisis of 2007–08. Basel III is intended to strengthen bank capital requirements by increasing bank liquidity and decreasing bank leverage. See Basel III, Basel Committee on Banking Supervision (www.bis.org/bcbs/basel3.htm).

paper (Giancarlo 2015a)⁸; the double-charging of margin on certain types of derivatives trades used to manage risks (Giancarlo 2015b); the likely imposition of strict limits on risk management of energy and commodities (Giancarlo 2015c); and the immensely complicated Volcker Rule, which no other jurisdiction has sought to emulate.⁹

Yet, the Dodd-Frank Act is only one source of leaks in the pool of market liquidity. Other new rules, dictated by U.S. and European central bankers and bank prudential regulators with little practical understanding of trading markets, are tying up billions in capital on the books of global financial institutions. Many of these rules seek to control borrowing and leverage in the financial system. They prioritize capital reserves over investment capital, balance sheet surplus over market-making, and systemic safety over investment opportunity. They include regulator-imposed margin payments on uncleared swaps,¹⁰ enhanced central clearinghouse recovery procedures,¹¹ capital-retention and leverage-reduction requirements under the Basel III accords,¹² and other rigid leverage ratios and edicts from loosely organized global shadow regulators like the Swiss-based Financial Stability Board. Then there is the financial transaction tax sought by the Obama administration¹³ and a systemic risk fee (tax)

⁸The white paper asserts that there is a fundamental mismatch between the distinct liquidity and trading dynamics of the global swaps markets and the CFTC's overengineered, futures-oriented swaps-trading regulatory framework. It identifies the following adverse consequences, among others, of the CFTC's flawed swaps-trading rules: driving global market participants away from transacting with entities subject to CFTC swaps regulation; fragmenting swaps trading into numerous artificial market segments; and increasing market liquidity risk, market fragility, and the systemic risk that the Dodd-Frank regulatory reform was predicated on reducing.

⁹"Prohibition and Restrictions on Proprietary Trading and Certain Interests in, and Relationships with, Hedge Funds and Private Equity Funds," 79 FR 5808 (January 31, 2014): www.cftc.gov/ucm/groups/public/@lrfederalregister/documents/file/2013-31476a.pdf.

¹⁰"Margin and Capital Requirements for Covered Swap Entities," 79 FR 57348 (September 24, 2014): www.gpo.gov/fdsys/pkg/FR-2014-09-24/pdf/2014-22001.pdf.

¹¹Financial Stability Board (2015: 3).

¹²See Basel III, Basel Committee on Banking Supervision (www.bis.org/bcbs/basel3.htm).

¹³See *Fiscal Year 2016 Budget of the U.S. Government*, Office of Management and Budget, 33: www.whitehouse.gov/sites/default/files/omb/budget/fy2016/assets/budget.pdf.

that the Treasury's Office of Financial Research (OFR) recently proposed to charge to members of clearinghouses (Capponi, Cheng, and Rajan 2015).

Worse, different regulatory authorities in the United States and abroad are adopting many of these rules piecemeal with different regulatory standards, requirements, and implementation schedules. It is causing the clear fragmentation of global financial markets, leading to smaller, disconnected liquidity pools that do not efficiently interact with one another. Divided markets are more brittle with shallower liquidity and more volatile pricing, posing a risk of failure in times of economic stress or crisis (Giancarlo 2015a: 48–52).

In response to the deluge of capital constraining regulations, major money-center banks are today building up large balance-sheet reserves instead of putting their capital to work in the markets and the economy. Large banks have dramatically reduced their inventories of Treasury and corporate bonds and other financial instruments. For example, estimates show that in the \$4.5 trillion bond market, banks hold just \$50 billion of corporate bonds compared with \$300 billion before the financial crisis (Nixon 2015). This lack of inventory deprives markets of the “shock absorber” mechanism that dealers traditionally provide. Without it, it is much harder to execute large trades without moving the market, causing greater price volatility.

A recent report by the Office of Financial Research (2014) asserts that changes in financial market structures caused by new regulations are reducing the willingness of some major market participants to smooth out volatility in global financial markets. According to this study, these changes will cause the U.S. financial system to become more vulnerable to debilitating financial market shocks. Federal Reserve Chair Janet Yellen recently acknowledged concerns that market liquidity may deteriorate during stressed conditions due to new regulations, among other factors (Katz 2015).

In trying to stamp out risk, global regulators are instead harming trading liquidity. Capital-constrained banks and other market makers have little choice but to limit their exposure to increasingly fragmented markets, especially in the event of financial turmoil. It has reached such a level that the IMF's 2014 Global Financial Stability Report discussed the need for *more, not less*, economic risk-taking to help global recovery (IMF 2014). The report calls on banks to

revamp their business models to once again become engines of growth. Yet, the IMF neglects to call out regulators for restricting the banks' ability to put their capital to work.

We need to look no further for a “canary in the liquidity coal mine” than the events of October 15, 2014, when yields on U.S. Treasury instruments suddenly plunged the most since 2009 without a discernable catalyst. The mini-crisis revealed a fundamental imbalance in the ratio of liquidity provided to markets by capital-constrained and risk-averse large banks and liquidity demanded from markets by a burgeoning buy-side (Perrotta 2014).¹⁴ JPMorgan CEO Jamie Dimon called it a “warning shot” to investors (Katz 2015). I fear that the next time global financial markets experience a sharp stress or shock—and that time will inevitably come—the cumulative effect of all the various Dodd-Frank Act, European, and Basel III rules may be to drain the market of trading liquidity that will be critical for short-term solvency for many ordinary, everyday American businesses.

Regulators often claim they are acting to avoid a repeat of the last crisis. Today, they may be laying the seeds of the next crisis: disappearance of trading liquidity in U.S. and global capital markets. One veteran industry commentator has aptly noted that “a market in which no one is willing to take a risk is a market that is very risky” (Lofchie 2015). Once again we see that flawed and ad hoc implementation of regulatory reform is increasing the systemic risk that the Dodd-Frank Act promised to reduce.

Where, Oh Where, Is FSOC?

Fortunately, the Dodd-Frank Act created a new super-regulator, known as the Financial Stability Oversight Council (FSOC), charged with coordinating the hundreds of new rules and regulations.¹⁵ Unfortunately, FSOC has been an unmitigated failure as a coordinator of regulatory reform. Rather than moderate the impact of liquidity-draining regulations, FSOC has spent its time designating Wall Street banks and insurance companies as “too big to fail” so that

¹⁴Some of the largest broker-dealers and proprietary-trading firms appear to have withdrawn from the market to manage heightened risk (FSOC 2015: 110).

¹⁵See “Purposes and Duties of the FSOC,” Section 112 of the Dodd-Frank Wall Street Reform and Consumer Protection Act, Public Law 111–203, 124 Stat. 1376, 1395 (2010).

someday they can be bailed out by taxpayers and regulated by none other than—you guessed it—the Federal Reserve.¹⁶

Interestingly, FSOC's just-issued Annual Report fully acknowledges that banks and broker-dealers are reducing their securities inventories and in some cases exiting markets (FSOC 2015: 108). It then instructs individual market participants and regulators to monitor these developments, including how regulations impact the provision of market liquidity. Good grief! Monitoring how all these new regulations impact market liquidity and may cause systemic risk is supposed to be FSOC's job!

Just as FSOC requires stress testing of "too big to fail" firms, FSOC should do some stress testing of its own. If U.S. markets are to remain the world's deepest and most liquid, FSOC should conduct a thorough analysis of the full impact of the mass of liquidity-reducing regulations that it is supposed to be coordinating.

One thing is certain: When a liquidity crisis hits, FSOC will be the first to point fingers; blame financial markets, banks, and large market participants; and demand more control over them. FSOC may even use its new powers and taxpayer money to bail out more U.S. and foreign financial institutions. Remember: "Never let a good crisis go to waste" (Seib 2008).¹⁷

Despite all this, I believe American voters expect the next administration, Democrat or Republican, to take steps to end the new mediocre and return to traditional American middle-class prosperity. That begins with efficient capital markets free from the artificial liquidity constraints emerging from a Pandora's box of competing and disjointed regulatory initiatives. U.S. regulators, not European central bankers, are authorized by Congress to manage U.S. markets. We should not subsume our authority to organizations that are unrecognized by U.S. law. It is time for FSOC to step up to its statutory duty to monitor and analyze the hundreds of new federal and

¹⁶It is now estimated that approximately \$25 trillion or 60 percent of the U.S. financial system's liabilities are backed by explicit or implicit protection from loss by the federal government. See "Special Report, Bailout Barometer: How Large is the Financial Safety Net?" Federal Reserve Bank of Richmond: www.richmondfed.org/safetynet.

¹⁷Seib recounts that Rahm Emanuel, President Obama's then-chief of staff, told a *Wall Street Journal* conference of top corporate CEOs: "You never want a serious crisis to go to waste."

overseas regulations. It is time for FSOC to measure the cumulative effect of these disparate rules and regulations on U.S. financial markets, looming systemic risk, and the sluggish American economy.

Conclusion

In conclusion, let me return to the Cato Institute's namesake, Cato the Younger. As you may know, Cato also appears as a literary character in the second book of Dante Alighieri's *Divine Comedy*, the timeless medieval poem about the transition from the road to Hell to the path to Heaven. Cato stands on the border of the two. He represents rebirth, renewal and redemption.

So too, we participants and observers of capital markets are at a transition point. We have been through the inferno of the financial crisis. We are told we are on an upward path. Yet, we seem somewhat stuck in a blinding fog obstructing a clear view of the right road ahead. Our fellow men and women are being buffeted by the impact of mediocre economic stewardship, ad hoc regulatory reform, and the failure of those whose duty it is to see through the haze.

Yet, I firmly believe Americans will persevere, in time, to greater prosperity and economic freedom. That is because, like Cato, Americans have always rejected and, I pray, will always reject the false promise of government-provided safety and a riskless future and, instead, hold fast to personal liberty, free markets, and the fruits of their own hard work and ingenuity.

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BOOK REVIEWS

Markets over Mao: The Rise of Private Business in China

Nicholas R. Lardy

Washington: Peterson Institute for International Economics, 2014, 185 pp.

China's rise as an economic powerhouse since 1978 has been characterized by an expanding scope for markets and prices, and a diminishing role for the state. That is the main message that Nicholas R. Lardy, one of the world's foremost scholars on the Chinese economy, conveys in *Markets over Mao*.

Lardy is the Anthony M. Solomon Senior Fellow at the Peterson Institute and former director of the Henry M. Jackson School of International Studies at the University of Washington. He is the author of numerous books including *Sustaining China's Economic Growth after the Global Financial Crisis* (2012), *Integrating China into the Global Economy* (2002), and *China's Unfinished Economic Revolution* (1998). His trademark is a detailed understanding of China's institutions along with a rigorous examination of a wide variety of data to substantiate his arguments. That trademark is firmly imbedded in his new book.

This is a relatively short book with only four chapters, in which Lardy explores state vs. market capitalism, reform of state-owned enterprises (SOEs), the rise of the private sector, and the reform agenda. Each chapter is packed with important facts regarding China's institutional development and economic reforms as the private sector evolved out of Mao's nightmarish state. Lardy makes a

Cato Journal, Vol. 35, No. 3 (Fall 2015). Copyright © Cato Institute. All rights reserved.

strong case that price liberalization and ownership reform, in which Beijing has given greater recognition to the private sector, have transformed the economic landscape so dramatically that China's economy can no longer be viewed as a form of state or authoritarian capitalism.

Of course, Lardy does not consider China a full-fledged market economy; he recognizes that parts of China's economy are still dominated by SOEs. However, he argues those flaws should not detract from the advances made over more than three decades. It is instructive that in 1978 China had virtually no market-determined prices, private firms were illegal, and foreign trade was restricted to a few state enterprises. Today, China is the world's largest trading nation, the second-largest economy, and SOEs account for only about one-third of GDP.

The private sector has been the main engine for economic development and job creation. Economic freedom has advanced giving individuals more choices and improving their living standards. China's real GDP has increased 25-fold since reforms began in 1978, and the reduction in absolute poverty is unprecedented. Hundreds of millions of people have lifted themselves out of poverty as Maoist policies and central planning gave way to freer markets, private ownership, and competition. That is the story Lardy tells so effectively.

Some critics argue that Lardy is too sanguine about the advance of the private sector. They contend that while the nonstate sector has been the engine of China's long-term growth, the decade-long administration of President Hu Jintao and Premier Wen Jiabao (2003–13) delivered a heavy blow to private firms while favoring SOEs. The State Asset Supervision and Administrative Commission was set up in 2003 to make "national champions" out of the largest SOEs, the National Development and Reform Commission was made responsible for major investment decisions, and greater emphasis was placed on industrial policies to support large SOEs. Critics also contend that state-owned banks discriminate against private firms. James McGregor, a long-time China watcher, argues that China's economic system is best described as "authoritarian capitalism."

Lardy finds most of this criticism "misleading." He reexamines the data and argues that "the access of private firms to bank credit has improved so much that on average new bank lending to private firms in 2010–12 was two-thirds more than to state firms." He also

contends that “China’s stimulus . . . was much less state-centric than is commonly charged.”

The difficulty in finding the truth in this debate is that Chinese data are often suspect and definitions elastic. The division of ownership between state and private, for instance, is complex in China’s opaque legal system. Lardy, however, is a master craftsman and uses clear language, has an in-depth understanding of Chinese institutions, and carefully analyzes his data to reach his conclusions. Nevertheless, his critics have some solid ground to walk on.

The state sector is still dominant in many areas and owns or controls a large share of assets—even if SOEs account for one-third of GDP. In 2012, SOEs held nearly 50 percent of loans made by financial institutions to enterprises. China’s leaders pay lip service to the rule of law, but the Chinese Communist Party (CCP) still holds a monopoly on power and favors market socialism over market liberalism.

Those in power seek to maintain it. Chinese reformers mostly sought to revitalize SOEs, not privatize them. Premier Li Keqiang now wants to accelerate SOE reform by allowing private firms to take an ownership interest in large SOEs and create a “mixed-ownership economy.” That is a step in the right direction.

Lardy’s strong case is that private firms did acquire 36 percent of all loans from financial institutions in 2012 compared to 26 percent in 2009; so they were not crowded out by SOEs as contended by the critics. As Lardy notes, “Private firms now enjoy better access to credit than in any previous period in the reform era.” Moreover, on average, SOEs are much less efficient than private firms as measured by the return on assets, and private firms continue to gain ground on that front. In particular, average profits of SOEs are falling and below those of private firms. The lesson is that ownership and incentives matter. Hence, if financial markets do open more to competition and interest rates are liberalized, the share of bank credit going to the private sector should improve.

The CCP’s Third Plenum in November 2013 laid out the groundwork for further price liberalization and the relaxation of barriers to entry for private firms wanting to compete with SOEs in service-related industries (e.g., finance, banking, transportation, telecommunications, and energy). Lardy is hopeful that under the leadership of President Xi Jinping and Premier Li Keqiang China will move ahead with economic reform. He understands the

tension between economic and political reform, and recognizes the dangers special interests pose to meaningful change. “Enhancing the role of the market,” writes Lardy, “will require important changes in China’s institutional arrangements, especially in the role of the state in the economy.”

The heart of this book lies in chapter three, “The Rise of the Private Sector.” Not only have private firms been the engine behind China’s export growth, they have become the dominant player in manufacturing, mining, construction, and wholesale and retail trade. They are, notes Lardy, “responsible for virtually all of the growth of employment in urban China since the reform began” and “consistently make more productive use of capital” than SOEs. By 2012, the return on assets of registered private firms in the industrial sector exceeded the average return for SOEs by about three to one.

There is no doubt that the incentives inherent in private ownership have compelled managers to economize on scarce capital and efficiently allocate funds to productive investments. A further expansion of the private sector would thus increase the prospect for future economy-wide growth. That is why Lardy is encouraged by the Third Plenum’s reform programs, especially the loosening of controls on interest rates, energy prices, and the exchange rate, as well as the promise of greater capital freedom (i.e., the liberalization of capital controls). With more market-oriented prices, resources will be more efficiently allocated and growth will improve along the lines recommended by President Xi—namely, acceleration of market-led growth relative to state-led growth.

The problem is that China remains a one-party state without effective constitutional safeguards for persons and property. Even though enterprise reform has occurred, state ownership is still a strong force, especially in the financial and other service industries. The casino nature of China’s stock markets—and state intervention to prop them up by restricting the sale of shares and other tactics—increases uncertainty and makes it more difficult to attract capital. If the right of a private owner to sell stock is restricted, the desire to buy is weakened, and property rights are less valuable.

The sanctity of private property rights must be respected if China is to become a global financial hub like Hong Kong. Those rights include the free flow of ideas, as Ronald Coase and Ning Wang so elegantly expounded on in *How China Became Capitalist* (Palgrave 2012).

One of China's top reformers, Zhang Weiyong (the architect of China's dual-price system, which helped China make the transition to market pricing), writes in *The Logic of the Market: An Insider's View of Chinese Economic Reform* (Cato Institute, 2015): "The progress of humanity has been a continuous transition to the logic of the market," which is the logic of freedom. Lardy would no doubt agree. Like the late Peter Bauer, a pioneer in development economics, Lardy sees state ownership as a "drag on development."

The spontaneous nature of many of China's key reforms, which were later sanctioned by the state, illustrate that if the government gets out of the way and allows experimentation with market-friendly institutions that reward productive activity, then there will be a cumulative movement to expand those reforms. Lardy shows how small steps in the direction of the market led to deeper reforms in product and factor markets, and in enterprise ownership. Yet, entrenched interests continue to impede the path of free enterprise and cling to the commanding heights of state capitalism.

The CCP's Organization Department still appoints the directors of the largest SOEs, including state-owned banks. Such political control is inconsistent with what Milton Friedman called "free private markets." Until China's leaders respect the rule of law, private property, and freedom of expression, markets will not be fully released from Mao's grip.

James A. Dorn
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The Future of Violence: Robots and Germs, Hackers and Drones—Confronting a New Age of Threat

Benjamin Wittes and Gabriella Blum
New York: Basic Books, 2015, 336 pp.

On Memorial Day this year, link-aggregator *The Drudge Report* displayed a shocking banner headline: "Drone Hits 2 People during Parade." Playing on readers' expectations of some titillating new horror disrupting a beloved American holiday, the site linked to a story about a small, remotely piloted aircraft flown over a parade in the New England town of Marblehead, Massachusetts. Its owner had lost control and run the drone into a building. On its descent, the drone hit a man on the head and nicked his neck, then caromed off

another parade-goer's shoulder before falling to the ground. The injured man declined treatment, according to the news item. As for the drone operator: "A police report described the man as very apologetic and embarrassed."

Drones are among the suite of new technologies authors Benjamin Wittes and Gabriella Blum offer up as "technologies of mass empowerment" in their book, *The Future of Violence: Robots and Germs, Hackers and Drones—Confronting a New Age of Threat*. "By delivering dramatic new capabilities to humanity in general," they write, "technological development creates the certainty that some of those individuals will use those capabilities to do evil." The prediction is undoubtedly true, as a literal matter. Most every technology empowers someone bent on doing wrong to do it better. But it is not at all clear that technology will cause the human capacity for evil to outstrip its capacity for good, or that our capacity for self-defense will not grow to meet our capacities for offense. It is not a given that enhanced capacity to do evil translates directly into evil actually done.

Most people are nice. Give them technology and they'll do nice things with it. Wittes and Blum make an unconvincing case that drones, or the advance of technology generally, are particularly threatening.

Their premise in greater detail is that advancing technologies have produced a new era of security challenges. Unlike in the past, technologies of mass empowerment are creating an unprecedented "many-to-many" threat environment, where anyone can mount a devastating attack on anyone else. On the basis of that premise, they set out to rethink states and the social order; the relationships among privacy, liberty, and security; legal jurisdiction and sovereignty; surveillance; and domestic and international governance. That's a lot of rethinking when the premise hasn't been solidly established.

Again, most people are nice, and they have lots of incentives to keep being nice to each other. Where natural incentives fail, there are a lot of laws and regulations that make not being nice a less attractive option.

The advance of technology is producing vast direct benefits to society—Wittes and Blum give that little more than brief acknowledgement—and technologies that can be used for harm do

not occur in a vacuum. Developing dangers draw defensive practices and policies closely in their wake. Advancing technology is not obviously bringing us to a security precipice.

Are there some dangers that could do extraordinary damage before society's defenses could kick in? Maybe. Virology stands out as such an area. It seems plausible that an engineered disease loosed on the world could do extraordinary damage before society's protections can come into play. But defenses against such threats are already in place and under construction—controlled access to essential tools, and surveillance of actors in the field, for example. In a 2010 Cato Institute book on counterterrorism, *Terrorizing Ourselves*, University of Maryland scholar Milton Leitenberg argued that post-9/11 attention to bioweapons threats have counterproductively induced nonstate actors to focus on developing those kinds of capabilities.

As Wittes and Blum skip across the vast terrain they've mapped out for themselves, their counterintuitive and unproven concept—the “many-to-many” threat environment—crops up again and again, reminding the reader that the substrate of their argument is made of sand.

How much better—and important—would be a book (or books) on specific new technologies that amend the threat environment in problematic ways? Carefully applied risk management could turn up and analyze new threats that new technologies create or expand. Such work could identify the unique instances where existing social and legal systems don't or can't already prevent, interdict, or mitigate harms. That would be much more attractive and interesting reading than a book that serves up distended ideas about revamping social and legal systems without the enticement of solid reasons for doing so.

In the years immediately following the 9/11 attacks, American society collectively ascribed acute technical skills to terrorists based on the damage they had caused in New York City. Our invalid thinking turned dimwitted thugs carrying box-cutters into the advance team for evil bioweapons scientists and nuclear engineers. With the passage of time, our collective psyche is recovering, as is our ability to analyze the threat environment dispassionately. We may still be tweaked by over-the-top *Drudge Report* headlines, but the time for reconsidering long-standing social institutions in reaction to

unproven threats seems to have passed. *The Future of Violence* is a book from what is hopefully a bygone era of threat exaggeration.

Jim Harper
Cato Institute

Government against Itself: Public Union Power and Its Consequences

Daniel DiSalvo

New York: Oxford University Press, 2015, 304 pp.

No one likes paying more for less, especially for basic public services like fire and police protection. Yet that is the situation many state and local governments now face because of powerful government employee unions. Government costs more than ever, but the quality and effectiveness of the public services that taxpayers need are in decline. Daniel DiSalvo, assistant professor of political science at City College of New York and senior fellow at the Manhattan Institute, tells this story in his new book, *Government against Itself: Public Union Power and Its Consequences*.

Public-sector unions are necessarily political institutions. Seeking to influence public officials in order to gain greater benefits for their members is one of their core functions. Government unions, notes DiSalvo, “are effectively *government lobbying itself*.” Unlike private-sector labor negotiations, public-sector collective bargaining involves government sitting on both sides of the table. Public-sector “managers” face weaker incentives than their private-sector counterparts to resist union demands, such as increased compensation or greater job security. Therefore, collective bargaining in the public sector undermines democratic governance by shifting some government decisions away from public officials and toward unelected government employees.

Public-sector collective bargaining also has contributed to one of the biggest fiscal challenges threatening state and local governments around the nation: underfunded public pensions. This is a classic case of concentrated benefits and diffuse costs: government unions have greater incentives to lobby for increased compensation for their members than taxpayers have to organize to resist paying for it.

Of course, voters generally don’t like taxes, so there’s a limit to how high taxes can rise to pay for those benefits. But this political

check only affects current tax and spending levels. Politicians can skirt voter resistance to taxation by shifting today's fiscal burden to tomorrow's taxpayers. This is precisely how union-friendly politicians have handled government employee pensions for decades, knowing full well that when the time comes to settle up, it will be someone else's problem.

Recently, some elected officials—most notably Wisconsin Republican Governor Scott Walker and Rhode Island Democratic Treasurer (and current governor) Gina Raimondo—have sought to bring pension costs under control. In response, government union leaders have denounced such reform efforts as “scapegoating” of public employees by blaming them for state budget woes.

Unions' accusations of scapegoating are off-base, DiSalvo argues, for two reasons. First, total spending on public employee compensation has increased by \$200 billion since 2009, even as state and local public employment has decreased by 671,000 employees. Second, increased compensation expenditures “crowd out” the public services that government employees were hired to provide in the first place, including “parks, education, public safety, and other services on which the poor and middle class rely.” Thus, DiSalvo concludes, “government costs more but does less.”

While the battle in Wisconsin played out mainly along party lines, the Rhode Island pension fight exposed divisions among Democrats over how to handle the growing problem of underfunded public pensions. Some Democratic governors and mayors tried to bring public finances under control by taking on traditional party allies such as unions, while some legislators and local council members continued to support the unions. Rhode Island's experience also showed that reform is possible even in a Democratic-dominated state. Raimondo made a practical case for reform, emphasizing that the pension debate is about budgetary math, not politics.

Similarly, DiSalvo tries to bring a dispassionate approach to his analysis: “A premise of this book is that the analysis of public-sector unions must be shorn of mythology and separated from the legendary struggles of private-sector labor in the mid-twentieth century.” He largely succeeds. Some union advocates may still denounce his book as antiunion, but DiSalvo nevertheless aims to gain a hearing among Democrats because the crowding-out effect mentioned above threatens many of the services and programs liberals hold dear.

DiSalvo outlines the fundamental difference between public and private unions: governments can access more money through taxation and borrow at lower cost than private firms. “Too often,” writes DiSalvo, “they are conflated, which badly distorts reality.”

Because of civil service rules, public employees enjoy greater job protections than their private-sector counterparts, even in the absence of a union. Civil service rules were implemented to curb the patronage system that enabled politicians to reward their cronies with government jobs. Certainly a worthy goal, but now public employees are entrenched in their positions and lower-performing employees are difficult to dismiss.

Another difference, the one DiSalvo calls “the most fundamental,” is government unions’ ability to exert direct influence on their employers through their political process. Private-sector unions may be politically active, but their political advocacy has only an indirect effect on their employers. Public-sector unions, on the other hand, literally help elect their bosses.

This political influence gives unions what DiSalvo and others have called “two bites at the apple” in trying to gain concessions from employers—one through collective bargaining and the other through lobbying and electioneering. It also has enabled government unions to effectively block reform (which, as the cases of Wisconsin and Rhode Island show, has only been accomplished in an atmosphere of fiscal crisis).

This puts government unions in a privileged position relative to both private-sector unions and to other interest groups. It has led to the development of what DiSalvo calls “two worlds of work—one private, one public.” While private-sector unions have to contend with the realities of market competition, which restrains their demands, public-sector unions face no such check.

In the history of American labor relations, public-sector collective bargaining is a relatively recent phenomenon. “In 1959, only three states had collective bargaining laws for state and local employees,” notes DiSalvo. “By 1980, 33 states did.” Today nearly all states enable government unions to collectively bargain to some extent; only Virginia and the Carolinas bar public-sector collective bargaining.

This change, DiSalvo argues, came about because of four major factors: (1) civil service laws that weakened urban party machines’ patronage networks; (2) reconfiguration of state legislative districts

by population, which shifted influence from rural areas to urban centers; (3) demographic change, mainly growth in government employment; and (4) action by labor-friendly politicians at the urging of union leaders, who saw expansion in the public sector as a way to counteract declining private-sector membership. Today, around 37 percent of public-sector employees in the United States are unionized, compared to around 7 percent in the private sector.

Two government-granted privileges give public-sector unions a “unique advantage” in politics and lobbying. One is agency shop laws that require all workers in a bargaining unit to pay for union representation, including nonmembers who must pay “agency fees.” The second is automatic dues check-off, whereby dues are withheld from workers’ paychecks. Much of that money is spent in politics, including on canvassing and get-out-the-vote efforts, as well as campaign donations.

Public-sector unions also channel their influence through initiatives and referenda. Born out of reformist zeal to check the power of special interests on state legislatures, these have become a new lever for those same special interests to wield influence, especially in defending the status quo. In the last 30 years in California, for instance, voters approved nearly half of union-supported measures and voted down 75 percent of measures unions opposed.

The latter is not only more impressive, but also more significant. As DiSalvo notes, “the power to thwart change can sometimes be even more important than the power to enact it.” It’s human nature to fear change. Ballot measures have proven very useful to government unions in fighting reform, in part because of voters’ bias toward the status quo.

Another union advantage is the knowledge of arcane policy minutiae that are of little interest to the general public but can influence the benefits unions and their members receive from taxpayers.

On the issue of compensation, DiSalvo explores two key questions: first, whether public-sector workers earn more than their private-sector counterparts in similar jobs; and second, whether unionization and collective bargaining in the public sector increase compensation relative to a nonunion environment.

In this regard, it is worth considering compensation over a lifetime, because much public employee compensation is back-loaded in the form of pensions. Those back-loaded retirement and health care benefits lead to greater lifetime compensation. Some 80 percent of

public employees have a defined-benefit pension plan—which is set to pay out a fixed amount regardless of its level of funding—compared to only 20 percent of private-sector workers.

Back-loaded benefits often lead to fiscal trouble. Underfunded pensions are now squeezing state and local government budgets. Paying for pension liabilities puts public services, including essential ones, under severe strain. “If government spends more on the salaries, pensions, and healthcare of its employees,” says DiSalvo, “it cannot spend more money on things like public transit, school buildings, park maintenance, and relief to the poor—unless it raises taxes, uses budget gimmicks, or takes on greater debt.” The result: taxpayers pay more, but get less.

Union contracts raise costs even higher by imposing myriad bureaucratic rules. In the case of education, where “teachers’ contracts run into the hundreds of pages,” the effect of this flood of rules is especially pernicious, as principals’ authority to run the schools they oversee is seriously eroded, including their ability to discipline and dismiss bad teachers.

The bottom line: “Unionized government overburdens taxpayers, makes services on which the poor and middle class rely less effective, and distorts the democratic process.”

Government unions’ responses to these criticisms, DiSalvo notes, have amounted “to little more than denials that unions do harm and therefore shouldn’t be challenged.” On the upside, this gives elected officials an opportunity to make a convincing case for reform. The fight must be legal as well as legislative.

Many state laws treat collective bargaining as a legal, though not a universal, right. But collective bargaining laws may be vulnerable to legal challenge. And collective bargaining may also violate the rights of free speech and association of workers who are compelled to join the union to keep their job.

Beyond the state level, DiSalvo suggests, there is a viable path to challenging the 1977 Supreme Court case that validated unions charging agency fees to nonmembers, *Abood v. Detroit Board of Education*. The outline for such a challenge was laid out by Justice Samuel Alito in his 2014 decision in *Harris v. Quinn*. “Overturning *Abood*,” says DiSalvo, “would in effect create a national right-to-work law for the public sector.” (On June 30, 2015, the Supreme Court agreed to hear a case that could overturn *Abood*, *Friedrichs v. California Teachers Association*.)

State legislatures can take other steps to reassert their control over public workforce costs: limit the points of negotiation in collective bargaining, remove health care benefits from collective bargaining, index the upper limits of union compensation demands to inflation, eliminate public-sector agency shops, bar use of check-off dues for politics, amend arbitration rules, give cities greater scope of action in dealing with their unionized workforces, end “the accounting tricks and gimmicks they have used to calculate their pension and health liabilities,” and move away from defined-benefit pensions toward defined-contribution plans.

Proofreading and fact checking could have been better in parts. For example, the *Sarasota Herald-Tribune* is misidentified as the *Miami Herald-Tribune*. DiSalvo also says that Boeing had “threatened” to move construction of its planes to South Carolina if the Machinists union at its Puget Sound facility did not agree to a contract. In fact, Boeing opened the South Carolina plant in 2011, *in addition* to existing plants, to avoid disruptions because of strikes.

Those minor points aside, *Government against Itself* provides a solid overview of the role of public-sector unions in U.S. politics today.

Ivan Osorio

Competitive Enterprise Institute

Competition, Coordination and Diversity: From the Firm to Economic Integration

Pascal Salin

Cheltenham: Edward Elgar, 2015, 305 pp.

The ambition of this volume is to “evaluate how coherent social systems can exist in spite of the extreme diversity of [their] components.” It can be characterized as a consistent application of Austrian (or perhaps more narrowly Hayekian) thinking to a range of questions in economics and policy analysis—with a particular focus on the roles of dispersed knowledge, competition, and discovery; prices and economic coordination; and the effects of uncertainty, entrepreneurship and contracts. The book, based on a number of previously published and unpublished papers and essays, weaves together explorations in fields ranging from the theory of the firm, through international political economy and monetary economics, to the theory of consumer choice.

Pascal Salin, an honorary professor at Université Paris-IX-Dauphine, counts among the leading classical liberal thinkers in France. In the 1960s and 1970s, he was instrumental in introducing the ideas of the Chicago School—and later of the Austrian School—into French academia and in nurturing an entire generation of pro-market intellectuals in the country. While he has received international recognition—he served as the president of the Mont Pèlerin Society between 1994 and 1996, for example—the bulk of his work was targeted at a French audience, with substantial contributions focused on Austrian monetary theory, the political philosophy of classical liberalism, fiscal affairs, and other subjects. This book provides the best overview of his work currently available in English.

The book starts with three essays on the theory of the firm and of the market process. The first one may well be the most original in the entire collection, expanding on Frédéric Bastiat's theory of the firm. In his writings on wage formation, Bastiat, whose contributions as an early economic theorist are oftentimes downplayed because of his polemical and journalistic tone, discusses the reasons for the formation of companies. According to him, workers are averse to uncertainty and prefer a steady stream of payments to being obliged to cope with the constantly changing marketplace. It thus makes sense for them to enter into contractual arrangements with entrepreneurs who then become the residual claimant of the company. Besides providing a form of insurance against fluctuations in market conditions, the entrepreneur also provides management and coordination services—much in the same sense as in the traditional Coasian theory of the firm.

Salin integrates the latter into an Austrian theory of the market process, stressing that the firm and the market are not antithetical but just different manifestations of a system “of legitimate rights and free contracts.” The book offers other insights in the area of industrial organization, such as the idea that cooperation between firms and apparent price fixing might fulfill socially beneficial roles. With free entry to industry, the common fears of customer exploitation by cartels are unjustified. If anything, heavy-handed antitrust policies applied to such situations can destroy market structures that are beneficial to consumers.

The second part of the book addresses problems of international political economy. In broader terms, it questions the need for the harmonization of rules as a precondition for economic integration.

More specifically, two chapters in this section argue against the harmonization of tax rules and tax regimes. “Optimal” rules—and “optimal” tax systems—are essentially unknowable in advance. By adopting a common legal and fiscal regime, countries are destroying the process of the gradual discovery of rules that works best.

The same argument is applied to monetary integration (Part III of the book). A common fiat currency has the benefit of reducing transaction costs but also the downside of reducing the possibility of “exit.” It is preferable, Salin argues, to facilitate currency competition and allow individuals to spontaneously discover “optimum currency” areas, depending on the quality of the currencies offered and on the specific trading needs.

The euro, in contrast, was a constructivist project that imposed a common currency on eurozone members without allowing for an evolutionary process of selection for a “good” currency. That said, as Salin argues in an appendix, the debt crisis unfolding on the eurozone’s periphery “is not a European monetary problem,” as some free-market critics of European integration like to argue. Instead, it is just “a debt problem in some countries—Greece, Spain and some others—that happen to be members of the eurozone.” The solution to the crisis lies exclusively in domestic economic reforms, not exiting the eurozone nor in pursuing a program of economic and institutional “harmonization.”

Two essays in the collection discuss the economics of technological change. One chapter is dedicated to the relationship of monetary economics and technological change—namely, to the conditions under which new currencies arise in the online world.

Another is a critique of the idea of a digital divide—the once-popular hypothesis that the development of new information and communication technologies (ICT) is going to disproportionately benefit the wealthy and trap poor countries without access to markets. If anything, the opposite has materialized. It is in sub-Saharan Africa that we have seen a massive spread of mobile telephony and of related services—in particular, of mobile banking—which have had a deep impact on economic opportunity available to people in developing countries as well as on their personal safety and security.

The book concludes with two essays on finer points of economic theory: one that maps the key differences between an Austrian approach to social theorizing and one on the existence (or non-existence) of the income effect. Like the rest of the book, both

contain interesting material, valuable to researchers and students interested in Austrian economics.

Although the papers included in the volume are largely self-contained, they share a number of common threads. Besides being jointly inspired by Hayek's views of spontaneous orders, competition, and the evolution of institutions, they also offer a cohesive ethical framework based on the recognition of legitimate property rights as the foundation of capitalism.

Public choice analysis is one element that is used relatively sparingly in the book. The arguments against EU institutions, for instance, do not consider the possibility that the political dimension of the project—as opposed to the mere dismantling of barriers existing at the national level—may serve as a commitment device for self-seeking politicians who would otherwise be tempted to renege on a regime of free trade or free movement of people if they were not constrained by the potential penalties imposed from Brussels. This is not to say that such public choice considerations would provide a satisfactory account of the emergence of EU institutions, but they certainly merit explicit consideration.

While we should not assume politics away from our discussions of alternative institutional arrangements, there is no reason to believe that the current form of the EU is desirable or “optimal” in any sense of the word. And neither does the relative absence of public choice arguments detract from the value of the book as a resource for academics and laymen wishing to learn more about the positive applications of Hayekian thinking with regard to both real-world policy problems and problems of economic theory.

Dalibor Rohac
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The Conservatarian Manifesto: Libertarians, Conservatives, and the Fight for the Right's Future

Charles C.W. Cooke

New York: Crown Forum, 2015, 231 pp.

It's altogether fitting that a book throwing down the gauntlet for a libertarian-conservative fusion in the 2010s has emerged from an author linked to the same magazine as the progenitor of the original

fusionism of a half-century earlier. I only recently met Charlie Cooke—though we’ve exchanged many tweets—and never had the chance to meet Frank Meyer—though I’m heavily involved with the Federalist Society, which his son Eugene has long led—but I have no doubt that the two would get on swimmingly.

And it comes as no surprise that both cut their writing chops at *National Review*, which many assume is a stodgy journal of untraditionalist redoubt when in fact it has produced some of the most innovative reformist ideas in the conservative movement. Or, should I say, that it has featured ideas from the full range of center-right thought, along with various manifestations of entertainingly untraditional personal style.

But enough about *NR*, which is only relevant for having the good sense to employ someone keen on relaunching the noble quest for that elusive synthesis of conservatives and libertarians—the chimera best equipped to do battle with the New New Left.

Although the term Cooke settled on to describe this mythical beast’s resurrection is ungainly, it does have the virtue of quite literally putting into one word a concept that otherwise needs explanation to too many (“classical liberal”) or is exactly the same thing but two words (“libertarian conservative”). So fine, “conservatarian”—but why?

Well, as Cooke puts it, “both libertarianism and conservatism are seductive to the man who is motivated by a desire for ordered liberty.” Of course, these ideologies aren’t the same—and are often bitterly opposed—or else we wouldn’t need to “fuse” them. But they do both have weaknesses, especially in practice, and Cooke’s description of them is perhaps my favorite part of his whole project.

Libertarians’ blind spot is that they can become “unmoored from reality” and “behave like Jacobins,”

disrespectful of tradition, convinced that logic-on-paper can answer all the important questions about the human experience, dismissive of history and cultural norms, possessed of a purifying instinct, and all too ready to pull down institutions that they fail to recognize are vital to the integrity of the society in which they wish to operate.

Doesn’t that sound like a lot of the “liberty movement’s” social gatherings, associated blogs, and social media? Of course, conservatism is even worse,

relying as it does on the Burkean presumption that society is the way it is for a reason, it can refuse too steadfastly to adapt to emerging social and economic realities and it is apt to transmute solutions that were the utilitarian product of a particular time into articles of high principle.

All Republicans need to recapture the White House is to offer Reagan's tax cuts—but not his immigration policy—and send Henry Kissinger shuttling around the world to “Just Say No to Drugs” (or something like that). Add a dollop of wry observational humor to Cooke's political exegesis and you would have the beginnings of a book by Cato's H. L. Mencken Fellow, P. J. O'Rourke.

Indeed, much like the best satire, the heart of *The Conservatarian Manifesto* is an unflinching diagnosis of the practical problems with frenemy tribes. The appeal of fusionism, then, is equally practical: conservatives ground libertarian flights of fancy (many institutions have value), while libertarians counter conservative endowment effects (some change is good).

But why should we care about these moderating functions? After all, libertarians and conservatives alike, whether activists, intellectuals, or “mere” citizens, identify with their ideology in the good-faith belief that it offers the best of all possible worlds. Why should anyone compromise that noble goal?

Well, to put it bluntly, the only reason to contemplate fusionism and take the time arguing over the recipe for the ideal conservatarian manifesto is to win elections and advance the ball against a common enemy. Because even libertarians who are uncomfortable being associated with “the Right”—what about social issues? and Bush's wars?—have to recognize that, in the Age of Obama, it's the Left that's the great enemy of freedom. For example, Nancy Pelosi and Elizabeth Warren threaten the liberties of gay people (and everyone else) much more than Rick Santorum and Michelle Bachmann. It's not like a president could issue an executive order criminalizing homosexual (or unmarried) cohabitation—or even sign a law to that effect that wouldn't be instantly struck down.

The key things that philosophically consistent conservatives and libertarians agree on are federalism, civil society, and the Constitution—and, not coincidentally, these are the subjects of Cooke's more philosophical chapters (before he gets into discussions of particular policy areas). Government needs to be as close to the

people as possible to allow different visions of the good life to flourish—and the Constitution sets out a governing structure based on those exact premises.

That's why it's so easy for the mainstream media to paint conservatives and libertarians as the same: on economic/regulatory policy, as well as such things as the right to bear arms for self-defense, there isn't much daylight there. And even so-called law-and-order conservatives have begun to recognize that overcriminalization has led to policing practices that are both abusive and counterproductive. Cooke also puts ending the drug war in his conservatarian agenda—though that's a tougher sell, at least at the state level, for the conservative reader.

But recall what William F. Buckley—who set the *NR* line on this issue early on—said in a debate with Jesse Jackson: not everything that's legal is honorable. Or, to take the inverse: we shouldn't prohibit everything we don't like.

And that's where we come to “social issues” (which the author also puts in quotation marks). Here Cooke wisely separates abortion and same-sex marriage. On abortion, public opinion has rejected the extremes (always/never) but has generally moved toward the pro-life side—perhaps because technological advances allow us to save more premature babies and see life in the womb. On gay marriage, there is no third party whose rights at some point—birth? conception? second trimester? ensoulment? quickening?—conflict with those of consenting adults, so the argument resisting gay marriage ultimately rests on amorphous societal effects.

Cooke, who personally favors gay marriage, counsels conservatives to recognize that the battle “has been lost, and that it has been lost badly,” but that they should be pragmatic so that the retreat becomes Dunkirk rather than the Alamo. In other words, conservatives should band together with libertarians so social reform is “placed in its proper legal and philosophical context and that the more excitable advocates of change are not permitted to sacrifice deeply entrenched American principles in the excitement of their moment.”

I quite agree (and I agree with Cooke's notion that the Constitution doesn't contain a right to marriage, except that it does require equal eligibility for *state marriage licenses*). The resistance of progressives in the marriage-equality movement to carve-outs for religious liberty, and their desire to ostracize anyone holding

“incorrect” views, is both disappointing and dangerous. Even before Justice Anthony Kennedy wrote his long-expected majority opinion in the marriage cases this past June, conservatives needed a response aside from screaming “judicial activism.”

On foreign policy too it really shouldn't be too hard to be conservatarian. For one thing, there's nothing particularly ideological about foreign policy in the conventional sense: both progressives and conservatives can be realist or idealist, and classical liberal first principles are often not very helpful. In other words, should the United States deal with enemy country X by bombing it, invading it, trading with it, not trading with it, engaging in secret talks, making speeches at the UN, or anything else? The answer is simply that it depends on the circumstances.

Now, good conservatarians should certainly be on board with the idea that strategy and mission should dictate budgets and tactics—Republicans lose credibility when they blindly call for more Pentagon funding—but the key is *prudence*. Reagan used force only three times (Beirut, Grenada, Libya) and yet he's thought of as bellicose, while there seems to be no rhyme or reason to peacenik Obama's periodic force insertions.

I could go on in discussing the tensions inherent to any fusionist project, or the areas in which I disagree with the author here—which include immigration policy and the scope of judicial review—but you get the idea and should read the book to make up your own mind.

At base, if we're to change the climate of ideas and ultimately secure, protect, and expand liberty, then political coalitions are inescapable, as is the understanding that *old* political coalitions won't cut it. Just ask the Tammany Hallers or the Silent Majority—along with John McCain and Mitt Romney, who would've been elected president had they been facing a 1980s electorate.

Not everyone associated with Cato or reading the *Cato Journal* will agree with Cooke's thesis or my delineation of the policy dynamics at play. But that's okay, because the liberty movement itself needs all kinds to be successful.

Ilya Shapiro
Cato Institute

Cato Institute

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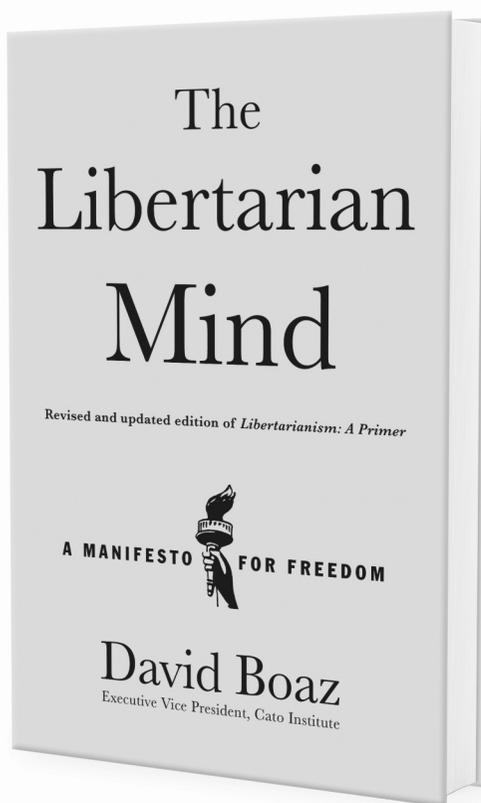


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HOW DODD-FRANK IMPERILS FREEDOM

To limit abuse by the rulers, ancient Rome wrote down the law and permitted citizens to read it. Under Dodd-Frank, regulatory authority is now so broad and so vague that this practice is no longer followed in America. The rules are now whatever regulators say they are.

Most criticism of Dodd-Frank focuses on its massive regulatory burden, but its most costly and dangerous effects are the uncertainty and arbitrary power it has created by the destruction of the rule of law. This shackles economic growth but more important, it imperils our freedom.

—Phil Gramm

“Dodd-Frank’s Nasty Double Whammy,” *Wall Street Journal*,
July 24, 2015.